

## FOREWORD

Since 1993, the Task Force for the Implementation of the Environmental Action Programme for Central and Eastern Europe (EAP Task Force) was established to support the integration of the environment into the broader process of economic and political reform in transition economies. Its secretariat was established at the OECD. *Source: OECD EAP Task Force, (2003a).* With the enlargement of the European Union, and since the 1998 Aarhus conference, the focus of the EAP Task Force's work has shifted east, and is now concentrated on the countries of Eastern Europe, Caucasus, and Central Asia (EECCA).

EECCA countries currently are at an environmental crossroad: the current environmental situation is dire, and challenges are mounting, but there are also new opportunities. EECCA countries need to set clear priorities and targets, to guide both their own action programmes and multi-stakeholder partnerships. Knowledge transfer and institutional development are required to facilitate policy reform, and to tackle strategic and operational bottlenecks, including much needed investments in environmental infrastructure and modern technologies.

In this perspective, environmental finance is one priority area of work within the EAP Task Force. Financial resources are scarce and are spread too thinly; priorities and objectives generally are not clearly defined in environmental programmes; inter-agency cooperation, particularly between environment and economic and finance departments needs to be improved; decentralisation of responsibilities needs to be matched by ensuring access to the resources needed to implement the new mandates devolved to local and regional jurisdictions. Environment departments need to improve their performance in investment planning and financial management in order to make the best use of available public funds and to be able to leverage additional resources from donors, IFIs and the private sector. More skills and

incentives are needed at both national and local levels to mobilize additional financing for environmental purposes.

The objective of the document is to take stock of the work done under the auspices of the EAP Task Force in environmental finance, to highlight some of the key outputs, and to point at future avenues of work in the Eastern Europe, Caucasus and Central Asia region.

The structure of the report and most of the material were elaborated by the Environmental Finance Team, OECD/Environment Directorate/Non-Member Countries Division. Juerg Klarer (Aequilibrium Consulting) compiled the material and prepared a first draft. The final version was revised and edited by Xavier Leflaive. Carla Bertuzzi, Nelly Petkova, Alexander Martoussevitch provided valuable comments on recent developments not reflected in the latest statistical data.

## TABLE OF CONTENTS

FOREWORD .....	3
ACRONYMS AND ABBREVIATIONS .....	8
EXECUTIVE SUMMARY .....	11
Environmental finance in EECCA. Situation and prospects .....	11
Consequences for policy making .....	13
<i>SYNTHÈSE</i> .....	17
<i>Les mécanismes de financement des politiques d’environnement dans la zone EOCAC. État des lieux et perspectives</i> .....	17
<i>Conséquences pour les politiques publiques d’environnement</i> .....	19
CHAPTER 1. THE BACKGROUND OF ENVIRONMENTAL FINANCE IN EECCA.....	23
Environmental challenges.....	23
Economic trends .....	27
Trends in environmentally related expenditure .....	29
The need for sound environmental finance strategies .....	35
CHAPTER 2. THE ENVIRONMENTAL FINANCE CHALLENGE, AND DOMESTIC SOURCES OF FINANCE.....	43
Priority of environment in public sector spending .....	43
Fiscal decentralization and financial management in municipalities .....	58
The contribution of households and industries.....	62
Financial sector involvement in environmental financing .....	67
CHAPTER 3. THE ENVIRONMENTAL FINANCE CHALLENGE, AND FOREIGN SOURCES OF FINANCE .....	73
Levels of environmental foreign official finance to EECCA .....	73
Private financial flows related to environment.....	78
Innovative approaches: debt-for-environment swaps.....	81
Innovative approaches: carbon funding.....	85

---

CHAPTER 4. CONCLUSIONS AND RECOMMENDATIONS FOR STAKEHOLDERS. IDEAS FOR PARTNERSHIPS.....	89
Recommendations for action at domestic level.....	90
The role of international co-operation.....	105
ANNEXES.....	111
Annex 1: Summary of key environmental challenges in EECCA as reported in the Kiev Assessment.....	111
Annex 2. Macro Economic Indicators for EECCA Countries.....	118
Annex 3. The costs of the MDG for WSS in EECCA.....	119
Annex 4. Environmental financing strategies.....	123
Annex 5. Foreign direct investment in EECCA and selected CEE countries .....	127
Annex 6. Preparation for a DFES in Georgia.....	128
Annex 7. Good practices of public environmental expenditure management.....	132
References .....	137

### Tables

Table 1.	Trends in total environmentally related expenditure ....	32
Table 2.	The environmental finance challenges facing EECCA	39
Table 3.	Shares of general government tax revenue in GDP .....	44
Table 4.	Environmentally related assistance, 1996-2001 .....	76
Table 5.	Net FDI inflows to EECCA, 1998-2004.....	79
Table 6.	FDI in EECCA and selected CEE countries .....	127

## Figures

Figure 1.	Environmentally related expenditure and GDP .....	30
Figure 2.	Environmental investments as a share of GFCF.....	33
Figure 3.	GDP per capita and environmental investments.....	34
Figure 4.	Environmental funds share of public expenditure .....	53
Figure 5.	User charge revenues and maintenance needs .....	66
Figure 6.	Household expenditure for water and income .....	67
Figure 7.	The Financial sector in OECD, CEE, EECCA .....	69
Figure 8.	Total environmentally related ODA/OA to regions .....	75
Figure 9.	Macro economic indicators for EECCA countries .....	118

## Boxes

Box 1.	Environmentally related public expenditure in EECCA.....	45
Box 2.	Internationally recognized principles of good public expenditure management.....	50
Box 3.	The Polluter Pays Principle (PPP) .....	64
Box 4.	Example of donor co-operation to mobilize international private lending for municipal environmentally related infrastructure in EECCA.....	78

## ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
BAT	Best Available Technology
BEAT	Best Economically Attractive Technology
CDM	Clean Development Mechanism
CEE	Central and Eastern Europe; comprises the following countries: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia.
CIS	Commonwealth of Independent States
CRS	Creditor Reporting System
DAC	Development Assistance Committee
DANCEE	Danish Co-operation for Eastern Europe
EAP	Environmental Action Programme for Central and Eastern Europe
EAP TF	Task Force for the Implementation of the Environmental Action Programme for Central and Eastern Europe
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EEA	European Environment Agency
EECCA	Eastern Europe, Caucasus and Central Asia; comprises the following countries: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, the Kyrgyz Republic, Moldova, the Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.
EFS	Environmental Financing Strategy
EIB	European Investment Bank
EPA	Environmental Protection Agency
ESCO	Energy Service Companies
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GEF	Global Environment Fund
GFCF	Gross Fixed Capital Formation

---

GNI	Gross National Income
GNP	Gross National Product
IBRD	International Bank for Reconstruction and Development
IDA	International Development Assistance
IFC	International Finance Corporation
IFI	International Financing Institution (e.g., the World Bank, ADB, EBRD, NIB, EIB, etc.)
IMF	International Monetary Fund
IPPC	Integrated Pollution Prevention and Control
LIC	Low Income Countries
MDG	Millennium Development Goal
NEFCO	Nordic Environmental Financing Cooperation
NGO	Non-Governmental Organization
NIB	Nordic Investment Bank
NIS	New Independent States (now EECCA)
NPAF	Russian National Pollution Abatement Facility
OA	Official Assistance (OA to the EECCA region stands for flows of assistance going to the following transition countries: Belarus, the Russian Federation and Ukraine)
ODA	Official Development Assistance (ODA to the EECCA region stands for flows of assistance going to the following developing countries: Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Moldova, Tajikistan, Turkmenistan and Uzbekistan)
OECD	Organisation for Economic Cooperation and Development
O&M	Operation and Maintenance
PAC	Pollution, Abatement and Control
PEEM	Public Environmental Expenditure Management
PIP	Public Investment Programme
PPP	Polluter Pays Principle
UK	United Kingdom
UNCTAD	United Nations Conference for Trade and Development
UNEP	United Nations Environmental Programme
USA	United States of America
USAID	United States Agency for International Development
USD	United States Dollars
WB	World Bank
WWTP	Waste Water Treatment Plant



## EXECUTIVE SUMMARY

The countries of Eastern Europe, Caucasus, and Central Asia (EECCA) face substantial environmental challenges. Although the nature of those challenges is diverse, many are similar, due to parallel development during the past decades. The common problems are mostly related to the persistence of inefficient production structures, out-dated technologies, ineffective environmental policies and institutions, and to a relatively extensive, but deteriorated and expensive-to-operate, environmental infrastructure. Thus, some of the common challenges include:

- The magnitude of costs for achieving (usually unrealistic) environmental objectives far exceeds the resources available for relatively small markets;
- The population has a better access to services than inhabitants of countries of the same level of income, though the quality of these services is usually poor and deteriorating;
- Enterprises generally lack the incentives and means to improve their environmental performance.

### **Environmental finance in EECCA. Situation and prospects**

Data on environmental expenditure indicate the financial resources allocated to environmental policy objectives. The EAP Task Force has supported EECCA countries in collecting this data as a necessary first step in improving the efficiency and effectiveness with which they are used.

Some features of environmental expenditures in EECCA countries are:

- In some EECCA countries, environmental expenditure, as a share of GDP, is higher than is expected; Moldova is a clear example, where this ratio reaches 3.1% (compare with a range of 0.6 to 2.8% in OECD countries); however, in other countries (Armenia, Azerbaijan, the Kyrgyz Republic, Turkmenistan) the ratio is lower than OECD average;
- The lion's share usually goes to the water supply and sanitation sector (50-85% of total expenditure), mostly on operation expenditure. However, this is not sufficient to arrest the deterioration of services. The consequences of inaction would be severe, so this sector, and environmentally related infrastructure, are given particular emphasis in this report;
- Environmentally related investment remains at a low level, as part of Gross Fixed Capital Formation (GFCF, less than 3%);
- The small size of the markets in absolute terms in most EECCA (from USD 12 to 49 million a year per country, except for Russia, Ukraine and Kazakhstan) represents obstacles to the development of innovative technologies and financial products.

Foreign environmental official development assistance (ODA) provides some additional support. Although ODA flows have increased, they generally remain at relatively low levels compared to other regions, suggesting that there may be opportunities to channel additional foreign resources to the environment (among others). However,

- to increase the level of environmentally related ODA would require EECCA countries to prioritise environmental issues in national development strategies and in international cooperation programmes;
- the impact of foreign direct investment (FDI) in the environment sector, and in related industries (in particular, the energy sector) could be strengthened, once a clear and stable environmental and institutional framework is set up;

- innovative financial approaches are still to be developed and implemented in the region; this requires identifying new opportunities in the changing context of development finance, e.g. negotiating debt-for-environment swaps as part of broader debt restructuring packages.

The limited role of foreign assistance confirms that domestic sources will have to provide the bulk of total finance for the environment. The private financial sector is developing. It has still to learn how to be associated with public funds, to increase the leverage of public environmental expenditure.

### **Consequences for policy making**

The two main challenges of environmental finance in EECCA countries are, first to make the best use of existing resources, and second to channel more domestic and foreign money into environmental issues. The report makes nine main recommendations to this end:

1. *Improve the data and information base for effective environmental financing.* In order to address critical financing bottlenecks, and to allocate scarce public funds where they are most needed, EECCA countries should improve their systems for monitoring environmental expenditures, by introducing internationally-recognized methodologies, such as those used by Eurostat and OECD.
2. *Use public financial resources for environmental purposes more efficiently.* EECCA countries should use scarce public financial resources available for environmental purposes with greater efficiency, transparency and accountability. Public agencies managing environmental expenditure in EECCA countries might improve their ability to attract government resources, domestic private, and foreign finance, if they operate according to acknowledged standards of good governance and sound public finance. Good Practices of Public Environmental Expenditure Management, developed by the OECD/EAP Task Force, could help reform institutions that manage public environmental expenditures, including Environmental Funds.

3. *Reform the system of environmental charges* and clarify their revenue raising and/or incentive function for environmental protection. The report identifies measures that could be taken to strengthen the revenue-raising function of pollution charges. Most importantly for revenue-raising purposes, charges need to be significantly increased and focused on fewer pollutants. Experience from OECD countries suggests, for example, that taxes on products rather than on emissions yield higher and more predictable revenue. Fiscal instruments to capture rents (excess profits) that private agents earn on exploiting natural resources could be important for some countries.
4. *Develop high-quality and realistic environmental programs and financial plans.* Realistic finance strategies should be developed to support the achievement of the objectives of environmental programmes. To this end, the use of methodologies such as FEASIBLE should be applied more broadly and deeply in EECCA countries. Ability and willingness to pay for environmental improvements need to be explicitly addressed. Project owners, in particular municipalities, municipal service providers (such as water utilities), and small and medium size enterprises require targeted training in financial planning and project preparation.
5. *Strengthen municipal finance and financial sustainability of environmentally related utilities.* Central governments should establish frameworks for municipal finance that provide municipalities with incentives and means to mobilize finance, in a fiscally responsible manner, for investment in environmentally related infrastructure. Further efforts are needed in most EECCA countries to promote decentralization and to improve fiscal relations between sovereign and sub-sovereign levels of government. Municipalities should strengthen their financial management and capital budgeting, e.g. through preparation and implementation of multiyear investment plans for municipal infrastructure and related programs. This would enhance their creditworthiness, thus increasing the capacity of municipalities to implement and finance investments. In the same vein, improving the managerial, financial

---

and operational autonomy of local service providers is an essential condition of sustainability of local environmentally related services.

6. *Promote better access to capital and financial markets for financing investments in environmentally related infrastructure.* 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; incentives for such an involvement include the right for local authorities to incur debt, support to the development of carriers of long-term savings (insurance companies, banks), regulation on the portfolio of these institutions (and the share that they are allowed to invest into local jurisdictions), etc. 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.
7. *Utilize opportunities for debt-for-environment swaps as part of debt restructuring.* Debt-for-environment swaps reduce a portion of external debt in exchange for the debtor country spending an agreed portion of the reduced debt on domestic environmental improvements in local currency. However, they can also affect the country's credit rating and increase costs of sovereign borrowing. Hence, swaps are best considered in conjunction with wider debt-restructuring or debt relief scheme. So far, Georgia and the Kyrgyz Republic have used the opportunity to include a swap clause in the framework agreement with a group of official creditors.
8. *Access resources made available via carbon funding.* The recent development of carbon funding generates new opportunities for Annex 1 and Annex 2 countries to channel international finance for environmentally related projects. Clean Development Mechanism (CDM) requires that these countries elaborate portfolios of projects which qualify to receive funding from partners in Annex 1 countries. As such portfolios develop, there is a need to finance the treasury gap that exists between the initial investment and the moment the project generates stable revenues from CDMs.

9. *Assign higher priority to environment in national development strategies and in international co-operation.* EECCA countries should assign a higher priority in international cooperation. Failure to do so may mean that environmentally related bilateral assistance remains low compared to other regions of the world, and disbursement of IFI loans small compared to efforts and resources spent on project preparation. Environment should also be more effectively integrated into national development strategies, including the Poverty Reduction Strategy Papers. In the terms of references for cooperation projects, more emphasis could be put on building local capacity of experts and consultants to provide policy advice and technical assistance according to international standards.

## SYNTHÈSE

Les pays d'Europe Orientale, du Caucase et d'Asie Centrale (EOCAC) sont confrontés à des problèmes environnementaux sérieux. Même si la nature de ces problèmes varie, ils ont beaucoup en commun, parce que ces pays ont suivi des trajectoires parallèles au cours des dernières décennies. Le tronc commun est lié à la persistance de structures de production inefficaces, de technologies dépassées, d'institutions et de politiques environnementales mal adaptées, et de l'existence d'infrastructures environnementales relativement étendues, mais détériorées et dont le fonctionnement coûte cher. Aussi, ces pays partagent un petit nombre de défis:

- Les dépenses nécessaires à la réalisation d'objectifs (souvent irréalistes) dans le domaine de l'environnement sont très supérieures aux ressources disponibles pour des marchés relativement restreints ;
- Le taux d'accès de la population aux services est meilleur que celui des populations de pays à niveau de revenu comparable, mais la qualité de ces services est généralement mauvaise et en baisse ;
- En général, les entreprises n'ont ni la motivation ni les ressources pour améliorer leur performance environnementale.

### **Les mécanismes de financement des politiques d'environnement dans la zone EOCAC. État des lieux et perspectives**

Les données sur les dépenses d'environnement rendent compte des ressources financières allouées aux politiques environnementales. Le Groupe d'étude du Programme d'Action pour l'Environnement a aidé les pays de la zone EOCAC à collecter ces informations, avant d'améliorer la manière dont elles sont exploitées.

Les caractéristiques des dépenses d'environnement dans la région sont les suivantes :

- Dans certains pays, les dépenses d'environnement représentent une part du PNB plus importante que prévu. C'est le cas de la Moldavie, où ce ratio atteint 3,1% (alors qu'il varie de 0,6 à 2,4% dans les pays de l'OCDE<sup>1</sup>). Toutefois, dans d'autres pays (Arménie, Azerbaïdjan, Kirghizstan, Turkménistan), il reste inférieur à la moyenne OCDE ;
- L'essentiel de ces dépenses est consacré au secteur de l'eau et de l'assainissement (entre 50 et 85% du total), principalement pour des dépenses de fonctionnement. Toutefois, cela ne suffit pas à arrêter la détérioration du secteur. Les conséquences de l'inaction seraient très graves, ce qui explique l'importance donnée dans le rapport à ce secteur et aux infrastructures environnementales ;
- La part de l'investissement dans l'environnement dans l'ensemble de la formation brute de capital fixe reste faible (moins de 3%) ;
- La petite taille des marchés dans la plupart des pays de la région (entre 12 et 49 millions de dollars par an et par pays, en dehors de la Russie, de l'Ukraine et du Kazakhstan) constitue un obstacle au développement de technologies et de mécanismes de financements innovants.

L'aide publique au développement constitue un apport complémentaire. Si les flux d'aide ont augmenté, ils restent généralement inférieurs à ceux dont bénéficient d'autres régions du monde. Cela suggère que la région peut être susceptible d'attirer de nouvelles ressources financières étrangères dans le secteur de l'environnement. Pourtant,

- Le niveau d'aide internationale à l'environnement ne peut augmenter que si les pays de la zone EOCAC inscrivent l'environnement comme une priorité, au coeur des stratégies de développement nationales, et des programmes de coopération internationaux ;
- L'impact des investissements directs étrangers dans le secteur de l'environnement et dans les secteurs connexes (l'énergie) ne pourra

---

<sup>1</sup> Les pays de l'OCDE comptabilisent les dépenses de lutte contre la pollution, dont le champ est différent des dépenses d'environnement.

être renforcé que si un cadre institutionnel clair et stable est mis en œuvre ;

- Les instruments financiers innovants ne sont pas encore utilisés dans la région. Il serait utile d'identifier les opportunités liées aux évolutions dans le domaine du financement du développement, par exemple les échanges de dette pour l'environnement (swap) dans le cadre de programmes plus larges de réduction de la dette publique.

Le rôle limité de l'aide internationale confirme que l'essentiel des financements pour l'environnement devra provenir des ressources nationales. Le secteur privé se développe. Il doit encore apprendre à travailler en association avec des fonds publics, afin d'accroître l'effet de levier des ressources publiques.

### **Conséquences pour les politiques publiques d'environnement**

Le financement des politiques environnementales est confronté à deux principaux défis dans les pays de la zone EOCAC : faire le meilleur usage des ressources existantes, et attirer de nouvelles ressources nationales et internationales sur les questions d'environnement. Le document fait neuf recommandations qui contribuent à la réalisation de ces défis :

10. *Améliorer les données sur lesquelles se fonde le financement de l'environnement.* Pour répondre aux besoins de financement et allouer les ressources où elles sont le plus utiles, les pays de la zone EOCAC doivent améliorer leur système de production d'information statistique sur les dépenses environnementales ; l'introduction de méthodes reconnues internationalement, comme les standards de l'OCDE et d'Eurostat, va dans ce sens.
11. *Utiliser de manière plus efficace les financements publics pour l'environnement.* Les pays de la zone EOCAC gagneraient à utiliser les finances publiques pour l'environnement, qui sont limitées, de manière plus efficace, plus transparente et plus responsable. Les administrations qui gèrent des ressources financières pour l'environnement dans les pays de la région renforceraient leur capacité à attirer des ressources supplémentaires (publiques ou privées, domestiques ou internationales) si elles fonctionnaient

conformément aux standards établis de bonne gouvernance et de bonne gestion publique. Les bonnes pratiques de gestion des dépenses publiques d'environnement, développées par l'OCDE / Groupe d'étude du Programme d'Action pour l'Environnement, peuvent guider la réforme des institutions qui gèrent des deniers publics pour l'environnement, telles que les fonds pour l'environnement.

12. *Réformer le système de tarification pour l'environnement* et préciser si son objectif est de générer des ressources financières, ou d'inciter à la protection de l'environnement. Le rapport identifie des mesures qui, si elles sont appliquées, permettent de renforcer la capacité des taxes sur la pollution à générer des ressources financières. De ce point de vue, l'essentiel est de relever sensiblement le niveau des taxes et de les faire porter sur un plus petit nombre de polluants. L'expérience des pays membres de l'OCDE suggère, par exemple, que les taxes sur les produits génèrent des revenus plus importants et plus stables que celles sur les émissions. Certains pays pourraient mettre en oeuvre des instruments fiscaux destinés à capturer la rente (les profits excessifs) dont certains agents économiques profitent en exploitant des ressources naturelles.
13. *Concevoir des programmes environnementaux et des plans de financement de bonne qualité et réalistes.* Des stratégies de financement réalistes devraient être élaborées, qui traduisent les objectifs des programmes environnementaux. A cette fin, les méthodes de type FEASIBLE devraient être utilisées plus fréquemment et de manière plus approfondie dans les pays de la zone EOCAC. Une attention particulière mérite d'être portée à la capacité et à la volonté des populations de payer pour l'amélioration de l'état de l'environnement. Les porteurs de projets (en particulier les municipalités), les services municipaux (tels que les opérateurs publics des services d'eau et d'assainissement), et les petites et moyennes entreprises du secteur ont besoin de formations ciblées sur la planification financière et la préparation des projets.
14. *Renforcer les finances des collectivités locales et la stabilité financière des prestataires de services dans le domaine de*

*l'environnement.* Les gouvernements devraient établir des dispositifs qui incitent les collectivités locales à, et leur donnent les moyens de mobiliser des ressources pour financer l'investissement dans les infrastructures environnementales, d'une manière qui soit fiscalement saine. Dans la plupart des pays de la zone, de nouveaux efforts sont nécessaires pour promouvoir la décentralisation et assainir les relations fiscales entre gouvernements centraux et collectivités locales. Les municipalités devraient améliorer leur gestion financière et la budgétisation de leurs investissements, par exemple en préparant et en réalisant des plans d'investissement pluriannuels pour les infrastructures municipales et les programmes connexes. Cela rehausserait leur crédit, et donc leur capacité à réaliser et à financer des investissements. De la même manière, il est essentiel de renforcer l'autonomie managériale, financière et opérationnelle des prestataires de services publics locaux, pour garantir la pérennité des services liés à l'environnement.

15. *Faciliter l'accès aux marchés financiers, pour financer les investissements dans les infrastructures liées à l'environnement.* Dans le cadre du processus de décentralisation fiscale, les politiques et les obstacles institutionnels qui empêchent le secteur financier de jouer un rôle plus important dans le financement des projets environnementaux devraient être abolis. Les actions suivantes vont dans ce sens : permettre aux collectivités locales de s'endetter, soutenir le développement des porteurs d'épargne longue (sociétés d'assurance, banques), régler la structure des actifs de ces agents (et la part qu'ils peuvent investir auprès des collectivités locales), etc. L'expérience accumulée dans d'autres régions du monde pourrait servir aux pays de la zone EOCAC pour permettre aux marchés financiers locaux de jouer un plus grand rôle dans le financement des infrastructures liées à l'environnement.
16. *Exploiter les opportunités d'échange de dette pour l'environnement, dans le cadre de programmes de restructuration de la dette publique.* Un échange de dette pour l'environnement (swap) consiste à réduire la dette extérieure d'un pays, en échange d'un engagement pris par ce pays à consacrer une part des ressources libérées au financement, en monnaie locale, de projets qui améliorent

l'environnement dans le pays. Toutefois, cette opération peut conduire à dégrader la note du pays emprunteur et augmenter le coût de la dette de l'état. Par conséquent, de tels échanges doivent être conçus dans le cadre de programmes plus globaux de restructuration ou d'annulation de la dette. A ce jour, la Géorgie et le Kirghizstan ont fait inscrire une clause permettant de telles opérations dans des accords cadres avec un groupe de pays créditeurs.

17. *Exploiter les ressources générées par les financements carbone.* Le développement récent des financements carbone ouvre de nouvelles opportunités pour les pays des annexes 1 et 2 d'attirer des ressources financières internationales pour des projets liés à l'environnement. Les mécanismes de développement propre (MDP) permettent aux pays de la zone EOCAC de constituer des portefeuilles de projets éligibles aux financements de partenaires situés dans les pays d'annexe 1. La réalisation de ces projets suppose que soit financé le besoin de trésorerie qui existe entre l'investissement initial et le moment où le projet commence à générer des revenus stables dans le cadre des mécanismes de développement propre.
18. *Relever la priorité donnée à l'environnement dans les stratégies de développement nationales et les coopérations internationales.* Les pays de la zone EOCAC devraient donner à l'environnement une priorité plus importante dans les coopérations internationales. S'ils ne le font pas, l'aide bilatérale à l'environnement risque de rester faible, en comparaison de ce qu'elle est dans d'autres régions du monde, et les prêts des institutions financières internationales risquent de demeurer limités au regard des efforts et des ressources consacrés à la préparation des projets. L'environnement devrait également être mieux intégré dans les stratégies de développement nationales, y compris dans les plans de lutte contre la pauvreté. Les termes de référence des projets de coopération pourraient mettre plus l'accent sur le développement d'une offre locale d'experts et de consultants, susceptible de fournir des conseils en matière de politique et une assistance technique conformes aux standards internationaux.

---

## **CHAPTER 1.**

### **THE BACKGROUND OF ENVIRONMENTAL FINANCE IN EECCA**

This chapter provides an overview of environmental finance in EECCA, in the context of environmental challenges, on the one hand, and of macro-economic trends, on the other hand. The confrontation of high needs for, and recent trends in environmental expenditures makes a strong case in favour of sound and realistic financial strategies.

