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PROGRAMME FOR CENTRAL AND EASTERN EUROPE, CAUCASUS AND CENTRAL ASIA**

Financing Water Services and the Social Implications of Tariff Reform

**Financing water supply and sanitation in EECCA
Conference of EECCA Ministers of Economy/Finance, Environment and Water and their partners from
the OECD**

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TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 3

 Major prerequisites..... 3

 User charges are the main source of finance and should be managed as a policy instrument 4

 Public finance, including central budgets, will continue to play a crucial part in financing water systems in EECCA..... 4

 External finance – a minor source of finance, with important catalytic effects 5

 Local debt – a complementary financial instrument 6

2. EXISTING FINANCING SITUATION IN THE EECCA WATER SECTOR 7

3. POLICY OPTIONS TO CLOSE THE FINANCING GAP..... 12

 Saving costs..... 12

 Increased supply of finance: user charges..... 14

 Increasing the supply of finance: the part of central budgets..... 20

 Increasing the supply of finance: official development assistance (ODA) and other sources 27

4. LOCAL DEBT AS THE ADDITIONAL COMPONENT OF FINANCIAL STRATEGIES 30

 Local debt as a needed financial instrument in EECCA 30

 Support to the supply of finance 32

 The broader context of public finance..... 34

ANNEX 1: TABLE OF EBRD MUNICIPAL WATER PROJECTS IN EECCA 36

ANNEX 2: INSTITUTIONAL DEVOLUTION OF WATER IN EECCA..... 37

ANNEX 3: ENVIRONMENTAL FINANCING STRATEGIES AND THE FEASIBLE MODEL..... 38

 The Concept 38

 Application..... 39

 Implementation to Date..... 41

 The FEASIBLE Model..... 43

1. EXECUTIVE SUMMARY

The water supply and sanitation (WSS) sector in EECCA is chronically under funded and as a result has been deteriorating for more than 20 years. If this trend is to be reversed, and the internationally-agreed targets for water supply and sanitation (Millennium Development Goal 7 target 10) achieved, appropriate policy and institutional reforms will have to be put in place to ensure the financial sustainability of the sector. Recent up-turn in GDP growth and household income in most EECCA countries provides a more favourable context, than at the time since the Almaty Meeting in 2000, to undertake such measures.

Between 50 and 90 per cent of water utility revenue is currently generated by user charges; the remainder mostly comes from public budgets. However, these funds are insufficient even to cover operational costs, let alone maintenance and capital costs. In many countries utility revenue covers only about 60 per cent of operation costs. Between USD 15 to 34 per capita per year of additional finance would be needed if present infrastructure were to be properly maintained and renewed, where this is necessary. To achieve the Millennium Development Goals (MDG) on water supply and sanitation, it has been estimated that a total of about EUR seven billion would be needed annually *i.e.* roughly double the current level of finance. Given this financial shortfall, most utilities in the region have had to decrease the levels of service that they provide in order to save on costly inputs such as electricity and chemical reagents for water treatment. In addition, utilities have been unable to carry out basic maintenance, further accelerating the deterioration of infrastructure. This has significant negative impacts on public health and the environment, as well as for economic development.

To reverse these trends, a number of prerequisites have to be met before a series of reforms can be successfully implemented. EECCA countries will have to improve the operational efficiency of water utilities, thereby reducing operational costs, combine all sources of finance to enhance synergies, avoid crowding out other sources of finance, and maximise leverage on total flows. A number of case studies in the region have shown that this is possible.

Major prerequisites

The scale of financing required would be significantly reduced if the operational efficiency of water utilities were improved. To save on costs, the problems of oversized infrastructures, energy intensive equipment, water leaks, and unaccounted-for water should be addressed. In many utilities, electricity costs account for 50 per cent or more of production costs (where all consumables account for less than 30 per cent of the operation costs of WSS services in France). Unaccounted-for water can be as high as 70 per cent, while international best practice suggests that it should not exceed 10 to 20 per cent.

In addition, municipalities should choose the level of service and the related technologies in accordance with the financial resources available to cover the costs. Politically difficult choices might be required to adapt service levels to available finance. For instance, a study in Georgia showed that achieving improved water services, and extending such services to achieve the Millennium Development Goals, would only be affordable if a significant share of the population was served through stand pipes rather than in-house connections.

Central governments can provide useful incentives, by developing national or regional financial strategies. All financial decisions, including investment choices and maintenance operations, should be based on medium-term financial plans, in line with water policy priorities set by competent jurisdictions. Such plans should be incorporated into wider, binding budgetary processes, such as medium-term expenditure programmes, at both national and local levels. To induce such behaviour, central governments should allocate their financial contributions to projects and municipalities that have adopted such financial frameworks.

User charges are the main source of finance and should be managed as a policy instrument

User charges are, and will remain, the most important source of finance. A number of EECCA countries could still significantly increase user charges before reaching affordability limits. Sound tariff-setting rules and mechanisms should be established to promote more efficient use of water resources and to ensure transparency and predictability. Tariff levels should be economically and socially justifiable, and prevent any abuse of the monopoly position that utilities generally enjoy.

There are legitimate affordability concerns: social assessments in a number of EECCA countries show that as much as 50 per cent of the population may in some cases exceed the four per cent income threshold that is often used as a “rule-of-thumb” to determine the maximum acceptable level of spending on water; the poorest 20 per cent of the population may sometimes have to spend close to 10 per cent of their income. This issue should be addressed directly and not used to keep tariffs at levels that undermine the financial sustainability of utilities. So, on the one hand, tariffs should be set at a level that is economically justified - requiring municipal budgets to cover the difference between cost recovery and actual tariff levels has proven to be an effective incentive. On the other hand, adequate social protection mechanisms should be introduced in EECCA, in conjunction with reforming tariff systems.

Many countries have such mechanisms in place, either in the form of income support or through cross-subsidised tariffs. However, for the former, targeting could be improved by enhancing the procedures for determining and verifying household incomes, and by linking benefits more closely with real needs. If this is done, social protection measures can be an effective way to overcome social resistance to increased user charges, and help to generate significant additional revenue for water utilities.

Increasing block tariffs (where water tariffs increase step-wise as consumption levels increase, with a first subsidised block), now widely used in many OECD countries, is a powerful alternative. However, it requires that connections are metered, and therefore is not usually yet an option in most EECCA countries. This option could be considered in Armenia where a programme for addressing payment arrears has resulted in the share of metered connections in Yerevan reaching 80 per cent.

Public finance, including central budgets, will continue to play a crucial part in financing water systems in EECCA

Public budgets are the second largest source of finance for the water sector; their share can amount to 50 per cent in some countries or regions. Simulations using FEASIBLE¹ show that to improve and extend water services, including the achievement of the Millennium Development Goals on water supply and sanitation, the magnitude of public finance spent on water-related investment will have to increase substantially. A recent study in Georgia suggests public finance would need to double to achieve the MDGs in urban areas.

¹ FEASIBLE is a tool jointly developed by the Danish Government and the OECD to support the development and implementation of financial strategies for the water sector.

In a decentralised sector, municipalities, which usually own the assets, do not have the financial means to support these efforts themselves. In the OECD and many EECCA countries, a significant share (about 25 per cent in OECD and up to 50 per cent in EECCA) of local government budgets are provided through fiscal transfers from central budgets. Thus the question arises as to how such transfers should be best devised, in order to meet the requirements of the water sector. Experience gained in the OECD and in CEE countries shows that two important criteria should be taken into account when organising these transfers.

First, intergovernmental transfers should generate stable revenues, which can be incorporated in the medium-term financial strategies of municipalities. Schemes in use in some countries, that allow for extensive revision of the amounts to be transferred, generate uncertainties in sub-sovereign governments' revenues, and run counter to the needs of a sector that is capital intensive and involves long-living assets.

Second, the procedure should be designed in accordance with one of two objectives:

- Either to ensure that national targets are reached, *e.g.* to ensure the efficiency of WSS operations, or to support the implementation of environmental or other standards. Funds can then be transferred on a non-permanent basis, as transfers should be stopped once the target is achieved. Earmarking can be an option, as it facilitates monitoring of the allocation of the funds;
- Or to allow municipalities to allocate funds according to their own priorities. This option is economically justified, as soon as local governments can establish that they have the capacity to elaborate sound and realistic plans, to implement them, and to be fully accountable for their implementation. Under such circumstances, general purpose grants have proved to be the most flexible and efficient means of transfer, as in the case of the "Sub-National Governments Financial Support Fund" in the Russian Federation.

When designed according to these criteria, intergovernmental transfers create incentives for improved financial sustainability and creditworthiness of local jurisdictions, thereby eventually helping to decrease demands on central budgets.

In addition, environmental administration and local governments should allocate their budget resources in a way to leverage other sources of finance. All things being equal, the aim should be to minimise the contribution of public financial resources and to maximise the contributions of alternative sources of finance. Public funds should not crowd out private financing for projects that are commercially viable. Where possible, public finance, including international financial institutions (IFI) loans, should be channelled through (or complemented by) commercial banks in order to build capacity to support investments in water supply and sanitation.

External finance – a minor source of finance, with important catalytic effects

Official development assistance (ODA) is another potential source of finance for the EECCA water sector, albeit a much smaller one. Flows of ODA into the EECCA water sector have been at persistently low levels since the beginning of the 1990s (EUR 50-100 million per year). International commitments taken within the framework of the Millennium Declaration and the "Monterrey Consensus" may ultimately lead to an increased availability of ODA funds for the EECCA region. Indeed, overall levels of ODA have globally increased in the last two years, though it is not yet clear what this means for the water sector in general nor for the water sector in EECCA in particular.

Financial flows from IFIs into the EECCA water sector have also represented a small share of financial flows in recent years, often concentrated in the largest cities. However, IFI projects are widely

recognised as having particularly positive effects because of the demonstration of their experience, and also the catalytic effects that they often generate. Many of the obstacles lie in the unwillingness and/or inability of EECCA countries to take on external debt.

A key challenge is how to scale up and disseminate the positive experiences from donor and IFI experience. Improved coordination among donors and IFIs could help to avoid overlaps and competition. A focus on priority issues integrated into comprehensive strategies, and the systematic development of local capacity to prepare and implement projects would further increase the leverage of these resources.

As explained in another background paper (see ENV/EPOC/EAP/MIN(2005)5), the private sector is unlikely to be a major source of finance in the foreseeable future.

Local debt – a complementary financial instrument

Debt is a means to manage cash flow problems linked to the magnitude of up-front investment costs. However, it is not an additional source of funding: the capital and interest payments associated with debt have to be repaid through user charges, local, and/or central public budgets. Debt from IFIs can be attractive in terms of interest rates and repayment periods, but currency risks can be significant. In most market-based countries, local debt, consisting of municipal bonds and loans from commercial banks, is a normal component of financing strategies for WSS. Properly managed, this allows access to private savings and puts less strain on public budgets, at both central and local levels. In the CEE and OECD, debt contributes a significant share of capital expenditure. The average level of debt of local authorities in CEE amounted to 1.5 per cent of GDP in 2001; it was 5.6 per cent in the EU.

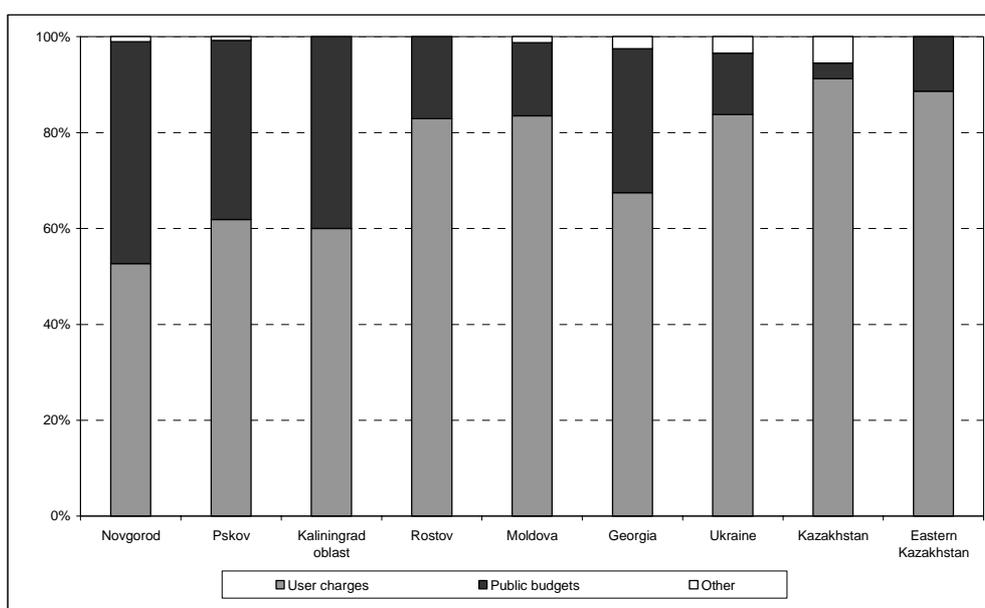
In most EECCA countries, the role of local capital and financial markets is something for the future. However, the dynamics of decentralisation, strengthened capacities at the local level and improved general economic conditions have recently revived the interest of using local debt as an instrument to finance investments for WSS in some countries. The Ukraine has specifically identified the sub-national credit market as an instrument to support urban environmental infrastructure financing (including WSS). Other countries where such markets have serious development potential are Russia and Kazakhstan.

2. EXISTING FINANCING SITUATION IN THE EECCA WATER SECTOR

In EECCA, user charges are the most important source of finance for water supply and sanitation infrastructure. They account for about 50 per cent in Novgorod, Russia, and for more than 90 per cent in Kazakhstan (Figure 1). The remaining funds for water utilities come mostly from public budgets. The share of other resources such as bank credits, bonds, environmental funds, foreign grants, and loans is marginal compared to user charges and public funds.

This situation reflects the degree of reforms in the water and wastewater sector - in particular, the extent to which cost recovery policies have been implemented. It also shows poor access to debt financing of water and wastewater infrastructure.