#### **Environmental challenges**

EECCA countries share a number of environmental challenges which are reflected in national priorities. Incentives to improve environmental performance also come from international cooperation and agreements, among which the Millenium Development Goals (MDGs) play a major part.

#### ***Key environmental challenges in EECCA***

All EECCA countries face substantial environmental challenges. Although the nature of those challenges is diverse, many environmental problems are similar, due to parallel development during the past decades. They are mostly related to the persistence of inefficient production structures and to a relatively extensive, but deteriorated and expensive to operate, environmental infrastructure.

Annex 1 provides a summary of key environmental challenges in EECCA, as reported in 2003 in the European Environment Agency's "Kiev Assessment".

The analyses prepared to date for EECCA countries have shown that the percentage of the urban population with access to water supply, wastewater treatment and solid waste management services is higher than in countries at a similar income level, but that these services are inefficiently designed and very costly to operate and maintain. At the same time, the existing arrangements for providing these services are financially unsustainable. Thus,

in most EECCA countries there is a chronic shortage of funds for proper operation and maintenance of infrastructure, such as small repairs, replacement of worn-out parts, small capital repairs and essential rehabilitation. This has resulted in the rapid loss of the economic and technical value of assets. If corrective action is not taken, it may eventually lead to the physical collapse of the infrastructure, with severe consequences for human health, the environment and economic activity.

Properly addressing the above issues would bring about important immediate and long term benefits which usually are also economically beneficial. Benefits include, for example, reduced costs of health treatment, increased competitiveness and productivity of industrial and agricultural sectors, increased efficiency in the use of natural resources, reduced irreversible losses of biodiversity and nature, decreased costs for treating contaminated land, new trade and tourism opportunities, increased living standards, etc. However, it is important to look at the above problems in the current economic and social context in EECCA countries. Addressing most of these environmental challenges requires integrated solutions, which are difficult if not impossible to find in the absence of further economic progress and strong political support.

### *The impetus of the Millennium Development Goals*

The environmental Millennium Development Goal (MDG<sub>7</sub>) aims to “ensure environmental stability”. It is elaborated in a set of three targets.

According to target 1, by 2015 all United Nations Member States have pledged to reduce by half the proportion of people without sustainable access to safe drinking water. At the Johannesburg Earth Summit, they have further agreed, by 2015 to reduce by half the proportion of people without access to basic sanitation.

EECCA has a long way to go to meet these targets<sup>2</sup>. Official data are not very reliable, and more country work is needed to verify the real gaps. However, the World Bank has highlighted some key issues related to the

---

<sup>2</sup> See Meeting the Environment Millennium Development Goal in Europe and Central Asia, The World Bank, June 2003.

MGD<sub>7</sub> in EECCA. The real challenge to meet the target for access to safe water requires a focus on quality and regularity of water supply. Quality problems are even more acute in rural areas, where 30% of households are without access to piped water. Indeed, in some countries, quality of supplied water is declining, although this may not be officially acknowledged. For basic sanitation, the main problem is sewage systems and WWTPs, that are in a state of disrepair and that continue to deteriorate.

At the World Summit on Sustainable Development (WSSD) in Johannesburg in September 2002, the EU formally launched the “Global Water Initiative: Water for Life – Health, Livelihoods, Economic Development and Security”, which is designed, among others, to help achieve the MDG for water supply and sanitation in the EECCA region.

Target 2 aims to integrate the principles of sustainable development into country policies and programs, and to reverse the losses of environmental resources. According to the World Bank, areas where action is needed include: the legal basis for management; monitoring and collecting of environmental data, and its use for decision making; strengthening the Ministry of Environment’s capacity for policy design and ability to influence and work with other ministries (including better pay for civil servants); facilitating the financing of environmental investments from public and private sources and from financial institutions.

The third target concerns the improvement in the lives of slum dwellers, and is not referred to in this report.

### ***Related drivers for environmental performance***

Other drivers for environmental improvement stem from international cooperation and law. International environmental law includes the following:

- the Basel Convention (hazardous waste),
- several air pollution related conventions (Convention on Long Range Transboundary Air Pollution, Montreal Protocol on Substances that Deplete the Ozone Layer to the Vienna Convention for the Protection of the Ozone Layer),

- various biodiversity related conventions (Convention on Biological Diversity, Bern Convention on the Conservation of European Wildlife and Natural Habitats, Cartagena Protocol on Biosafety to the Convention on Biological Diversity),
- the Kyoto Protocol to the UN Framework Convention on Climate Change,
- the UN Convention to Combat Desertification,
- the Convention on the Protection and Use of Transboundary Watercourses and International Lakes,
- a number of regional conventions (HELCOM (Baltic sea), Black sea, etc.), and
- the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters.

Typically, EECCA countries can benefit from capacity building programs and basic financial assistance related to the implementation of such Conventions, provided that such Conventions actually are ratified and in force in a given country (currently, the degree of conventions put into force is significantly smaller in EECCA countries than in Western European or CEE countries).

Apart from international environmental law, several international processes help drive environmental policies in EECCA. The Environment for Europe process and the Rio follow-up process are most prominent and important.

In addition to these drivers, the key to real progress eventually lies with domestic environmental policies. In this, EECCA countries have to proceed largely on their own (unlike CEE countries, where the adoption and implementation of EU environmental policy and law have been, and continue to be, a strong driver for progress).

## Economic trends

The EECCA region spreads over a vast geographic area from the EU borders in the West to the Pacific Ocean in the East, occupying the eastern part of European continent and the northern part of Asian continent. The population of the region represents close to hundred nationalities, each varying in cultural traditions and ways of living. The total population of the EECCA region is approximately 275 million inhabitants. The division between urban and rural populations in the EECCA region varies much from country to country and ranges from 27% of urban population in Tajikistan to 73% in Russia.

Since the break-up of the Former Soviet Union in 1991, the countries of EECCA have seen drastic declines in their economies and long periods of economic contraction. Four countries are now classified as low-income countries<sup>3</sup> (the Kyrgyz Republic, Moldova, Tajikistan and Uzbekistan). All other countries, but the Russian Federation, are low-middle income countries<sup>4</sup>. The crisis reached its bottom during the Russian financial crisis in 1998, but soon afterwards most economies began to grow again, with the slowest recovery in Uzbekistan and the Kyrgyz Republic. The GDP per capita at current exchange rates varies from EUR 258 in Tajikistan (one the world's lowest) to 3 816 in Russia in 2004, which is more than Bulgaria.

The fiscal position of the governments is weakened by the generally low share of government tax revenue in GDP compared to CEE countries and west European countries. This limits the public expenditure capacity at all levels of government. Investments in the economy have recovered after the 1998 crisis, although they remain low compared to both CEE and OECD countries. Until 1996, inflation was very high in all countries of EECCA. Later almost all countries have brought annual inflation down to below 30%, and in 2004 most of the countries in the region slashed annual inflation to a single digit number with more or less stable outlooks (with the notable exception of the Russian Federation).

---

<sup>3</sup> Low-income countries are defined as countries with less than USD 735 Gross National Income (GNI) per capita (2002 prices).

<sup>4</sup> Low-middle income countries are defined as countries with income between USD 735 – 2 935 GNI per capita (2002 prices).

These trends are consequential for environmental economics in EECCA.

First, it is most likely that environmental pressures will increase, as general economic growth resumes. Thus, decoupling environmental pressure from economic growth will remain a key challenge for the next decades.

Second, all economic agents, including the central State, local government bodies, industries, the households, have very limited resources to contribute to environmental expenditures:

- Public budgets will have an essential role in the short and medium term in financing rehabilitation and capital investments in public water and environmental infrastructure, in providing social protection and in facilitating access to credit. However, infrastructure programs have to compete with other pressing social priorities. Thus, scarce public funds and donor grants need to be strategically prioritized.
- IFIs will continue to have an important role in capital investments and in promoting financial and managerial discipline.
- User charges will be the most important long-term source of finance for operation and maintenance expenditure, though the low income in many EECCA countries sets an important affordability constraint.
- The importance of domestic financial and capital markets will grow over time. Indeed, the banking sector is still a small, although rapidly increasing, part of the economy, and the volume of banking credit as a percentage of GDP is much lower than in advanced CEE countries and western European countries. High lending rates and spreads reflect the still very fragile credit market.
- For many years, the role of the private sector will be more important in providing managerial know-how than finance.

## Trends in environmentally related expenditure

The commitment to address environmental issues can be best illustrated by analyzing environmentally related expenditure<sup>5</sup> in EECCA and measuring their share in the total income of the economy. Over the last several years, the first environmental expenditure studies and data collections have been undertaken in selected EECCA (OECD, 2002, World Bank, 2002a). For many countries, recent data collection in the whole region, undertaken by the OECD EAP Task Force Secretariat, was the first time that data were compiled using the internationally-established methodologies of the OECD and Eurostat (OECD EAP TF, 2003). This study covers a 1996-2001 time series of domestic environmental expenditures, as well as assistance provided by donors and lending from International Financial Institutions (IFIs). Data collection revealed important methodological, accounting and definitional differences that often made it difficult to interpret the data. It underlined the need for a reform of environmental expenditure data collection in the EECCA countries. Still, it provides a sufficiently robust basis for preliminary, cautious policy analysis. This section will overview the main findings of this study and derive some analytical conclusions from presented data.

Since then, several countries have expressed interest for reforming their information system and statistics on environmental expenditure. In 2005, two projects financed by EU TACIS will help the Ukrainian and the Kyrgyz governments to align environmental expenditure information systems with OECD/Eurostat standards. In 2007, the OECD/EAP Task Force Secretariat will update the previous report on environmental expenditure in EECCA.

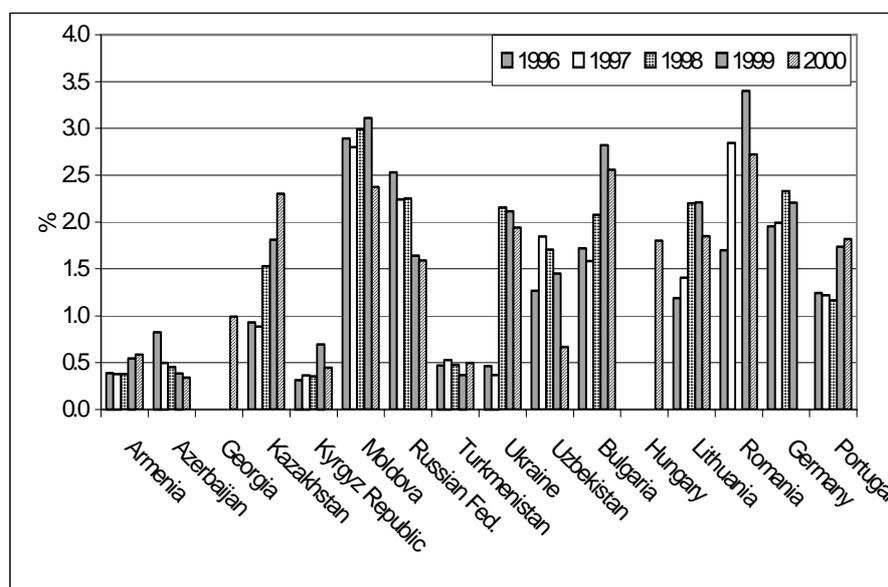
As a share of GDP, environmentally related expenditures have either stayed constant or decreased in the period 1996-2001 (see Figure 1). The share of the reported environmentally related expenditure in GDP varies significantly across countries, from 0.4% in Azerbaijan to 3.1% in Moldova in 2001. Except those which are at the low end of this spectrum, most EECCA countries seem to devote higher shares of their incomes to environmentally related expenditures than selected CEE and EU countries.

---

<sup>5</sup> The category “environmentally related expenditure” includes pollution abatement and control expenditure (PAC), as defined by OECD and Eurostat, plus water supply expenditures and some natural resource management expenditures that are not covered by the OECD PAC methodology.

Even taking into account possible overestimates of some reported expenditure analyzed in the report (e.g. Ukraine and Kazakhstan), it seems that measured by the share of income devoted to environmentally related expenditures, most EECCA countries seem to be more committed to improving environmental and water supply quality than may be commonly thought. Low income, rather than low willingness to pay, seems to be the binding constraint to higher environmentally related expenditures. This hypothesis, however, needs to be carefully verified by addressing the methodological problems with data classification and collection.

**Figure 1. Total environmentally related expenditure as a share of GDP, 1996-2000**



Source: OECD EAP Task Force (2003c).

Domestic environmentally related expenditures in absolute terms show no clear trends over time in the period 1996-2001 (Table 1): they have risen in some countries (Armenia, Kazakhstan and the Kyrgyz Republic) and declined in others (Azerbaijan, Ukraine and Uzbekistan). Except in Ukraine (EUR 617 million in the year 2000) and Kazakhstan (EUR 365 million in the year 2001), the size of the environmental market in other countries is still

---

very small, ranging in 2000 from 12 to 49 million EUR per year<sup>6</sup>. With so small levels of environmental expenditures, there may be sharp discontinuities in trends due to one single major project. Very high business expenditure data in Ukraine and Kazakhstan, as reported by these countries, however, would require further investigation. In these largest countries in the region (except for Russia), the absolute volume of environmentally related expenditures may be similar to that of the less advanced CEE transition countries (such as Romania) or that of smaller new EU Member States (such as Hungary). Still, this volume is about half of the volume of finance that Portugal spends on environment and water supply.

The small absolute figures for most EECCA countries reflect the very small sizes of markets for environmental protection technologies and equipment. Unfortunately, this does not help EECCA decrease environmental protection costs because the competition and the “economy of scale” do not apply. It also does not help attract domestic and foreign financing institutions, as the expected business size in most cases will not justify the high costs and risks of developing innovative financial products. This situation resembles a vicious circle where the small size of the market does not attract technology and finance, which – in turn – does not support the growth of the market.

---

<sup>6</sup> Belarus and Tajikistan have not provided environmental expenditure data. In a subsequent Environment Performance Review of Belarus, analysis shows that this country has a significant level of domestic environmental expenditure, but that data have to be interpreted with caution.

**Table 1. Trends in total environmentally related expenditure, 1996-2001, million 2000 EUR**

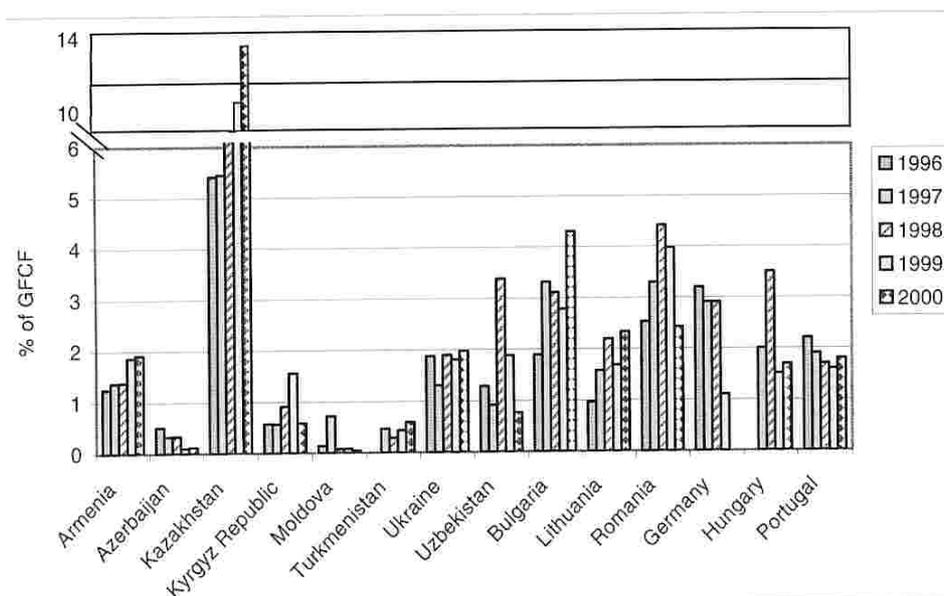
	1996	1997	1998	1999	2000	2001
Armenia	5	6	7	12	12	..
Azerbaijan	34	22	22	20	20	19
Georgia	..	..	..	..	..	34
Kazakhstan	166	159	270	326	455	365
Kyrgyz Republic	4	5	5	9	7	..
Moldova	43	42	41	42	33	50
Russian Federation	6 454	5 863	5 508	4 236	4 464	4 536
Turkmenistan	11	14	13	9	15	11
Ukraine	159	123	702	688	666	698
Uzbekistan	80	119	114	102	49	102
Bulgaria	223	194	265	367	351	..
Romania	759	1 193	4 439	1 342	1 094	..
Germany	36 563	37 757	45 026	43 572	..	..
Hungary	..	..	..	..	..	930
Portugal	1 228	1 254	1 252	1 936	2 101	..

*Notes:* Data should be compared with caution as definitions and data availability vary across countries. Data for OECD, CEE and some EECCA countries do not include expenditure for natural resources management.

*Source:* Eurostat and OECD EAP Task Force (2003c - based on national statistics).

Operation expenditure is the most important component of environmental expenditures. However, capital expenditure appears to be more important in Armenia (70% of total environmentally related expenditure), and Kazakhstan (which has reported only investment expenditures; the figure may result from a methodological problem). Environmentally related investments contribute to 0.1% to 3% of total investments in the economy. For few countries (Armenia, Ukraine), this is lower than for transition economies in CEE (which are investing under pressure to comply with EU standards) and Germany, but is comparable with Portugal. In Kazakhstan, the share is larger, but data should be studied carefully.

Figure 2. Environmental investments as a share of GFCF, 1996-2000



Notes: Data should be compared with caution as definitions and data availability vary across countries. Data for OECD, CEE and some EECCA countries do not include expenditure for natural resources management.

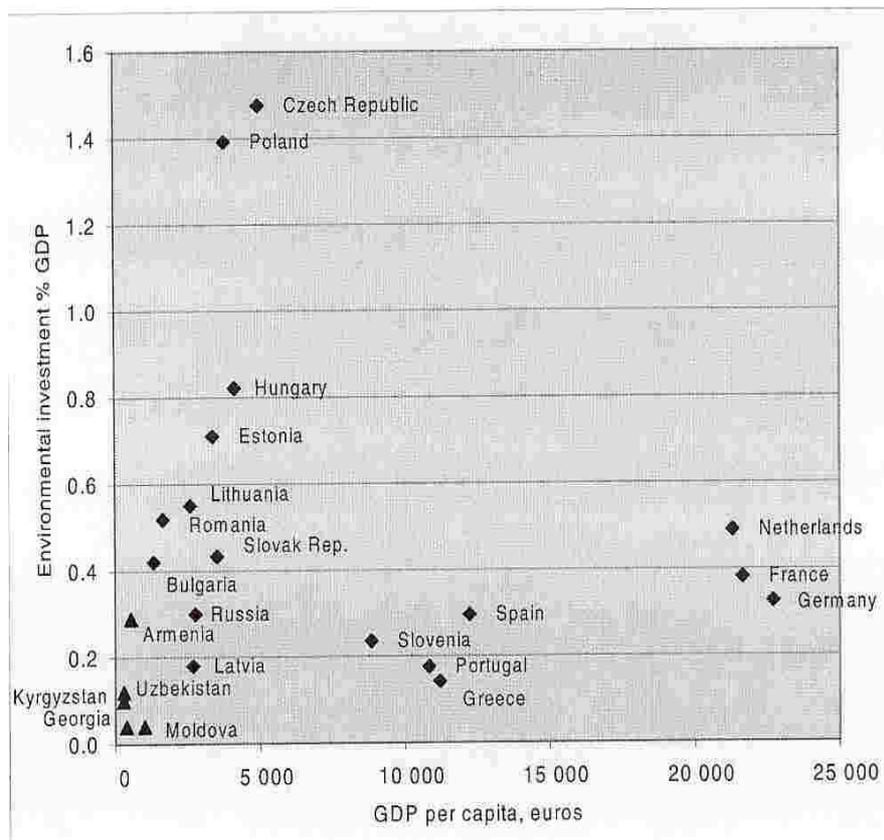
Source: Eurostat and OECD EAP Task Force (2003c - based on national statistics)<sup>7</sup>.

Figure 3 below compares environmental capital expenditure as percentage of GDP with GDP per capita, for selected European and EECCA countries. EECCA are investing much smaller fractions of their income in environmental protection than CEE and OECD countries. Low-income countries in EECCA have allocated a relatively small portion of income to environmental capital expenditure, as compared with some middle-income transition economies of Central Europe (in particular, the Czech Republic and Poland). The distribution of data renders the correlation coefficient in the whole data set statistically insignificant. This “strange” behavior of some CEE outliers can be explained by the high expenditures that these new Member States make to meet EU environmental standards in a very short

<sup>7</sup> For more detailed explanations concerning definitions and data coverage, see Eurostat and OECD EAP Task Force (2003c).

time. Similar commitment cannot be expected from EECCA, since the region lack such an externally driven, and specific policy objective.

**Figure 3. Correlation between GDP per capita and environmental investments as percentage of GDP for a sample of European and EECCA countries**



*Notes:* At current prices and exchange rates. Data refer to spending for end-of-pipe and process-integrated investments. Data refer to 1996 (Spain), 1997 (Germany, the Netherlands and the Russian Federation), 1998 (France, Bulgaria, Hungary, Lithuania, Romania, Slovenia and the Slovak Republic), 1999 (Czech Republic, Estonia, Georgia, Greece, Latvia, Poland and Portugal), and 2000 (Armenia, Moldova, the Kyrgyz Republic and Uzbekistan). Data on the Russian Federation include investments for water supply and exclude process-integrated investments. Data on Slovenia refer to business sector only. *Source:* OECD EAP Task Force, (2003a).

The distribution of environmental expenditure by media showed that water supply and wastewater treatment accounted for by far the largest share of expenditure. The two media together received between 50–85% of the

overall resources, except for Kazakhstan (where expenditure to the air sector was reported as 64% of total expenditure). For most countries, the second largest receiving media was air protection (in seven out of ten countries, the sector received above 11% of all environmentally related expenditure). In all countries, but the Kyrgyz Republic, Kazakhstan and Russia, waste expenditure appears to be very low, ranging from 1% to 10% of total expenditure. In some countries, however, these low numbers may be due to severe underreporting of waste related expenditure.

Overall, preliminary empirical data seem to indicate that environmental and water supply expenditures in many (though not all) EECCA countries account for a significant portion of GDP. Absolute values are very low, however, mainly because of low incomes. In addition, the bulk of financial resources seems to be used to operate and maintain old (and typically obsolete) pollution abatement technologies, and the shortage of funds affects mainly capital spending on overhaul of existing or investments in new fixed assets. Notwithstanding the relatively low levels of overall environmental investments, EECCA have usually been able to mobilise additional resources in the instances of environmental accidents or calamities that have threatened the health and lives of people. Unfortunately, this seems to have been the main driver for environmentally related spending so far.

The recent trends in environmentally related expenditure in EECCA in absolute terms by far come short to meeting the costs of current environmental policies as mentioned in the next section.

### **The need for sound environmental finance strategies**

#### ***The costs of meeting MDG<sub>7</sub>***

In its 2003 report, the World Bank calculated the costs of meeting the quantitative targets of water supply and sanitation, taking into account the need to improve quality, in three countries: Kazakhstan, Moldova, and Ukraine. The figure shows that in these countries, the annual investment required will have to be raised considerably, if the MDG targets are to be met: from around USD 120 million to over USD 200 million. For all EECCA, investment to meet the water supply and sanitation targets is estimated at USD 1.1 billion per year, which is considerably more than current investment.

One can get an idea of the financial resources required for environmental improvements in EECCA by looking at the state of physical assets which provide environmental services, and assessing the rehabilitation and capital investments required to achieve various arbitrary targets in environmentally related sectors.

Over the last years, different studies give an indication of the magnitude of costs of achieving selected environmental objectives:

- In Ukraine, environmental improvements equivalent to the implementation of the EU Directive on Large Combustion Plants would cost up to EUR 2 billion in capital investments in pollution abatement equipment until the year 2010. The annual cost (annualized capital cost and O&M) for the country in 2010 would be about EUR 320 million (Berbeka, Jantzen, and Peszko, 1999).
- For urban water and sanitation, just maintaining the present level of infrastructure services generates a significant cost, even though this policy objective may look modest. In order to fully cover just O&M of the current urban water infrastructure alone, Moldova would need to spend 3.2% of current GDP, Georgia - 3.0% and Kazakhstan 1.2% per year. In all cases, this would imply doubling, or even more than tripling the current level of expenditure to the water sector. The cost burden on the economy appears heavy, when compared with the estimates for some of the new EU member countries from CEE; for example, it was estimated that Lithuania would have to spend from 1.1% of GDP in 2005 to 2.6% of the forecasted GDP in 2020 to implement the entire body of environmental laws of the European Union (DANCEE/Anderson and Semeniene, 2001). These figures include annualized investment and O&M for all environmental directives, including drinking water and urban wastewater directives.

These preliminary and non-comprehensive cost estimates indicate that the burden of any ambitious environmental investment programs in EECCA may be much higher in EECCA than it is in the new EU member states from CEE. This calls for very careful and realistic setting of policy objectives.

A recent report (DANCEE/COWI, 2004) analyzed and estimated the costs of achieving the MDG for water supply and sanitation in EECCA,

---

including an assessment of how to finance these costs. Main results of this report are appended; they include:

- Total investment costs related to the water and sanitation Millennium Development Goals are estimated to be between EUR 7 and 21 billion for the whole EECCA region;
- Out of the central estimate of EUR 14.6 billion, water supply improvement accounts for EUR 9.6 billion while sanitation accounts for EUR 5.0 billion; and similarly, renovation and rehabilitation of existing facilities account for EUR 13.0 billion, while new facilities or new connections accounts for EUR 1.6 billion out of the estimate of EUR 14.6 billion;
- Per capita investments costs amount to EUR 52 with variations among countries from EUR 37 to 78 per capita;
- Financing of the investments has to be seen together with all expenditures related to the sector; total annual expenditure need has roughly been estimated at EUR 23 per capita per year while total supply of finance is estimated at EUR 16 per capita per year.
- The investments in achieving the MDG can to some extent be seen as replacing re-investments that, under all circumstances, are necessary for maintaining service levels and the investments also induce costs savings due to, for example, reduced water losses.
- Average WSS user charges are currently at the level of 1.9 % of household income (simple average) varying from 0 to 4.6 %. Increasing the level to 3-4 % can give an important contribution, but is not sufficient in all countries.
- There is large difference among the countries where potential for implementation of the MDG is largest in Russia, while most difficulties have been found in Central Asia and the Caucasus region.