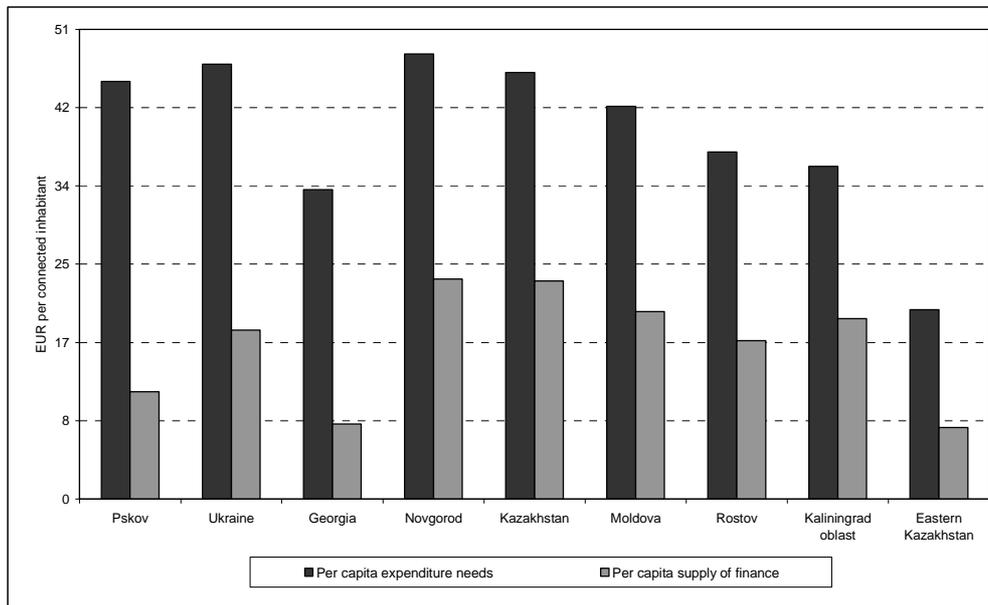
Figure 1: Existing sources of financing water and wastewater utilities



Source: (2003), "Financing strategies for water and environmental infrastructure", OECD, Paris.

The environmental financing strategies (EFS) that have been carried out in a number of EECCA countries and regions have tended to show that available finance is usually insufficient to cover financial needs. In Figure 1 below, the expenditure and supply of finance are compared. The expenditure need was estimated in a baseline scenario, where money is spent (in operation, maintenance, and investment) so that the value of the existing assets remains constant.

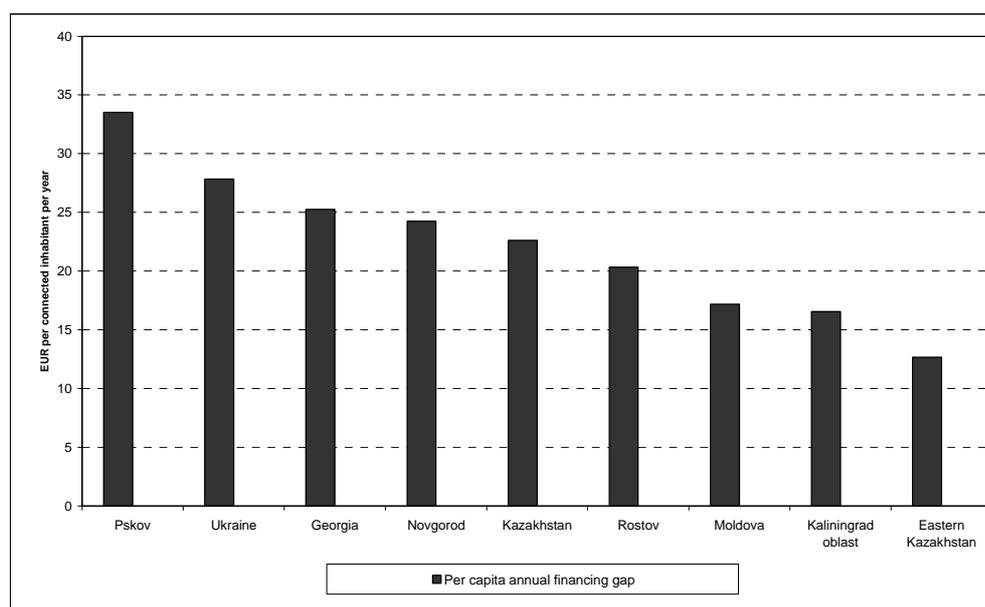
Figure 2: Expenditure need and supply of finance in EUR per connected inhabitant, in the first year of the baseline scenario



Source: FEASIBLE, except Kaliningrad oblast for which individual model calculations are presented.

In all countries, a significant financing gap was estimated even if no extension of infrastructure is envisaged. Only around half of the necessary funds are currently available. In per capita terms the estimated annual additional funding requirements varies among countries and regions, from EUR 34 in Pskov to around EUR 15 in eastern Kazakhstan (Figure 3). It is also noticeable that there is significant variation within the countries. This is demonstrated by the comparison of the individual regions in Russia and by comparing the overall estimations for Kazakhstan with the assessment for the eastern Kazakhstan region.

Figure3: Financing gap per connected inhabitant on an annual basis (EUR), in the first year of the baseline scenario



Source: FEASIBLE, except Kaliningrad oblast for which individual model calculations are presented.

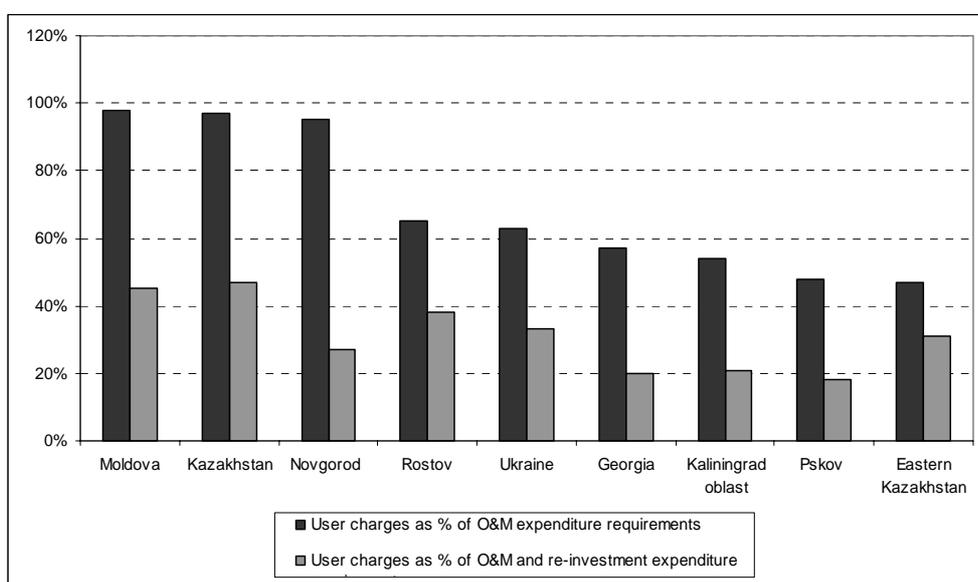
Such a financing gap is consequential as it results in a general deterioration of the infrastructure and service levels, and in allocation of finance to urgent repair, rather than on strategically designed investment plans. Capital investments have been rare and mainly made in emergencies, reflecting the focus on breakdown maintenance (as opposed to preventive maintenance). Furthermore, they have not always been allocated strategically to improve the efficiency and sustainability of services. This situation feeds a vicious circle where the cost of inaction adds to the initial burden. A few large cities have, however, embarked on more strategic capital improvement programmes, usually with foreign assistance.

To bridge the financing gap, a significant increase in the supply of finance, in parallel to implementing cost reduction measures, is therefore needed. However, this involves significant burdens on some countries in EECCA. In order to fully cover the operation and maintenance costs of the currently operating urban water infrastructure alone, Moldova would, for example, need to spend 3.2 per cent of the current GDP, Georgia, 3.0 per cent, and Kazakhstan, 1.2 per cent per year. In all cases, this would imply doubling or tripling the current level of expenditure on the water sector. The cost burden on the economy appears heavy when compared with the estimates for the EU candidate countries in CEE. For example, it was estimated that Lithuania would have to spend from 1.0 per cent of the GDP in 2005 to 2.6 per cent of the forecasted GDP in 2020 to implement the entire body of environmental directives of the European Union (DANCEE, Anderson and Semeniene, 2001). These figures include annualised investment and O&M costs for all environmental directives including the drinking water and urban wastewater directives. A similar relative cost burden has been calculated for other accession countries, such as the Czech Republic (2.5 per cent to 3.7 per cent of GDP) and Poland (1.3 per cent to 3.7 per cent of GDP).

The additional payments for operations and basic maintenance would have to come from those financing sources that are available for such expenditures, *i.e.* practically only users and taxpayers (budgets). The users' charges in particular (as shown in Figure) have no realistic alternative as a source of covering regular operation and maintenance costs.

In Soviet times, water supply and sanitation services were subsidised in many ways – directly from the budgets and indirectly, *e.g.* by providing energy below cost price. Over the last decade, the user charges have not caught up with the rapid liberalisation of input prices (*e.g.* of electricity and chemicals), and they have not made up for budget expenditure cuts. In many cities, user charges do not even cover the cost of operating the remaining, partly functioning infrastructure. Among the countries and regions studied, only Moldova and Novgorod, on average, charge users almost full operating costs, but nowhere do collected user charges cover more than half the costs of both operating and maintaining existing assets (Figure 4). Some variation within countries is also present. While the average for Kazakhstan demonstrates that user charges cover close to all operating costs, in eastern Kazakhstan, they are only able to provide financing for half of the total operating and basic maintenance expenditure need.

Figure 4: Collected user charges as a percentage of expenditure needed, in the first year of the baseline scenario, to properly operate infrastructure (only what was in use) and maintain the present service level



Source: FEASIBLE, except Kaliningrad oblast for which individual model calculations are presented.

While finding the necessary additional resources to provide adequate financing to the water supply and sanitation sector is clearly going to be challenging, it should be noted that the general economic recovery that has been taking place in the EECCA region in recent years, and the strengthening of public and household budgets that it has induced, should help to make that task easier. For instance, household income has been increasing by 10 to 30 per cent in the region over the last four years, which is helping to increase willingness-to-pay as well as affordability levels (Table 1). Household income grew by up to 30 per cent between 1999 and 2002, and this trend has probably continued in the following years as well.

Table 1. Trends in GDP and household income in EECCA

	Gross domestic product,		Household
	Real growth, % over the		income
	period		Index 1999=100
	1997-2000	2001-2004	2002 ^a
Armenia	17.5	29.6	113.2
Azerbaijan	29.2	25.3	101.2
Belarus	18.6	19.6	130.1
Georgia	8.0	21.4	..
Kazakhstan	10.7	23.8	..
Kyrgyz Republic	11.6	11.7	104.8
Moldova	-7.8	18.4	..
Russian Federation	10.8	17.0	114.1
Tajikistan	19.0	24.8	112.7
Turkmenistan	47.3	33.6	..
Ukraine	3.6	22.6	129.7
Uzbekistan	9.3	11.6	110.7

a) Data for the Ukraine and Uzbekistan refer to 2001.

Source: IMF, Interstate Statistical Committee of the CIS.

However, there are also limitations. Clearly, in EECCA, the water supply and sanitation sector is not the only public services sector in urgent need of rehabilitation. Several infrastructure and social services sectors are competing for scarce resources both from public budgets and from households. The European Bank for Reconstruction and Development (EBRD) estimates that the proportion of household income spent on electricity in low-income households in EECCA would need to increase from the current five per cent to 11 per cent, if electricity tariffs were to reach full-cost recovery levels.² Mitigating the social effects of these reforms would put additional pressure on public budgets. It is therefore not sure that the share of household and public budgets that is able, financially, to be spent on water will increase significantly, even if growth of GDP is sustained.

Another limitation relates to the limited fiscal resources in many EECCA countries. In fact a number of poor EECCA countries face unsustainable public debt levels, given their current primary budget balance and prospective aid flows. As a consequence there are now several cases where planned IFI projects in the water supply and sanitation sector have been put on hold, due to the unavailability of sovereign guarantees. Hence, even when economically sound projects are available, debt to cover the high up-front investments that are necessary is not always accessible.

² EBRD (2004), "Transition report 2004 – Infrastructure", London.

3. POLICY OPTIONS TO CLOSE THE FINANCING GAP

Given this situation, governments in EECCA have to select realistic objectives for the rehabilitation of the WSS sector, checked against available resources. Just maintaining the present, very low level of water and wastewater services would require concerted efforts. Country case studies have shown that, in general, selected additional objectives can be met, in particular in the perspective of the Millennium Development Goals, if investments are strategically planned and resources allocated wisely.

There are essentially three options for closing the existing financing gap:

- Cost savings through efficiency improvements. Operation and maintenance costs are inflated by the current high energy consumption, large water losses in the distribution network of water utilities, and oversized infrastructures. There is room for substantial cost savings. Utilities therefore need to target scarce maintenance and re-investment funds to achieve such cost savings;
- Cost savings by adapting service levels. Technological choices, in particular in the context of network rehabilitation and extension, have to be backed by realistic assumptions on the sustainability of the operation of these technologies;
- Increased supply of finance, including user charges, public budgets and ODA. Debt should also be considered here, although it does not provide additional resources as debt has to be paid back, but it generates room for manoeuvre in financing investments.

In addition to these measures, it is crucial that existing resources are used in the most effective way, which in the past has not always been the case. EECCA governments need to develop realistic (*i.e.* affordable) infrastructure development targets and identify the projects that allow the reaching of these targets in the most cost effective way.

The sequence of project implementation matters as well, as some projects may generate additional resources, or cut excessive costs. This is the case when projects directly improve the quality of the service provided to the population, so as to increase households' willingness to pay for that service.

Various tools to support decision-making on these issues exist. One of them is FEASIBLE, which has been developed jointly by the Government of Denmark and the OECD. FEASIBLE helps policy makers to develop financing strategies for the water supply and sanitation sector. It provides a methodological framework for medium to long-term strategic balancing of environmental and infrastructure service targets with available financing. A detailed description of FEASIBLE is provided in Annex 3.

Saving costs

Through efficiency improvements

The operational efficiency of EECCA water utilities is frequently low compared to international benchmarks. For instance, leakage, which in well-run water utilities in the OECD is usually in the range of 10-20 per cent of water production, frequently exceeds 40 per cent, and sometimes reaches 70 per cent in EECCA utilities. This means that significantly more water needs to be produced and transported than

finally reaches the consumer, therefore having a negative impact on investment and production costs: infrastructure is oversized and operating costs, both in absolute terms and per unit of water sold, rise.

Similarly, electricity consumption per unit of water produced is often well in excess of OECD standards and represents a significant share of production costs (in some cases as much as 50-70 per cent of total production costs). This situation is due to the poor efficiency of the water pumps that are being used in EECCA water utilities, as well as the poor design of water systems, which were designed during Soviet times when electricity was virtually free.

In many cases the operational efficiency of water utilities can be significantly improved through low-cost investment measures. For instance, Yerevan Vodokanal achieved a 50 per cent reduction in electric energy consumption through a string of measures including the redesign of the distribution system and the shutdown of excess pumping stations. Therefore, much could be achieved if utilities had sufficient cash flow available to invest in such measures, as well as the incentives to improve their efficiency. In Yerevan Vodokanal, which involves a private operator in a management contract, performance targets linked to an incentive payment included the reduction of energy consumption and water leakage.