An interesting finding of the report is that rehabilitation components account for around 89% of the total MDG costs.

*The environmental finance challenge*

Policies have been adopted on national and international levels to address key environmental problems in the EECCA region. Sometimes efforts were made to assess the costs of implementing such policies and to project and plan on how these costs can realistically be financed, if at all. As this report will show, the EAP Task Force has significantly helped and catalyzed such work in specific sectors in several EECCA countries. Environmental finance still represents an important challenge in the EECCA region. This is illustrated by the table below, which contrasts some of the main elements of the environmental finance challenge facing new EU member states from CEE and the EECCA countries. Obviously the presentation is highly generalized and does not address the important differences within the two groups. Nevertheless, it provides a perspective on some of the different challenges facing the two groups of countries.

**Table 2. The environmental finance challenges facing EECCA**

	New EU Member States from CEE	EECCA Countries
Environmental policy incentives for domestic polluters to abate pollution/use resources efficiently	Strong and predictable environmental policy framework; evolving and credible enforcement; substantial financial incentives available to leverage investments; strong environmental requirements in main trade partner markets	Weak policy framework, subject to frequent change; inconsistent and “negotiable” enforcement; low willingness to protect environment without subsidies; low availability of financial incentives; limited trade related incentives
Market- based incentives	Substantial progress in market liberalization; hard budget constraints on enterprises and increasing cost recovery for municipal services; substantial perverse subsidies in some environmentally sensitive sectors continue	Weak or non-existent market based incentives; liberalization of some markets, but widespread protection of, and subsidies for, enterprises in key sectors; prices of municipal services substantially below cost recovery levels
Ability to pay for environmental improvements (indicated by GDP per capita data in USD per person, at current prices, latest available year)	Range: Romania (2 089 USD per person – EU membership expected earliest in 2007) - Slovenia (11 631.4 USD per person)	Range: Tajikistan (221.5 USD per person ) - Russian Federation (2 700 USD per person)
Investment climate	Increasingly large flow of foreign investment	Negligible foreign investment flows outside the natural resources extraction sectors
Liquidity of enterprises (ability to finance investments)	Generally stable with exceptions in some sectors	Generally unstable with exceptions in some sectors
Investment capacity and financial viability of utilities	Utilities generally autonomous, usually able to raise or access finance	Utilities subject to political interference, and unable to raise or access finance
Financial markets	Loans at relatively low interest rates; medium to long maturities available; range of financial instruments available; solid capital base	Collapse following the Russian financial crisis of 1998; recovering from low level; Credit rationing common
Public budgets	Solid and predictable revenue base; established system of public finance; fiscal discipline; sound supervision of sub-sovereign borrowing; autonomous, strong system of municipal finance	Narrow revenue base (often based on natural resource exploitation); low levels of transparency, accountability and cost effectiveness in public finances; weak fiscal discipline; unclear inter-governmental fiscal relations; weak investment and investment planning
Priority of environment in public sector spending	High: driven by EU accession requirements	Low: competing with other pressing policy sectors e.g. health, pensions etc.

Source: OECD EAP Task Force, 2003b.

---

*The need for sound environmental financing strategies*

A pragmatic approach to the issue of scarce financial resources available for implementing environmental policy is to thoroughly confront the amounts of money required to achieve different policy objectives, and the total amount of resources that can realistically be mobilized.

This approach implies that when a specific policy objective is being established, the costs and benefits of achieving this objective should be estimated. In a next step, estimated costs of efficient policies (for which benefits are greater than costs) can be compared with available and predictable finance, taking into account what people, companies and institutions can and are willing to pay. As a result there will be a list of prioritized policy objectives which can realistically be implemented in a given time period.

To-date, there have been few attempts to estimate the overall implementation costs of national or regional environmental policies in EECCA. Estimating such costs has been made difficult by the fact that EECCA countries typically have not established clear or realistic environmental policy objectives. Typically, statements of policy objectives are either too general and vague, or – on the contrary – too specific and long. In most cases, environmental programs include wish lists of individual projects, with little or no comprehensible prioritization and without being backed up by any assessment as regards feasibility in terms of financing. Environmental policy makers rarely perform any formal analysis of affordability and willingness to pay, when establishing new policy objectives.

As part of the recent work of the EAP Task Force in transition countries, a flexible instrument has been developed and tested in a number of EECCA countries, which allows for organizing policy relevant information, and for balancing environmental policies and targets with available resources. The description of this instrument, referred to as “environmental financing strategies” (EFS), is appended.

The basic approach underlying an EFS is to take public policy targets in areas like water supply and sanitation, to determine the costs and timetables of achieving them, and to compare the schedule of these expenditure needs with available sources of finance. This analysis generally reveals “finance

---

gaps” during planned implementation. An EFS can then develop various scenarios to determine how these gaps could be closed. This could be by: identifying policy reforms that could help achieve the targets at lower cost; identifying ways of mobilizing additional finance; adjusting the ambition level of the targets; or extending the time period for achieving the targets.

An important feature of an EFS is the emphasis on realism and affordability. The model can assess the levels of finance (public, private; domestic, foreign) that might be available under different macro-economic conditions. In this way it provides a check on what public budgets might realistically be expected to contribute. It can also help to assess the potential social implications of increasing tariffs by determining the impacts of such price increases on household income. By focusing on these issues, the application of an EFS is more than a technical exercise: it also supports a process of dialogue and consensus building among the key stakeholders involved in financing environmentally related infrastructure. In this way, it can build a bridge between policy development and implementation.



---

## **CHAPTER 2. THE ENVIRONMENTAL FINANCE CHALLENGE, AND DOMESTIC SOURCES OF FINANCE**

This chapter considers the prospects for domestic financial resources to meet the environmental finance challenge in EECCA. It regards in turn:

- Policy making and budgetary decision making in central governments, and the capacity of these institutions to set a sound and lasting priority agenda that deals with environmental issues;
- Fiscal decentralization and the contribution of local government bodies (municipalities, oblasts), which take responsibilities in environment protection and the management of environment related services;
- Households and industries, which, at the moment, do not face strong incentives to put their money into pollution abatement mechanisms (as is testified by the little demand for environmental services and low willingness to pay the full price for these services);
- Private finance; as it develops, this sector will have to be integrated in the panel of financial instruments, in particular to leverage public expenditure.

### **Priority of environment in public sector spending**

#### ***Low priority assigned to environment***

Environment is usually assigned a low priority in public sector spending in EECCA. All EECCA countries have faced severe public sector budget constraints throughout the decade. These constraints resulted, among others, from the fall in national income compared to the pre-transition period and poor fiscal position of the public sector in the transition to a market economy. In addition, non-cash payments, which were until recently commonly

accepted in the public sector in most EECCA, have also decreased the liquidity and predictability of public resources. These constraints reduced the availability of public finance to all socially-important purposes, including the environment. In particular little progress has been made in most EECCA with tax reform, broadening the tax base or improving collection of government revenue (Himes, 1999). Budgets are small because governments do not collect enough tax revenue. Public sector revenue, as a percentage of the national income, remains low by international standards, as shown in Table 3, although increased slightly in recent years.

**Table 3. Shares of general government tax revenue in GDP in 2003**

EECCA range	14 - 45%
CEE range	22 - 41%
OECD range	15 - 51%

*Source:* EBRD 2004, OECD data base.

Strengthening the fiscal position of the public sector involves the need to increase budgetary revenue (while tax collection efficiency is very low and could be substantially improved), but above all, it requires rationalizing government spending. Environmental infrastructure, for example, will most likely suffer budgetary cuts, like many other social services, for the next several years. In different EECCA, accumulated government obligations are likely to absorb almost all additional government revenue over the next 10 years or so. This is the case even under optimistic assumptions about economic growth and future tax collection. Such government obligations include backlogs of spending on health service and education, payments of accumulated government internal obligations to pensioners and budgetary institutions, service of accumulated external debt, etc. Thus, from an environmental policy point of view, a fundamental challenge in EECCA is to mobilize a critical mass of environmental finance in the public sector, under chronic conditions of acute scarcity and extremely limited capacity for additional borrowing.

Environmentally related expenditures of the public sector in EECCA have been decreasing over the past years both in absolute and relative terms, affecting mainly the spending on capital investments and regular maintenance of public environmental infrastructure services. The bulk of available public resources has been used to cover the running costs of environmental

administration and public utilities. Water supply and wastewater treatment have attracted the lion's share of available public environmentally related expenditures. Notwithstanding the low priority and many pressing social needs competing for public financing, environment has been receiving some public resources and most urgent tasks have been financed out of the budgets or by environmental funds – e.g. emergencies, hotspots and the basic running costs of existing environmental infrastructure. There is some evidence that earmarked public funds have helped secure, at least, minimum funding for the staff and equipment of environmental policy and law enforcement administration.

The low share of environmental spending in total public budgets may be attributed to the weak bargaining power of some Ministries of Environment in the budget preparation process caused by marginalization of environment issues on Government agendas. Another reason, however, may be the low quality of environmental programs and projects submitted to the budget process, as some evidence suggests (see next chapter).

**Box 1. Environmentally related public expenditure in EECCA**

In Georgia, experts from the Ministry of Environment estimated that in 1999 about 1.2% of the government budget was spent on environmental purposes, including water supply (estimates as contained in OECD/DANCEE, 2000a). About 80% of the total environmental spending was related to water and wastewater infrastructure. The estimated public budget contributions to this sector amounted to somewhat more than GEL 12 million in 2000 (USD 6 million). These public subsidies were used primarily to compensate water utilities for the revenue foregone if the government exempted some users (e.g. pensioners) from the water charges and to cover a portion of operation costs if the government did not establish tariffs at the level that covered operation costs. A small share of government subsidies available for maintenance work and rehabilitation investments was mobilised mainly in crisis situations. (OECD/DANCEE, 2000a).

In Kazakhstan, all environmentally related expenditures (including water supply) in 2000 were estimated by COWI consultants to account for only 0.5% of total public expenditure (OECD/DANCEE, 2001b). Also, very few public environmental infrastructure projects are financed through the Public Investment Program (PIP). In 1999, only 3 out of total 84 projects (3.6%), approved for financing through PIP, were submitted by the Ministry of Natural Resources and Environmental Protection, in 2000 - 5 Ministry's projects, out of total 107 (4.7%), were approved.

Public funds will have an essential role to play in EECCA in the short and medium term in co-financing critical rehabilitation and capital investments, while also providing social protection and facilitating access to credit. Some countries (e.g. Kazakhstan) may need to consider increasing overall public expenditures for the environment. All countries in the region (except perhaps Moldova) should shift focus from financing operational expenditures from public money to effective financing of rehabilitation and necessary new investments in environmental infrastructure.

### ***Budgetary decision making and financial strategies***

On the one hand, EECCA environmental authorities have been continuously complaining about the low level of resources available for the environment. On the other hand, they have made little progress in improving the efficiency of the use of available resources. EECCA environmental agencies are predominantly pre-occupied with raising revenue, without paying due attention to how the money is spent and what objectives they want to achieve. This section discusses some causes and effects of inefficient use of existing public money for environment.

Environmental policies in EECCA are usually driven by wishful thinking, thus implying overly ambitious ‘needs’, while disregarding costs, affordability and willingness to pay of people, governments and enterprises. Thus, the stated needs for environmental expenditure are often unrealistic, hugely exaggerated and impossible to finance.

One of the fundamental problems facing EECCA in achieving more efficient allocation of public financial resources for the environment is the lack of well-developed expenditure programs for using public money. In the absence of a clear programmatic framework, the selection of environmental projects and beneficiaries of public budgets and extra-budgetary funds suffers from excessive discretion, ad hoc political influences and blurred accountability. Responsibilities for appraising and selecting projects financed from public funds are usually indistinctively assigned, which leaves a lot of room for corruption and misuse of public resources. Laws and regulations do not specify unambiguously who should be held accountable and liable for individual decisions. Eligibility criteria, procedures, priorities and targets are

---

either not specified at all or are defined in very vague terms to include all possible environmental measures.

Few EECCA governments have made some efforts to introduce a more strategic and long term budget framework and investment planning. So far, Kazakhstan is the only EECCA country to have introduced a system for strategic allocation of the government budget to large infrastructure investments through its Public Investment Program (PIP). Kazakhstan's PIP is managed by the Ministry of Economy. The PIP is a rolling three-year priority investment program, renewed annually and finalized only after the given year's budget has been approved by the Parliament. The government commitments under PIPs are incorporated into the annual budgets. The major justification for projects to be included in the PIP is co-financing through loans or grants from foreign sources, although quite a solid feasibility analysis in a standard form is also required. The share of environmental projects included in the PIP over the past several years has been very low. In 1999, only 3 out of total 84 projects, approved for financing, were prepared by the Kazakh Ministry of Natural Resources and Environmental Protection. In 2000, only 5 Ministry's projects out of total 107 were approved.

PIPs have the potential to introduce a rational, multi-year perspective into the allocation of scarce budgetary funds to support a portfolio of long-term infrastructure investments. Although Kazakhstan experience with the PIP seems positive, caution is needed when following this example. The preparation of a PIP requires careful handling in order to avoid dual budgeting - in particular with regard to the separation of the capital budget from the regular recurrent budget. Of even greater concern is that PIPs usually encourage countries to focus mainly on projects, with policies and programs often an afterthought. The result is an expansionary thrust to spending which might lead to unsustainable over-commitment of government funds and instability in all three levels of budgeting - macro, strategic and operational. Prioritization of projects to be included in the PIP should be based on the cost-effectiveness criterion, which is usually one of the weakest points of EECCA expenditure management. If these concerns are well taken into consideration, however, the PIP can be a useful tool, providing it follows, rather than drives, policy and the budget.

Other countries have chosen different approaches. The Russian Federation, Belarus and Ukraine have been elaborating the so-called "target-specific government programs". Environmental agencies have also prepared several such programs. The selection of projects for these programs is not based on formal and transparent rules. Neither is it conducted as a transparent political process, which could result in a multi-stakeholder consensus over priorities within the limited budget envelope. Instead, programs consist of long lists of vaguely specified project ideas, compiled by appointed "experts" through surveying the investment wishes of local authorities or big enterprises. The rough estimates of initial investment expenditure needs are attached to each item on the list. Robust financial and economic analysis of entire project portfolios and individual projects are not conducted, resulting in programs that are unrealistic and impossible to finance. Desired shares to be covered by different sources of financing are allocated by experts among the central budget, local budgets, extra-budgetary funds, enterprise earnings and foreign sources.

Environmental authorities engage in lobbying to have these "programs" approved by the Government. Even if this lobbying is successful, approval does not translate into inclusion of the projects into annual budgets. Most target-specific government environmental programs remain chronically under funded. For example, in 1996, the government of the Russian Federation approved 25 federal, targeted environmental programs but very limited financing was provided only for 11 of them (OECD, 1999). Budgetary expenditures are almost always delayed and significantly smaller than commitments. The rate of implementation of 11 programs in Russia, studied by the Ministry of Natural Resources in 2000, varied between 2% and 30% (Ministry of Natural Resources of Russia, 2001). Yet, every year, the government approves several new programs, with equally unrealistic financial "needs". Since then, some progresses have been made, as programs were revised and either restructured, merged, or cancelled; they are however impaired by the uncertainty about responsibility for implementation at the central government level.

It is also common for EECCA Governments at different levels to subsidize environmentally related projects that could be commercially viable and could be implemented without subsidies. Such practices not only prevent environmental improvements by diverting scarce public funds away from

---

environmental projects that truly require subsidies, but they also discourage potential commercial financiers from financing environmental projects.

The development of financing strategies for the urban water and municipal solid waste management sectors in some EECCA indicates the willingness of EECCA Ministries of Environment to strengthen their position in the Government through using state-of-the-art tools to prepare realistic and “financeable” investment programs and projects. Those EECCA, where such strategies have been prepared, have initiated co-operation with other ministries and agencies - Ministries of Finance, Economy, Health, Planning and Budgeting authorities - to work together on identifying viable financing solutions and redefining and agreeing on realistic and affordable environmental targets. This work has also enabled the Ministries of Environment to better articulate their needs in financial terms to their Finance and Economy Ministries. It is expected that these initiatives will increase the allocation of public financing towards the environment, will create better understanding of cost recovery needs and will help better tailor expectations to actual financial capabilities.

Financing strategy studies for the water and sanitation sectors have shown, for example, that there is room for rationalizing budgetary expenditure cuts by reducing operational subsidies and releasing resources for urgent maintenance and capital investments. Another opportunity identified was to set aside some non-critical assets for strategic deterioration in order to concentrate public money on infrastructure that is essential from public health point of view. In the municipal solid waste management infrastructure, the financing strategies analysis in selected regions of the Russian Federation shows that waste management systems in large cities are already generating financial surplus even with present, affordable levels of tariffs. Access to commercial finance is, however, prevented by the fact that this surplus is used to cross-subsidize other municipal services in integrated multifunctional communal utilities.

### ***The management of public environmental expenditure***

Approaches to principles of accountability, transparency and cost-effectiveness in the institutions managing public money in EECCA, are different from internationally recognized good practices. Accountability is

typically required only with respect to the higher level of authority in the administrative hierarchy, rather than to the general public. Transparency and cost-effectiveness may be declared in very abstract terms, but are rarely made operational in decision-making through concrete targets, tools and indicators.

**Box 2. Internationally recognized principles of good public expenditure management**

Accountability<sup>8</sup> means the capacity to hold public officials liable for their actions and performance. Accountability implies addressing three questions: accountability by whom, accountability for what and accountability to whom. Accountability is achieved through clear division of responsibilities and subsequent consequences for both good performance and failures to fulfill prescribed responsibilities.

Transparency entails low-cost access to relevant information. Public sector institutions should use acknowledged international standards of accounting and disclosure of fiscal and financial information to report to controlling bodies and to public. Transparency implies both good internal control (within the government) and external audits by specialized institutions, including legal, financial and performance audits.

Cost-effectiveness is a technical concept and implies achieving objectives at a minimum cost. It requires managerial autonomy from political ad-hoc pressures over appraisal and selection of specific projects. It also requires competent individuals recruited on a merit-based and performance-based promotion system.

In EECCA, appraisal and selection of environmental projects financed from public money is also based on discretion rather than formal decision-making rules. Criteria and procedures are rarely transparent. Cost-effectiveness criterion is not used to select environmental projects or to evaluate the performance of government institutions managing public expenditure, resulting in wasting scarce public resources. Although most EECCA claim that they base their resource allocation decisions on cost-effective solutions, the cost-effectiveness test is not routinely and properly applied. It requires resources to be allocated to those projects, for which the discounted lifetime cost of achieving a unit of environmental benefit over the lifetime of a project is the lowest. However, when EECCA governments finance environmental projects, the information on projects' lifetime costs is

<sup>8</sup> After Allen, Tomassi (2001), Sciavo-Campo, Tomassi (1999), World Bank (1999).

usually not even solicited from project owners. Proposed solutions are not compared and ranked.

Since the beginning of transition, the discussions about institutional arrangements for environmental expenditure management in the CEE and EECCA have traditionally focused on government-controlled Environmental Funds. This bias could be explained by the distinctive role these Funds have played in some CEE countries. Most EECCA have also established earmarked environmental funds on national, regional and/or local levels. Environmental Funds in EECCA are comprehensive domestic public entities that provide earmarked financing for a wide range of environmental improvements for both the public and private sector. They are mostly capitalized from pollution charges and fines. Nearly all countries in EECCA have at least one national environmental fund (except for Armenia, Georgia, Tajikistan, Turkmenistan and most recently Russia). Few of them (Belarus, the Kyrgyz Republic, Moldova, Russia<sup>9</sup>, Ukraine, Uzbekistan) have also regional and local funds. Many EECCA Environmental Funds started in the late 1980s as extra-budgetary institutions with a vague legal status. Nowadays, most of EECCA Funds are not legal entities and are institutionally integrated into the Ministries responsible for environment.

Except in Ukraine, virtually all EECCA environmental funds have remained insignificant and sometimes problematic players in financing environmental expenditure. The volume of resources available to these Funds is typically very small, ranging from about USD 800,000 in all Moldovan Environmental Funds in 2001, to about USD 25 million in the Ukrainian Funds for the same year. These small resources have been spread thinly among sometimes several thousand regional and local funds (such as in Ukraine and in Russia). As a result, some funds are as small as about USD 200 (some local funds in Moldova in 2001). The largest fund in the region in 2001 was the Ukrainian National Environmental Fund with the annual

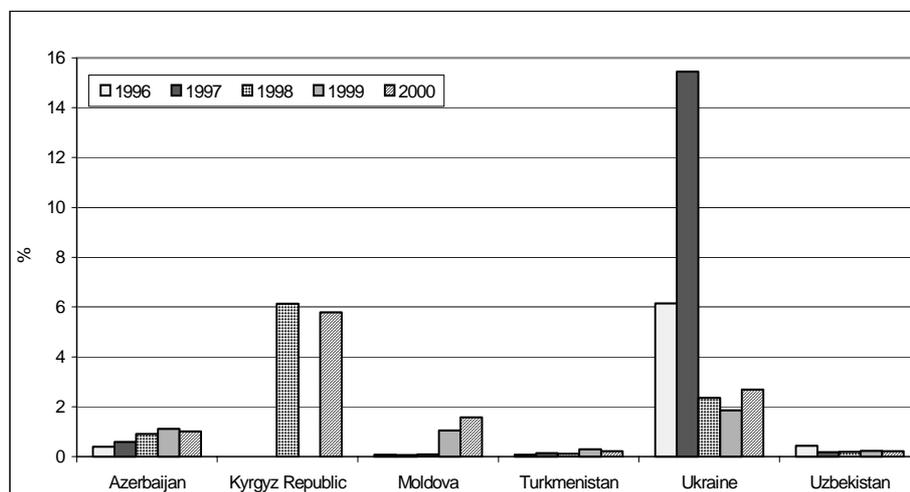
---

<sup>9</sup> The Federal Environmental Fund of Russia was abolished as of 1 July 2002. The status of the regional and local funds at this stage is not very clear. It seems that most local funds have been abolished as well while most of the regional funds have remained as well as the environmental funds of the autonomous republics of Russia. Those that remained have been fully consolidated into the regional budgets and are now earmarked budgetary funds. As the pollution charge system in Russia has also been abolished it is not clear what exactly the revenue sources of these funds are.

revenue of USD 10.4 million. This amount should justify significant strengthening of expenditure management capacity, because if efficiently used and strategically targeted, it could make an environmental difference and support at least a few significant capital investments per year. The Funds have often provided important financial support to environmental administrations affected by frequent budget cuts, but their role in financing environmental investments remained negligible. In Moldova, the Funds covered about 3% of total environmental expenditure in the country (OECD/DANCEE 2000c).

If compared to budgetary sources available for environmental investments/protection, EECCA Funds' contributions have also been small, except in Ukraine and the Kyrgyz Republic. Some sources claim that the consolidated revenue of the Russian environmental funds were several times larger than the budget of the State Committee for Environmental Protection before it was integrated into the Ministry of Natural Resources. First, these sources usually do not specify what was the percentage of cash in total revenue. Second, it could well be that the budgets of the environmental departments of the Government were small because extra-budgetary environmental funds existed. Ministries of Finance often cut the budget of environmental agencies assuming that they have their extra-budgetary sources of revenue. Experience from other countries has shown that this is a legitimate concern. In fact, one may argue that the disproportionate attention paid to environmental funds by policy makers may have prevented the development of more effective institutional arrangements for managing public environmental expenditure (see OECD EAP Task Force, 2003d).

**Figure 4. Environmental funds share of total public expenditure, 1996-2000**



Source: OECD EAP Task Force, 2003c (based on national statistics).

Public environmental funds in the region have suffered seriously from the lack of accountability, transparency and managerial efficiency. Most funds are not financing institutions, in the internationally understood meaning of the term, as they are mainly focused on revenue collection from pollution charges/fines and direct public procurement on behalf of government, instead of project appraisal and financing. Virtually all environmental funds in EECCA have been established without clear spending programs. As a result, funds' objectives are unclear, their mandates are all-inclusive, and the fund institutional capacity is not tailored to match the needs of environmental financing in EECCA. In most cases, Funds are just earmarked budget lines managed by the regular staff of environmental departments of governments at different levels.

There have been a few attempts to improve the performance of public environmental funds. In 1995, EECCA Environment Ministries endorsed the St. Petersburg Guidelines on Environmental Funds in the Transition to a Market Economy which continue to set the internationally-agreed benchmark for essential good practices in programme and project cycle management in environmental funds (OECD, 1995a). Two countries (Moldova and Kazakhstan) have requested international performance reviews to identify

priority areas for reform of environmental funds. A few regional funds in Ukraine and an oblast fund in Rostov (Russia) have been actively seeking international assistance to improve their project cycle management. Few funds have made some steps towards greater transparency by publishing annual reports (e.g. Ukrainian National Fund). The National and 3 regional funds in Ukraine (Donetsk, Crimea and Zaporozhie) have also made an important progress since 1999 in focusing their expenditure on environmental investment projects and in improving performance in project appraisal through international co-operation projects. The Moldovan National Fund has introduced simple project cycle with some formal elements. With these few exceptions, however, by 2002 very little progress had been made in the region towards the implementation of the St. Petersburg Guidelines.

Over the past years, a group of officials and managers of environmental funds from EECCA have made another effort, to define good performance standards for environmental financing institutions in transition economies. They have stimulated co-operation among professionals within the EECCA Environmental Finance Network, operating under the umbrella of the OECD/EAP Task Force, to develop “Good Practices of Public Environmental Expenditure Management in Transition Economies” (OECD EAP Task Force, 2003d). These “Good Practices” build upon the St. Petersburg Guidelines, as well as ten years of international experience with public environmental expenditure schemes in transition countries. They consider that the performance of any institution managing public environmental expenditures can be assessed along three axes:

1. Environmental effectiveness;
2. Fiscal prudence and sound budgetary practice;
3. Management efficiency.

The three related checklists are appended.

In the second half of the 1990s, most EECCA governments consolidated their former extra budgetary environmental funds into the government budget. This has usually increased revenue collection and improved fiscal control. However, consolidation into the budget has not resulted in improvement of management capacity, so far. Quite on the contrary, the

management efficiency of expenditure programs may have deteriorated. This is due to excessive politicization of investment planning in the budget process and the difficulties of keeping highly-qualified professional staff on a government payroll.