By adapting service levels

Cities in EECCA react to high operating costs and insufficient revenues by not operating the infrastructure or operating it unevenly. Water and wastewater services are often unreliable with frequent interruptions and low quality. In many cities, water is supplied only a few hours a day, and it is insufficiently treated. Most wastewater treatment plants are bypassed or provide only basic mechanical treatment, if any at all. This allows utilities to lower their operation costs to match available revenues by saving electricity for pumping and costly chemicals for water treatment.

The most serious consequences are caused by the chronic shortage of funds for proper maintenance of infrastructure, such as small repairs, replacement of worn-out parts, small capital repairs, and essential rehabilitation. This has initially implied a focus on breakdown maintenance (rather than preventive maintenance), and it has subsequently meant that the assets rapidly lose their economic value, physically fall apart and, finally, they get abandoned. In several cases, the infrastructure is so run down that there is a serious threat of complete collapse of the entire system if funds for maintenance and rehabilitation are not provided.

As service levels are already low in the vast majority of EECCA utilities, a further decrease of service levels is usually unrealistic, as well as being politically undesirable. This alternative may also be financially self-destructive: it would be difficult to mobilise public support for tariff increases and for major reforms, while service levels are being lowered in parallel.

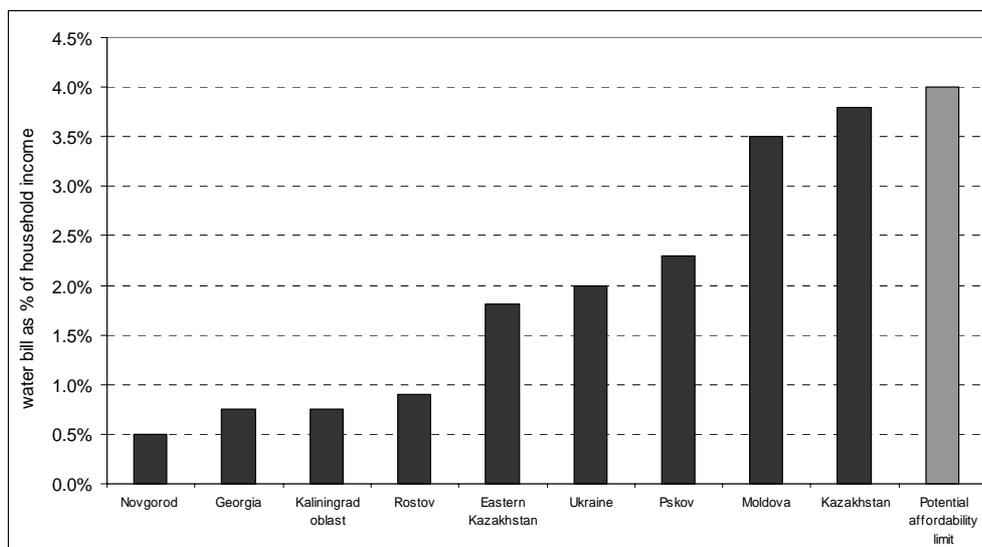
Nevertheless, EECCA countries should carefully consider alternative levels of service, and related technology choices when they develop financing strategies for the water sector. In a recent analysis of financial options for urban water supply and sanitation in Georgia, it was established that stand pipes would be the financially most realistic option for extending service coverage and resuming water supply to households that do not have access to this service anymore (because of the deterioration of the infrastructure). While this option is likely to be politically difficult to implement, it appeared to be the only affordable option for Georgia.³

³ OECD (2005), "Financing strategy for urban water supply and sanitation in Georgia", forthcoming.

Increased supply of finance: user charges

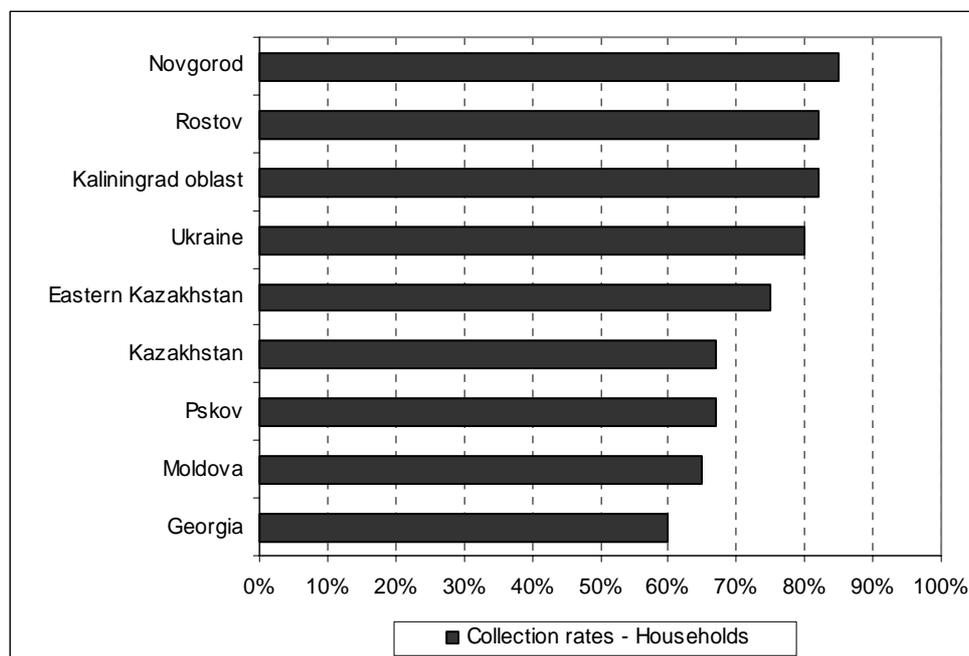
Simulations of various options to increase the supply of finance to cover the operation and maintenance gap have shown that user charges are the only realistic long-term source of finance for these expenditure categories. Most households seem to be able to pay more than they actually do. In several countries studied, the average charges paid for water and wastewater as a proportion of average household income (0.5-2.5 per cent) are well below international benchmarks for countries of similar income levels (typically 3-5 per cent). On the other hand, Kazakhstan (on the country level) and Moldova are recovering a much higher share of costs from households, with charges approaching the limits of what the households can probably afford (Figure 5).

Figure 5: Water bill as percentage of average household income



Source: Data collected within country and regional environmental financing strategies (EFS).

Another problem is the often low level of collection of user charges from households. In several countries, average collection rates are as low as 60-70 per cent of billed amounts. In Georgia the latest figures indicate that collection has fallen as low as 34 per cent for household customers. Strengthening of the payment discipline has been shown to generate substantial additional funding in itself (Figure 6).

Figure 6: Collection of user charges from households

Source: Data collected within country and regional environmental financing strategies (EFS).

Flat tariffs based on consumption norms are the primary tariff formula for consumers in most EECCA countries. Tariffs for the population are set for an undetermined period and can be changed at any time. This creates economic uncertainty for both utilities and consumers. At the same time, for political reasons, tariffs may remain unchanged for three years or more, despite inflation rising steeply. This has been one of the main causes of the poor financial condition of water utilities.

Since most countries have decentralised responsibility for water supply and sanitation infrastructure to the local level, municipalities have become the main regulator, including for tariff-setting. Despite the obvious lack of capacity at the local level to deal with these complex issues, only a few EECCA countries (even though the number is increasing) have developed tariff-setting rules to guide municipalities in their task. Spreading similar approaches to a greater number of countries will be an important prerequisite to using user charges more extensively to finance water services in EECCA.

Tariff-setting rules should provide for the transparency of the process of tariff-setting, ensure that the outcome of the process is sufficiently predictable (*i.e.* based on economic, not political considerations), as well as allowing for all relevant costs to be included, including regular adjustments for price inflation in main inputs (see Box 1 for an example). Clear institutional organisations facilitate such moves. In an attempt to obtain a five-year UAH⁴ 15 million loan to finance infrastructure investment in 2004, the city of Odessa has rearranged the institutions in charge of WSS. In particular, Odessa's mayor did not appoint the utility director, an unusual political distancing between municipality and water utility in Ukraine; subsequently, the utility has put in place a tariff programme that recovers operating costs as well as debt service and a return to capital.

⁴ Ukrainian hrivna

Box 1. Tariff-setting and affordability in Poznan, Poland

The tariff-setting mechanism in Poland has been established so as to minimise obstacles to raising tariffs for political reasons. Utilities are required to develop rolling, long-term development plans, which cover all aspects of their activities. Each year they must submit these plans, together with proposals for tariff adjustments, to the city council via the mayor, at least 70 days before any tariff adjustment is due to take effect. If the council accepts the utility's development plan, and if the mayor determines that the tariff adjustments have been established in accordance with national law and are necessary for achieving the planned results, then the tariff adjustments must be approved. If the council does not approve the proposed tariff adjustments within 45 days, they are approved automatically. If the council considers that there is an affordability problem, it may decide that the tariffs for all or some consumers should be increased by less than proposed. However, the resources to finance the subsidy to the designated consumers must be drawn from the city budget and transferred to the utility. More generally, support for poor households is provided through social services that are financed by the municipality. Recently the utility in Poznan set up a small fund to alleviate difficulties that poor families may encounter because of increased tariffs, which has helped support the political acceptability of tariff increases.

Source : Kayser, 2004

Probably the main obstacle to water pricing has been its perceived social impacts, and their political consequences. In OECD countries, taxpayers rather than consumers have financed the bulk of investments in water infrastructure. Although many OECD countries have achieved full cost recovery there are still some where user charges are below this level. Those countries that have reached full cost recovery have done it over several decades. Hence, full cost recovery is probably a distant objective for most EECCA countries. Nevertheless, there are opportunities to move progressively in this direction, while ensuring that poor and vulnerable groups have access to water services. Indeed, there is probably no alternative: governments in EECCA countries may not be able to afford to emulate the policies followed in OECD countries, where public finance (taxpayers) was the dominant source of finance.

Obstacles to this choice of direction are political opposition to raising tariffs, lack of capacity in municipalities for adequate financial planning and properly calculating tariffs accordingly, as well as potential social resistance. The latter in combination with the political consequences has probably been the main obstacle to water pricing.

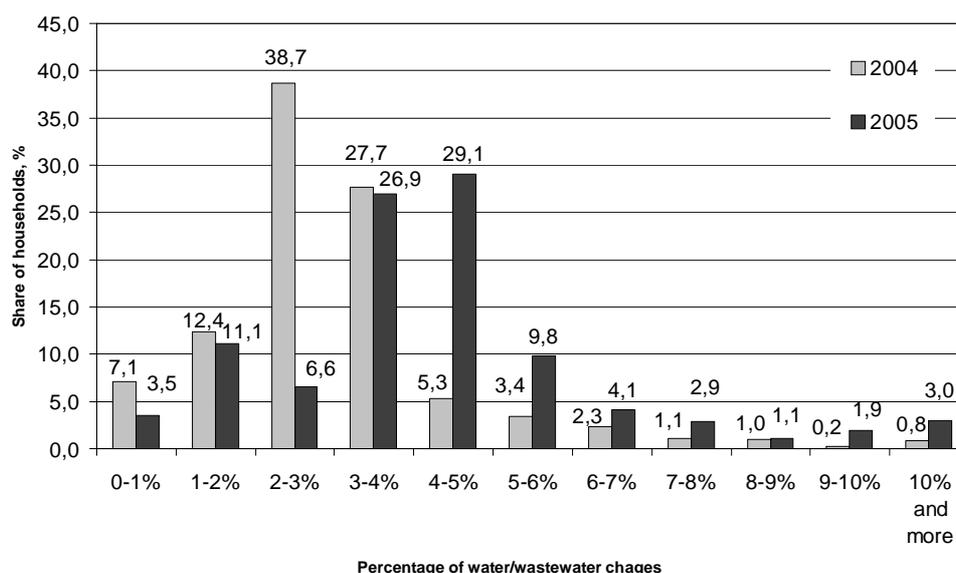
Water services often fail to reach the poor, who bear the main burden of inadequate access, service deficits, poor water quality, unreliable supplies, and unsanitary disposal of wastewater and solid waste. Subsidies are often justified in terms of keeping services affordable for poor households, but there is mounting evidence that they are often not well targeted and not very effective. Instead of benefiting the poor (who are frequently not connected to water distribution and sanitation networks), such subsidies often benefit richer people who are capable of paying the full costs of water services. The effectiveness of public spending on water infrastructure could be much increased if subsidies were restructured and better targeted.

Water charges are not a significant burden on most households in OECD countries; typically they account for less than one per cent of household income⁵. However, in EECCA countries they may represent a more significant portion of income. International financial institutions often use a benchmark of four to five per cent of household income for water tariffs when they plan water infrastructure investment projects. However, such estimates need to be complemented by more detailed analyses of how projected tariff levels would impact different income groups. For example, projected tariffs may be less than four per cent of average household income, but for the poorest 25 per cent of the population they might represent five to 20 per cent of income. It would not be feasible to introduce such a tariff policy unless measures were taken to mitigate the impact of the increased user charges on these groups.

⁵ OECD (2003), "Social issues in the provision and pricing of water services", Paris, OECD.

Social assessments of water sector reform policies in the city of Khmelnytsky, in the Ukraine have shown that if water tariffs were designed to recover operational costs, more than 40 per cent of the population would have to pay more than four per cent of their income for their water bill⁶. Similarly, in Yerevan, Armenia, the 20 per cent of the population with the lowest income would have to pay about eight per cent of their income if water prices were increased close to levels that allow the recovery of operational and maintenance costs, and almost half of the population would have to pay more than four per cent of their income (Figure 7).

Figure 7: Distribution of Yerevan households by expenses for water/wastewater services as a percentage of household consumer expenditures, 2004 and 2005 projections (Scenario 1)



Source: OECD/EAP Task Force (2004), "Consumer protection in urban water sector reforms in Armenia: ability to pay and social protection of low income households", Paris.

In OECD countries, a variety of approaches have been developed to mitigate or offset the impacts of tariff increases on the poorer sections of the community.

- **Income support.** Measures providing income support aim to compensate poor households for tariff increases that are judged to be unacceptably burdensome. The support may be directly linked to water use. For example, support may be provided if the water bill is above a certain percentage of household income, or may be calculated to maintain an absolute level of income after the utility bill is paid. It can be paid either directly by the government to the utility or through a voucher system. This type of support represents a financial burden on the state and reduces incentives to conserve water. Alternatively, the support may not be linked to water consumption, but to income levels. The people receiving the support can choose themselves how to spend it — on water or on other goods and services. In this way, the costs fall on the state budget rather than the utility. If combined with appropriate water charges, it does not encourage over-consumption of water;

⁶ OECD (2003), "Key issues and recommendations for consumer protection – Affordability, social protection, and public participation in urban water sector reform in Eastern Europe, Caucasus, and Central Asia", Paris.

- **Tariff-related measures.** The tariff structure can be designed in such a way as to mitigate the potentially adverse impacts of tariff increases on poor households. The approach used in an increasing number of OECD countries involves a “block-tariff” structure. In this approach, the price paid is linked to the amount of water consumed, and the charge levied for each unit or “block” of water used increases with the total amount used. The initial block may be free or charged at a very low rate, assuring that poor households have access to a basic level of water services for free or at low cost. The system needs to be designed to take account of the number of people in each household in order to avoid penalizing larger families. This system can move in the direction of full cost recovery by providing a cross-subsidy from households that use lots of water to those that use little water; it can be implemented by the utility and does not draw on the central government budget; it also provides a very strong incentive to conserve water, and targets those who use little water for the subsidies rather than all water users. However, the drawback is the need for metering of water use — which can involve high upfront costs and, sometimes, social opposition;
- **Facilitating payments.** In many countries, householders are not disconnected from the water supply system even if they are unable to afford their water bills. In part this is because water is essential for life and dignity, but also because of the high reconnection costs. In such cases, utilities in many OECD countries work with consumers to make them aware of how to reduce water consumption, to manage their budgets by paying water bills at short intervals, and to provide other forms of advice and assistance to ensure that consumers have access to water services but pay their bills.

In EECCA the most widespread approaches to providing social protection to the poor are: (i) through the provision of reduced tariffs for so-called “privileged” consumers (*e.g.* war invalids and handicapped, police, judges, and firemen) (a tariff-related measure); or (ii) the provision of housing subsidies (income support).

While there are poor people among the recipients of privileges, these programmes do not specifically target them, and often are not justified economically and socially. But there is significant political and social resistance to removing them, even if public budgets find it increasingly difficult to finance such programmes. So far, only a few countries (Armenia, Kazakhstan, and Moldova) have undertaken radical steps to eliminate and transform the system of privileges, first of all occupational privileges. In other countries (*e.g.* the Russian Federation), reforms have been targeted at monetising these subsidies in order to reduce incentives for over-consumption and to include these subsidies in existing income support mechanisms.⁷

Several EECCA governments have introduced targeted income support subsidies for the poor. Armenia, Belarus, Kazakhstan, Kyrgyz Republic, Russia, and the Ukraine have established programmes of housing subsidies. Under these programmes, the central government provides compensation for housing and communal services (including water) when expenses exceed a certain level of total household income (*e.g.* households should not pay more than 20 per cent of their income in the Ukraine, 22 per cent in Russia, and 30 per cent in Kazakhstan). In 2001, in the Ukraine 11 per cent of households received the housing subsidy in summer and 17 per cent in winter - 100 USD per year on average. For single pensioners, this subsidy represented on average 49.2 per cent of their pension.

⁷ It should be noted, that in some cases there may be a rationale for continuing to operate the “privilege system” for certain categories of the population. Where a certain social or professional category provides a good proxy for targeting the poor, using the privilege system may be preferable to more sophisticated, and hence costly to administer, means testing approaches. This needs to be assessed on a case by case basis.

A key problem of income support measures is the targeting of these measures. In Armenia, the national family support programme, which provides means tested income support to poor families through a scoring system, the targeting was identified to be very unsatisfactory. All income groups receive some level of income support, ranging from 13 per cent in the lowest income group to 6 per cent in the highest income group (Table 2). It is obvious that unless targeting is improved, the family support programme will be largely ineffective in protecting the poor from losing access to water.

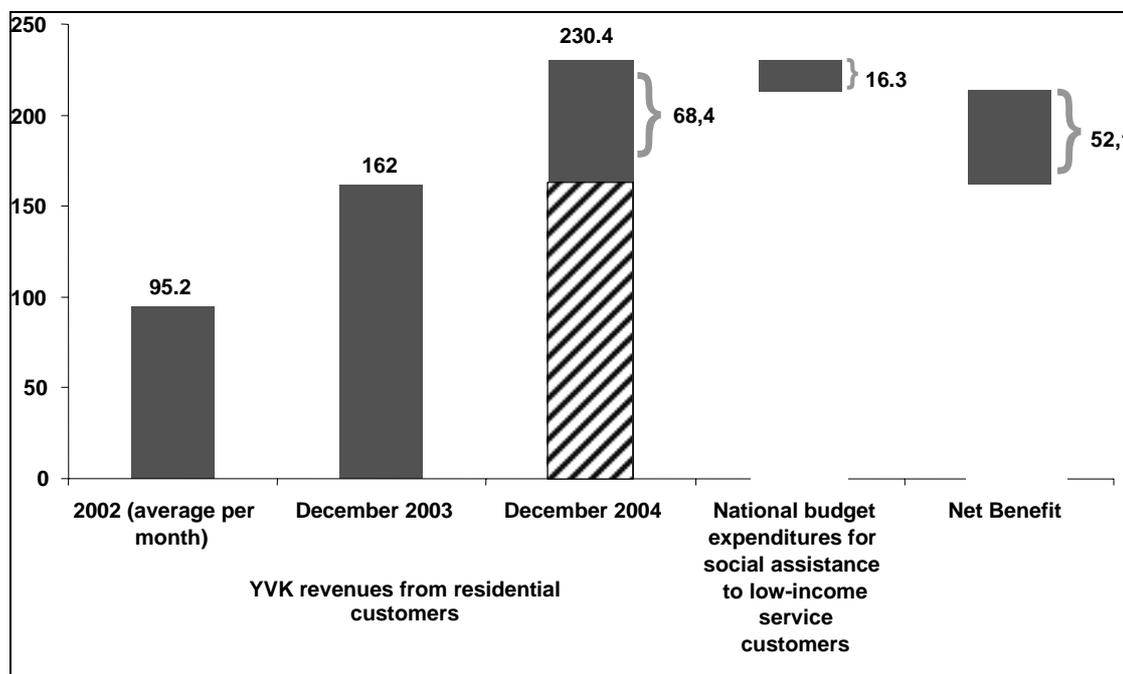
Table 2. Distribution of family poverty benefit recipients over income deciles, Armenia

<i>Indicators</i>	<i>Decile groups by average per capita consumer expenditures</i>										<i>Total</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	
Households receiving family benefits	79	75	79	66	65	48	53	53	42	35	595
Share of family benefit recipients in decile, % of total recipients	13.3	12.6	13.3	11.1	10.9	8.1	8.9	8.9	7.1	5.8	100.0
Share of the amount of benefits in decile, % of total amount of benefits	15.2	13.3	14.3	11.5	9.7	7.9	9.2	8.3	5.8	4.9	100.0

Source: National Statistics Service of the Republic of Armenia.

Housing subsidies, covering communal services including water supply and sanitation and provided as a form of means-tested income support, allow for significant savings for public budgets; they help channel support to those most in need, while ensuring revenue for utilities, including from the poor. If one assumes that tariff increases will only find social acceptance if the poor are sufficiently protected, social protection can be seen as an instrument to generate additional utility revenue. An analysis carried out under a social assessment for the Armenian water sector shows that even in countries with widespread poverty (as mentioned earlier, under increased tariffs, more than 50 per cent of the population would need financial assistance to pay for the cost of water), one dollar invested into social protection can generate four dollars of additional revenue for water utilities (Figure 8).

Figure 8: Financial implications of a two-fold increase of water/wastewater tariff in Yerevan water utility from a social welfare perspective (AMD⁸ million, month)



Source: National Statistics Service of the Republic of Armenia.

Increasing the supply of finance: the part of central budgets

Figure 1 above has shown that public budgets remain the second major source of finance for WSS in EECCA, after user charges. Country case studies have confirmed that this will remain so in the foreseeable future. In a decentralised industry, one would expect that local budgets are the key players. The picture however is more blurred.

Indeed, although there is diversity in the institutional arrangements across EECCA countries (see annex 1), most EECCA countries have engaged in a systematic devolution of responsibilities for the construction and maintenance of urban environmental infrastructure to sub-sovereign levels of government. As owners of the communal service infrastructure, municipalities are responsible for its rehabilitation, modernisation, and development. Armenia and Tajikistan are notable exceptions.

The lack of financial autonomy of local jurisdictions

Devolution of responsibilities needs to be matched by ensuring access to the resources needed to implement the new mandates devolved to local and regional jurisdictions. Most EECCA municipalities do not have sufficient funds to carry-out these responsibilities. They are neither financially autonomous nor sustainable.

Municipalities can rely on three sorts of revenues to finance their obligations in WSS:

⁸ Armenian dram

- Revenues from user charges. The price people pay for water supply and sanitation services is a criterion that directly impacts on the creditworthiness of local authorities. Indeed, financial institutions confirm that the general attitude of a municipality towards tariffs and their reform is the most important criterion to assess the reliability of the municipality to re-pay any debt that it incurs. However, very few countries have transferred the competency of tariff-setting to municipalities. Annex 1 shows that national institutions, such as Parliaments, Central Governments, or Anti-Monopoly Agencies intervene in tariff policies;
- Local taxes. Generally, in EECCA, there is only limited scope for fiscal autonomy. This is so because few fiscal instruments are available, because local jurisdictions have little discretion to manipulate them. In the case of Kazakhstan, local jurisdictions have no right to set tax rates or to determine the tax base, with the exception of the land tax. In addition, in EECCA, local tax payers (households and business firms) are unevenly scattered across the territory. The restrictions on the fiscal autonomy of local jurisdictions in EECCA result from the concern that exploiting the local tax base may conflict with national objectives and raise serious distributive concerns. This relates to the wider agenda of fiscal reform;
- Intergovernmental transfers. The table below shows that municipalities are still largely dependant on fiscal transfers from central or regional budgets. Table 3 confirms that, in many EECCA countries, central governments are liable to capital and operational subsidies to WSS. These average figures should be analysed with caution, as they mask in-country discrepancies:
 - Typically, the Russian Federation has a three-tier administrative structure: transfers go from the state to the regional budgets, and from the regional to the municipal budgets; transfers from state budget amount to some 16 per cent of the revenues of regions (subjects of the Federation), but local jurisdictions receive 43 per cent of their revenues from regional budgets;
 - In the Ukraine, the share of transfers in the revenues of local jurisdictions ranges from 27 to 79 per cent.

Table 3. Local Government Revenue: percentage share by categories

%	Taxes	Grants from general government units	Other revenues (international organisations, social contributions, others)
Armenia	29.8	41.1	29.1
Azerbaijan	41.6	50.4	8.0
Belarus	77.4	13.8	8.8
Georgia	83.8	14.5	1.7
Kazakhstan	72.8	26.0	1.2
Kyrgyz Republic	35.8	53.1	11.1
Moldova	57.7	29.8	12.5
Russian Federation	61.0	16.9	22.0
Tajikistan	71.5	24.5	4.0
Turkmenistan	na	na	na
Ukraine	62.4	29.5	8.1
Uzbekistan	na	na	na

Source : IMF, Government Finance Statistics, 2004

This financial situation is in line with international experience. In CEE countries, revenues of local governments depend to a large extent on transfers from central governments. Fiscal revenues of local governments in CEE (53 per cent of the total revenues of local governments) mainly stem from taxes which are shared with the central governments (income tax, VAT, essentially). Intergovernmental transfers account for a significant part of the revenues of local governments (25 per cent in CEE).

As a consequence of this situation, local jurisdictions in EECCA often have to coordinate their infrastructure development plans and capital expenditure budgets with national/regional plans and budgets. This makes the strategic planning and investments at local level dependant on the policies at the national/regional level, and generates a risk that local investment plans will not be implemented due to budgetary constraints. This is even more so when grants and transfers from central governments are not made according to procedures which meet the requirement of WSS.

Uncertain intergovernmental transfers

Intergovernmental transfers are means the central government can use to improve the performance and control of sub-national public expenditures, and to create incentives for better coherence between national and local public policies. EECCA countries mostly rely on such mechanisms to bridge the financial gap that arises between the costs of local policies and services and the revenues to which local authorities have access. Lessons learnt from accession countries confirm that, in the transition process, intergovernmental transfers are a key dimension of relations between levels of government and a major source of finance for local jurisdictions.

Intergovernmental transfers come in a variety of forms, with different types of conditions which respond to various policy objectives and institutional contexts. Two broad categories can be distinguished, as they have a different impact on sub-national fiscal autonomy and incentives:

- Block grants leave sub-national governments with discretion to organise local provision in the most effective way. They are often seen to be most appropriate for equity purposes, though earmarked grants often contain a redistributive element;
- Earmarked grants have been defended on the ground that they could serve to internalise externalities (e.g. directing spending on wastewater treatment in up-stream municipalities that pollute down-stream). They have been used extensively to minimise the risk of suboptimal spending in domains characterised by significant spill-over effects or to secure minimum standards for specific services. However, they may also generate excessive spending, accompanied by poor cost effectiveness; this is particularly the case when:
 - co financing rates are set above levels which effectively account for spill-over effects;
 - they provide strong incentives to spend in specific domains;
 - earmarked grants are set without reference to objective performance criteria, or when defining minimum spending levels to reach a given quality of public services is very difficult;
 - they are based on *ex post* actual costs, instead of *a priori* standard costs (as in the Czech Republic, or in Poland), dulling incentives to contain costs.

Given these problems, there has been a move in OECD countries towards general purpose (block) grants, which allow greater local autonomy and should, in principle, generate greater cost-efficiency.

The grant system has a number of roles to play, and its design is of paramount importance to avoid conflict between various objectives. The table below synthesises how grant design can match particular objectives. It is based on the lessons learnt from international experience.

Table 4. Principles and good practices in grant design.

Grant objective	Grant design	Practices to avoid
To bridge financial gap	Reassign responsibilities Tax abatement Tax base sharing	Deficit grants Tax by tax sharing
To reduce regional fiscal disparities	General non matching fiscal capacity equalisation transfers	General revenue sharing with multiple factors
To compensate for benefit spillovers	Open ended matching transfers with matching rate consistent with spill over of benefits	
Setting national minimum standards	Conditional non-matching block transfers with conditions on standards of service and access	Conditional transfers with conditions on spending alone Ad hoc grants
Influencing local priorities in areas of high national but low local priority	Open-ended matching transfers (with preferably matching rate to vary inversely with fiscal capacity)	Ad hoc grants
Stabilisation	Capital grants, provided maintenance is possible	Stabilisation grants with no future upkeep requirements

Source: Shah (1994, 2004)

In CEE, grants received from central governments are usually for general use, although this is not the case in the Czech Republic, Lithuania, and Latvia. In EECCA, each country has developed an array of instruments to transfer budgetary resources from central to local level (see box below).