Some funds have been disappearing (e.g. Russia, Kazakhstan), or face a very uncertain future under the constant pressure by government authorities and international organizations responsible for fiscal policies. This could be viewed as a loss of established institutions which have provided at least some predictable funding to environmental projects. But it could also be viewed as an opportunity to establish new, more effective and efficient institutions to manage public environmental expenditure. Sometimes such an institutional discontinuity can be utilised to untie public funds from established vested interests and political pressure groups and to introduce more transparency, accountability and professionalism into operations. The “Good Practices of PEEM”, developed within the OECD EAP Task Force provides guidance on how to do it. This document also identifies a wide menu of diverse institutional arrangements for managing public environmental expenditure programs in a market economy.

Any institutional reform of public environmental expenditure management would have to begin with establishing a clear expenditure program to achieve priority environmental objectives. The design of institution and financial products should be secondary and adjusted to the specific needs of managing given expenditure programs. The financing mechanisms needed to support small local projects will be different from those which can co-finance large scale capital investment projects to rehabilitate and develop physical environmental infrastructure. Implementing such reforms will require a strong political will and commitment on the part of EECCA governments to have effective environmental expenditure programs rather than small subsistence funds under their own control.

### ***Design and performance of environmentally related charges***

In EECCA, the revenue from environmentally related charges has traditionally been earmarked for financing environmental purposes, either through general budgets or through public environmental funds (budgetary or off-budgetary), controlled by the Ministries of Environment or their

equivalents. This has often driven environmental authorities into conflicts with financial authorities and their foreign advisers (such as IMF). It is widely acknowledged that earmarking limits flexibility and thus, potentially, the efficiency of allocation of resources to the most socially-needed uses. In addition, the large number of small and weak funds sets a bad example and gives other government agencies (which deal with forests, water, agriculture, education, etc.) the right to claim the need to have their own earmarked funds. This may lead to a domino effect in budget fragmentation, making the economy impossible to manage.

However, under specific conditions, earmarking is often perceived (e.g. by the World Bank) as a price worth paying for having predictable financing for priority environmental measures that would otherwise fail (World Bank, UNEP, IMF, 2002). On the other hand, empirical evidence (not only from EECCA) shows that earmarking by itself has not protected the decline of public environmental expenditure. Indeed, in some cases, earmarking may have contributed to further marginalize environmental expenditure within public budgets. Ministries of Finance tend to reduce the budget envelope of Environment Ministers because they argue that environmental agencies have their own, independent, earmarked source of revenue.

The system of environmental charges in EECCA is extremely complicated and burdensome (OECD EAP Task Force, 2000b). Charges are levied on an excessive number of pollutants that can not be effectively monitored. For example, in Kazakhstan there are as many as 3620 air pollutants from stationary sources that are subject to charges. Also 2312 water effluents are charged. In Russia and Georgia, emission of several hundred pollutants are charged, but only few are monitored or even recorded. In Georgia for example only 21 out of 200 air pollutants and 18 out of about 100 water effluents are reflected in statistical reports. Most of these charges are imposed on pollution or other environmentally harmful activities. More recently, some EECCA have introduced charges on environmentally harmful substances and products. Armenia has introduced taxes on a whole array of harmful products, both imported and domestic, such as asphalt, luminescent lamps, welding electrodes, detergents. In 1998, Moldova introduced an environmental levy on imported fuel.

The aggregated revenue-raising capacity is usually too small to create a critical mass of resources to support significant investments, perhaps except in Ukraine where aggregate revenue amounted to about USD 25 million in 2001. In reality, it is usually a small number of charges that generate the bulk of total revenue. For instance, in Moldova, the single charge on imported oil generates more than 90 times more revenue than all pollution charges taken together (OECD EAP Task Force, 2002c). These best revenue-raisers thus cross-subsidise the collection of all other pollution charges for which the cost of collection sometimes is larger than the amount of revenue collected. Unfortunately, very few detailed and reliable data are available in any of the EECCA countries on the level of revenue generated by each instrument individually. All instruments are bundled together by weight at the level of a plant or primary reports, with no consideration of individual hazardous properties.

The real value of revenue has been decreasing in most countries (except Moldova and Ukraine) due to ineffective indexing against inflation. In addition weak enforcement of revenue collection further eroded the value of generated resources. For example, the collection rate reported in Moldova is about 18%, in Kazakhstan it is about 25%<sup>10</sup>. Poor design and management of pollution charges has created a number of opportunities for polluters to evade payments despite the low charge rates. Often, the charge base and terms of payment are subject to ad hoc and less than transparent bargaining between polluters and environmental authorities. Pollution charge offsets and the widespread use of money surrogates (e.g. Russia, the Kyrgyz Republic) for years had been undermining the collection of revenue, rendering environmental authorities vulnerable to corruption. Only after the financial crisis in 1998 in most EECCA fiscal authorities have begun banning offsets

---

<sup>10</sup> The concept of collection efficiency (or rate) can be very misleading in the EECCA context. It is never clear whether the data refer to the ratio of revenue collected to revenue due or to revenue actually invoiced. The forecasts of revenue due are conducted not only on the basis of the calculations of expected pollution output multiplied by charge rates but also on the basis of subjective judgments on what enterprises will actually be willing to pay in a given budget year. The amount invoiced is often already a result of prior negotiations (which often are not transparent) between environmental and enforcement services, on the one hand, and polluters, on the other. Therefore, reported collection rates are sometimes paradoxically higher than 100% and sometimes as low as 10%-20%.

of pollution charges and other non-monetary means of payment in the public sector.

In Russia, poor performance of environmental charges has not helped to prevent the pollution charge system to be buried in a legal dispute in 2001. A few possible replacements of the old pollution charge system are being discussed, including a new environmental tax which would feed the general budget.

The collection efficiency and credibility of the system usually improves when tax services are involved in collection of revenue from pollution charges, as compared to the case where environmental funds or environmental authorities perform this task alone. For example, when tax authorities in Ukraine were involved in the collection of revenue from pollution charges and fines in 2000, the value of revenue collected doubled over a year and quadrupled in two years – from about USD 6 million in 1999 to USD 13.6 million in 2000 and USD 25 million in 2001. In Moldova, the efficiency of the levy imposed on imported fuel, collected by customs officers is almost 100%, as opposed to 18% for pollution charges, which are collected solely by environmental authorities.

### **Fiscal decentralization and financial management in municipalities**

Still in its infancy in the region, fiscal decentralization has failed to generate an impetus for local government bodies to ensure resources for environmental infrastructure so far. This is reflected in inappropriate budget management in municipalities. One consequence is the poor ability of local government bodies to find needed resources in the financial markets.

#### ***Inappropriate decentralization schemes, and budget management***

The political product-line hierarchy under the Soviet system left little room for self-government and decentralized management in EECCA. Local autonomy is a relatively new and challenging idea in the region. All countries of the region are still in the process of delineation of governmental responsibilities, for example for environmental safety and infrastructure. Although some EECCA have prepared environmental action plans on national or regional levels even with financing strategies, the link between these plans and municipal budget planning remains weak. It is a residuum of

---

the old system where all state revenue was first centralized and then allocated according to a national plan. The lack of tradition of decentralized environmental management challenges the public administration within autonomous, locally elected governments in EECCA.

Local budgets in a vast majority of EECCA municipalities are very small compared to the tasks of maintaining and developing services of environmental infrastructure. Responsibility for environmental infrastructure and municipal services has been transferred to cities, towns or regional authorities and delivered mostly through local enterprises. Current legislation in EECCA assigns expenditure responsibilities to lower budgets without any guarantee of autonomy in the determination of these expenditure, nor sufficient revenues for their execution. In this context, environmental expenditure category in sub-national budgets is subject to rigid federal/national regulations relating to the obligatory size and exact breakdown of budgetary outlays. In addition, regional and local budgets have been extraordinarily burdened by the accumulation of numerous un-funded federal/national expenditure mandates throughout the 1990s imposed by higher levels of governments. A weak regulatory and institutional framework on both the revenue and the expenditure management side of municipal finance reflects the lack of financial autonomy at the local government level concerning not only environment responsibilities but most of the public goods provided by the governments.

The current system offers weak incentives to sub-national levels of government for responsible, long-term environmental management and the development of new infrastructure for the environment. All revenues and expenditures are allocated annually through year-long financial plans. Neither a long-term vision of investment needs nor a forecast of the municipality's future financial situation exist. The budget classification system with a standardized chart of accounts is a carryover from the Soviet administrative structure and was not designed with the particular needs of local government in mind. The budget preparation and monitoring system is focused on spending money in accordance with specified budget lines and does not correspond to the results or tasks to be achieved by municipalities. The expenditure classification system is also not relevant to the tasks performed by the administration, such as delivery of environmental infrastructure services. Investment planning for municipal infrastructure is discretionary

and focused not only on short-term outputs, but also on priorities which are often too numerous and too volatile. There are no clear and transparent criteria for appraising and prioritizing investment projects that will be financed from municipal budgets.

There is a lack of local expenditure management and investment planning tools, such as mid-term budget framework (4-6 years) for preparing transparent and task-oriented annual budgets and capital improvement plans. The lack of such tools undermines the investment potential of municipalities to leverage domestic and foreign finance to municipal investments.

### ***Capacity and willingness of municipalities to borrow***

Under these circumstances and in the absence of sufficient government subsidies for local infrastructure investments, municipalities need to borrow on the credit market for municipal environmental infrastructure. Municipal borrowing is appropriate only when local governments are planning to increase their level of investment because their citizens demand better communal services. This implies citizens' ability and willingness to pay higher prices for such services. Low ability to pay in most EECCA is one of the major constraints to the willingness of municipalities to raise debt on credit markets in EECCA. Borrowing is prudent only when the future revenue flows that will service the debt can be anticipated and relied upon. In addition, borrowing for capital investments is helpful to municipality only if the borrowing is for intermediate-to-long term. The central government has an important stake in responsible municipal borrowing, too, as safe borrowing limits are needed in order to avoid jeopardizing national fiscal policy by excessive local debt, and downgrading central government's credit rating by open-ended guarantees of sub-sovereign debt<sup>11</sup>.

There are different ways and instruments to provide municipal and regional governments with credits, including central government lending, government-supported municipal development funds, commercial bank lending, municipal bonds, and blended systems that combine subsidy and

---

<sup>11</sup> See IMF's warning against excessive sub-national borrowing as a potential de-stabilising influence on fiscal management, in "Public debt in emerging markets: is it too high?", in *World Economic Outlook* (IMF, 2003).

credit. Only few of these mechanisms are currently available in some EECCA countries.

Some preliminary work by the OECD EAP Task Force lays out the basic elements of a successful local credit system, and explores avenues for further work in four countries, namely Russia, Ukraine, Kazakhstan, and China.

In the case of Ukraine, local credit is reviving, after a five year prohibition by the central government (that followed Odessa's default in 1998). A draft law on municipal borrowing and guarantees for long term borrowing is under preparation. The World Bank has been developing a Municipal Development Loan Fund (MDLF), that will support commercial bank lending to municipalities for infrastructure financing. All of the projects prepared by municipalities in anticipation of MDLF funding have been environmental infrastructure projects. Note that the Fund will operate through commercial banks. Programme design calls for stretching banks' current lending practices, in terms of tenor of loans, rather than passing on the full terms of the World Bank loan to the government to sub-national borrowers.

Technical training to both banks and municipalities in establishing the capacity for realistic credit analysis will be central to successful financing under this Program, and offers a prime opportunity for external assistance. Training to municipalities in assessment of borrowing capacity and understanding of banks' creditworthiness standards is equally important.

One of the most encouraging credit developments in Ukraine has been Ukrsibbank's 5-year UAH 15 million loan to Odessa's water utility, originated in early 2004. The demonstration value of this loan depends upon its ability to be replicated outside one of the two principal cities. This partly relies on the replication of the institutional arrangements between Odessa and the water utility (mitigation of political risk to tariff agreements, the legal ability to pledge revenues as loan collateral, etc.). A demonstration project that used some of these methods to extend the tenor of loans to municipal utilities outside of Kyiv and Odessa would go far to strengthen the country's local credit system and its ability to finance local environmental infrastructure.

In addition, the new Pension Law in Ukraine opens a natural source for longer-term financing for local environmental infrastructure. Ukraine's

pension law is unusually favorable to local debt: it allows up to 20% of pension fund assets to be invested in municipal debt, with additional amounts invested in municipal utility debt. Before mandatory contributions commence in 2007, there is time to prepare a demonstration bond issue, or special loan agreement, between a municipal body and a pension fund. The pilot issue would be designed to incorporate creditworthiness safeguards that go beyond physical collateral and extend the current tenor of local lending.

Several of the initiatives outlined here would work best in combination. A demonstration debt issue bought by a Pension Fund would have the greatest likelihood of success if supported by clear legislation allowing the pledging of future revenues, by improvements in routine financial disclosure and creditworthiness analysis, by an established track record of timely loan repayment under the World Bank MDLF, as well an international partial guarantee.

### **The contribution of households and industries**

#### ***Incentives for domestic polluters to improve environmental performance***

One underlying reason for the persistently low level of environmental expenditure in EECCA is the very weak effective demand for improving environmental conditions. During the last decade, very little progress has been made in virtually all EECCA with creating the incentives that would induce firms and municipalities to allocate more of their internal resources for environment or seek external finance for this purpose.

Demand for something exists if people are willing to pay for it. Demand is effective if people are both willing to pay and have money to pay. Demand for grants (money free to beneficiaries, save transaction costs) is almost unlimited, and thus can never be fully met even in the richest world economies. Demand for loans (and other debt instruments) in EECCA cannot be meaningfully determined because (as it will be demonstrated later) the low availability of domestic credit (credit rationing), rather than high interest rates, is still limiting access to finance. When the price of a loan is an explicit limiting factor (as in the case of foreign lenders), however, the effective demand (willingness to pay by borrowers) for financing of environmental investments appears to be very low. Notwithstanding more than a decade of efforts and millions of dollars put into grants for project preparation, the

disbursement of IFIs loans in the environmental sector in EECCA has been a small fraction of what is still claimed to be “demanded”. Commercial financing institutions also do not report that firms or municipalities in EECCA articulate any appetite for market-priced financing for environmental projects.

Despite weak effective demand, most environmental policy makers continue to put a misplaced stress on developing new financial instruments (increasing supply of money), rather than on strengthening demand for money to finance environmental improvements. Demand can be strengthened by introducing result-oriented (as opposed to current effort-oriented) environmental policies and their effective implementation and enforcement. This would encourage facilities and households to take actions to protect the environment. Thus, an integrated approach to environmental financing must create demand for environmental services and then mobilise adequate financial resources to meet this demand.

Available data from selected EECCA countries imply that virtually all environmental investments, undertaken by enterprises and municipalities, were subsidized one way or another (OECD EAP Task Force 2003a). This indicates that polluters are not willing to pay themselves for abating their pollution. While in the short run subsidies may be an indispensable incentive for most polluters to take any action, in the medium and long term the reliance on subsidies to improve the environment may actually worsen environmental conditions and weaken the economy. Therefore Polluter Pays Principle (PPP) became an overarching principle of environmental policies world-wide (see textbox 3).

Environmental authorities themselves have often weakened demand for environmental financing, by continuing to create unrealistic expectations that subsidies for polluters will be available in future, even though public coffers are empty. Such expectations, inherited from the Soviet times of soft budget constraint, encourage polluters to postpone any actions until they are fully compensated by the government. Certainly, the Government does not and will never have enough money to compensate most of them, giving polluters an excellent excuse for doing nothing. Eventually polluters may also be encouraged to demand compensation even for not increasing pollution.

### **Box 3. The Polluter Pays Principle (PPP)**

In the OECD countries, the underlying principle of environmental financing is the Polluter Pays Principle (PPP) which implies that polluters should bear the full cost of compliance with the goals established by the relevant administration without subsidies. Subsidies for the environment create perverse incentives because, in the long run, they tend to attract polluting industries, thus increasing rather than decreasing overall pollution. They also distort international trade and investments. Environmental subsidies also divert public sector resources away from those important social needs, which can not be financed from private sources.

The PPP, as it is applied in the OECD, provides for certain well-defined exceptions to its “no subsidy” philosophy. Specifically, a subsidy may be justified if it is well-targeted (i.e. the environmental objectives to be achieved by the subsidy are clearly specified), limited in size and duration and does not introduce significant distortions in markets and trade). It can also be used where considerable external benefits or provision of public goods are involved.

The development of an effective environmental finance system, based on the Polluter Pays Principle, is constrained during the transition to a market economy. This is due to several factors, including weak environmental management and enforcement, underdeveloped capital and financial markets, scarce private financing, uncertain political and fiscal systems and weak civil society. All of these circumstances are characteristic of the EECCA economies today.

Other reasons that explain the very low level of demand for environmental financing by households, enterprises, and municipalities in EECCA include the legal framework that changes frequently and randomly and continued lax enforcement of ambiguous laws and regulations. Polluters simply do not expect that they will recover any return on their environmental investments from avoided fees and fines for non-compliance in future. The probability of having financial reward for compliance with environmental regulations is further eroded by excessive discretion of environmental inspectorates, which creates ample opportunities for corruption.

Now, there is anecdotal evidence that some enterprises have actually used retained earnings for environmental improvements. Enterprises go for environmental investments mainly when improving environmental performance is a side effect of increasing profits or gaining access to new markets (examples include energy efficiency investments, upgrading to modern and cleaner technologies, investments related to resource recovery or

saving processes). Anecdotal evidence also suggests that the requirements of foreign markets provide some incentives for export-oriented firms in EECCA to invest in improving environmental performance (including, for companies which produce in a supply chain to large companies from the OECD area).

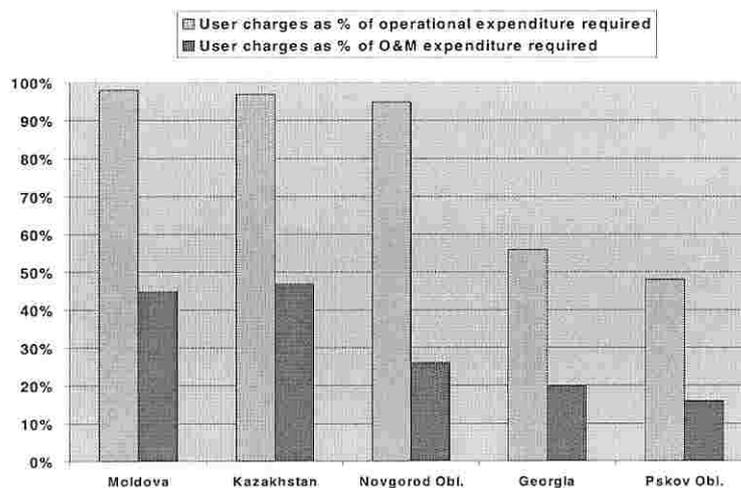
For several years, efforts by the Ministries of Environment to increase the willingness to pay for environmental improvements will be constrained by the low ability to pay by many economic agents. Many enterprises still suffer from a chronic low liquidity and profitability and pessimistic expectations for growth in the future. Municipalities also face financial constraints. They have usually assumed responsibilities that are not matched by adequate access to finance. This adversely affects the willingness to allocate scarce internal capital to environmental investments that typically have much lower rates of financial returns than alternative investment opportunities. With respect to enterprises, environmental authorities sometimes face a tremendous task of withstanding lobbying pressures of powerful vested interest groups standing behind huge inefficient enterprises, which should be bankrupt because they are not able to pay their liabilities, including environmental liabilities owed - through government - to the whole society.

### ***Low level of cost recovery of environmental infrastructure***

User charges are the critical source of revenue for environmental utilities in EECCA. As finance strategies have convincingly established for the water sector in EECCA countries, in the long-term, user charges are the only sustainable source of financing the operation and maintenance of environmental utilities in EECCA.

Now, recent studies on urban water and sanitation sectors have demonstrated that the revenue from user charges barely covers the costs of just operating the water and sanitation infrastructure, albeit not in all countries and regions. Unfortunately, such costs are just a fraction of the money required for proper maintenance of fixed assets (figure 5 below). This has led to a dramatic deterioration of municipal environmental infrastructure. Cash-strapped budgets cannot fully make up for the low level of cost recovery from user fees.

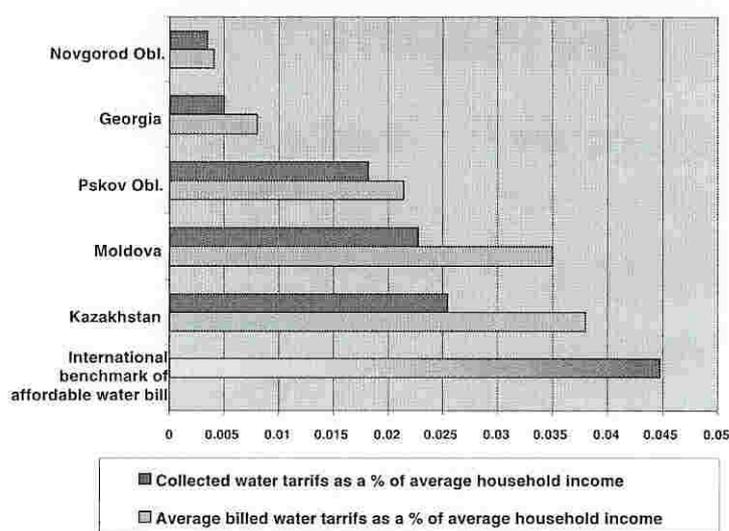
**Figure 5. User charge revenues as percentage of expenditure needed to maintain the present level of water and sanitation services in selected EECCA countries and oblasts**



Source : OECD EAP Task Force 2003a.

In most EECCA, user charges for environmental services are generally low and, in most cases, ineffectively collected. In countries/regions such as Georgia or Novgorod and Pskov Oblasts (Russian Federation), there is significant room for increasing the charge rates and collection efficiency within the limits of what most households could afford. In recent years, some countries, such as Kazakhstan and Moldova, have increased their water user-charge rates to levels which, on average, come close to the affordability threshold for countries at a similar level of income, namely 4%-5% of household disposable income (a World Bank benchmark; Fig. 7). For certain poor households affordability of water has become a critical issue.

**Figure 6. Household expenditure for water as percentage of disposable income for selected EECCA**



Source : OECD EAP Task Force 2003a.

Collection efficiency of WSS charges can be as low as 20% in Georgia or 60% in Moldova, while in a typical OECD water utility it is usually almost 100%. Note that substantial progress in collection efficiency has been observed recently in some EECCA. Armenia is a clear example, where the collection rate increased from 8-10% to more than 80% in 2004; Russia also witnessed a stark performance (from 40-60% in 1999 to some 85% in 2004).

### **Financial sector involvement in environmental financing**

So far, the most significant source of financing of asset purchases in EECCA enterprises has been retained earnings, followed by equity contributions. In Russia, for example, most of the growth in investment by companies was financed using retained earnings (50%); bank credits represented only 4%, and other non-budgetary credits - 6% (IFC, CIDA, 2001). From environmental policy perspective, the high reliance on retained earnings and equity in financing investments in EECCA firms highlights the importance of policies that affect corporate internal spending decisions, such

as effective permitting and enforcement of environmental standards, realistic targets and economic instruments.

It also highlights an important bottleneck on a company's environmental improvements, since almost all companies will eventually reach the point where internal resources are insufficient to capitalize even on available commercial opportunities, let alone to finance environmental improvements, which generate lower financial internal returns. For small and medium-sized enterprises, being limited to internal equity alone, is particularly difficult. Therefore, effective environmental financing in EECCA will increasingly have to rely more on external sources: financial markets and the public sector.

In developed OECD market economies, the financial sector (which consists of banks, the corporate debt market, and the equity market) provides the bulk of the investment finance. 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 finance at an affordable cost.

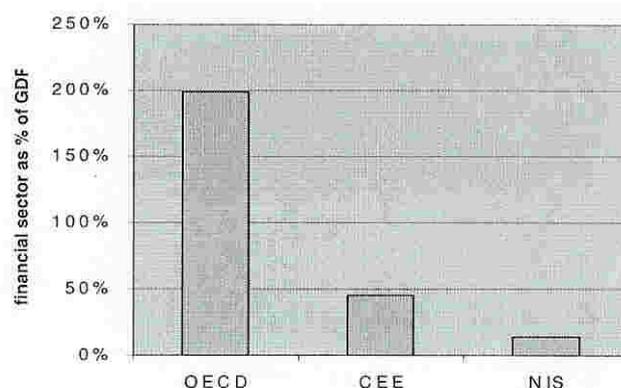
Available experience and empirical evidence seem to suggest that high interest rates are not the major factor limiting the access to debt finance for investments. The binding constraint seems to be rather the shortage of domestic credit because of the very small size of the deposit base of EECCA banking sectors.

The relative size of the financial sector in EECCA in 1998 was on average (non-weighted) only about 15% of GDP (Fig. 5)<sup>12</sup>. By comparison, the size of the financial sector in CEE countries was almost 50% of GDP and in the OECD economies (excluding the member countries from CEE) it averaged at almost 200% of GDP. (Kawalec, Kluza, 2001).

---

<sup>12</sup> Uzbekistan, Belarus, Tajikistan and Turkmenistan not included.

**Figure 7. Relative size of the financial sector in the OECD and transition economies, 1998**



*Notes:* OECD member countries: Poland, the Czech Republic, Hungary and Slovakia are included in CEE; Figures are non-weighted averages for 1998; the size of financial sector is measured as an aggregated value of bank deposits, outstanding corporate bonds and commercial papers, and stock market capitalization.

*Source:* Kawalec, Kluza (2001).

Albeit very small in absolute terms, banks usually dominate the financial sector in EECCA, as other segments are even less developed. Compared to more developed economies (also in CEE), stock market capitalization in the EECCA economies is still at its infant stage. In 2001, corporate debt markets, which are important sources of liquidity for CEE enterprises, hardly existed in EECCA (Kawalec, Kluza, 2001), except where promissory notes have been used as quasi-money rather than as a debt instrument. Since then, the situation certainly has changed in many EECCA countries, where companies have issued corporate bonds in local currencies, although we lack comprehensive data to document this dynamics.

The banking sector remains extremely weak and uncertain in EECCA although the situation has been rapidly improving in some countries over the last 2 years. Most banks still suffer from major liquidity problems, and a serious term mismatch between long-term lending requirements and the short-term nature of available funding. Many banks have little more than short-term or demand deposits available for lending, and little or no funds available for loans of any long-term nature. According to a recent survey of Russian banks and companies (IFC/CIDA, 2001), only 10% of bank credits

in Russia were extended for periods longer than one year. The average loan term was less than six months. Longer-term lending is more often in foreign currency terms than in Rubble terms, an indication that the market is still concerned about the long-term stability of the Rubble. In Ukraine, the situation is equally bad. The share of long-term credit in the total loan portfolio of Ukrainian banks was only 17% (Sultan and Michev, 2000).