Box 2. The variety of instruments for intergovernmental transfers in selected EECCA countries

In the Russian Federation, financial aid to sub-federal governments is divided into two types - ongoing operational support and capital investments - serving different purposes; financial support from federal government is provided in the form of grants⁹, subventions¹⁰, subsidies¹¹ and other non-repayable transfers plus budgetary loans.

In Armenia, inter-governmental transfers include equalizing grants, general purpose and block grants (conditional and non-conditional grants), and other transfers from other sources (other communities of the Armenian Republic, international organizations, self-government bodies of foreign countries).

In the Ukraine, the system of intergovernmental transfers includes equalization grants¹², subventions (intergovernmental transfers provided for a specific purpose, under a procedure stipulated by the body, which is responsible for the decision to provide the subventions), other grants.

Source: Country studies on intergovernmental transfers in selected EECCA countries, OECD, forthcoming

Differences exist in the magnitude and the respective weight of each instrument, and in the modalities of their implementation. Armenia is an extreme situation, where equalization grants amount to 91 per cent of the total transfers (2003 figure); at the same time, 94 per cent of resources transferred from central budget were used to cover current expenditures. In the Ukraine, general purpose grants represent some 55 per cent of the total transfers, whereas the share of subventions was below 45 per cent in 2004. In the Russian Federation, the weight of purpose-oriented transfers (subventions and subsidies) in the local revenue structure has increased notably over the 2002-2004 period, echoing favorable changes in the federal budget policy directed at reduction of unfunded federal mandates through allocation of earmarked transfers for carrying out delegated federal mandates.

Experience shows that, in the context of EECCA countries, general purpose transfers, typically in the form of equalization schemes, can have negative economic and financial consequences. In particular, they enable local budgets to increase their expenditures without raising additional tax revenues: local governments have no incentives to expand their own tax base and, consequently, to provide a favourable environment for the development of regional economy.

⁹ Grant –transfer of funds from a government of one level to a government of another level made in a non-repayable manner and on a grant basis (Russian Federation Budget Code, Article 6)

¹⁰ Subvention - transfer of funds from a one level of government to another level of government or a legal entity made in a non-repayable manner and on a grant basis to cover target-specific costs (Russian Federation Budget Code, Article 6)

¹¹ Subsidy - transfer of funds from a one level of government to another level of government or a natural or legal entity subject to the *target cost sharing principle* (Russian Federation Budget Code, Article 6)

¹² Intergovernmental transfers provided for the purpose of equalizing revenue capacity of local budgets; these can be negative, when estimated revenues exceed estimated expenditures

Box 3. Some difficulties associated with general purpose transfers

In the Ukraine, a high degree of equalization of local budget expenditures has generated a decrease in tax collection rates in economically strong regions. The decrease of actual tax revenues gives these regions legitimate grounds to reduce the amount of funds transferred to the state budget or to receive equalization grants. This does not improve the economic situation of weaker regions either: their share in gross domestic product is decreasing.

In Kazakhstan, the mechanisms for inter-governmental budget regulation were reformed in 1999. Budget surpluses are deducted from the revenues of oblasts which perform well, and allocated in the form of subventions to oblasts which cannot cover their needs through legally assigned revenues. The calculation is based on a normative amount of expenditures, which is subtracted from the estimated revenues of the oblast. Unfortunately, revenues tend to be overestimated and expenditures underestimated; thus, the anticipated amount to be withdrawn is often inflated. Critics insist that the methodology neither draws on economically sound norms, nor stimulates efficient local spending. The sheer size of local transfers curtails incentives for local governments to enlarge budget revenues or increase collection of taxes or other payments. That this mechanism is not an incentive to perform well is confirmed by the fact that contributing and recipient oblasts are the same every year. Moreover, although based in principle on expenditure norms, this system is frequently adjusted and neither predictable nor transparent in its impact. The effect is to introduce a large element of uncertainty into the revenue side of municipal budgets.

Source: Country studies on intergovernmental transfers in selected EECCA countries, OECD, forthcoming

Recently, some EECCA countries have reformed the modalities of intergovernmental transfers to increase their efficiency. They have tried to improve the mechanisms of equalisation grants, and have introduced other means considered as incentives for better economic and budgetary performance. Such moves include:

- Use economic, demographic and geographic statistics (not tax revenue statistics) as the basis to estimate regional revenue capacities, expenditure liabilities, and need for equalizing transfers (the Russian Federation);
- Set priorities and stipulate the procedure for considering proposals made by the regions (see the procedure introduced in the Ukraine in 2005 to allocate funds “for socio-economic development of regions, prevention of breakdowns and man-made disasters in housing and utility sector and on other communal property assets and implementation of investment projects”);
- Allocate resources between regional governments on a competitive basis. In the Russian Federation, regional governments interested in receiving a subsidy from the Regional Finance Reform Fund (RFRF) had to file a Subsidy Application containing tabulated information on the basis of which their financial management capacities, programs of regional finance reform, and subsidy use plans were evaluated;
- Introduce transfer mechanisms to allocate finance directly to investment projects (see box below).

Box 4. Instances of transfer mechanisms directly targeting investment projects

In the Russian Federation, the Regional Development Fund allocates earmarked resources to support investments into regional infrastructure. It provides subsidies to regional governments to co-finance investments into regionally- or municipally-owned projects, based on a list of “federal targeted regional development programs”. The list has been revised in 2003 and now includes Leveling Out Differences in Social and Economic Development of Regions in the Russian Federation (2002-2010 and till 2015). Regional governments are invited to bid. The goal of such bidding is to select projects that particularly require governmental support, are well-designed, and can really help to reduce developmental differences between regions.

In the Ukraine, starting from 2003, local budgets receive subventions from the state budget to implement investment projects. The rationale is to solve socio-economic problems of regional development by financing investment projects on construction and modernization of production and non-production facilities, including in water supply and sanitation. A list of facilities is identified, based on the proposals of people’s deputies of Ukraine. Priority is given to local jurisdictions whose average annual expenditure for maintenance of public assets has been below a certain standard. Since 2004, these subventions are provided on the basis of co-financing from local budgets. These subventions constitute a small share of intergovernmental transfers (1.9 per cent in 2003, 2.9 per cent in 2004), of which some 10 per cent benefited projects in WSS.

Source: Country studies on intergovernmental transfers in selected EECCA countries, OECD, forthcoming

The development of earmarked funds, as is illustrated by the recent reforms of intergovernmental transfers in Ukraine and the Russian Federation, illustrates the concern by the central (or sub federal) institutions to control the allocation of finance to policies and projects which serve national policies. The key issue is to design financing schemes for sub-national governments so that they are responsive to local preferences without creating efficiency concerns and compromising distributional objectives nationwide.

Principles for intergovernmental transfers in EECCA

Country surveys in OECD and recent experience in EECCA confirm that the impact of intergovernmental grants on efficiency, fiscal discipline, and equity, largely depends on their design. The design varies significantly from one country to another, and it should take into account at the same time policy objectives and the features of the institutional context.

Although WSS is not the only concern which presides over the design of these mechanisms, it is directly impacted by them. Considering the situation of the WSS in EECCA, intergovernmental transfer mechanisms should be compatible with the following objectives:

- Channel sufficient volumes of finance to local jurisdictions. In the context of EECCA, national public funding is expected to remain a major source of finance for the water and sanitation sector for the foreseeable future, especially for capital expenditure. This is even more so in the context of the MDGs which requires investment which cannot be financed exclusively from user charges or other sources of finance. Alternative modes of transferring central credits can be organised. For instance, in the Ukraine and Kazakhstan, central budget funds have been set in place to subsidise investment at the local level, with the objective of providing utilities and municipalities with financial support for investment, for the prevention of accidents, or to improve the efficiency of water systems. However, in both countries, the funds constitute a very small proportion of the investment needed;
- Generate stable revenues flows, which can be incorporated into comprehensive financial strategies. This requirement is even more crucial when local jurisdictions intend to incur debt, as their creditworthiness depends partly on their capacity to generate stable revenue flows (see the next section). Similarly, central governments should make efforts to honour their financial commitments vis-à-vis utilities, most notably by resuming payments of compensation for social

services provided through utilities (such as privileges that involve reduced tariffs for certain categories of the population).

- Make sure that the money will not be diverted from the initial projects, while respecting the autonomy of the local governments to allocate resources to priority investments in the WSS. A balance has to be managed, to pay due respect to the capacity of local governments to select priorities and adapt to local situations, and the need to make sure that the money transferred contributes to policies which were agreed at the national level. In a context where priorities are unstable, and where corruption cannot be ignored, this requirement explains why block grants are not systematically the most appropriate way to transfer money from central to local governments.

Increasing the supply of finance: official development assistance (ODA) and other sources

Except in a few very poor countries, domestic rather than external resources will be the dominant source of finance. Nevertheless, external finance, whether concessional (for example, grants or soft loans) or non-concessional (IFI loans), can play an important catalytic and demonstrative role. External finance can support financial and governance reforms in the sector, build capacities, and introduce international disciplines and good practices. It can also help to leverage finance from other sources, including from the private sector and financial markets. On the other hand, care must be taken to avoid crowding out domestic financial sources, inducing subsidy dependence, or removing incentives for essential reforms.

If the internationally agreed water targets¹³ are to be achieved, official development assistance (ODA) would need to rise substantially (the Camdessus Report argued that ODA would have to at least double). The need for increased levels of ODA was recognised at the International Conference on Financing for Development, held in Monterrey, Mexico, on 18–22 March 2002.¹⁴ The “Monterrey Consensus” established a new international partnership for achieving internationally agreed development goals, including the Millennium Development Goals. Essentially, developing countries pledged to promote sound policy reform, good governance, and increased domestic financial resource mobilization in return for increased international financial flows.

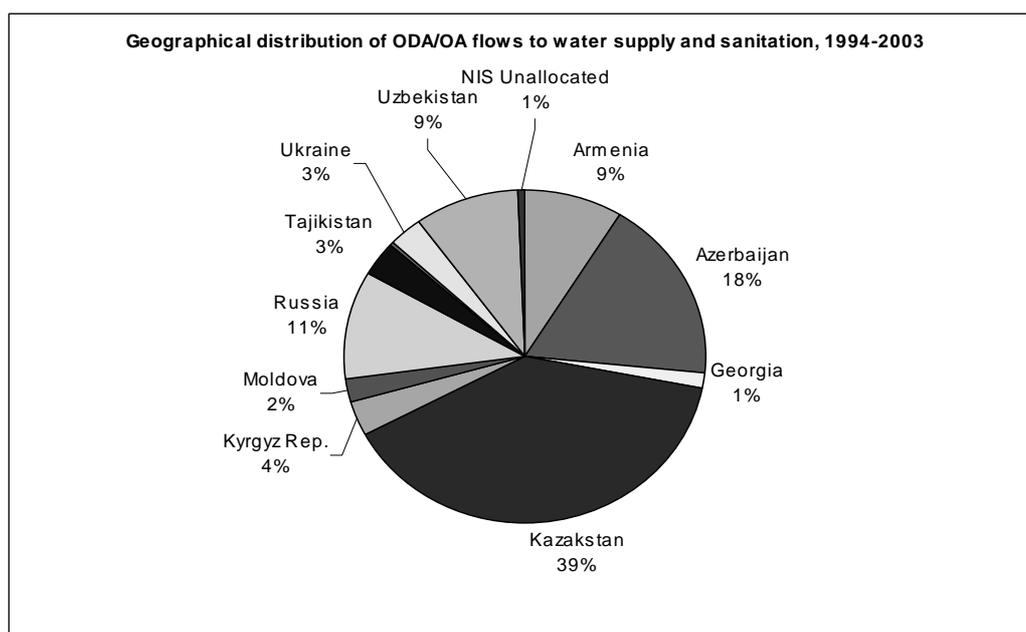
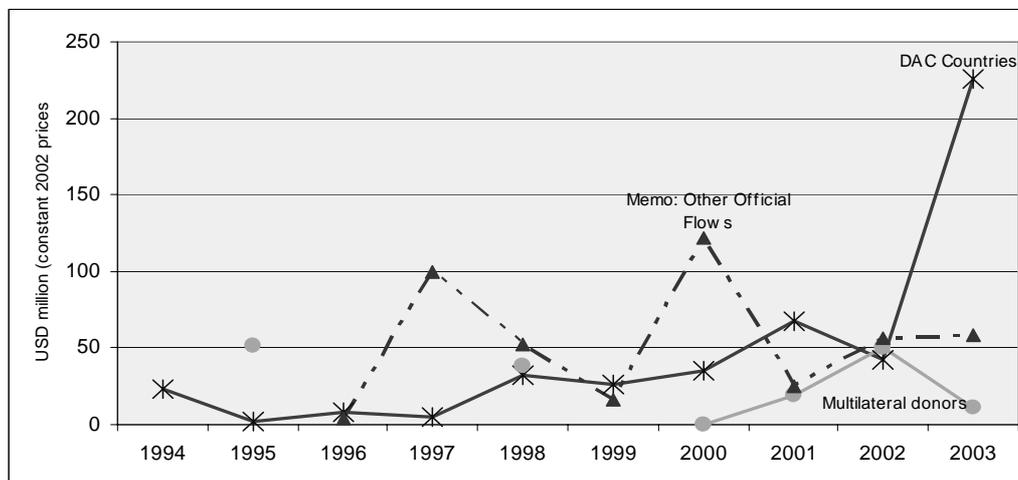
OECD data shows that flows of official development assistance for water in the EECCA region has been slightly increasing over the last 10 years (Figure 9). Most of it (two thirds) is, however, concentrated in just three countries (Kazakhstan, Azerbaijan, and Armenia). At the same time, the absolute amount of ODA for water is at very low levels, with an average of EUR 50-100 million per year (see also Annex 1). This amount is clearly very modest when compared to the financing necessary to achieving the Millennium Development Goals on water supply and sanitation in EECCA, which have been estimated to as much as EUR seven billion per year.¹⁵ ODA is therefore going to remain a minor source of finance for the water supply and sanitation sector, even if significantly increased in the future.

¹³ Millennium Development Goal 7, target 10 stipulates to “halve by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation”.

¹⁴ See the UN Department for Economic and Social Affairs website on Financing for Development: <http://www.un.org/esa/ffd>.

¹⁵ COWI (2004), Draft main report “Financial needs of achieving the Millennium Development Goals for water and sanitation in the EECCA region”, commissioned by the Danish Ministry of Environment. Also see background paper for Almaty+5 conference “Meeting the Millennium Development Goals drinking water and sanitation target in the EECCA region: a goal within reach?” for a discussion of the methodology in the COWI report.

Figure 9: Bilateral and multilateral official development assistance to water supply and sanitation in EECCA countries, annual commitments, million USD (constant 2002 prices)



Notes:
 1. Other Official Flows (OOF): transactions by the official sector with countries on the List of Aid Recipients which do not meet the conditions for eligibility as Official Development Assistance or Official Aid, either because they are not primarily aimed at development, or because they have a Grant Element of less than 25 per cent.
 2. The peaks in the chart are explained by three big projects: 1997 and 2000 IBRD non-export credits of 75 and 122 mln USD to Uzbekistan and Russia; 2003 a loan of 169 mln USD of Japan JBIC to Kazakhstan for the rehabilitation of water supply and sewerage plants.

Whatever the level of ODA flow, more could be done to improve its effectiveness and to improve coordination between donors. Some donors are now moving away from financing individual water projects to establishing local, financially sustainable, financing mechanisms. Greater use is also being made of

output-based budgeting that focuses on achieving development outcomes, such as a number of increased connections, rather than focusing on inputs such as provision of pipes and pumps. Many donors are also working to strengthen the pro-poor dimension of their activities, *inter alia*, by finding ways to finance shortfalls in consumers' ability to pay when tariffs are increased.

Non-concessional loans from IFIs are important sources of long-term investment capital for developing countries, and are generally offered on terms that are more favourable than those available on local capital and financial markets (interest rates may be lower and/or the payback period longer). Substantial resources are available from the World Bank and regional development banks for loans to municipalities and water utilities, but there are a number of key bottlenecks that constrain their wider use.

For one thing, there is often a lack of bankable projects — that is projects where the IFI has sufficient confidence that the loan will be repaid. This may be because of a lack of capacity for project preparation or because the risks associated with proposed projects are unacceptably high. Projects may have to be above a threshold as high as USD 10 million to justify the transaction costs for the IFI. This obstacle can sometimes be overcome by bundling projects so that the value of the sum exceeds the threshold.

Governments may be unwilling or unable to borrow. Debts have to be repaid, typically either from public budgets or from user charges, and most IFIs require governments to provide a sovereign guarantee that this will indeed happen. Governments may be unwilling or unable to take on this additional obligation. If countries are heavily indebted and receiving support from the International Monetary Fund, the Fund may prohibit the country from taking on any additional debt. Some IFIs such as the European Bank for Reconstruction and Development are authorised to issue loans on the basis of a sub-sovereign guarantee — from a municipality, for example. While this creates more flexibility, the requirements to justify that the loan will be repaid are no less demanding than in the case of sovereign guarantees.

Loans to IFIs have to be repaid in foreign currency, such as US dollars. However, the revenues to repay the loan are generated in local currency. When the local currency devalues against the currency in which the loan must be repaid, this can result in a sudden and substantial increase in the schedule for repayments, placing an unforeseen burden on public resources, which may already be stretched. Guarantees can help to offset currency risks, but they are not cost free. Following the advice of the Camdessus Report, IFIs have taken a number of measures to enhance the use of guarantee instruments (see Winpenny, 2004). The EBRD has now started lending in local currency in the Russian Federation.

Donors work with IFIs to make loans more accessible to developing countries. Usually this takes the form of providing grant support to help prepare bankable projects, to soften the terms of the loan, or to build capacities that are needed to implement the loan. One mechanism that was established specifically for this purpose is the Project Preparation Committee (PPC), a network of donors and IFIs that work together to accelerate the development and implementation of IFI loans through the provision of grant support.¹⁶

¹⁶ See the PPC website: <http://www.ppcenvironment.org>.

4. LOCAL DEBT AS THE ADDITIONAL COMPONENT OF FINANCIAL STRATEGIES

In OECD economies, the financial sector (which consists of banks, the corporate debt market, and the equity market) provides the bulk of the investment finance for WSS. In the CEE, local authorities incur debt: the average level of debt amounted to 1.5 per cent of GDP in 2001; it was 5.6 per cent in the EU. During the last 10 years of transition to market economy, none of the EECCA countries have been able to develop their financial markets to the level that would provide access to long-term debt to finance investment in the WSS at an affordable cost.

As part of the process of fiscal decentralization, the policy and institutional obstacles that prevent the financial sector from playing a greater role in financing environmental projects should be removed. In particular, local authorities should have the right to incur debt, the development of carriers of long-term savings (insurance companies, banks) should be supported, and the portfolio of these institutions (and the share that they are allowed to invest in local jurisdictions) should be regulated. Experience from other regions could be applied in EECCA countries to enable local capital and financial markets to play a greater role in financing environmentally-related infrastructure.

Empirical evidence suggests that high interest rates are not the major factor limiting the access to debt finance for environmental investments in EECCA. There are opportunities beyond the public sector for financing water and other environmental infrastructure. Specifically, opportunities for accessing savings through private financial and capital markets have been examined. Country case studies on Kazakhstan, the Russian Federation, and the Ukraine have helped identify bottlenecks to the development of local financial markets for environment infrastructure, and shape policy recommendations to tackle them.

Local debt as a needed financial instrument in EECCA

This section is founded on the premise that increased use of market-oriented credit is both necessary and desirable in the financing of local environmental infrastructure. If investment levels are to increase, it will be critical to tap the private savings market to help in investment financing. Some of this financing will come in the form of direct private investment in municipal environmental facilities like water distribution systems or wastewater treatment plants. However, the recent record of private investment in the water supply and sanitation sector in EECCA has been disappointing. Therefore, the most important mechanism for accessing private savings is likely to be borrowing by public authorities or utilities, either directly from the capital market or through intermediary financing institutions like banks or special infrastructure funds.

Following decentralisation, the principal investment burden has been shifted from the State budget to local budgets. The credit systems required to finance urban environmental investment will therefore be local credit markets, in which the borrowers are sub-national governmental units or municipal utilities. The task of a well-functioning local credit market is to access domestic (and, sometimes, international) savings on a sustainable basis, then lend these funds to creditworthy local institutions to invest in urban environmental infrastructure. Given that many urban environmental services, like wastewater treatment or water supply, are highly capital intensive and involve long-living assets, the ability to generate longer-term credit is one requirement of a successful local credit market.

Borrowing by local governments, municipal utilities, or private operators is, of course, not an end in itself. The IMF among other international organizations has repeatedly warned against excessive sub-national borrowing as having a potentially de-stabilizing influence on fiscal management.¹⁷ Most EECCA countries experienced sub-national debt crises in the 1990s, resulting, *inter alia*, from excessive, unregulated local borrowing, done frequently to cover current account deficits unrelated to capital spending. The debt crises serve as potent reminders that the purpose of a local credit system is to generate financing for capital investment that can prudently be repaid from recurring revenues.

Local debt is all the more relevant as a renewed context (economic growth, sophistication of some national financial systems, enhancement of the creditworthiness of selected municipalities) has generated new opportunities to consider the development of local capital and financial markets in EECCA countries.

In the 1990s, the mismanagement of debt by local authorities, and its consequences for the national economies in EECCA seemed to have disqualified the issue of sub-sovereign debt. As a consequence, central authorities in most EECCA countries have banned sub-sovereign debt, or put a heavy administrative burden on it, so as to discourage potential borrowers.

The slow recovery of the financial sector - impaired by modest bank restructuring, limited sophistication in local credit markets, and a lack of municipal credit infrastructure - has failed to provide new opportunities, until recently. The situation is even more acute in rural areas, plagued with the difficulty to raise users finance, with the financial/fiscal weakness of municipalities, and with relatively higher transaction costs.

In recent years, the ban on municipal debt seems to have been relaxed. Local credit markets were recently revitalised in the Ukraine and in the Russian Federation. The situation of the financial sector has evolved, with the recent growth in bank assets, the expansion of accumulators of long-term savings, and the increasing orientation of banks towards servicing business. The Russian Federation is a clear illustration of these trends (see box below).

Box 5. Renewed sophistication of the Russian financial system

Russia's financial sector has recovered fully from the 1998 financial crisis¹⁸. Commercial bank liquidity has improved, and domestic bank financing has expanded rapidly. A well-functioning bond market has emerged, in which municipalities and regional authorities play a significant role. In 2003, sub-national governments accounted for 11 per cent of outstanding bonds in the Russian market. The largest cities (Moscow and St. Petersburg) are regular issuers in the domestic bond market. A January 2005 bond issue by the City of Moscow raised the equivalent of US\$170 million, for a seven-year bond, at an average yield of 7.3 per cent, indicating the quality of access to the capital market that large, well-financed cities with transparent accounting enjoy (The Banker, 2005). Moscow's State Debt Committee has announced plans to lengthen bond maturities by issuing 15-year bonds in the autumn of 2005. In all, some 30 *oblasts* have received authority from the Russian Ministry of Finance to issue bonds; approximately half currently have bonds outstanding. Outside of Moscow and St. Petersburg, few cities tap the bond market for significant financing.

Source : Russian Case Study on Harnessing local financial and capital markets for municipal water and environmental infrastructure in Russia, the Ukraine, Kazakhstan, and China, OECD 2005.

¹⁷ For example, "Public debt in emerging markets: is it too high?", Chapter 3 in World Economic Outlook, (IMF, September 2003).

¹⁸ Unfortunately, it is difficult to quantify how much credit financing is being generated to support local environmental infrastructure investment.

Support to the supply of finance

Once local debt has been acknowledged as a necessary financial tool to finance investment in WSS, local capital and financial markets have to be stimulated. The Ukraine has specifically identified the sub-national credit market as an instrument it intends to develop to assist in urban environmental infrastructure financing (including WSS). The steps towards the development of such a market show the needed combination of a number of institutions, at international, national, and local levels.

In late 2003 an inter-agency working group was established, representing the government as well as international donor agencies and international financing institutions, to provide guidance on development of a prudent local borrowing market that would not require sovereign guarantees. A draft national programme emphasised the role of local credit, both in financing environmental infrastructure investment and in enhancing the efficient use of energy and other resources¹⁹. Together with the Ukrainian Government, the World Bank has supported the creation of the Municipal Development Loan Fund that provides commercial banks with access to long-term lines of credit, for on-lending at commercial rates to local authorities (municipalities or utilities) in order to finance infrastructure projects, with commercial banks performing credit analysis and assuming credit risk. The objective of this programme is to introduce banks to municipal infrastructure finance as a regular line of business, and to gradually extend loan maturities. USAID is supporting a complementary programme to further develop the local bond market as an instrument for environmental infrastructure finance.

In addition, local capital and financial markets require an adequate legal framework and mechanisms to reduce risks to lenders, consistent with the broader context of public finance.

A supportive legal framework

This framework should clearly state the following points:

Who can borrow

In those EECCA countries under review (Kazakhstan, Russia, and the Ukraine), municipalities generally own the assets that utilities operate, and are in charge of the bulk of investment finance; and utilities - municipal or private - are in charge of the operation of the service. The financial relations among these institutions, and between them and national oversight institutions, typically are subject to several ambiguities which can weaken the creditworthiness of both borrowers. Sources of dispute are manifold:

- Utilities are allowed to write assets on their balance sheet, and to borrow to finance capital investments (mostly capital repairs, or, under certain circumstances, new investments presented as capital repair);
- One issue that commonly arises is: “Who owns the utility property that is financed by municipal borrowing?” When important income-generating property is transferred without compensation to a utility, this may weaken a municipality’s own finances, as the municipality remains responsible for the debt liability but has no corresponding asset on its balance sheet;
- The weak financial condition of municipal environmental utilities raises the question: “Who bears contingent liability for debt service in the event that the utilities cannot repay borrowing on their own?”

¹⁹ Ukrainian case study on “Harnessing local financial and capital markets for municipal water and environmental infrastructure in Russia, Ukraine, Kazakhstan, and China”, OECD 2005.

This poses fundamental obstacles to credit market development. It raises both practical and legal questions as to whether the borrower has the power to generate revenue sufficient to cover debt service, and, if not, which party, if any, bears contingent liability. The difficulty of identifying a clear chain of responsibility for debt service makes lenders less willing to lend for environmental investments.

The World Bank's Atyrau Pilot Water Supply and Sanitation Project in Kazakhstan illustrates the magnitude of potential municipal liability (see the "Implementation completion report", Number 29705, World Bank, 2005). The project financed the rehabilitation and replacement of water mains and sewer pipelines. The loan was to be repaid by the Vodokanal from tariffs that would be adjusted to recover operating costs and debt service costs. However, as the evaluation report states, "the lack of management and financial autonomy on the part of the vodokanal" made it impossible to implement the planned cost recovery. Tariff decisions were "highly political." The national Anti-Monopoly Agency, in fact, did not approve any tariff adjustments over the lifetime of the project (2000-2004), necessitating large transfers from the Atyrau *oblast* to cover operating expenses. Debt service on the US\$12.0 million loan did not become effective until February 2005. These costs will have to be absorbed by the *oblast*, as well.

The ambiguities of implicit guarantees and contingent liabilities can be addressed in either or both of two ways. One option involves preparing a mutually consistent set of laws that more clearly defines the financial and legal interrelationships between institutions, and either expressly identifies or prohibits what are now implicit liabilities subject to different interpretations. Russia, through a series of laws, has moved in this direction, as has the Ukraine, which for the past two years has been drafting and exposing for comment a broad legal framework that will establish clearer rules for borrowing and institutional relationships. Meanwhile, in the absence of a revamped comprehensive framework, a practical option is to incorporate in individual loan contracts, or bond covenants, explicit statements regarding the income streams, collateral, and guarantees that protect a credit, while also making explicit that no other back-up guarantees of any kind, not expressly identified, are available to the lender. Recent country case studies in the Ukraine, the Russian federation and Kazakhstan²⁰ show that these countries have made clear that there are no implicit guarantees on the part of national government. Parallel clarity regarding implicit guarantees from municipalities and other levels of government is conspicuously lacking.

For what purpose

Long-term debt should be made available for investment only (and not current account deficit). In Lithuania and the Slovak Republic, debt can only be incurred to finance capital expenditure. A special survey carried out as part of the Ukraine case study found that 20 per cent of municipal environmental utilities in *oblast* capitals had used bank financing to finance capital investment, and that such loans often extended to three-year maturities. As the case study points out, some investment opportunities - especially in energy saving or repairs to reduce distribution losses - have high rates of return, which make it possible to obtain investment paybacks in short periods. Under these conditions, even relatively short-term borrowing can be a realistic component of investment financing.

What collateral can be pledged by the local borrowers

In building a local credit market for environmental infrastructure investment, the initial foundation block is the revenue stream that a municipal utility generates from user charges or tariffs. It is well recognised that, with a few conspicuous exceptions, the revenue streams of municipal environmental utilities currently are insufficient to support intermediate or longer-term loans on their own. Local credit market development for the urban environmental sector therefore requires a twofold strategy:

²⁰ "Local credit systems for municipal environmental infrastructure in Russia, Ukraine, Kazakhstan, and China", OECD, 2005.

- Strengthening tariff flows and making the improved revenue streams available as pledged security for borrowing; while also
- Identifying ways within the current legal and regulatory structure to support borrowing by supplementing tariff revenues with specified budgetary transfers or back-up collateral that reduces lender risk.