Equally important for potential borrowers is the fact that the large banks in EECCA – with few exceptions - tend to be linked to large financial-industrial groups or most powerful regional governments and concentrate their lending on group members. This practice of credit rationing leaves very little credit available to other firms and municipalities, even if they are willing to pay high interest rates.

Perhaps the most significant factor limiting supply of bank credit to investments in economy is the small number of banks with significant sums of assets to sustain serious loan portfolios. The size of the assets of the EECCA financial system as a proportion of GDP is very small by any international comparison and the system is only providing limited financing to the private sector. For example, while the Russian banking sector has many more banks than most other countries (around 1300 at the end of 2001), the great majority of these banks are tiny by international standards. Even the Russian state giant Sberbank looks like a relatively small bank, although measured by the total value of assets (EUR 28.7 billion) it was still the largest bank in the CEE-EECCA region at the end of 2001. In the rest of the sector, the assets are very dispersed among a great number of small, weak units. The assets of all 1,300 Russian banks in August 2001 – slightly above USD 100 billion (as reported in the Russian newspaper “Ekspert” in September 2001) – were roughly the same as the aggregated assets of the 10 largest banks in Poland.

This situation is improving, as financial and capital markets in most EECCA are settling down after the 1998 crisis. Some signs of altering the past trends can be observed. Banking supervision has become more effective, local debt got under some control, interest rates are decreasing and stabilizing, and medium-term loans are slowly becoming available. In Ukraine, the overall loan portfolio of commercial banks increased cumulatively by 28.5% for the first ten months of 2001, and what is most

important, long term loans rose especially fast by cumulative 58.4 % over the same period (IERPC, 2001). In Russia, the lending market has also seen considerable growth in 1999-2001 with the bulk of lending now concentrated on lending to consumers and business as opposed to government. However, commercial bank credit outstanding to enterprises and organizations (which is more relevant for environmental investments) has grown much more slowly than consumer loans in the year 2000 – only by 3%, and in March 2001 amounted roughly to USD 28 billion.

There are some isolated examples of near-commercial loans in the environmental and municipal infrastructure sectors, e.g. St. Petersburg, Moldova, albeit usually softened by public funds. Some local governments in Russia (e.g. Nizhny Novgorod) have placed foreign currency bonds on international markets before the Russian financial crisis in 1998. Projects have been launched, but the governments found themselves unable to service the debt, undermining the market trust in municipal bonds of former Soviet Union countries. Knowledge of third party financing schemes (such as energy service companies – ESCOs) is penetrating the region although the existing regulatory framework still inhibits real market penetration. Leasing is becoming used to finance purchases of new equipment thus indirectly improving the environment. Available analysis of the leasing market, however, does not indicate that environmental protection equipment specifically is of any interest to emerging leasing companies (IFC, CIDA, 2001), except for some attempts to lease waste handling trucks (e.g. Ekaterinburg in Russia). Also, foreign export credits and donor soft loans have contributed to finance environmental investments (RDCG, 2002).

It should be noted that, throughout EECCA, environmental administrations have tended to be part of the problem rather than part of the solution to the banking crisis. 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% 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. Instead, when environmental

authorities or even external donors develop new financial products for public environmental funds, they used to choose financing instruments, which do not facilitate bank credit to environmental sector, such as direct lending to replace matching grants.

### **CHAPTER 3. THE ENVIRONMENTAL FINANCE CHALLENGE, AND FOREIGN SOURCES OF FINANCE**

This chapter concentrates on resources that are coming from abroad, and which mitigate the financial challenge in EECCA. These include foreign official assistance, foreign direct investment, and innovative approaches exemplified by debt-for-environment swaps and carbon funding. Recent work has been undertaken, which paves the way to new avenues that EECCA countries might be willing to consider.

#### **Levels of environmental foreign official finance to EECCA**

Low domestic expenditure can be supplemented by resources made available through foreign official assistance. Among others, foreign environmental assistance can catalyze policy development (resulting in increased demand and supply of environmental finance), facilitate the development of environmental financing markets, and build local capacities necessary to service increased demand. The following discussion shows, however, that foreign environmental assistance to EECCA region remains at relatively low levels.

The aggregated inflows of environmentally related ODA/OA to the EECCA region has been increasing between 1996-98 and have hereafter started to fluctuate at lower levels due to fluctuations in IFIs lending. The share of environmentally related assistance in overall assistance has increased from 2% in 1996 to 5,6% in 2000, however some of this is due to a decline of overall assistance since 1998. On a per capita basis, EECCA have received less environmental assistance than other regions of the world. EECCA have received only USD 0.8 per capita in 2000 where as countries in Africa South of Sahara and South America have received over USD 2 per capita. In addition to the low levels of environmentally related assistance received, the assistance has also been allocated in a very uneven way among different

EECCA with Armenia and Azerbaijan receiving around USD 4 per person and Belarus and Turkmenistan receiving USD 0.1 or less in average from 1996-2000.

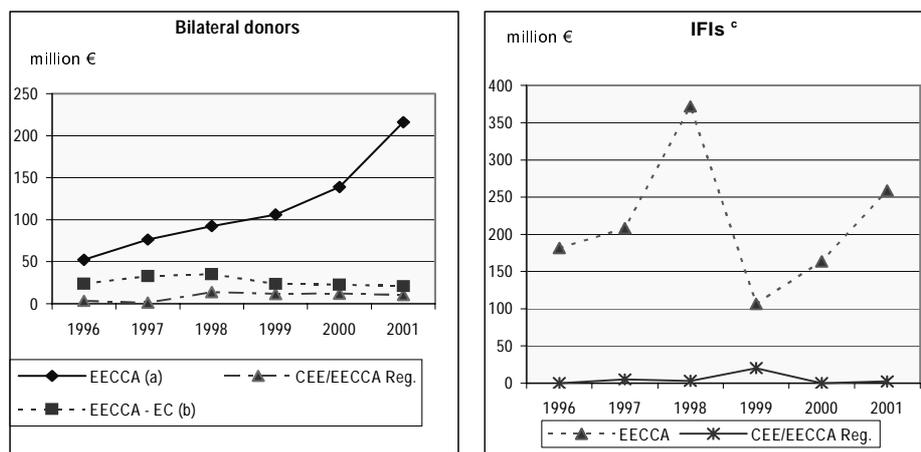
International financing provided by the IFIs towards the environment has also been low. Although certain mechanisms for consultations between donors and IFIs have been put in place (e.g., the “Project Preparation Committee”, PPC), only few loans have been committed so far and even fewer disbursed. Given the period of 10 years since the break-up of the Soviet Union and the great deal of resources spent on preparation of environmental projects for IFIs financing, actual loan disbursements have been negligible. The costly project preparation process and the softening of IFIs loans for the environment absorb valuable donor resources. However, these do not always lead to project implementation.

In the period 1996-2000, commitments of environmental assistance from donors to the EECCA countries have increased in absolute terms and as a share of total Official Development Assistance (ODA) or Official Assistance (OA)<sup>13</sup>. However, environmental assistance represents a significantly smaller share of total assistance to the EECCA countries than to other regions. This suggests that there is room, on the supply side, to increase the level of environmental assistance. However, increased supply is also linked to demand, and hitherto demand for environmental assistance from the EECCA countries has been weak. For example, Kazakhstan is the only country that has prioritized environment within the TACIS program.

---

<sup>13</sup> ODA is defined as those flows going to developing countries. In the EECCA region, Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Moldova, Tajikistan, Turkmenistan and Uzbekistan are eligible for ODA. OA is made to countries and territories in transition to a market economy. Currently, Belarus, Russia and Ukraine are eligible for OA.

**Figure 8. Total environmentally related ODA/OA by donor and IFIs to regions, 1996-2001, Million EUR**



Notes: CEE/EECCA Reg. refers to commitments for projects involving countries from both regions. a) Excluding EC. Austria, Italy and USA are missing 2001 data. b) Includes data from TACIS programme. Data for 1998-1999 are not available. c) Includes data from ADB; EBRD; EIB; NEFCO; NIB and WB. Source: OECD CRS database; donors and IFIs reporting (OECD EAP Task Force, 2003a).

Russia and Ukraine have been the largest recipients of environmentally related assistance, together accounting for more than two-thirds of the total. Over the period 1996-2001, Russia received EUR 332 million and Ukraine EUR 110 million. Uzbekistan, Kazakhstan, Azerbaijan and Armenia, each, received between EUR 25-38 million in the same period. Per capita, the Caucasus countries (Armenia, Azerbaijan and Georgia) received the highest commitments, respectively EUR 1.1, EUR 0.6 and EUR 0.5 on average per person per year. Belarus and Turkmenistan received the least on per capita basis: only EUR 0.1 and EUR 0.04 respectively on average a year in the analyzed period. As a share of GDP, Armenia ranks the highest at 0.24% and Belarus and Turkmenistan the lowest at 0.01%. The share of GDP is obviously highest for six of the seven low income EECCA countries. The large, relatively higher income, EECCA countries (Russia, Ukraine, Uzbekistan and Kazakhstan) all received very low levels, ranging between 0.04% and 0.02% of GDP. Belarus, Turkmenistan and Tajikistan have been the least successful in attracting donor assistance to the environmental sector.

**Table 4. Total environmentally related assistance by recipient country, 1996-2001, million EUR**

	1996	1997	1998	1999	2000	2001	Total
Armenia	6.2	1.4	1.7	2.6	3.3	21.4	36.5
Azerbaijan	>0.1		2.0	0.6	25.3	3.4	31.3
Belarus	1.3	1.5	0.4	0.5	0.8	1.4	6.0
Georgia			3.0	0.9	5.1	33.3	42.3
Kazakhstan	0.4	0.5	1.5	2.2	11.2	26.4	42.3
Kyrgyz Republic	1.0	2.8	0.3	1.2	4.1	7.4	16.7
Moldova	0.5	>0.1	3.3	0.2	0.7	10.4	15.1
Russian Federation	32.0	57.9	32.7	65.4	99.4	73.2	360.7
Tajikistan	0.1		>0.1	1.2	4.0	1.2	6.5
Turkmenistan	0.4	0.4	>0.1	0.1	0.1	>0.1	1.1
Ukraine	6.5	9.5	23.0	13.5	37.3	29.3	119.2
Uzbekistan	1.6	0.4	18.5	7.4	1.9	4.9	42.5
EECCA Regional	26.4	30.3	6.3	10.5	34.6	18.5	153.6
CEE/EECCA Regional	3.7	1.6	14.1	11.8	16.0	13.7	60.8
Grand Total	80.1	106.5	106.6	118.0	243.9	244.7	899.8

*Notes:* Data for 2001 are preliminary. TACIS data for 1998-99 are not available.

*Source:* OECD CRS database, national data (OECD EAP Task Force, 2003a).

The European Commission has been the single largest donor of environmental assistance to the EECCA region in the period 1996-2000, accounting for about 20% of the total. In 2001, the EC provided EUR 13.5 million in environmentally related assistance to the EECCA region. Denmark (13.8%) and Germany (10.7%) have also been major donors. These three, together with Sweden, US, UK, Norway, Finland, Switzerland and France account for about 70% of environmentally related assistance. Development loans offered by IFIs for environmentally related purposes increased in 1996-98, collapsed after the 1998 financial crises and began to recover afterwards. The overall volume of committed lending in 2001 (EUR 212 million) was still less than 60% of the peak level of commitments in 1998 (EUR 367 million). Russia, Ukraine and Kazakhstan accounted for more than two-thirds of environmentally related loans. It should be noted, though, that loans for the low income EECCA countries can entail a significant debt burden.

EECCA should not expect that ODA/OA would ever meet most of the environmental financing needs in the region. As has been the case in most CEE countries, domestic resources will have to carry the major burden of financing EECCA environmental policies. In countries, such as Poland, the Czech Republic and Estonia, external financing for environment contributes respectively 7%, 1% and 19% of overall environmental investment expenditures (OECD ENV/NMCD data base series).

EECCA governments usually do not include environment among priorities for international cooperation programs or in IFIs country assistance strategies. Kazakhstan is the only EECCA country, which has placed environment as one of the three priorities in the TACIS in-country program. In addition, Ministries of Environment often prepare unclear, incoherent and non-prioritized proposals for international co-operation and foreign financing. Ministries are unprepared for the lengthy loan negotiation procedures, which can often be unproductive because of unrealistic expectations and the lack of capacity on the part of EECCA in preparing financeable environmental projects and programs. As a result, most donor programs have only very limited focus on the environment.

At the same time, EECCA administrations and local consultants have accumulated some experience by working together with donors and IFIs and by jointly preparing projects for international lending. This experience is increasing and is bringing some results. For example, for certain projects, several donors have grouped around banks to facilitate the lending procedures between banks and EECCA authorities. The best known cases come from the North West Russia Initiative where several donors have actively joined resources to facilitate the preparation of loans and also to help soften the lending terms of international loans, extended by the Nordic Investment Bank, the Nordic Environmental Financing Cooperation (NEFCO) and the European Bank of Reconstruction and Development (EBRD). In 1993, a special mechanism - the Project Preparation Committee - was set up, with the Secretariat at the EBRD, with the aim of further facilitating the process of match-making donor and IFIs resources. After the 1998 crisis in Russia, examples are beginning to reappear - where donors together with EECCA and Oblasts - are blending domestic and foreign public money to leverage additional funds through export credits and soft loans (see textbox 4 below).

**Box 4. Example of donor co-operation to mobilize international private lending for municipal environmentally related infrastructure in EECCA**

St. Petersburg enjoys the special attention of several donors in the EECCA region. St. Petersburg is thus often used as a case study for trying out new mechanisms and instruments that may be applicable to other parts of EECCA. One of these examples is from the St. Petersburg Vodokanal, which has recently purchased imported equipment (sludge vehicles), rehabilitation of sewage mains and maintenance services through the Danish Soft Loan Program MKØ. The project was initially developed in 1998 before the economic crisis and was contracted in 2002. The project has a total value of EUR 5,85 million of which 95% was financed through a commercial international bank under the Danish Environmental Soft Loan Program to Eastern Europe. The program, which is insured through the Export Credits Agency and subsidized through Danish Official Aid contributions, provided a 25% grant of the financed project value (95% of investment). The grant is disbursed with a grant element of 25% together with each repayment and paid directly to the lending bank. The program, in addition, covered the cost of the insurance premium for the export credit (whose value is at approximately 10% of financed value). The loan has a 5-year maturity with an 18-month grace period. The loan has been guaranteed through a municipal guarantee provided by the St. Petersburg City. Similar financing arrangements have been considered for the St. Petersburg District Heating Company and for the Kiev Vodokanal on identical conditions.

**Private financial flows related to environment**

Foreign direct investment (FDI) in EECCA countries both per capita and per unit of GDP, is still well below FDI in the more advanced transition countries in CEE. Only Azerbaijan and Kazakhstan come close to the least advanced CEE countries. The main sectors attracting FDI in the region are telecommunications, beverages, commerce, banking, mining, oil and gas, metal processing, chemicals, and pharmaceuticals. No data is available that would allow analysis of the environmental impact of the FDI flows (including whether best available technologies are required and implemented in case of technology transfer). Indeed, data do not allow any judgment on the environmental effects of FDI distribution, as foreign investments in oil extraction may have both negative environmental effects (accelerated exploitation) and positive effects (more efficiency, less wastage). Aggregated FDI data are presented in the table 5 below.

Table 5. Net FDI inflows to the EECCA region, 1998-2004

	as a share of GDP							Cumulative FDI inflows, mln USD	share of GDP, average %	per capita, average, USD
	1998	1999	2000	2001	2002	2003	2004			
	1998-2003	1998-2004	1998-2004							
Armenia	11.6	6.6	5.4	3.2	4.7	5.2	3.4	868	5.5	34
Azerbaijan	23.1	11.1	2.8	5.2	16.5	28.5	33.3	7 214	18.7	138
Belarus	1.3	3.7	0.9	0.8	3.1	1	0.7	1 979	1.5	23
Georgia	6.1	2.2	5	2.5	3.9	7.8	8.1	1 257	5.4	40
Kazakhstan	5.2	8.7	7	12.9	8.9	7.5	7.3	15 730	8.1	130
Kyrgyz Republic	5.3	3.1	-0.5	-0.1	0.3	1	3.8	413	1.9	6
Moldova	4.5	13.1	9.9	9.9	7	2.5	3.3	893	6.5	29
Russian Federation	0.6	0.6	-0.2	0.1	0	-0.7	0.2	4 478	0	0.3
Tajikistan	1.9	1.9	2.4	0.9	3	2	1.1	223	1.9	4
Turkmenistan	2.2	3.2	2.7	2.6	..	..	..	1 613	3.8	36
Ukraine	1.8	1.5	1.9	2	1.6	2.9	2.3	6 213	2.1	17
Uzbekistan	0.9	0.7	0.5	0.7	0.7	0.8	2	917	0.9	4
Bulgaria	4.2	6.4	8	4.7	5.4	8	10.4	6 235	7	130
Hungary	6.5	6.4	4.7	6.9	3.9	1.1	1.9	10 536	3.9	241
Lithuania	8.5	4.5	3.4	3.7	5.1	0.8	2.5	3 683	3.7	138
Romania	4.9	2.9	2.8	2.9	2.4	2.9	3.7	10 536	3.2	64

Notes: Inflows of FDI are comprised of capital received from an FDI enterprise by a foreign direct investor. There are three components in FDI: equity capital, reinvested earnings and intra-company loans. For most countries, data cover only investment in equity capital and contributions-in-kind.

Source: EBRD.

Except in Turkmenistan, FDI in the region was attracted mainly by those countries, which are rich in energy resources, such as oil and coal. 80% of all inflows of FDI in the region flowed to Kazakhstan, Russia, the Ukraine, and Azerbaijan.

Disproportions are staggering, when one looks at the share of FDI in GDP, and the per capita average. Over the period, FDI accounted for 18.7% of Azerbaijan's GDP (with an even higher performance at the end of the period), and for less than 2% of the GDP of five countries in the region. When Uzbekistan, Tajikistan, and the Kyrgyz republic receive less than USD 4 per inhabitant per year, Azerbaijan and Kazakhstan (two oil-rich countries) receive more than 130 (a level which is similar to Bulgaria). Note that the Russian Federation has been performing very poorly since 2000, with massive disinvestment in 2003, which explains the profile of the trend over the period.

Establishing incentive structures and framework conditions is essential in attracting foreign private investment. The May 2002 EBRD Transition Report, together with the World Bank study on Russian FDI (World Bank, 2001a) suggest that FDI is primarily channeled to countries or even regions where the framework conditions for investment are more favorable. These conditions, among others, include the quality of governance, legal framework, institutional arrangements and low corruption at all levels. In general, EECCA countries have been much slower in their transition process of putting the macro-economic framework conditions in place, thus creating investment incentives. The 2001 EBRD Transition Report suggests that "In the Commonwealth of Independent States (CIS), FDI inflows have been concentrated in the energy-rich Caspian countries, with capital inflows increasingly causing problems of macroeconomic management. In the remainder of the CIS, low FDI inflows continue to reflect the serious flaws in the investment climate".

This is reflected, to an even larger extent, in the environmental sector where environmental legislation is often unpredictable, unclear on liability and where permitting processes are cumbersome and excessively discretionary. In addition, obstacles specific for municipal environmental infrastructure investments, often include, inter alia, unclear corporate structure of utilities (unclear roles of responsibilities between different levels

of government, organizational independence, customer relations), multiple and out-dated construction norms and rules (construction standards), imperfect inter-budgetary relationships.

The above-mentioned deficiencies provide difficult conditions for attracting FDI to the environmental sector in EECCA. It may even be argued that these deficiencies provide incentives for environmentally non-conscious enterprises to set up business in the EECCA countries.

### **Innovative approaches: debt-for-environment swaps**

Debt-for-environment swaps present an opportunity to increase the level of environmentally-related expenditure in EECCA. Currently, such opportunities are under utilized in EECCA.

Most of EECCA began the transition period with little or no external or domestic debt, as, soon after 1991, Russia, as agreed with the creditors, offered the other EECCA to take over 100% of all official foreign liabilities and assets of the former Soviet Union. Since then, EECCA have rapidly accumulated external debt and some are now facing increasingly difficult debt burden, relative to their ability to generate primary external and budget surpluses. The debt burden of these countries varies from country to country, with debt service in 1999 ranging from 5% - 37% of exports and 19% to 45% of central government revenue (IMF/World Bank, 2001). According to the World Bank indebtedness classification for 2002, the Kyrgyz Republic and Tajikistan are classified as “severely-indebted low-income countries (LICs)”, Moldova and Uzbekistan as moderately-indebted LIC, and Armenia, Azerbaijan, Georgia and Ukraine - as less indebted LIC. Seven of them are now eligible for debt relief as part of the initiative on debt relief for the poorest countries of the former Soviet Union: Armenia, Azerbaijan, Georgia, the Kyrgyz Republic, Moldova, Tajikistan, and Uzbekistan.

Debt-for-nature/environment swaps are transactions that reduce or convert external debt in exchange for the debtor country commitment to spend an agreed portion or the whole amount of the reduced foreign debt, on agreed conditions, on domestic environmental improvements in local currency. These transactions can be bilateral (mainly between governments to swap official debt) or can be facilitated by a third party (environmental NGO or broker), when they involve mainly private debt.

Debt-for-environment swap initiatives should always be carefully considered in the context of their impact on the costs of sovereign borrowing. Requesting any debt swap can be interpreted as a signal of possible default and may affect the credit rating (and the cost of future borrowing) of the country. This is less of a concern, if the country is in default anyway or when swaps are integrated into a wider debt-restructuring package, which the debtor negotiates with its creditors anyway. The latter is the case if the debt restructuring agreement with the Paris Club<sup>14</sup> contains a clause that enables bilateral debt swaps. The rules of the Paris Club make it difficult for creditors to undertake swaps, if the debt restructuring agreement between the debtor country and the Paris Club does not refer explicitly to a voluntary, bilateral swap.

Because of its contentious nature, debt-for-nature/environment swap initiatives should not be announced by environmental authorities without prior consultations with the Ministry of Finance. Ministries of Environment could, however, stand prepared with convincing institutional concept and expenditure program once the opportunity arises.

Several EECCA, including Georgia, the Kyrgyz Republic, Russia and Ukraine have sought rescheduling the repayment of their external debt with the Paris Club in the last few years. However, only Georgia and the Kyrgyz Republic have included a swap clause in the framework agreement with the Paris Club.

The Georgian Ministry of Environment has made a significant progress in advancing the idea of the debt-for-environment swap in the country. The President of Georgia has set up an Inter-Ministerial working group (consisting of the Ministry of Environment, Ministry of Economy, Ministry of Finance, and Ministry of Foreign Affairs) with the aim to develop a Concept on the Debt-for-Nature swap with creditor countries. As part of this process, the Ministry of Environment with support of the OECD EAP Task Force, has prepared an institutional options paper for government

---

<sup>14</sup> The Paris Club is an ad-hoc body of bilateral creditors (mostly OECD, although it includes Russia as well) that negotiates rescheduling agreements with debtor countries on a case-by-case basis. It was formed in 1956 and it meets on a monthly basis in Paris.

consultations (see annex). The study recommended key institutional characteristics for managing a debt-for-environment swap, including:

- The core of the institutional framework should be a locally established financial facility, which would select projects competitively under the supervision of relevant stakeholders.
- In order to avoid any inflationary impacts, and to manage the absorptive capacity of the project pipeline, the swap would involve the Georgian government transferring the entire flow of future debt repayments over an agreed period (swap-as-you-repay scheme), rather than as a one-time transfer of the present value of debt.
- The local financial facility should be established as a modular structure with a “core” revolving fund, which would receive periodic injections of resources equivalent to the amount of forgiven debt repayment in that period. The facility should however be able to open parallel accounts and financing "windows" – some with endowments, some sinking, others revolving, depending on the preferences of investors and the nature of demand for financing.
- A prudent strategy would be to finance projects with grants only. As institutional capacity and financial markets develop, other financial products can be considered. Co-financing should always be required to achieve financial leverage and additionality.
- Accountability to all stakeholders, but freedom from ad hoc political interference, will be necessary conditions to win international credibility and hence attract resources. Accountability, transparency and efficiency must be cornerstones for governance and everyday operations. The Governing Board of the financial facility should be open to creditors involved in the swap. Professional executive management should have a high degree of operational independence in project cycle management, subject to strict accountability for performance. International good practices in public expenditure management should be applied.
- The project cycle should have clearly defined stages, responsibilities, procedures and project selection criteria. Cost-

effectiveness should be a key quantitative basis for appraisal and selection of projects. Subjective, discretionary elements in project selection should be minimized and subject to procedures.

- Competition in procurement under the swap scheme should be maximized to boost efficiency.

Preliminary analysis suggests that if only few OECD creditors agreed on a relatively modest (e.g. 15%) swap, this could effectively almost double country environmental expenditure.

The Kyrgyz Republic has also set-up an Inter-Ministerial Committee to start in-country preparations of the process, and the OECD/EAP Task Force is accompanying its work in 2005. A project similar to the Georgian one has been launched by the EAP Task Force, to conduct a pre-feasibility study on institutional support and project pipelines for debt-for-environment swap in this country.

In 2002, Russia agreed with Finland to swap up to USD 50 million debt – 10% of Russia's Soviet time debt - for specific investment projects implemented by Finnish firms that will reduce pollution of the Gulf of Finland and the Baltic Sea. However, such one-off swaps can be costly for the debtor country, in particular when tied procurement is involved. They are usually considered where the creditor gets direct benefits from improving the state of environment in a debtor country. The geographical location of most of EECCA does not present many such opportunities.

The main challenge facing environmental authorities in EECCA interested in implementing debt-for-environment swaps is to design a "win-win" package of debt-for-environment swap transactions that will be more attractive to creditors than available alternatives. These alternatives include debt-for-equity swaps or just a repayment of debt according to schedule and an increase of official aid. A debt-for-environment swap requires environmental agencies to prepare expenditure programs, aimed at solving specific environmental problems, which are not only national but are above all of international priority (e.g. global or trans-boundary environmental problems). Such a program should also link environmental objectives with poverty reduction, local economic development and international security goals. Another challenge is to convince creditors that their money will not be

wasted or corrupted and that the debtor country will have institutional capacity to manage foreign expenditure in a transparent, effective and efficient manner, in accordance with best international standards (one benchmark for this are the “Good Practices of Public Environmental Expenditure Management in Transition Countries” – see section 4.7). For this purpose, the major condition is to design a governance and expenditure management system, which is subject to joint control of national stakeholders and creditors, as highly professional and well insulated from vested interests, political pressure groups and corruption.

### **Innovative approaches: carbon funding**

Countries in the European Union, Japan, New Zealand and Canada, and a number of transition economies (including the Russian Federation) have adopted reduction emission targets under the Kyoto Protocol. They have two ways to meet these targets: either by taking measures domestically, or by buying carbon credits from operators in e.g. EECCA region. The second option can be financially attractive as taking domestic measures is often more expensive than in EECCA.

The Clean Development Mechanism (CDM) is one such way to produce carbon credits, in this case called Certified Emission Reductions: it allows emission-reduction projects that assist in creating sustainable development in developing countries to generate certified emission reductions, for use by the investor. The mechanism could stimulate international investment and provide the essential resources for cleaner economic growth in all parts of the world. Trading of carbon credits helps both parties, the EECCA countries to attract a hard currency revenue stream by selling carbon credits from projects that reduce greenhouse gas emissions, and the developed countries by reducing costs of compliance. New investments in environmentally sound projects in industry, power generation, mining, district-heating, and waste treatment are being prioritized.

The funding channelled through the CDM should assist EECCA countries in reaching some of their economic, social, environmental, and sustainable development objectives, such as cleaner air and water, improved land use, accompanied by social benefits such as rural development, employment, poverty reduction and, in many cases, reduced dependence on

imported fossil fuels. In addition, the CDM offers an opportunity to make progress simultaneously on climate, development, and local environmental issues.

The rules and procedures for CDM are included in the Marrakech Accords, agreed upon at the seventh Conference of the Parties (COP-7, 2001). The most important requirement is that the CDM project be additional to a business-as-usual situation. Because of its project based character, CDM can assist project developers in enhancing the economics of their project, by selling the resulting emission reductions. Not every project is eligible as a CDM project. Below is a list of typical projects that may be eligible:

- The implementation of a renewable energy project;
- Demand-side energy efficiency improvement;
- The reduction of methane emission from a landfill site;
- Reduction of industrial process emissions;
- Forestry practices to store carbon.

In a guide prepared for the EBRD<sup>15</sup>, ECOFYS identifies the key issues for developing CDM projects in Early Transition economies. Three bottlenecks should be highlighted:

1. Political and economical instability, which generates high-perceived risks of developing and financing projects in these countries; in addition, host country procedures are usually not established or not sufficiently communicated with the project sponsors;
2. Weak financial status of the local companies involved, and the problems in meeting the strict guarantees and collateral requirements of the possible financiers; sponsors also lack money to bridge finance the CDM related costs;

---

<sup>15</sup> *Introduction Guide Developing Clean Development Mechanism Projects*, prepared by ECOFYS, under an assignment by the EBRD, 2004.

3. The relatively small size of most CDM projects, which make them less attractive to big, international financing organizations.

Thus, success in CDM in EECCA requires that, at a very early stage of the process, these difficulties are addressed, in a way that meets the expectations of the institutions who buy CDM credits on the international market.

The Project Preparation Committee has ranked Caucasus and Central Asia countries to evaluate their capacity to attract finance through CDM mechanisms<sup>16</sup>. This ranking relies on the following criteria:

- Potential (GDP, GDP/capita, greenhouse gas emissions, carbon intensity);
- Host country capacity (ratification, existence of a dedicated agency, political support);
- General investment climate (foreign direct investment, governance, reform);
- Available CDM project pipeline and project leads.

On the basis of this methodology, Kazakhstan, Azerbaijan and Armenia rank among the most promising countries for CDM in EECCA. Field research has allowed EBRD to identify some 35 project leads, with investment of about EUR 700 million, and emission reduction over total credit period of 35 million tons of CO<sub>2</sub> equivalent. At a price of EUR 2-5/tCO<sub>2</sub>eq, the market value of this portfolio is EUR 70-175 million. The CDM project support facility established by the EBRD is designed to assist project sponsors in the Early Transition Economies<sup>17</sup> to monetize their greenhouse gas emission reductions. Most advanced projects include two

---

<sup>16</sup> See the presentation by Jan-Willem van de Ven, *Clean Development Mechanism in Caucasus and Central Asia*, at the Joint Meeting of the EU Water Initiative's EECCA Working Group and the EAP Task Force Environmental Finance and Water Networks, Chisinau, Moldova, 29 March to 1 April 2005.

<sup>17</sup> Eligible countries, which have ratified the Kyoto Protocol are Armenia, Azerbaijan, Georgia, Kyrgyzstan, Moldova, and Uzbekistan.

mini-hydro projects in Armenia, and one project on energy efficiency in glassworks in the Kyrgyzstan.

---

## **CHAPTER 4. CONCLUSIONS AND RECOMMENDATIONS FOR STAKEHOLDERS. IDEAS FOR PARTNERSHIPS**

This chapter describes the actions that should be taken by national governments in EECCA in order to use existing financial resources more efficiently, and to mobilize additional finance required to implement realistic environmental policy goals. Actions that improve the efficiency of the use of available public resources should attract at least equal attention of governments as actions that mobilize new finance from the budget and from donors.

The most needed future actions are those that will stimulate demand for environmental services and hence for environmental financing by households, enterprises, and municipalities. With respect to the enterprise sector, EECCA governments should focus their efforts on establishing a fair, transparent, effective, efficient and consistent framework of incentives, which would induce firms to spend more of their retained earnings on improving environmental performance.

Governments should increasingly use a wide array of instruments to promote realistic and cost-effective financial management and to stimulate a mix of various non-government financing sources (e.g., commercial financing sources). In particular, the role of the public sector in environmental financing needs to be reconsidered as present practices often are not very helpful. Governments and environmental funds (where appropriate) must regain credibility as managers of public money. Scarce public funds should increasingly be used as an environmental policy instrument of the last resort. They should serve as a catalyst of compliance with administrative instruments and as a catalyst of private and foreign finance. Due consideration should be given to what households and public budgets are able and willing to pay.

In financial management, realism is of utmost importance. Not everything will be possible and affordable in the near future. Key reforms of

environmental financing institutions and instruments discussed so far should be implemented gradually, but consistently. The roadmaps of key actions to achieve objectives are outlined below. They consist of major actions and more detailed steps that can be taken in order to meet the objectives. These steps are divided into:

- Short-term actions (years 1-3 of the strategy implementation);
- Medium-term actions (years 4-10 of the strategy implementation).

For each objective, progress indicators are proposed to assist with the evaluation of their implementation.

### **Recommendations for action at domestic level**

#### ***Knowing the costs of achieving various environmental objectives***

*Train environmental authorities in understanding the correct methodologies of calculating costs of environmental policies.* The correct costing methodologies must be robust, meaningful and produce internationally-comparable results. Costing studies should be conducted using well-tested formal models according to internationally-agreed standards (see e.g. EU, IPCC, World Bank guidelines). Environmental authorities must understand the economic implications of different cost categories (e.g. annualized cost).

*Prepare cost estimates (including cost effectiveness analysis) for critical environmental problems.* Focus could be on those objectives which may require heavy investments in public infrastructure.

Progress Indicators:

- Number of costing studies conducted according to international methodological standards;
- Number of expenditure programs revised to incorporate the findings of costing studies.

---

### ***Understanding trends in environmental expenditure***

Train environmental authorities and statistical services in internationally-recognized methodologies and environmental expenditure classifications.

Work with statistical services to establish a regular system for collection of environmental expenditure data (use the experience of the Georgian demonstration project implemented within the OECD EAP Task Force).

Progress Indicators:

- Regular systems for environmental expenditure data collection (according to international methodologies and definitions), established and maintained by statistical services;
- Regular updates of reliable reports on environmental expenditure at regional level.

### ***Creating effective demand for environmental services and for environmental financing***

*Enforce credible and stable policies.* Establishing effective demand for environmental investments and financing will require realistic environmental policies, which are oriented towards clear environmental results and are firmly based on a set of internationally-recognized principles (e.g. subsidiarity, efficiency and polluter pays principle). Such policies should be supported by the regulatory framework and a mix of policy instruments that are predictable over the long period of time and consistently enforced. These policies should be implemented through a new generation of environmental policies/programs with clear priorities, specific and realistic targets as well as robust investment and financing strategies.

*Set an appropriate incentive structure.* In creating credible policies, it is essential that the incentive mechanisms follow the letter of law. Creating the right incentives implies, among others, strengthening enforcement of environmental laws, reducing discretionary decisions and gradually phasing out reliance on unnecessary subsidies to polluters in the spirit of the Polluter Pays Principle.

*Maintain consistency and credibility.* Effective incentives can be re-established more cheaply, if environmental authorities regain the credibility as rational and consistent regulators. Environmental inspectorates should be credible as honest but strict, non-corrupt law enforcers. Environmental authorities should not only work on formal laws and regulations, but should also promote compliance by participatory and transparent policy development and by managing expectations of polluters (OECD EAP Task Force, 2003d). The key to managing expectations is consistency. Priorities, policies and laws should be better prepared up-front. Once enacted and implemented, they should not be randomly and frequently changed.

Short-term practical steps towards implementing these actions (1-3 years):

- Use a consultative process (involving the public and polluters), supported by formal cost-benefit analysis, to identify a short list of priority objectives for national environmental policies;
- Use modern policy development techniques to support establishing specific, realistic programs and targets for different groups of polluters, to meet the priority policy objectives; choose and implement a mix of policy instruments to modify the behavior of polluters towards meeting their targets;
- Streamline environmentally motivated public subsidies by linking them to the progress of compliance with the targets; apply subsidies (direct and indirect) only when polluters could not possibly afford the costs of compliance and could not go bankrupt. Establish strict deadlines and clear eligibility criteria for subsidies;
- Through a consultative process, establish credible sanctions for non-complying polluters (including municipalities and municipal utilities), including the threat of closure or bankruptcy for enterprises; minimise discretionary measures in policy implementation and enforcement, implement zero-tolerance policy against corruption.

Medium to long term steps (4 – 10 years):

- Ensure consistency of development, implementation and enforcement of environmental policies and regulations;
- Gradually decrease and eventually phase out environmentally motivated subsidies for polluters according to established schedules, or if they do not follow compliance paths;
- Gradually increase the use of sanctions and firm closures of non-compliant polluters.

Progress Indicators:

- Total environmental expenditure / GDP (and per capita);
- Environmental capital expenditure / total gross capital formation in the economy;
- Volume of environmental expenditure financed by retained earnings of enterprises (including strategic investors and FDI);
- Environmental expenditure financed by retained earnings of enterprises (including strategic investors and FDI) / total environmental expenditure;
- Environmental capital expenditure in the private sector / total capital expenditure in the private sector;
- Capital environmental expenditure / total environmental expenditure.

### ***Increasing environmental spending from public sector***

*Promote economic and fiscal benefits of public environmental expenditures.* Environmental expenditure should receive a fair share of domestic public budgets - proportionally to the true value of their net social/economic benefits. Environmental authorities should establish efficient priorities for environmental policies and provide the rest of the government

and the public opinion with convincing arguments that it will be worth spending public money for proposed environmental purposes.

*Improve the quality of proposals to the budget process and public investment programs.* Environmental authorities need to prepare realistic and cost-effective action plans and public expenditure programs, supported by the analysis of social costs, benefits and financial feasibility. These programs need to be prepared in co-operation with other ministries, interested parties and NGOs. Setting realistic priorities, preparing clear financing and implementation strategies and understanding the cost of current environmental policies, including the cost of non-action, are first steps in engaging ministries that are involved in resource allocations.

Increase capacities in strategic investment and financial programming and in appraisal of environmental projects for public financing. The capacity of project owners (e.g. municipalities and utilities) in preparation of environmental projects should also be strengthened.

Short-term practical steps towards implementing these actions (1-3 years):

- Initiate a multi-stakeholders dialogue, including polluters' groups, NGOs, Ministries of Finance, Economy and other line ministries on priorities for public spending; support this dialogue with economic analysis of costs and benefits, including the costs of doing nothing;
- Revise existing targeted environmental programs to make them more realistic and financeable;
- Train project owners (e.g. municipalities and utilities) in the preparation and presentation of environmental projects;

Medium to long term steps (4 – 10 years):

- Establish formal mechanisms that link long-term public environmental expenditure programs with the mid-term budget framework and annual budget process;

- Strengthen environmental institutions participating in the budget process and those managing public expenditure programs.

Progress Indicators:

- Volume of environmental expenditure financed by general government;
- Environmental expenditure by general government (at different levels) / total environmental expenditure;
- Environmental expenditure of the public sector / total expenditure of the public sector.

### ***Allocating public financial resources more efficiently***

*Streamline all public spending for environment under clear expenditure programs.* Environmental authorities should urgently review and revise the procedures for using public money for the environment. Vague, all-inclusive eligibility statements should be translated into a narrow set of focused priorities for public expenditures, coupled with specific and realistic targets. Costs for achieving these targets should be estimated based on robust economic and social analysis supported by modern analytical tools, such as financing strategies. Targets should be linked to available sources of public and private finance. Affordability constraints, both at a household and national level, should be explicitly analyzed and mitigated.

*Reform institutions managing public environmental expenditure.* This reform is urgently needed, in particular for environmental funds because of their visibility in the policy debates. The number of environmental funds should be reduced, in particular in the countries that have hundreds of tiny funds at municipal levels. Their resources should be consolidated in order to achieve a critical mass of money to have significant environmental impacts. They should no longer deal with revenue collection or with direct procurement for the government. Instead, Funds should be given mandates to focus exclusively on managing public expenditure. They should be given clear and narrowly focused expenditure programs to implement, in particular by co-financing capital investment projects. They should become

operationally independent, shielded from ad hoc political influences and corruption. Those funds that resist reforms should be closed down.

Implement good international practices in managing public environmental expenditures in the areas of environmental effectiveness, fiscal prudence and management efficiency. Environmental authorities should ensure that all public environmental expenditure programs and institutions managing them comply with high standards of fiscal discipline and fiscal prudence, to avoid permanent disagreements with Finance Ministers and the IMF. Good Practices of Public Environmental Expenditure Management, developed within the OECD/EAP Task Force framework (OECD EAP Task Force 2003d), could be used as a framework for reforming all institutions managing public environmental expenditures.

Short-term practical steps towards implementing these actions (1-3 years):

- Review existing and - when needed - develop new public environmental expenditure programs through a broad participatory process; use state-of-the-art tools for economic and financial appraisal of investment programming to ensure feasibility, affordability and cost-effectiveness; apply financial, affordability and risk analysis of existing targeted government environmental programs; phase out existing programs that are impossible to finance;
- Develop a new generation of medium and long-term sector specific action plans and public expenditure programs using state-of-the-art tools of strategic investment and financial planning;
- Train government officials in using modern analytical tools to develop environmental programs and related expenditure programs; train managers of all public environmental funds in project appraisal and financing; provide training to environmental authorities in project appraisal and in market-friendly investment and financial programming;
- Work with the Ministry of Finance to ensure fiscal prudence and fiscal discipline of all public environmental expenditure institutions

---

and programs. Review measures to prevent the threat to fiscal deficit (e.g. through implicit liabilities). Increase transparency by improving reporting and information disclosure requirements, strengthening internal control and external auditing;

- Develop guidelines for introducing cost-effectiveness (achieving environmental results at minimum costs) as a criterion of project and program appraisal and of performance evaluation for all institutions managing public expenditures for the environment;

Medium to long term steps (4 – 10 years):

- Achieve political consensus on and develop the regulatory basis for reforming environmental funds, streamline their number and the range of eligible project types, give Funds a clear mandate to focus on managing public environmental expenditure; transfer the revenue collection function to tax authorities. Clearly define the structure and individual responsibilities between governing and management bodies; make Funds operationally independent while holding Fund managers accountable and liable for their decisions;
- Revise existing public environmental expenditures and introduce new public expenditure programs in line with the internationally recognized Good Practices of Public Environmental Expenditure Management (see OECD EAP Task Force 2003d).

Progress Indicators:

- Priorities for public environmental expenditure streamlined;
- Percentage of programs supported by rigorous costing, financial planning and affordability analysis formally adopted for implementation by the authorities;
- Rate of implementation of these programs;
- Rate of compliance of domestic public institutions managing environmental expenditure with the good practices in public environmental expenditure management.

***Increasing revenues from existing and new environmental taxes and charges***

*Maximize the revenue-raising potential of existing environmental charges.* The poor performance of existing environmental charges undermines their revenue-raising potential and discourages from increasing their rates or introducing new instruments. The main actions to be taken include decreasing the number of charge instruments used for revenue generation, avoiding frequent and random changes, burden and discretion, inconsistent and non-credible enforcement of collection, charge offsets and other non-monetary transactions. The complexity and costs of collection, both to administration and polluters, should be reduced by simplifying the collection, billing and checking systems. Only when the new system proves to work effectively and efficiently, charge rates can be gradually increased to increase revenue flows.

*Introduce new environmentally related taxes and charges.* New environmentally motivated taxes (with revenues going to general budget) or charges (revenues can be earmarked) should focus on environmentally harmful products rather than emissions, if their main purpose will be revenue generation. The experience of the OECD countries in introducing new environmental taxes in a way which is neutral to the budget (with corresponding offsets in a tax wedge on labour) could be considered to achieve joint environmental and employment benefits.

*Support gradual increase of user charges for environmental infrastructure to cost recovery level.* Environmental authorities could add environmental arguments to overcome political resistance to tariff reform in municipal environmental services to ensure financial sustainability of municipal environmental infrastructure.

Short-term practical steps towards implementing these actions (1-3 years):

- Introduce an information system to monitor and collect data on revenue collection by individual charges;
- Identify environmental charges that generate negligible revenue and prepare regulatory proposals to phase them out;

- Agree with the rest of the government, and Parliament which remaining environmentally related charges will be earmarked for environmental programs, controlled by environmental authorities, and which will generate general budget revenue (e.g. in a revenue neutral way);

Medium to long term steps (4 – 10 years):

- Reform remaining earmarked charges to optimize their revenue-raising capacity, administrative costs and impacts;
- Establish inter-ministerial and multi-stakeholders working groups to introduce new environmentally related taxes and charges and to develop an environmental tax reform, where environmentally related taxes would be used to decrease income taxes or social security contributions.

Progress Indicators:

- Conducted reform to streamline existing environmental charges;
- Volume of annual revenue from environmentally related taxes and charges;
- Volume of annual revenue from environmentally related taxes and charges/cost of collection;
- Volatility of annual revenue from environmentally related taxes and charges.

### ***Strengthening decentralization and resource allocation at a local level***

*Introduce a multi-year budget framework at all levels of government and medium term investment programs in local governments.* Gradually introduce elements of task-based budgeting at municipal level. Improving budget preparation and monitoring processes may result in significant savings through subsidy reform and better prioritization. Better investment planning and budget management could enhance creditworthiness of municipalities. A multi-year investment plan, by organizing and rationalizing the municipal

investment process, often decreases losses during the planning and implementation period. The task-based budgeting improves planning quality and efficiency. Note that this line of action is most appropriate when a clear framework is set up for fiscal decentralization.

Short-term practical steps towards implementing these actions (1-3 years):

- Remove the burden of unfunded, environmentally related federal/national mandates from local governments according to the European Charter for Self-Local Government;
- Implement joint demonstration projects for multi-year comprehensive investment programs in pilot municipalities and oblasts with environmental priority;

Medium to long term steps (4 – 10 years):

- Establish genuine regional and local autonomy within clear defined bounds, supported by the separation of tax and expenditure functions, at least in the environment sector;
- Develop uniform procedures for environmental management and consolidation of municipal investment programs with the budget policies.

Progress Indicators:

- Number (share of total) of municipalities which have legally adopted and routinely use formal current expenditure budget and multi-year investment plans in the environment sector;
- Share of local environmental expenditure / public environmental expenditure.

### ***Harnessing financial sector for environmental financing***

*Phase-out instruments and practices that discourage commercial financiers.* Environmental authorities can do very little to strengthen the

financial sector in EECCA. However, 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.

*Develop incentives adapted to evolving market conditions.* Environmental authorities should carefully follow the developments of the financial markets and harness opportunities that already exist and those that will emerge, as lending terms become more favorable to long term investments. Even very scarce funds can be used creatively to mobilize additional commercial co-financing of environmental projects. 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 to public funds, governments can also use an array of non-financial instruments to facilitate market-based financing of environmental investments, such as commercialization of environmental infrastructure and certain environmental services, information campaigns and reduce political and regulatory risks to environmental investments.

Facilitate building capacity of municipalities and enterprises in preparation of environmental commercial projects and of environmental authorities in appraising these projects. Given the limited expertise in commercial financing of environmental projects in EECCA, a great emphasis should be put on solid market analysis, training and learning by doing things, together with financial authorities and financial institutions themselves.

Short-term practical steps towards implementing these actions (1-3 years):

- Analyze trends in domestic financial markets in order to identify the key constraints to commercial financing of environmental projects;
- Review existing public expenditure programs (managed directly by governments and by special environmental funds) and other policy instruments to analyze how public intervention could be better tailored to address these key constraints; identify and phase out

environmentally motivated subsidies from those environmental activities that are commercially viable;

- Identify specific areas where co-financing by public funds with commercial banks would be feasible; wherever it proves feasible, introduce formal requirements and incentives to use public funds to mobilize bank loans e.g. through matching grants, out-sourcing risk management services, or on-lending public money through commercial banks;
- Train managers of public funds in appraisal of environmental investment projects and in using public subsidies to facilitate co-operation rather than competition with the private financial sector;
- Work with donors or foreign lenders to provide domestic banks with long term capital in local currency (master loan or long term deposits) earmarked for financing environmental projects in specific areas or sectors. In so doing, develop robust business plans based on careful analysis of market conditions and past experience with similar schemes (e.g. first environmental investment loan to the Russian National Pollution Abatement Facility - NPAF);

Medium to long term steps (4 – 10 years):

- As general terms of commercial lending improve, develop additional public instruments to stimulate interest of financial institutions in environmental projects – such as interest subsidies or loan guarantees;
- Promote commercial viability of environmental projects by showing the banking community a commitment to consistent implementation and enforcement of environmental policies, by commercialization of environmental infrastructure services and by selective public support to demonstration, pilot investment projects;
- Work with the Ministry of Finance to enhance the access of municipalities and enterprises to capital markets for environmental projects (municipal and corporate bonds);

- Facilitate training to municipalities and utilities in preparation of environmental infrastructure projects for commercial financing (with particular emphasis on financial and risk analysis);
- Work with financial institutions to develop incentives for more specialized businesses (such as ESCOs and leasing firms) to develop financial products for environmental investors.

Progress Indicators:

- Volume of environmental expenditure financed by the commercial financing institutions;
- Environmental expenditure financed by the commercial financing institutions / total environmental expenditure;
- Share of environmental loans in the total loan portfolio of the banking sector;
- Values of municipal bonds issued for environmental investments;
- Values of leasing transactions involving environmental equipment;
- Number of ESCOs operating in environmentally related sectors.

***Attracting more foreign official finance – refocusing on EECCA***

*Ensure consensus within the Government for environment to be a priority in foreign cooperation programs.* This is a precondition for most donors to allocate funds for environmental assistance in their ODA/OA budgets.

*Ensure effective and efficient implementation of foreign assistance and IFIs projects.* Strengthened institutional capacity to manage foreign cooperation programs should attract donors and IFIs to the environmental sector. Procedures for project selection should be transparent and professional.

*Consider a debt-for-environment swap clause every time the government is negotiating debt restructuring with the Paris Club.* Environment authorities, in close co-operation with and only through the Ministry of Finance, can initiate the introduction of this clause into any on-going negotiations in order to harness opportunities for swapping a portion of the external debt for domestic environmental expenditures. It will be necessary for an interested debtor country to put a lot of effort up-front in designing an institutional set up for managing the swapped resources in order to enjoy the highest international credibility. Experience of Poland and Bulgaria and selected other transition economies (including Russia) should be carefully studied. The options considered should include swaps on a project-by-project basis or swaps through a specially - established financing institution (e.g. a Fund), which would select projects on a competitive basis. Various options for ensuring accountability, transparency and efficiency, and the choice of spending priorities, project pipelines and disbursement mechanisms should be analyzed as well.

Short-term practical steps towards implementing these actions (1-3 years):

- Work with the rest of the government to ensure that environment is included as a priority in foreign cooperation programs;
- Strengthen programming procedures and institutional capacity to manage investment components in foreign cooperation programs;
- Prepare institutional set-up for debt-for-environment swap when opportunity arises.

Medium to long term steps (4 – 10 years):

- Stabilize the legal and institutional framework;
- Prepare realistic and financeable investment programs and “bankable” project portfolios for co-financing from foreign sources.

Progress Indicators:

- Volume of environmentally related ODA, IFIs;

- Environmentally related ODA and IFIs / total environmental expenditure;
- Value of resources generated through debt-for-environment and debt for nature swaps.

### **The role of international co-operation**

Given the low level of domestic finance available for environmental improvements in EECCA, the role of international co-operation in this region in mobilizing additional private and public resources for the environmental sector as well as allocating public financial resources more efficiently is crucial. If well targeted, donors' and IFIs' resources can be an important catalyst in policy reform and institutional development and in leveraging scarce public resources in EECCA.

### ***Lessons learnt from international co-operation***

While external finance is crucial in triggering important environmental investments in EECCA, its main function lies in leveraging additional resources in the recipient countries. To this end, EECCA should be fully aware that the bulk of finance needs to come from domestic sources. With ever-decreasing budgets for environment, and general lack of liquidity of enterprises, putting in place the right policies and incentive structures is all the more important. In this context, economic instruments (including user charges for environmental services) are a good candidate for donors to focus their assistance on. However, improving the system of economic instruments has so far received only limited attention in donor assistance programs (e.g. USAID in Ukraine, TACIS in Georgia). Even where such programs exist, they are often not tailored well enough to the recipient country conditions. Donors tend to transpose their own experience directly to the EECCA context proposing approaches and solutions which might not always be compatible with the country's policy and institutional capacity.

The same observation holds for donor assistance programs targeted at improving public environmental expenditure management in EECCA. There are very few donors' technical assistance programs for institutional and capacity-building in this area in EECCA in the first place. Secondly, these programs rarely involve stakeholders other than Ministries of Environment,

such as Ministries of Finance and Economy. Therefore, such programs usually fail to achieve their objectives, as it is difficult to influence the broader framework that governs public environmental expenditure management without the support of the major government agencies.