Some progress is being made on both fronts.

Subject to what limitations

The current set of national controls contains a mix of provisions designed to serve one or the other of the twin objectives of control and market-building. On balance, however, they are weighted toward control - often to an extent that discourages responsible growth of the sub-national credit market. There has been some movement away from a strict control orientation recently, as the sub-national governments debt crises recede in memory, and as local governments and municipal utilities build a more stable track record of loan repayments. Still, the combination of debt limit rules and procedural requirements for local borrowing approval remain an impediment to responsible market expansion. In contrast, the framework elements that would encourage prudent development of the local credit market have been slow to be put in place.

Mechanisms to mitigate risks

This legal framework has to be supplemented by mechanisms that reduce risk to lenders. Such mechanisms rely on:

- Strengthened operation and maintenance capacity at utility levels;
- Project preparation facilities to develop projects on a financially viable basis;
- Guarantees, reserve accounts (which may be partially funded by donors);
- Ring-fencing revenue flows to ensure pay back;
- Establishing municipal banks and municipal development funds;
- Pooling debt of smaller municipalities;
- Secondary markets (securing local loans, re-selling municipal bonds).

The broader context of public finance

The strategy regarding the development of local capital and financial markets has to be considered in the context of a global policy package, which should be compatible with the existing system on which other sources of finance are based, in particular intergovernmental transfers and fiscal autonomy.

The objective should be to diminish uncertainties about the resources available to sub-sovereign governments, to generate stable streams of revenues for these jurisdictions, and to allow these governments to adapt their revenues to their needs and financing strategies. This would significantly strengthen the creditworthiness of local governments, be they borrowers or providers of guarantees to other borrowers. The box below illustrates this point.

Box 6. Uncertain revenues and the limitations of the creditworthiness of Kazakh municipalities

In Kazakhstan, local credit financing for urban environmental investment has been sparse, consisting largely of international donor-financed loans that have been on-lent to the local level. Commercial banks routinely lend to municipal utilities in the water and wastewater sector, but much of this lending is used to finance short-term operating needs. Two principal obstacles have been identified as hindering greater use of sub-national credit in general and for the urban environmental sector in particular.

First, Kazakhstan has an intergovernmental finance system that captures “excess” funds from surplus municipalities for re-distribution to other locations. Although based in principle on expenditure norms, this system is frequently adjusted and neither predictable nor transparent in its impact. The effect is to introduce a large element of uncertainty into the revenue side of municipal budgets, as well as to reduce incentives for local revenue collection, since local “surpluses” are captured by the national government for re-distribution and lower local “deficits” reduce local governments’ eligibility to receive re-distributive transfers. Both the uncertainty of their revenue streams and the disincentives for own-source revenue collection weaken local governments’ creditworthiness as borrowers.

Second, Kazakhstan lacks a stable, predictable, and commercial tariff regime for local utilities. Formally, according to the current regulation in Kazakhstan, the tariff covers all operating costs and provides return on capital. Now, because of problems related to collection efficiency, actual consumption (versus norms), and methods of cost calculation, local environmental utilities are unable to recover full operating costs, much less capital costs, from user charges; cannot enter into longer-term agreements with municipal governments defining how future costs of service delivery and debt service will be shared between municipality and utility; and cannot identify for lenders the revenue streams that will be used to pay debt service. The inability to adjust tariffs autonomously at the local level, coupled with the unpredictability of municipalities’ general revenues, has caused the EBRD to cancel all three of its municipal-level environmental financing projects in Kazakhstan as financially unviable. Domestic banks, however, have been active lenders to water and wastewater utilities under arrangements whereby the general *oblast* government supplements tariff-based revenue flows.

Source : Kazakhstan Case Study, EBRD, 2004.

Other features of the financial context relate to the way governments, including environment administrations, mobilise public funds and related means of intervention to stimulate commercial banks’ involvement in environmental finance.

Central budget funds can be mobilised in a way that will facilitate local governments’ access to local financial markets in order to finance investment in environmental infrastructure. For instance, if the lack of access by banks to medium and long-term capital is the binding constraint to financing of investments, public funds could be best used by providing banks with medium-long term liquidity (*e.g.* master loans, deposits), earmarked for environmental, commercially-viable projects.

In addition, environmental administrations should carefully review the way they use public money to finance environmental investments in order to phase out practices and financing instruments that discourage banks from financing environmental projects. Indeed, public funds have sometimes been used to finance projects that could have been commercially viable. When financing environmental investments from the budget or extra-budgetary funds, administration at the national or regional levels usually preferred to offer grants covering 100 per cent of project costs or direct loans, rather than using banks as co-financiers or intermediaries. None of the public environmental funds in the region has been encouraged or required to co-finance projects with commercial banks (*e.g.* by matching grants) or to lend through them in order to increase the leverage effect of public money.

ANNEX 1: TABLE OF EBRD MUNICIPAL WATER PROJECTS IN EECCA

Op ID	Op Name		EBRD Signed	Finance	Operating Assets
TAJIKISTAN					
34583	Khujand Water Supply Improvement Project	Water and Sewage	0,9		0,0
			0,9		0,0
UZBEKISTAN					
29167	Tashkent Water Supply Improvement Project	Water and Sewage	7,7		0,1
			27,7		1,1
RUSSIAN FEDERATION					
1913	St Petersburg Water & Environmental Services Improv. Programme	Water and Sewage	6,8		6,8
3717	Kaliningrad Water and Environmental Services Project	Water and Sewage	13,7		1,6
13383	Yaroslavl Municipal Water Services Development Programme	Water and Sewage	13,5		1,4
17523	Surgut Municipal Services Development Programme	Municipal Services	37,3		14,3
19105	St Petersburg South-West Waste Water Treatment Plant	Water and Sewage	35,5		22,2
20699	Archangelsk Municipal Water Services Development	Water and Sewage	9,5		0,0
21962	St Petersburg Northern Waste Water Treatment Plant Incinerat	Water and Sewage	23,8		0,0
22163	Komi Municipal Water Services - Syktyvkar	Water and Sewage	9,6		0,0
			149,7		46,3
AZERBAIJAN					
1859	Baku Water Rehabilitation Project	Water and Sewage	8,7		8,7
			8,7		8,7
MOLDOVA					
2831	Chisinau Water Services Rehabilitation Project	Water and Sewage	12,2		12,2
			15,6		15,6
UKRAINE					
Direct					
2857	Zaporizhzhia - Water Utility Development & Investment Progr.	Water and Sewage	19,3		12,6
			19,3		12,6
Total			221,9		84,4

ANNEX 2: INSTITUTIONAL DEVOLUTION OF WATER IN EECCA

	Governance	Ownership of the fixed assets	Tariff setting/approval	Investment planning	Capital and operational subsidies	Private sector involvement
Azerbaijan	Gosstroy (State committee for construction)	Municipalities?	Central gov. unified tariff for the country	Azersu	Central government?	
Armenia	State Committee of Water Economy (SCWE), Regulator of Public services, MoFE (MTEF), Water utilities (vodocanals) – joint stock companies (JSC)	Central government (100% shares in Yerevan and Arminina vodocanals), 3 JSC with regional participation (49%) in Armavir, Lori, Shirak	Regulator at country level, wholesale tariffs for JSC Armvodocanal, Tariffs for JSCs	Invest. plans are developed by SCWE and WU, approved by the central government in MTEF process	Central government	Private operators at Yerevan (Management contract then lease) and Armenian vodocanals, JSCs (central gov. 51% + regional gov. 49%) in 3 regions
Belarus		Municipalities (prevail)				
Georgia	Dept. of Infrastructure at the MoED	Municipalities	Municipalities	Municipalities	Municipalities	
Kazakhstan	Anti-Monopoly Agency (AMA), MoE and MoF	Municipalities (prevail), regions	Municipalities after review and approval by territorial bodies of the AMA	Municipalities and regions	Operation: –mun., Capital: central, reg., mun	Many domestic operators (foreign operator withdrew from Almaty)
Kyrgyzstan		Municipalities				No
Moldova	Dept. of Construction and Territory Development	Municipalities	Municipalities after review by DCTD	Municipalities and central government	Municipalities	Few private investors and operators in rural WSS
Russia	(Recently dissolved) Dept. of Construction and Housing and Communal services at the Ministry of Reg. development	Municipalities (prevail), regions	Municipalities (prevail), regions (for private operator and for the WU owned by regions)	Municipalities and regions	Operation: mun., Capital: reg., mun., (rare) Central	3 BOT projects in Moscow, private operators serve some 11% of urban population
Tajikistan	Municipalities TajikKommunServis	TajikKommunServis Dushanbe Municipality (for the city)	Municipalities and Anti-Monopoly Committee	Municipalities, central government	Central government	International operator in Dushanbe
Turkmenistan			Central gov. unified tariff for the country		Central government	
Uzbekistan						Domestic private sector in Khozerm region, foreign operators in Bukhara and Samarkand (service contracts)
Ukraine	State Committee of Housing and Communal services	Municipalities (prevail), regions	Municipalities and regions	Municipalities and regions	Municipalities and regions	Odessa City (lease), JSC in Kiev (but 100% owned by Mun.)

ANNEX 3: ENVIRONMENTAL FINANCING STRATEGIES AND THE FEASIBLE MODEL

The Concept

The environmental financing strategy methodology was developed in response to the limitations of national environmental strategies and action plans to adequately address associated financial issues. Environmental financing strategies aim to organise information in a form that facilitates decision making, whether in setting policies and targets, creating or strengthening institutions, or mobilising sources of financing. The key (and this was the major limitation of NEAPs) is to impart realism, and promote the concepts of affordability and cost-effectiveness in the implementation of environmental programmes.

An environmental financing strategy is a methodological framework for medium- to long-term strategic balancing of environmental and infrastructure service targets with available financing. It is applicable in the environmental sectors that require investment-heavy environmental infrastructure.²¹

The basic idea behind the environmental financing strategy concept is quite simple. There should always be a balance between the money needed to meet the target and the money available to do so. Applying this concept yields a number of benefits, which can most easily be explained through a stylised example as included in the Box 7 below.

²¹ The methodology as implemented in the FEASIBLE model was developed by the OECD EAP Task Force. The model itself was developed by the Danish consulting company COWI in close co-operation with the OECD and with financial support by DANCEE.

Box 7. Financing strategies - an illustrative stylised example

Assume that the target in a country is to have mechanical and biological treatment of all municipal wastewater. Developing a financial strategy for the water and wastewater sectors would imply a need to estimate the costs of this target and establish a coherent strategy for its financing. The costs include not only the investment in new treatment plants in the towns which do not currently have such plants, but also, and equally important, the operation and maintenance costs of the existing and new facilities.

Assessing all these costs and subsequently comparing them with the available supply of finance may reveal that significant additional financial resources will be required to achieve the target. A financing strategy aims to close the gap between the financial requirements and the supply of finance currently available. That can happen through a combination of three types of measures:

- Cost reduction related to efficiency improvement.
- Increased supply of finance.
- Reduction of the target service level.

Through the analytical process, it may become clear that cost reduction through re-investments aiming at energy savings combined with the maximum affordable user charges will not be sufficient to close the financing gap. In that case, the conclusion may be that the target cannot be achieved or the time schedule for implementing the target has to be extended. In our example, it might be necessary to postpone the deadline for achieving wastewater treatment in the small and medium-sized towns.

Having this kind of formalised financial strategy will be very useful for stakeholders. For the authority that distributes investment resources, the result of the financing strategy gives an important input to the overall prioritisation of the investment funds. If no formalised financing strategy exists, there is a risk of ad hoc prioritisation and resulting non-optimal distribution of the investment funds. In such case investment in infrastructure may end up being wasted if there is, subsequently, no money for proper operation and maintenance.

In this way, the financing strategy can be used by many stakeholders to identify what they need to contribute in order to achieve a given service level. In our example, the municipalities may have to contribute through subsidies and/or by allowing user charges to increase to full cost recovery level or to the highest affordable level.

The process of preparing the financing strategy is as important as the technical calculation. By engaging all relevant authorities responsible for finance, economy, construction, environment – it promotes dialogue and eventually consensus on the specific actions that each should take. Thus the process of developing government programmes of action, if well organised, builds a bridge to effective implementation.

Application

The development of an environmental financing strategy aims to verify the realism and affordability of the general long-term objectives of sector policies and programmes. The strategy provides a long-term predictable framework for preparing mid-term investment programmes and for project pipelines in the public sector at different levels of government. It helps streamline the annual budget process and the preparation of individual capital investment projects.

Historically, environmental action plans have often been prepared without proper regard to how the identified activities should be financed and whether people could afford them. These issues have been particularly difficult to analyse realistically for large-scale environmental programmes that require heavy capital investments in public infrastructure and have a long time span. As a result, the subsequent implementation has often been impeded by resource constraints and characterised by interruptions, delays, cost overruns, conflicts over resource allocation, and ad hoc spending decisions. An environmental financing strategy assists in determining realistic and affordable service levels and in demonstrating the roles that different sources can play in financing the required expenditure. Thus, a well prepared environmental financing strategy increases the chances of successful implementation.

In most countries, if there is not enough money to reach policy objectives, policy makers try either to mobilise more money or to revise the objectives. In the EU candidate countries and EU member states, the targets of environmental and infrastructure development programmes are, to a large extent, externally determined by the EU laws. Under these circumstances, the purpose of the environmental financing strategy is to identify, in quantitative terms, the measures that would ensure an adequate supply of finance in the right places and times. This can help EU accession countries to design feasible implementation programmes for complying with EU directives.

An environmental financing strategy provides a framework for systematic costing of environmental targets in line with the best international standards and for assessing the implications of aggregated costs on liquidity and household affordability. It develops scenarios that show where the bottlenecks lie, and what kind of funding and other intervention may be needed. It offers a commonly understood language of communication among all relevant stakeholders involved in the development of the environmental and municipal infrastructure sectors, especially among environmental, technical and financial stakeholders.

The financing strategy methodology presented here is a strategic planning tool designed for governments operating in market economies, i.e. governments that are policy makers and regulators of economic activity, rather than the central planners and owners of all assets and projects. Developing financing strategies by the government does not imply that the government should finance all or most expenditure, or own all projects. In fact, relying on the public budget to finance e.g. operational and maintenance costs of collective infrastructure is not a sustainable solution. Users, financial markets, capital markets and local budgets all need to complement each other in effective financial packages. Governments, however, create the legal and regulatory framework in which private financial institutions operate. Governments have several instruments to stimulate or hinder their willingness to provide finance for public environmental infrastructure. Hence, the financing strategy framework is not only needed to plan the government budget, but also to plan and reform those government policy instruments that affect the capacities and decisions of other public and private financial agents.