On the other hand, the recipient countries' capacity to absorb external assistance is often limited. Sometimes IFIs and donors compete with governments for human resources, creating over-stressed personnel, low quality of inputs and distorting real prices of domestic inputs. For institutional strengthening projects, donors rarely require that institutions/Funds managing public environmental expenditure use good practices in public expenditure management. Instead, they often by-pass existing institutions and create their own isolated units to implement individual projects, thereby foregoing opportunities for reforming existing institutions.

In addition, donor assistance programs on enhancing environmental financing, where they exist, are usually one-off attempts. Assistance provided in analyzing problems is often not followed by assistance for implementation of institutional reforms and for capacity-building and is not linked to investment "rewards" for reform-minded EECCA. Denmark is among the very few donors that has tried to follow this path (in Ukraine). However, such examples are extremely rare and they usually fall short in their initial good intentions, due to the lack of general longer-term strategic vision and commitment.

The lack of co-ordination between different donors and international organizations creates other problems. Donor programs propose solutions that are not coherent with one another and are not realistic given institutional and market conditions in EECCA (e.g. proposal for establishment of a credit enhancement fund in Russia to guarantee bank loans for environmental investments, while Russian banks have too tiny deposit base to offer significant investment loans). Conflicting policy options proposed by donors often leave EECCA confused as to the best policy choice, and bring in additional distortions in EECCA policy development and reform.

Very few donors and IFIs have been willing to implement comprehensive projects on capacity building that help EECCA better

formulate policies and develop more realistic investment planning for their environmental programs as well as set the right incentive structures for mobilizing additional resources for the environment. Denmark again is a notable exception, where the Danish Government supported the development of municipal water sector finance strategies in several countries in the region (Georgia, Moldova, Kazakhstan, Ukraine, several regions in Russia). Unfortunately, well-targeted, step-by-step capacity-building projects tailored to a specific country's conditions usually attract less donors' interest. Donor assistance programs are usually made to fit specific donor budget levels and timeframes for their project cycles, and are often without a holistic view of the overall needs. Specific issues are addressed isolated from the big picture. Projects of these types are often left hanging with severe capacity building gaps, and follow-up adjustment processes are badly needed.

### ***Forms and areas for future co-operation***

If real "refocusing on EECCA" is to happen, as called upon by Environment Ministers at the 1998 Environment for Europe conference in Aarhus, Denmark, and further restated in Kiev in 2003, it is obvious that environmental assistance to EECCA needs to increase and be diversified among EECCA regions and countries. Donors should spend more time in designing their assistance programs taking into consideration local specific conditions. They should carefully assess the value-added of their own programs vis-à-vis other international initiatives. They should ensure local support and ownership of these programs.

There is a particular need to ensure that project preparation is not an isolated process but is synchronized with policy and institutional strengthening measures. Donors need to make necessary provisions in their assistance programs to bring these elements together and further link them to investment opportunities. Taking into consideration the long timeframe and amount of resources required to prepare good projects for financing by IFIs, donor assistance programs should aim to adjust the preparation and implementation phases to the level of commitment needed.

Many lessons can be learnt from managing the transition period in the more advanced CEE countries. Therefore, donors should pay increased attention to undertaking, disseminating and implementing demonstration

projects based on best practices, tools, and know-how not only from OECD countries but from more advanced transition economies as well. Rather than disseminating "ideal" solutions, technical assistance in managing the transition period in EECCA would be further strengthened, if it takes into account the practical solutions implemented in the CEE transition economies.

To further enhance the assistance provided by donors with the aim of making their programs more effective, donors may want to consider the areas listed below for future co-operation. Financial assistance and small-scale pilot and demonstration projects would be most helpful, if provided for:

- Reforming the revenue-raising potential of environmentally related charges and taxes;
- Developing models and methods for priority-setting and more realistic investment and financial planning of environmental programs;
- Strengthening long-term investment planning and project preparation by municipalities and public utilities;
- Designing optimal institutional set-ups for debt-for-environmental swap schemes;
- Developing models and tools for harnessing and leveraging private finance for environmental projects in a competitive, market-friendly manner;
- Designing technical assistance on public governance with special emphasis on public expenditure management and decentralization - with special application to the environment;
- Reforming existing public environmental expenditure management institutions in line with international good practices;
- Training of environmental administration in appraisal of environmental investments for financing from public funds;

- 
- Developing and disseminating methods and tools to assist in prioritization, economic and financial appraisal of environmental projects and programs, in management and decentralization processes;
  - Strengthening mechanisms for public-private co-financing of environmental infrastructure investments;
  - Working with EECCA public expenditure management institutions on a "learning by doing basis".

At the same time, regional bodies (such as the OECD EAP Task Force) and other international organizations can be helpful in assisting donors and IFIs in:

- Monitoring the implementation of the actions identified in EECCA Environment Strategy and evaluating progress achieved;
- Reporting on and disseminating positive experience from EECCA countries (best-in-class);
- Providing a forum for exchange of outlooks, ideas, and lessons learnt from donor and IFIs projects;
- Brokering between EECCA and donors/IFIs by helping EECCA better formulate their needs in discussions with donors, and monitoring key areas of interest and expertise in OECD member states;
- Assisting EECCA in quality control and assurance of donor consultants;
- Developing best practices and new tools for mobilizing additional and managing public financial resources.

Such initiatives would likely increase EECCA ownership, and the chances and levels of success of donor projects.



## ANNEXES

### **Annex 1: Summary of key environmental challenges in EECCA as reported in the Kiev Assessment**

#### Air pollution

- Overall, emissions of acidifying and eutrophying substances and ground-level ozone precursors have fallen substantially since 1990 in EECCA countries, primarily as a result of economic difficulties and restructuring. This improvement may partially be lost again with economic recovery, unless stronger action is taken as regards technology change and consumption habits.
- Air pollution remains a serious problem in most of the larger cities in EECCA (e.g., ground-level ozone concentrations, exposure to particulate matter, exposures to nitrogen dioxide and sulphur dioxide). Better monitoring and analysis of air pollution, along with better policy implementation are necessary in these cities.
- Assuming a reduction of carbon dioxide emissions to comply with the Kyoto protocol, there is a large potential for ancillary benefits in terms of additional reduced emissions of air pollutants and reduced costs of air pollution abatement in EECCA. Such potential benefits can be realized only, of course, if EECCA countries actually manage to utilize the opportunities arising from the use of the flexible mechanisms under the Kyoto Protocol.

#### Energy

- Despite a fall of total energy consumption in EECCA over the period 1992–1999 (which was mainly due to reduced consumption, linked to economic difficulties and restructuring), there has been little improvement in energy efficiency in EECCA in the same period. Energy consumption per unit of GDP remains considerably higher than in Western Europe, indicating a substantial potential for efficiency improvements. Energy-related acid gas emissions, however, decreased substantially over the review period (1992–1999).

- Nuclear power raises concerns over safety and the long-term management of radioactive wastes. In the EECCA region, as of 2000, there were operational nuclear power reactors in Armenia (1 reactor), the Russian Federation (29 reactors) and the Ukraine (13 reactors).

### Climate change

- Energy-related greenhouse gas emissions fell substantially, mainly as a result of economic difficulties and restructuring that led to reduced energy use. This improvement may be lost with economic recovery, unless stronger action is taken to improve energy efficiency and switch to low-carbon energy sources.
- The Russian Federation is a key player in implementing the Kyoto Protocol and most likely will have a central role in the future market of greenhouse gas allowances. All EECCA countries need major investments in the energy sector, whereas greenhouse gas mitigation costs would likely be significantly lower than in Western Europe. It is questionable, though, whether EECCA countries will be prepared to fully benefit from the opportunities arising from the flexible mechanisms under the Kyoto Protocol.
- Severe negative impacts from climate change are projected for large areas in EECCA (e.g., as regards depletion of water resources, severe impacts on agriculture, flood risks, impacts on power supply in some regions depending on hydro power, etc.). With few exceptions, policy responses have been poor.

### Stratospheric ozone depletion

- The Kiev Assessment does not report any specific successes or problems regarding stratospheric ozone depletion in EECCA countries. It generally refers, however, to the need for tightening control measures, reducing the production and use of hydrochlorofluorocarbons and methyl bromide, and, managing the remaining stocks of ozone-depleting substances.

### Transport

- Environmental and safety standards related to transport are not well developed in EECCA countries (as compared to other European countries, for example).
- The most important short-term challenges for the countries of EECCA are to phase out leaded petrol (most countries), abolish fuel subsidies (few countries only), introduce self-financing of the transport system via fuel taxes, and move towards cleaner vehicles and better inspection and maintenance regimes.

- 
- As regards internalization of external costs of transport on society, there is little evidence of measures being developed or introduced in EECCA countries.
  - Investment in transport infrastructure remains a priority of transport policy. EECCA countries typically do not use strategic environmental assessment to help integrate environmental concerns at various policy and planning levels for such investments.

### Industry

- Manufacturing industry is responsible for a wide range of environmental pollution: emissions to air, emissions to water, contamination of soil, the generation of wastes, etc. Industrial activities are also connected to disturbances to landscapes, and the generation of noise and hazards. Concise and comprehensive data on industrial pollution in EECCA is virtually non-existent. A few indicators can serve as proxies to indicate overall developments, for example industrial energy use: industry in EECCA is about seven times more energy intensive than that in the west. In EECCA, the main challenges are to build and to enforce an appropriate regulatory framework.

### Chemicals

- The chemical sector in EECCA experienced significant downturns during the 1990s. Emissions of many heavy metals and persistent organic pollutants have fallen during the past decade because of this (partially also as a result of the use of improved pollution abatement systems by industry and the use of cleaner technologies, although large potentials for improvement remain).
- There are major gaps in monitoring and reporting of chemicals dangerous for the environment. There is a lack of policies which address risks to sensitive groups in society as regards, for example, food safety.
- It is most likely that there are significant stocks of obsolete and hazardous chemical substances in the EECCA area.

### Waste

- Total waste generation per capita in the EECCA region is estimated to be 50-80% higher as compared to Western Europe. Waste generation per unit GDP is therefore several times higher in the EECCA region than in Western Europe.
- Many parts of EECCA, particularly rural areas, are not served by municipal waste collection systems. In the Caucasus, it is reported that municipal waste landfills are often overloaded, improperly operated and maintained, and do not meet environmental and human health requirements. A similar situation is reported to a greater or lesser extent in

several other EECCA countries. Illegal dumping of municipal waste, in particular in rural areas, is also common in many countries. Landfilling is the lowest ranking waste management option in the waste hierarchy, but remains the dominant method used in EECCA.

- There is large room for waste prevention, recycling, and raising the safety standards for final disposal.
- In most EECCA countries, hazardous waste generation is dominated by a relatively small number of sources. This would allow for targeted hazardous waste management, prevention or recycling programmes. In the Caucasus, it is reported that known hazardous waste disposal sites are overloaded and not adequately isolated from the environment, posing risks to the environment and human health. Because of the lack of sound law enforcement and monitoring systems there is a risk of the area becoming a 'haven' for international trading in hazardous waste. Although all the EECCA countries (except Kazakhstan and Tajikistan) are parties to the Basel convention, many lack the national capacity as well as finances to fulfil commitments made under the convention.

### Soil degradation

- Over the past 50 years, the priority given to increasing the productivity of agriculture, combined with climatic factors, has resulted in soil and water pollution from the overuse of pesticides and fertilisers. Large areas have experienced salinisation as a consequence of unsustainable irrigation schemes and cultivation practices (the best-known case is the environmental disaster of the drying-up of the Aral Sea).
- The most extreme forms of degradation have resulted in the desertification of large areas. In Kazakhstan, an estimated 60 % of the territory is at risk of desertification. The process is accelerated by the large-scale collective farms and the abandonment of marginal land. In Azerbaijan, in 2000, between 3.7 and 8.6 million hectares of land were degraded through erosion and 30 000 hectares were degraded through soil contamination by a number of substances, including oil products (14 000 ha). In central Asia, acute problems of desertification are reported. In Turkmenistan, 70 % of pasture is degraded, 40 % receives poor water supply and 5 % has been transformed into bare moving sand.
- Heavy-metal contamination is common around major industrial areas. The problem is especially acute in the mining and metallurgical complexes of Kazakhstan and in the Caspian area (oil spills and other contamination). Contamination with radioactivity is important as a result of nuclear weapons tests, improper radioactive waste disposal and the Chernobyl accident

### Technological hazards

- The Kiev Assessment does not provide for comprehensive information on technological hazards specific to the EECCA region. It describes a number of cases, though, one of which is Ukraine's coal industry: In recent years, there have been several multiple fatality accidents in Ukraine's coal industry. Funding cuts since the break-up of the USSR in 1991 have forced the industry to struggle for survival and have led to a neglect of safety. Even in Soviet times, working practices were shoddy and safety standards were low. Equipment is outdated and often faulty; exposed wires can set off explosions, gas sensors and oxygen tanks do not work, and pit props are broken. The majority of the mines are uneconomic, only 50 of more than 200 are viable. This, combined with very poor safety management, has led to the multitude of tragic accidents.

### Water

- Existing information on the state of waters in EECCA shows that many rivers, lakes, groundwater and coastal waters are polluted, often with hazardous substances including heavy metals and oil. The pollution tends to be concentrated in localised hot spots downstream of cities, industrialised and agricultural areas and mining regions. Away from these hot spots, river and lake water quality appears to be relatively good.
- As regards drinking water supplies, there is significant microbiological and chemical contamination, especially near pollution 'hot spots'. Infrastructure for providing clean drinking water is deteriorated or lacking in many places.

### Agriculture

- There is a legacy of significant environmental damage associated with agriculture in the EECCA, often associated with unique ecosystems, where exploitation of resources (such as freshwater for irrigation) was excessive. The dramatic decline in resource use in these countries, largely due to economic restructuring rather than policy, consumer or technological developments, has scaled back many environmental pressures. However, land abandonment, undergrazing and lack of capital to maintain or improve farm infrastructure are creating new environmental pressures.
- For the countries of EECCA, the current window of opportunity for ensuring reduced environmental pressures from agriculture may not remain open for long. There is little or no agri-environmental policy framework in the EECCA countries and few possibilities for farmers to address agricultural pressures on the environment.

### Forestry

- Forest area has been expanding in the southeastern countries of EECCA. In the Russian Federation, there has been an annual decline of forest area, but the combined area of forest and 'other wooded land' has been increasing. Recent studies suggest that only about 26 % of the forest zone in the Russian Federation remain as large, intact forest

landscape. Overall, nearly 90% of the forest land in EECCA is categorized as “undisturbed forest”.

### Fisheries and aquaculture

- Many of the fisheries in EECCA are in large transboundary inland lakes or seas (e.g. Caspian Sea, Aral Sea, Lake Peipus). Overfishing, illegal fishing, pollution and loss of habitat often are a problem (for example, sturgeon fishing in the Caspian Sea, Black Sea and Azov Sea - sturgeon is the most valuable fish in the world, forming an important economic component of the catch in EECCA).

### Biological diversity

- 3% of the total area of EECCA is under national designation for nature protection (Western Europe: 15%; CEE: 9%).
- The Kiev Assessment mentions significant pressures on biological diversity in specific localities and regions in EECCA stemming from past (Communist) agricultural and industrial activities, as well as recent development patterns and issues, including: desertification, erosion, unsustainable agricultural, fishing and hunting practices, unsustainable mining and industrial practices, unsustainable forestry practices, etc.
- Success stories are mentioned, too, one of them the Kyrgyz Republic, which is leading in nature conservation in central Asia. The Kyrgyz Republic’s Issyk-Kul biosphere reserve covers almost a quarter of the country’s territory. Furthermore, a transboundary biosphere reserve is being created in the western Tien Shan, which aims at protecting biodiversity while moderating potential tensions linked to national borders with Kazakhstan and Uzbekistan.

### Environment and human health

- There are no air quality monitoring data from EECCA that allow reliable health impact assessment for these countries. However, the scarce and not very precise information available indicates that urban air pollution levels in large cities of the region are higher than in the western parts of Europe, so the health impacts may be expected to be significant.
- Poor quality of drinking water (and recreational water) is reported to be a significant health hazard in large regions of EECCA.
- There is little concrete information about the risks with food-borne diseases caused by microbial hazards in the EECCA region. The same can be said about risks related to air and food contamination with chemicals.

- 
- There are areas in EECCA, where, following social and economic breakdown, the classic infectious diseases, such as diphtheria, malaria, TB, cholera and typhoid, are re-emerging. The life expectancy of people in several of the more polluted and impoverished zones of EECCA countries has fallen dramatically within the last decade, to an average of less than 50 years, such as in Kazakhstan and Tajikistan.

Source: EEA, 2003.

## Annex 2. Macro Economic Indicators for EECCA Countries

Figure 9. Macro Economic Indicators for EECCA Countries, and international comparators

	Population, million inhabitants	GDP, billion USD		GDP per capita, USD	GDP, real growth % over the period		General government expenditure, % of GDP	Share of general government tax revenues in GDP (%)	Gross fixed capital formation, million USD	Foreign direct investments, million USD, yearly average	Inflation, % change from previous year	Domestic credit to private sector (% of GDP) **	Deposit rate, % annum	Lending rate, % annum
		2003	2004		1991-98	1999-2004								
Armenia	3.2	2.9	757	13.7	57.2	18.9	14.1	459	103	3.0	5.8	6.9	20.8	
Azerbaijan	8.2	8.0	963	-35.8	62.3	30.0	22.0	2 118	1 059	4.0	..	9.2	17.0	
Belarus	9.9	21.2	2 466	-10.2	30.2	46.1	44.4	3 033	232	22.7	12.0	17.4	24.0	
Georgia	4.6	4.3	836	-18.3	29.6	18.9	14.7	684	177	5.8	8.6	9.3	32.0	
Kazakhstan	14.9	34.3	2 307	-27.1	61.4	24.0	21.8	5 918	1 784	6.5	22.8	10.9	14.9	
Kyrgyz Rep.	5.0	1.9	369	-21.0	21.5	27.1	17.8	280	38	3.7	2.6	5.0	21.7	
Moldova	3.6	2.3	630	-48.3	30.3	31.0	27.0	269	94	9.5	22.4	14.2	19.4	
Russian Fed.	145.2	543.2	3 816	-29.3	37.7	35.5	36.6	62 140	401	11.2	20.9	4.5	13.0	
Tajikistan	6.5	1.7	258	-37.4	55.0	16.3	17.2	188	23	8.5	10.5	14.6	15.6	
Turkmenistan	4.8	6.5 *	1396 *	-36.8	42.2 *	26.3	24.5	2 317	158	11.6 *	2.2	..	..	
Ukraine	47.8	56.5	1 183	-50.3	40.9	37.7	36.7	8 401	789	6.9	24.6	7.0	17.9	
Uzbekistan	25.1	9.0	346	-1.8	14.0	39.9	23.0	1 600	110	8.9	26.0	26.0	33.0	
Bulgaria	7.9	19.3	2 351	-24.3	25.9	38.4	29.0	2 807	877	4.2	18.0	2.8	9.1	
Hungary	9.9	99.1	10 010	15.5	20.1	49.7	38.3	15 217	2 674	4.1	35.0	8.7	11.2	
Lithuania	3.4	21.9	6 338	-6.1	37.3	31.5	27.0	2 944	450	2.5	19.9	0.2	5.1	
Romania	22.3	59.1	5 728	6.0	24.9	32.3	28.0	9 670	1 300	12.0	9.5	10.8	26.2	
Germany	82.5	2 687.1	32 571	7.3	5.8	48.8	36.2	369 237	45 984	1.6	118.9	2.3	9.7	
Portugal	10.4	165.5	15 913	16.1	5.7	47.7	33.9 *	30 318	2 979	2.0	147.9	2.3	..	

Notes: \* 2001 data \*\* Domestic credit to private sector refers to financial resources provided to the private sector - such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable - that establish a claim for repayment.

Source: EBRD, FAO, IMF, UNCTAD, World Bank (based on national statistics).

---

**Annex 3. The costs of the MDG for water supply and sanitation in EECCA<sup>18</sup>**

The report comprises the analysis and estimation of the costs of achieving the UN MDG for water supply and the subsequent assessment of how to finance the goals. The primary objective of the study was not to merely provide costing data, but also to give a more detailed account of the factors behind achieving the MDG in the EECCA region, allowing for discussions of the appropriate policy measures needed to mobilise sufficient financing sources.

The UN MDG for water and sanitation is based on a number of so-called improved water supply sources and improved sanitation facilities. The weakness of such a type of definition is that not only access to a certain source matters, but also the quality and reliability (regularity) of the source. This implies that the criteria for formal access to an adequate facility might not be sufficient, if the water supplied through it is not safe and poses an immediate threat to human health. Consequently, it might be necessary to rehabilitate existing facilities as part of achieving the MDG target. This is the case with EECCA.

Here, during the Soviet past, the majority of the cities and towns were piped and obtained access to a centralized water supply system. Villages and other settlements in the rural areas had one or the other form of semi-centralized water supply or access to a relatively stable water source (wells, springs, rainwater collections, etc.). Similarly, the majority of cities and towns were provided with centralized or semi-centralized wastewater collection and treatment systems. Normally, villages and other settlements in the rural areas, if not centralized, had some form of system relatively well protected from human contact (latrines, pit latrines, etc.). According to the best available statistics on, and estimates for, the connection to various sources, 89-92% of the EECCA population have formal access to improved/adequate water supply, and 85-93% have formal access to improved/adequate sanitation.

---

<sup>18</sup> See also the background paper on the costs of the MDGs in EECCA, to be presented at the Ministerial conference in Yerevan, November 2005.

Judging from above figures, in EECCA, the direct definition of the MDG targets would apply to about 5 - 10% of the population living in far, isolated regions of the Russian Federation, areas in Central Asia (especially remote villages and rural settlements), and some city suburbs. However, the key issue is that formal connection as reported by the statistics does not necessarily mean actual service of sufficient quality (let alone that existing statistical data suffer from out-datedness, inconsistency and may not reflect the real situation of water supply and sanitation). In reality, the existing infrastructure in EECCA often does not deliver services of a quality, or, frequently, such infrastructure does not work at all. In some cases, existing infrastructure delivers water which is not safe. Therefore the report assessed not only the provision of safe/adequate water and sanitation facilities to the share of population without such access, but included at least minimum rehabilitation of a fraction of existing infrastructure to ensure that it complies with the basic requirements of MDG-defined safety and adequacy. The estimated MDG related costs, therefore, include both extension and rehabilitation components. Estimates were provided for the following individual elements for each country:

- costs for halving the share of population currently using "non-improved" water sources and sanitation methods - service extension costs;
- costs of rehabilitation of between 10%-50% of existing infrastructure for water supply and wastewater collection - existing infrastructure rehabilitation cost.

The main results of the cost and financing analysis include:

- Total investment costs related to the water and sanitation Millennium Development Goals are estimated to be between EUR 7 and 21 billion for the whole EECCA region;
- Out of the central estimate of EUR 14.6 billion, water supply improvement accounts for EUR 9.6 billion while sanitation accounts for EUR 5.0 billion; and similarly, renovation and rehabilitation of existing facilities account for EUR 13.0 billion, while new facilities or new connections accounts for EUR 1.6 billion out of the estimate of EUR 14.6 billion;

- Per capita investments costs amount to EUR 52 with variations among countries from EUR 37 to 78 per capita;
- Financing of the investments has to be seen together with all expenditures related to the sector; total annual expenditure need has roughly been estimated at EUR 23 per capita per year while total supply of finance is estimated at EUR 16 per capita per year;
- The investments in achieving the MDG can to some extent be seen as replacing re-investments that, under all circumstances, are necessary for maintaining service levels and the investments also induce costs savings due to, for example, reduced water losses;
- Average user charges are currently at the level of 1.9 % of household income (simple average) varying from 0 to 4.6 %. Increasing the level to 3-4 % (the World Bank benchmark for countries of similar levels of income) can give an important contribution, but is not sufficient in all countries;
- There is a large difference among the countries where potential for implementation of the MDG is largest in Russia, while most difficulties have been found in Central Asia and the Caucasus region.

Compared to the baseline supply of finance, the above total MDG investment costs represent a significant challenge to most of the countries in the region. An interesting finding of the report is that rehabilitation components account for around 89% of the total MDG costs. The achievement of the MDG goal is closely linked to the general situation in the water and sanitation sector, and the large backlog of maintenance in the urban water and sanitation infrastructure has to be addressed in order to secure the service level. The realization of cost savings is usually the most obvious option for closing a financing gap. However, the report found a number of important limitations to cost savings, including the following:

- Existing engineering standards are sometimes not flexible, thus not allowing for cheaper solutions;

- Prevailing monopolistic market structures on the supply side can increase the costs;
- Institutional requirements and set-ups can slow down the process and increase the costs.

Therefore, several alternative scenarios for increasing the supply of finance have been assessed in the report. Factors such as potential increases in user charges, the effect of expected general economic growth and possible increases in publicly provided funds were all considered. The assessment showed that in several countries, such measures would provide sufficient funding in the medium and longer term. For some countries, however, especially for those in Central Asia, even the realisation of all scenario measures at once does not provide for the necessary finance. Generally, an acceleration of the sector planning process was revealed to be critical. The starting point should be Integrated Water Resources Management which also should link to related infrastructure development. The plans for achieving the MDG should be part of integrated planning. For this process to contribute to the actual achievement of MDG, milestones, benchmarks and incentives have to be in place. Most important is the role that donor assistances and IFIs can and should play in facilitating the process by providing necessary technical assistance, implementing pilot/demonstration projects and ensuring the actual dissemination of results.

Source: DANCEE/COWI (2004)

---

#### **Annex 4. Environmental financing strategies**

An important obstacle to achieving environmental goals in many countries has been the failure to adequately address the associated financial issues: the costs of achieving environmental goals; how those costs could be minimised; and the challenge of matching costs with available resources. Environmental Financing Strategy (EFS) represents an instrument for addressing these issues. EFS has recently been developed and tested for investment-heavy environmental infrastructure, such as urban water supply, wastewater collection and treatment, and municipal solid waste. Experience suggests that a systematic modelling approach to investment and financial management can improve decision-making and ensure a better use of scarce resources.