Environmental financing strategies can be used by transition and developing countries as well as western market economies:

- To assess total investment needs of alternative policy targets.
- To bring about practical implementation programmes taking into considerations what the economy and households can afford.
- To identify investment projects and build short- to medium-term project pipelines.
- To identify the policies and measures which are necessary to ensure effective financing of the project pipelines.
- To support claims of environment and other ministries responsible for municipal services on the public budget.
- To support transition country requests for donor and IFI financing.
- To measure and report on the progress in the implementation of programmes and policies.
- Environmental financing strategies are also used by donor countries and IFIs:
- To check if local co-financing commitments are realistic.
- To co-ordinate different donor and IFI programmes.
- To identify country pipelines of supported investment projects.

- To provide an additional dimension (bigger picture) for appraisal of the financial viability of individual investment projects.

An illustrative example of several of these points is provided in Box 8 below, which summarises the role of the environmental financing strategy for Georgia in linking feasibility studies and macro-level planning.

Box 8. Environmental financing strategies - linking feasibility studies and macro-level planning

Environmental financing strategies can help link feasibility studies at the project level with macro-economic and budget planning, a linkage that is often not examined. Although both municipalities and IFIs analyse the affordability and liquidity related to individual investment projects, environmental financing strategies provide a framework for systematic aggregation of these and other projects at regional and national levels in order to assess their joint implications for domestic policies and budgets.

This value added was clearly demonstrated in Georgia, where the World Bank was developing a project for rehabilitation of the water and sanitation system in Tbilisi, while the European Commission was encouraging rehabilitation of the wastewater treatment plants along the Black Sea coast. Each party was making independent assumptions about the availability of co-financing from the central budget of Georgia, without full information of the aggregated claims on the consolidated budget. Merging these two ambitious investment programmes, as well as other programmes related to water services in other parts of Georgia, into the framework of an environmental financing strategy helped identify, in quantitative terms, the difficult trade-offs that the Georgian budget planners would face if they wanted to fulfil all these commitments.

Implementation to Date

To date, about a dozen environmental financing strategies have been developed in EECCA countries and regions covering water supply, wastewater treatment and municipal solid waste. An overview of these strategies is provided in Table 5.

Table 5. Overview of environmental financing strategies in CEE and EECCA countries

Country	Region	Sectors covered	Finalised
EECCA			
Georgia	National	WS & WW	2001
Moldova	National	WS & WW	2000
Russia	Kaliningrad	WS & WW	2002
	Novgorod	WS & WW	2000
		MSW	2002
	Pskov	WS & WW	2001
	Rostov on Don	WS & WW	2003
	Rostov on Don	MSW	2003
	Yaroslavl	MSW	2003
Kazakhstan	National	WS & WW	2001
	Eastern Kazakhstan Oblast	WS & WW	2003
Ukraine	National	WS & WW	2003
Armenia	National	WW	2003
CEE			
Lithuania	National	WS, WW & MSW	2001
Latvia	Riga	MSW	2002
Other Transition and Developing Countries			
China	Sichuan Province	WW	2003

Note: WS (Water supply), WW (Wastewater treatment), MSW (Municipal Solid Waste).

Applied methodology

Most of the financing strategies have been developed using the modelling-based FEASIBLE methodology. However, the financing strategies for Kaliningrad and Lithuania have been developed without the use of FEASIBLE using a more project based approach.

While the project based approach can achieve a higher degree of accuracy, its need for project level data limits its applicability to smaller countries/regions and centrally-planned, sectors and makes it more difficult to do the “what-if” scenario analysis, which has proved to be useful for policy development and implementation when applying FEASIBLE.

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.²²

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”.

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 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.

²² The FEASIBLE model is freeware and can be obtained through the web pages of the OECD, DEPA, and COWI.

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.

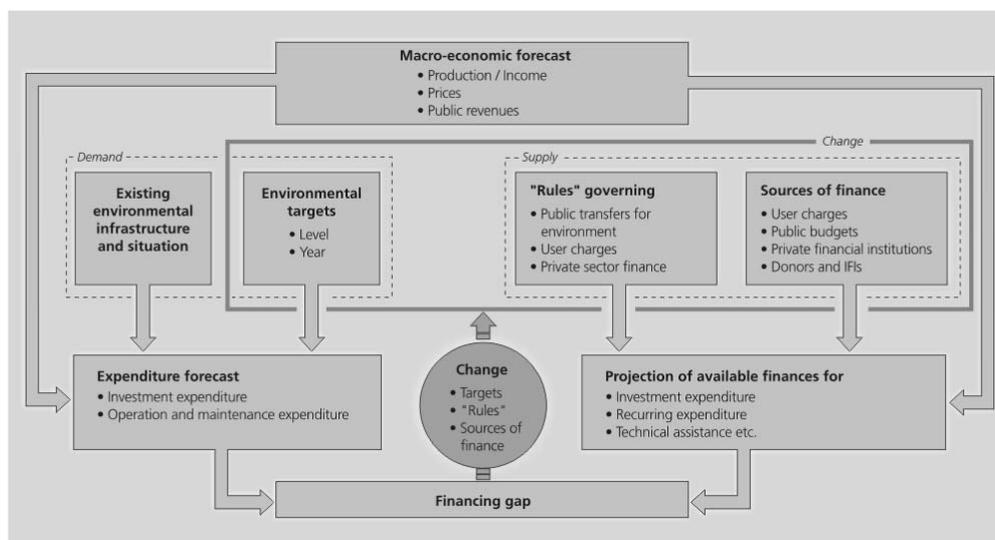
FEASIBLE compares the expenditure needs with the supply of finance on a year-by-year basis and computes cash flow forecast, i.e. financing deficits or surpluses, both annual and accumulated. Not only the magnitude of total cash flow deficits/surpluses is presented. The structure of the financing gaps 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 budgets²³ and households²⁴ could potentially 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.

²³ 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.

²⁴ 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 bills is established at 4 per cent of average household income, under different assumptions on rates of future income growth.

Figure 10: 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 negotiations on priority investment projects financed by IFI loans or through bilateral co-operation programmes.

Box 9. 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 10 below highlights the limitations of FEASIBLE.

Box 10. 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.

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.

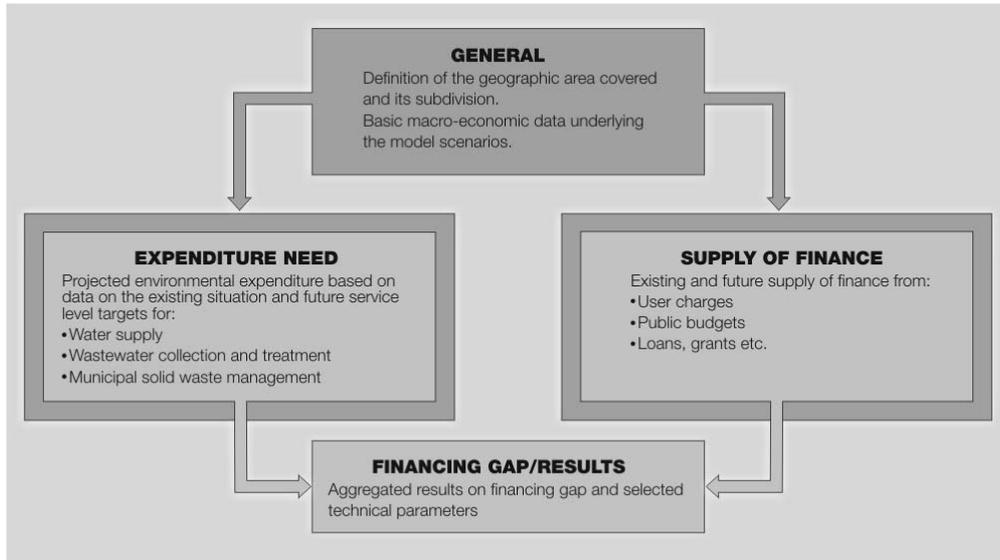
Each module can be run independently of the others.

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 11 below.

Figure 11: 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
<ul style="list-style-type: none"> • 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). 	<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • Mechanical. • Chemical (phosphorous removal). • Biological. • Nitrification. • Denitrification. • Nitrogen removal. 	<ul style="list-style-type: none"> • 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 (per cent 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.

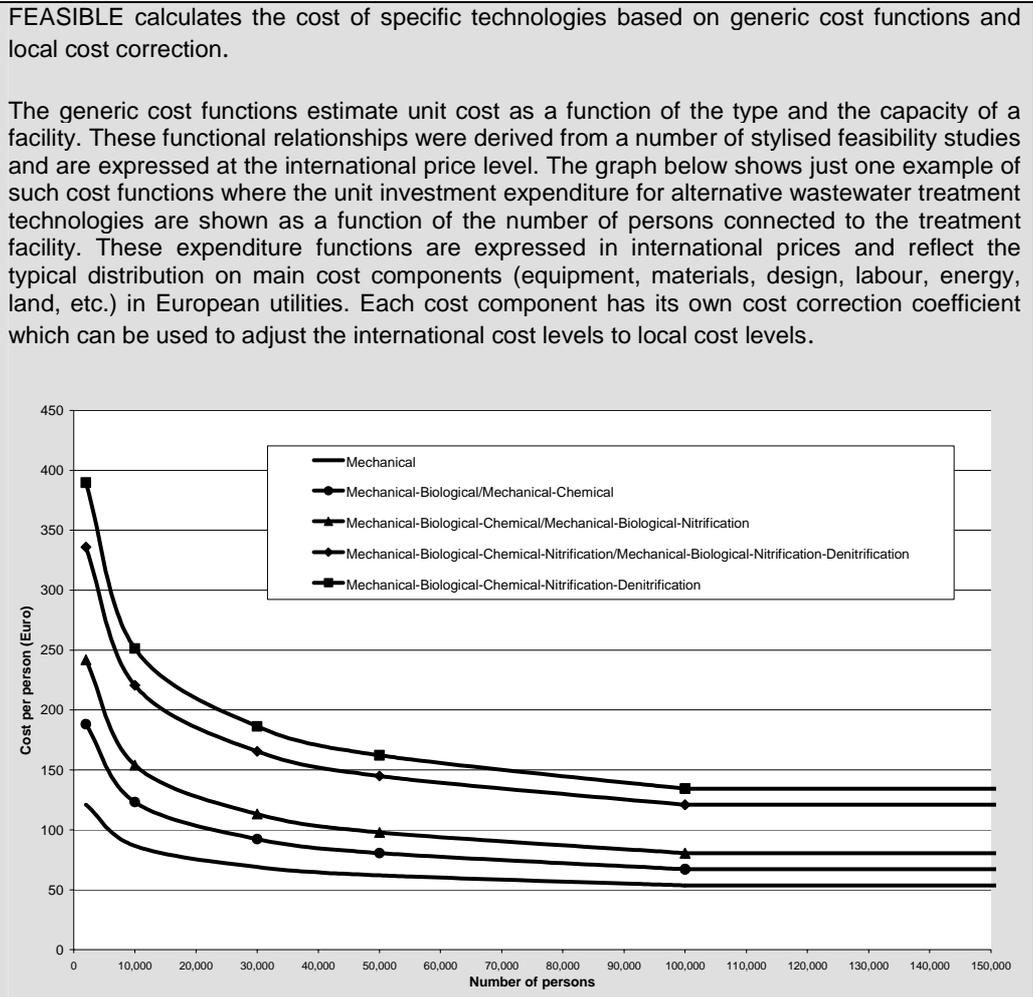
The municipal solid waste collection and treatment/recovery technologies available in FEASIBLE are:

Waste collection	Treatment/recovery
<p>For households:</p> <ul style="list-style-type: none"> • Kerbside, ordinary collection. • Kerbside, dual collection. • Drop-off, recycling station. • Drop-off, take back. • Drop-off, decentral. bring banks. • Kerbside, recyclables collection. <p>For commerce, industry and C&D:</p> <ul style="list-style-type: none"> • Container ordinary collection. • Container recyclables collection. 	<ul style="list-style-type: none"> • MRF - Mixed waste. • MRF - Recyclables. <ul style="list-style-type: none"> - Mixed recyclables. - Source separated recyclables. • MRF - WEEE. • Composting plant. <ul style="list-style-type: none"> - Windrow (garden waste). - In-vessel composting (food waste). • Bio gasification plant. • Landfill. <ul style="list-style-type: none"> - EU. - Controlled landfill. - Dump. • Incineration plant. <ul style="list-style-type: none"> - New - heat/electricity. - New - heat. - Old. • HHW treatment facility. • C&D recycling facility.

Generic expenditure functions

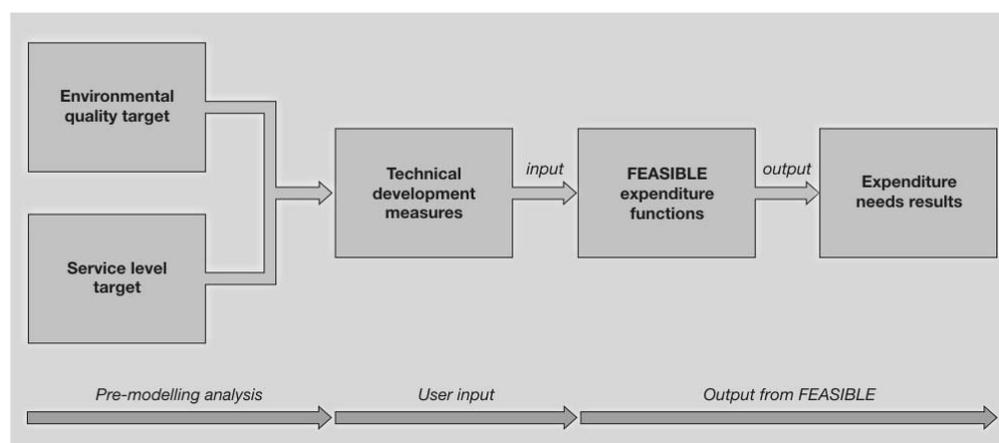
The calculation of the expenditure need is based on a number of generic expenditure functions that are incorporated into FEASIBLE. These expenditure functions allow easy estimation of the costs of alternative service and environmental targets with a limited data collection effort. They cover a number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

Box 11. FEASIBLE - generic cost functions and local cost correction



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 12 below.

Figure 12: 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. Box12 below shows some examples of types of financing gaps that may be analysed.

Box 12. 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).

Further reading

Readers who are interested in more detailed background material on environmental financing strategies and their practical application or on the computerised decision support tool FEASIBLE should refer, in particular, to the following publications:

- The FEASIBLE Model, Version 2, User Manual and Documentation, 2003.
- Financing Strategies for the Urban Water Sector in the NIS: Overview, Fifth Meeting of the NIS Environmental Finance Network, 21-23 May, 2001, OECD EAP Task Force.