The basic approach underlying an EFS is to take public policy targets in areas like water supply and sanitation, to determine the costs and timetables of achieving them, and to compare the schedule of these expenditure needs with available sources of finance over a period of 10 to 20 years, taking into account macroeconomic forecasts. This analysis generally reveals “finance gaps” during planned implementation. An EFS can then develop various scenarios to determine how these gaps could be closed. This could be by: identifying policy reforms that could help achieve the targets at a lower cost; identifying ways of mobilising additional finance; adjusting the ambition level of the targets; or extending the time period for achieving the targets. An important feature of an EFS is the emphasis on realism and affordability. The model can assess the levels of finance (public, private; domestic, foreign) that might be available under different macro-economic conditions. In this way it provides a check on what public budgets might realistically be expected to contribute. It can also help to assess the potential social implications of increasing tariffs by determining the impacts of such price increases on household income. By focusing on these issues, the application of an EFS is more than a technical exercise: it also supports a process of dialogue and consensus building among the key stakeholders involved in financing environmentally related infrastructure. In this way, it can build a bridge between policy development and implementation.

The critical situation in EECCA calls for a fundamental reform in the approach to financing environmental infrastructure and the associated policy

and institutional arrangements. Overly ambitious plans to extend the coverage and level of infrastructure services need to be replaced by more realistic programmes, tailored to provide essential repairs and rehabilitation of critical elements of infrastructure in order to maximise efficiency gains (mainly reduction of energy costs), within the limits of what households and public budgets can afford.

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

Even though the development of environmental financing strategies has only been undertaken in the last few years, it has already triggered some significant policy changes in EECCA countries. Below follows an overview of key policy impacts of EFS recently conducted with EAP TF assistance:

- In Moldova (OECD/DANCEE, 2000c), the authorities used the EFS to verify how difficult it would be to implement stringent wastewater effluent standards stipulated by national post-soviet legislation. The analysis demonstrated that compliance with these standards is so expensive that it would be impossible to finance over the next 20 years, even under the most optimistic assumptions about growth of user fees, income, public sector revenues and financial markets. This triggered the Ministry of Environment and Natural Resources to prepare a draft government resolution relaxing municipal effluent standards to the less stringent levels of the EU urban wastewater treatment directive.
- In the Pskov Oblast of the Russian Federation (OECD/DANCEE, 2001c), a first round of policy dialogue between different departments of the Oblast Administration, supported by EFS

simulations, did not generate any realistic scenario. Financial authorities and experts could not identify any realistic measures that would increase the supply of financing for water and wastewater infrastructure to levels that would cover the costs of ambitious extension of services targets proposed by the environmental authorities. But simulations revealed very low levels of user fees compared to other Russian regions. This prompted the regional administration to issue recommendations on procedures for calculating and approving municipal services tariffs and for improving many existing weaknesses of the tariff policies applied in the cities. Furthermore, they have insisted more firmly that local administrations follow the schedule for achieving full cost recovery through household tariffs for municipal services. Local debates about service level targets continue.

- In Georgia (OECD/DANCEE, 2001a) and Kazakhstan (OECD/DANCEE, 2001b), the financing strategies for urban water and wastewater infrastructure have provided a revealing "reality check" on possible co-financing arrangements with IFIs and donors.
- In Armenia (OECD, 2004), EFS was used to devise a realistic scenario to impose sanitation standards in 20 urban areas (including the capital city). It was instrumental to propose a policy package that should allow for an ambitious programme.
- In the Novgorod Oblast of the Russian Federation (OECD/DANCEE, 2000c), the financing strategy for municipal solid waste facilitated a substantial revision of regional waste management plans and revealed many options for consolidation of planned landfills and waste processing facilities to reduce costs by achieving economies of scale. The analysis also identified a package of policies that can reduce demand for landfills and help generate priority capital investment projects, all involving inter-municipal cooperation.
- In the Yaroslavl Oblast of the Russian Federation (EC TACIS and OECD, 2003), the financing strategy for municipal solid waste found out that the waste management systems in the large cities of

the Yaroslavl region already generated a financial surplus even at current, affordable tariff levels. This financial performance could potentially support private sector participation in providing some waste management services. These findings have stimulated a debate on restructuring the multipurpose waste management company.

*Source:* OECD/DANCEE (2003).

## Annex 5. Foreign direct investment in EECCA and selected CEE countries

Table 6. FDI. Comparison between EECCA and selected CEE countries

	FDI per Capita USD		FDI-Inflows as % of GDP	
	2000	2003	2000	2003
Armenia	27	43	5.4	5.0
Azerbaijan	14	253	2.2	29.0
Belarus	9	17	0.7	1.0
Georgia	28	66	5.1	8.0
Kazakhstan	84	152	6.8	7.4
Kyrgyz Republic	6	4	2.1	1.0
Moldova	23	11	7.1	2.5
Russia	-2	-21	-0.1	-1.0
Tajikistan	4	5	2.2	2.0
Turkmenistan	24	36	5.2	5.0
Ukraine	12	29	1.9	3.0
Uzbekistan	3	3	1.1	1.0
<i>Weighted average for EECCA</i>	<i>19</i>	<i>50</i>	<i>3.3</i>	<i>5.3</i>
Estonia	226	550	6.4	8.2
Poland	211	100	5.1	2.0
Albania	41	56	3.8	3.0
FYR Macedonia	88	47	4.9	2.0

Source: EBRD (2004).

## **Annex 6. Preparation for a DFES in Georgia**

In 2002-2003, the Ministry of Environment of the Republic of Georgia and the OECD Secretariat of the EAP Task Force elaborated a Pre-Feasibility Study on establishing a Debt swap for Environment and Development in Georgia. The main conclusion of this study is that a debt-for-environment swap between Georgia and creditors in the Paris Club is feasible and could generate benefits for Georgia and the international community, including creditors. Lessons learned from the Georgian case are relevant for other low-income countries in the region and beyond. Harnessing this opportunity will not be easy, however. It requires concerted efforts of the whole government, credible fiscal capacity, a very good expenditure program and very thorough preparations. Georgia is a low-income country, eligible for IDA support, with 20% of the population living in poverty. By IMF standards, Georgia's external debt has recently reached an unsustainable level. More than half of government expenditure is used for servicing the public debt. Although it is technically not in default, Georgia agreed with the Paris Club to reschedule and restructure its external debt. A clause to this agreement created an opportunity for additional bilateral local currency debt swaps on a voluntary and bilateral basis.

The study found that a debt-for-environment swap would provide for numerous opportunities: to generate new and additional resources for Georgia in a way that would not distort fiscal and monetary policies; to capture revenue from the sale of assets that have market value; and, to link global and cross-boundary environmental benefits (climate and biodiversity, international waters) with local economic development, poverty reduction and the rehabilitation of infrastructure. If well designed, the swap could improve local governance and institutional capacity in project development and appraisal. It can also foster peace and security in the region by alleviating regional and cross-border conflicts related to the management of shared and trans-boundary natural resources. It can help mainstream environmental objectives in the social and economic agenda of the whole government. A debt-for-environment swap provides a unique opportunity for a low income country like Georgia to move towards fulfillment of international environmental agreements in a manner that is compatible with its own sustainable development plans.

Creditors from the Paris Club that may be willing to negotiate a debt-for-environment swap include the United States, Austria, Germany, the European Union, Turkey and Russia. If all major Paris Club bilateral creditors (except Japan, which may have legal constraints) swapped 15% of their annual debt repayments, total revenues from the debt-for-environment swap over the period 2005-2020, could be EUR 58m (in 2002 prices). On the assumption that only Austria, Germany, EU and USA agreed to swap 15% of their debt, total revenues from the swap over the same period, could be EUR 30.6 million (in 2002 prices). In net present value terms (at 12% discount rate), these two totals would represent EUR 32.5 and EUR 15.6 million. While not large in absolute terms, these figures should be contrasted with the approximately EUR 7m of capital investment expenditures on environment, and EUR 24m on water supply purposes in 2001. In the first scenario, the debt-for-environment swap would nearly double environmental investments until 2011 compared to the 2001 baseline.

Establishing a credible expenditure program that responds to priority concerns of both creditors and the Georgian government will be essential to gain support for a debt-for-environment swap. The proposed program should be narrowly focused on a few priorities and demonstrate how a solid pipeline of projects could be prepared and supported to meet its objectives. A review of Georgian priority problems and creditors' preferences suggests that the most promising projects could be those which aim at: 1) reducing emission of greenhouse gasses which affect global climate; 2) reducing pollution of international waters; 3) protecting biological diversity; and 4) facilitating access of the poor to safe sanitation services, with a focus on small communities.

Within each priority area, a preliminary identification of project opportunities was conducted with a view to identifying the types of projects that could achieve environmental benefits together with poverty reduction and local sustainable growth. Taking account of the possible size of the swap, additional sources of financing would be required to support any large project pipelines or large individual capital investments. Therefore, careful selection of the most cost-effective projects, and requirements to co-finance projects from other sources, would need to be a cornerstone of project selection in order to make a real difference in any of the priority areas listed above.

The study recommended key institutional characteristics for managing a debt-for-environment swap, including:

- The core of the institutional framework should be a locally established financial facility, which would select projects competitively under the supervision of relevant stakeholders.
- In order to avoid any inflationary impacts, and to manage the absorptive capacity of the project pipeline, the swap would involve the Georgian government transferring the entire flow of future debt repayments over an agreed period (swap-as-you-repay scheme), rather than a one-time transfer of the present value of debt.
- The local financial facility should be established as a modular structure with a “core” revolving fund, which would receive periodic injections of resources equivalent to the amount of forgiven debt repayment in that period. The facility should however be able to open parallel accounts and financing "windows" – some with endowments, some sinking, others revolving, depending on the preferences of investors and the nature of demand for financing.
- A prudent strategy would be to finance projects with grants only. As institutional capacity and financial markets develop, other financial products can be considered. Co-financing should always be required to achieve financial leverage and additionality.
- Accountability to all stakeholders, but freedom from ad hoc political interference, will be necessary conditions to win international credibility and hence attract resources. Accountability, transparency and efficiency must be cornerstones for governance and everyday operations. The Governing Board of the financial facility should be open to creditors involved in the swap. Professional executive management should have a high degree of operational independence in project cycle management, subject to strict accountability for performance. International good practices in public expenditure management should be applied.
- The project cycle should have clearly defined stages, responsibilities, procedures and project selection criteria. Cost-

effectiveness should be a key quantitative basis for appraisal and selection of projects. Subjective, discretionary elements in project selection should be minimized and subject to procedures.

- Competition in procurement under the swap scheme should be maximized to boost efficiency.

*Source:* Georgian Ministry of Environment and OECD EAP Task Force (2003).

## Annex 7. Good practices of public environmental expenditure management

### *Checklist 1: Performance in Terms of Environmental Effectiveness*

Principle	Good Practices
<b>1. Additionality and consistency with other environmental policy instruments</b>	<ol style="list-style-type: none"> <li>1. Public funds do not permanently substitute for weak environmental policies; they are not spent on achieving environmental objectives that could have been achieved with administrative or economic instruments or by eliminating environmentally harmful subsidies.</li> <li>2. Public funds are not used for environmental projects that would have been implemented anyway (e.g. that have high risk-adjusted financial rates of return and could have been financed privately).</li> <li>3. Public environmental expenditures reinforce other policy instruments and are consistent with their stated objectives.</li> <li>4. Regular running costs of environmental administration and enforcement agencies are financed through the regular budget process. Extra-budgetary or specialised expenditure programs are normally focused on financing investment in fixed assets or precisely defined non-investment projects, which are not regular duties of administration. Financial assistance to running costs of non government entities is given only in exceptional circumstances, for a strictly limited period, during which the rate of assistance declines.</li> <li>5. External auditors periodically review the environmental value-added of public expenditures; there are provisions to phase out public funds after they have fulfilled their role.</li> </ol>
<b>2. Sound and well-defined programming framework</b>	<ol style="list-style-type: none"> <li>1. Public funds are spent in the framework of a written, publicly available expenditure program document approved by appropriate authorities.</li> <li>2. Expenditure program has specific, measurable, agreed, realistic, time-bound objectives, eligible beneficiaries, specified financing needs, eligible project types and a set of written rules that guide the financing decisions that enable the objectives to be achieved at the least cost.</li> <li>3. Expenditure program is established as part of a wider environmental program or policy, which is a stated priority and has been developed through a participatory political process</li> <li>4. Environmental expenditure programs support sustainable development; wider economic, social and poverty reduction objectives as appropriate are integrated into the public environmental expenditure program without undermining its environmental effectiveness.</li> </ol>

<b>3. Sound consideration of environmental effects</b>	<ol style="list-style-type: none"> <li>1. Standard application forms are used to solicit quantitative and qualitative information on projects' environmental effects. Once obtained, the accuracy and reliability of this information is verified.</li> <li>2. Indicators of environmental effects are unambiguous and are used as essential criteria in project appraisal and selection.</li> <li>3. Environmental effects are monitored throughout the project cycle and after implementation; project level environmental data are stored in publicly available database that allows unambiguous ex-post verification and analysis.</li> <li>4. If the project fails to achieve its predicted effects, as stated in the application form or financing contract, effective contractual sanctions on beneficiaries are enforced in proportion to the violation.</li> <li>5. Meaningfully aggregated information on environmental effects achieved is periodically reported to governing bodies and to the public, reviewed by external auditors and used as performance indicator.</li> </ol>
<b>4. Maximising environmental effect from available funds</b>	<ol style="list-style-type: none"> <li>1. Quantitative information on project full lifetime costs (investment, operational and maintenance) is requested from applicants in a standard application form and verified; project level cost data are tracked and stored in a database format in a way that allows unambiguous ex-post verification and analysis.</li> <li>2. Project selection criteria ensure that limited public funds achieve the greatest environmental effect. An unambiguous cost-effectiveness indicator (unit lifetime cost of achieving environmental effects) and the rate of assistance from public funds form a core of quantitative basis for appraisal, scoring, ranking and selecting of projects.</li> <li>3. Quantitative information on cost-effectiveness is periodically reported to governing bodies and to the public and is subject to periodic external, independent reviews. Cost effectiveness is a key performance indicator.</li> </ol>
<b>5. Leveraging additional private and foreign finance for the environment</b>	<ol style="list-style-type: none"> <li>1. Public funds cover less than 100% of project costs; co-financing by other sources or by beneficiary retained earnings is required as a principle.</li> <li>2. Leverage of private and foreign finance is a formal requirement and a performance indicator.</li> <li>3. Public funds do not distort competition in financial markets and do not obstruct the development of private financial institutions. Financial products used in environmental expenditure programs do not compete with financial products offered by private financial institutions.</li> <li>4. Full financial plan of the project is required; commitments for financing from other sources are verified. No disbursement is made until full financing for the project is adequately secured.</li> </ol>

Source: OECD EAP Task Force, 2003d.

*Checklist 2: Performance in terms of fiscal prudence*

<b>Principle</b>	<b>Good Practices</b>
<b>1. Fiscal integrity of revenue</b>	<ol style="list-style-type: none"> <li>1. All sources of revenue are clearly specified in the legislation.</li> <li>2. If the revenues managed within the program come directly or indirectly from compulsory transfer payments (taxes, charges, fees), they are treated as public funds in the meaning of the laws of public finance, public procurement and state aid. As such, this money is subject to the usual fiscal discipline in the entire public finance sector, even if it is managed outside of the budget.</li> <li>3. Revenues are recorded at treasury accounts before they are allocated to the environmental expenditure program.</li> <li>4. Only cash revenues are accepted.</li> </ol>
<b>2. Negative efficiency impacts of earmarking are minimised</b>	<ol style="list-style-type: none"> <li>1. Earmarked revenues are limited to specified periods of time. Effective provisions are in place to prevent the creation of vested interest groups and perpetuation of public expenditure programs longer than they provide value added.</li> <li>2. Earmarking within earmarked schemes (e.g. sub-funds within earmarked environmental funds) is avoided as it further infringes on efficiency; If it is unavoidable (e.g. for political reasons), safeguards that prevent inefficient resource allocation and perverse incentives are implemented.</li> </ol>
<b>3. High standards of fiscal discipline and transparency</b>	<ol style="list-style-type: none"> <li>1. Implementation of environmental expenditure programs does not cause unplanned fiscal deficits. In particular, contingent and implicit liabilities (such as loan guarantees) are not incurred without an explicit, prior approval from fiscal authorities. Medium-term financial forecasts, including contingent and implicit liabilities of all implementing agencies, are regularly prepared and disclosed in financial statements.</li> <li>2. For all extra-budgetary funds and government-controlled agencies, an estimate of the revenue and the corresponding expenditures is provided in the state (or sub-national) budget, at least as an annex. Statements on debt and contingent liabilities, especially of all extra-budgetary environmental institutions are presented along with the budget of the Ministry of Environment to the Ministry of Finance.</li> <li>3. Mandatory internal and external independent financial audits are regularly carried out.</li> <li>4. Ex-post reporting, according to a transparent expenditure classification system, is regularly conducted and publicly disclosed.</li> </ol>
<b>4. Accountability and transparency</b>	<ol style="list-style-type: none"> <li>1. All individuals involved in managing expenditure programs are held accountable for decisions to the Government, Parliament and the public within their clear and distinct lines of responsibility, on the basis of effective legal provisions ensuring transparency and meaningful information disclosure.</li> <li>2. Public funds are guarded against corruption and fraud, e.g. through effective checks and balances on various interest groups in governing bodies. Any potential conflicts of interest are eliminated.</li> <li>3. Ex-post reports on performance and results achieved (in terms of specified performance criteria) are periodically conducted and disclosed to the public.</li> </ol>

<b>5. Collection of revenues and public procurement separated from expenditure management</b>	<ol style="list-style-type: none"> <li>1. Special agencies implementing environmental expenditure programs focus on program and project cycle management and project financing, rather than on collecting revenue or making direct procurement of equipment and construction services on behalf of the government. These other tasks are performed by regular government agencies.</li> <li>2. Collection of revenue from fiscal or quasi-fiscal instruments is normally done by relevant fiscal authorities under the control of treasury services.</li> <li>3. National or international public procurement rules apply for all purchases that are co-financed by public funds, even if the purchasing agent is a private entity.</li> </ol>
---	--

Source: OECD EAP Task Force, 2003d.

### *Checklist 3: Performance in Terms of Management Efficiency*

<b>Principle</b>	<b>Good Practices</b>
<b>1. Sound governance</b>	<ol style="list-style-type: none"> <li>1. Expenditure program is governed by clear, written and agreed rules rather than ad-hoc discretion.</li> <li>2. Terms and conditions of financing, decision-making and administrative procedures, internal policies and principles of project appraisal and selection are written and available to the public. They are coherent and consistent, do not change frequently and randomly, although are periodically reviewed in order to identify areas for improvement.</li> <li>3. Governing bodies of environmental expenditure programs represent the key stakeholders with appropriate checks and balances between different interest groups; non-environmental authorities, parliament and non-government organizations are duly represented.</li> <li>4. Governing bodies are responsible for programming, priority-setting, establishing rules, performance evaluation, supervision and control. The political process is confined to programming and supervision. Political interference in the selection of specific projects for financing and beneficiaries is restricted and governed by rigid procedures.</li> </ol>
<b>2. Professional executive management</b>	<ol style="list-style-type: none"> <li>1. Responsibilities for the day-to-day management and implementation of environmental expenditure program is clearly separated from responsibilities of governance bodies and clearly defined in statutory and operational documents.</li> <li>2. Implementing agency has a written mandate on the basis of the contract or the law. Implementing agency is a professional executive management body with a fair degree of operational autonomy, but is subject to strict accountability for performance. Its responsibilities focus on project cycle management, and in particular, on impartial project appraisal and selection.</li> <li>3. Executive managers are held accountable for performance and not judged by political affiliations. Performance indicators, established by governing bodies are clearly written and used in regular performance management. International quality management systems (such as the ISO 9000 family) are considered as a performance benchmark of the executive management.</li> <li>4. Implementing agencies of large specialised environmental expenditure programs have staff assigned exclusively to their management and selected by executive managers.</li> <li>5. The skills of the staff adequately match the technical requirements of a given expenditure program. The recruitment and remuneration of managers and of staff are based strictly on merits. They are adequate to attract and maintain highly qualified people and to reward integrity and commitment.</li> </ol>

<b>3. Sound project cycle management</b>	<ol style="list-style-type: none"> <li>1. The project cycle is subject to intelligible, transparent and written procedures which are consistent and publicly available, in particular to all potential beneficiaries; project cycle manual is binding to the staff and used in practice.</li> <li>2. Project identification is proactive and follows from the environmental expenditure program established by the governing bodies and from realistic analysis of market trends and of demand for financing in the environmental sector.</li> <li>3. Applications for financing are accepted only in standard forms tailored to different project types and supported by clear, user-friendly instructions. Application forms are easily available to all potential applicants, preferably in an electronic version.</li> <li>4. Project appraisal and selection criteria and procedures are objective, transparent and unambiguous. Discretionary, subjective elements of project appraisal and selection are subject to explicit, written procedures. Their records are kept in publicly available files.</li> <li>5. Appraisal systems and procedures are tailored to the size and complexity of different project types. For large investment projects, a two-stage appraisal process is used (first stage – screening against eligibility criteria; second stage - ranking of eligible projects).</li> <li>6. The appraisal system is relatively simple, based on impersonal rules as appropriate, and allows meaningful comparison of comparable projects against each other or against a benchmark. The appraisal system also allows for an ex-post verification of the selection process, including tracking personal responsibilities for important judgements and decisions. Appraisal reports are clear, unambiguous and publicly available.</li> </ol>
<b>4. Fair and unbiased relations with external stakeholders</b>	<ol style="list-style-type: none"> <li>1. Relations with external stakeholders (beneficiaries, intermediaries, consultants) are handled in a transparent, fully unbiased, and arms-length manner. Communication policy ensures that all applicants have equal access to information on funding opportunities and equal opportunity to have their projects impartially reviewed on a merit basis.</li> <li>2. Outsourcing of certain tasks in project cycle management is meaningfully applied through a competitive process without perverse incentives; conflicts of interest are prevented (e.g. the same consultants cannot both prepare projects and appraise them).</li> </ol>
<b>5. Effective management of financial products and related risks</b>	<ol style="list-style-type: none"> <li>1. Only financial products allowed in the statute and approved by the governance body are used by the implementing agency.</li> <li>2. Complexity of operations and the choice of financial products are proportional to the institutional capacity to manage the associated risks. Typically, grants are the first choice, as the most transparent and market-friendly form of subsidy.</li> <li>3. Grants are designed and disbursed in the manner that maximises incentives for timely and cost-effective implementation of individual projects and of the entire portfolio of the implementing agency. Grants are designed so as to minimise chances of misuse of public money by applicants.</li> <li>4. As in-house capacity to manage financial risk increases, other financial products are considered in order of increasing risk, e.g. interest subsidies, loans through intermediaries, direct loans, leasing, equity investments and loan guarantees. Before a new financial product is applied, its feasibility is checked through an assessment of risks, market needs and supported by a financial plan.</li> </ol>

Source: OECD EAP Task Force, 2003d.

---

## References

- Allen, R., Tommasi, D. (eds), 2001: *Managing Public Expenditure: A Reference Book for Transition Countries*. OECD, Paris.
- Armenian State Water Committee (SWC) and Ministry of Finance and Economy (MoFE) of the Republic of Armenia in cooperation with the OECD EAP Task Force, 2004: *Financing Strategy for Urban Wastewater Collection and Treatment infrastructure in Armenia*. Draft final report, March 2004.
- Berbeka, Jantzen and Peszko, 1999: *Cost of Ukraine's Prospective Approximation with Environmental Regulations of the European Union*.
- Bosquet B., 2002: *The Role of Natural Resources in Fundamental Tax Reform in the Russian Federation*.
- ECOFYS, 2004 *Introduction Guide Developing Clean Development Mechanism Projects (under an assignment by the EBRD)*.
- DANCEE/Anderson and Semenienė: 2001: *Lithuania Environmental Financing Strategy*.
- DANCEE/COWI, 2004: *Financial Needs of Achieving the Millennium Development Goals for Water and Sanitation in the EECCA Region – Draft Report*. COWI/DANCEE, Copenhagen.
- EBRD, 1999: *Transition Report*.
- EBRD, 2001: *Transition Report*.
- EBRD, 2004: *Transition Report*.
- EC Tacis and OECD, 2003: *Financing Strategy for the Solid Waste Management Sector in Yaroslavl Oblast, Russian Federation*. Final Report.

EEA, 2003: Europe's Environment - The Third Assessment. EEA, Copenhagen.

Georgian MoE (Ministry of Environment of the Republic of Georgia) and OECD EAP Task Force, 2003: Debt swap for Environment and Development in Georgia – Pre-Feasibility Study, Institutional Options. Final Draft January 2003.

Global Environment Facility (GEF), 1999: Experience with Conservation Trust Funds. Evaluation Report #1-99.

Himes S., 1999: Russia's Tax Reform. In: OECD Observer, January 1999.

IERPC (Institute for Economic Research and Policy Consulting), 2001: Monthly Monitor, No. 12(14), December 2001.

IFC/CIDA, 2001: Financial Leasing in Russia – Market Survey 2000 – 2001.

IMF, World Bank, 2001: Armenia, Georgia, Kyrgyz Republic, Moldova, and Tajikistan: External Debt and Fiscal Sustainability.

IMF, 2003, World Economic Outlook.

Institute for Urban Economics (IUE), 2003: Long-Term Investment Planning in Yekaterinburg's Municipal. Draft report. IUE, Moscow.

Kawalec S., Kluza K., 2001: Challenges of Financial System Development in Transition Economies, in: Financial Transition in Europe and Central Asia: Challenges of the New Decade, ed. By Lajos Bokros, Washington, D.C., World Bank.

Ministry of Environment and Natural Resources, Ukraine & DANCEE, Ministry of Environment and Energy, Denmark, 2001: Capacity Screening of Oblast Environmental Funds in Ukraine.

Ministry of Natural Resources of the Russian Federation, 2001: Report on the Progress and Effectiveness of Implementation of Federal Environmental Target Programs. Commissioned by the Ministry of Natural Resources.

- 
- Nunan J., 2001: How Ukrainian Banks are Addressing Global Issues. PricewaterhouseCoopers.
- OECD, 1995a: The St. Petersburg Guidelines on Environmental Funds in the Transition to a Market Economy.
- OECD, 1995b: The Economic Appraisal of Environmental Projects and Policies.
- OECD, 1996a: Budgeting and Policy Making, Sigma Papers: No. 8.
- OECD, 1999: Environment in Transition to a Market Economy.
- OECD, 2001a: Fiscal Federalist Relations in Russia: A Case for Subnational Autonomy.
- OECD, 2001b: OECD Environmental Outlook.
- OECD, 2002: Development Assistance Statistics. CD Rom Database.
- OECD, 2003a: Multi-Year Investment Planning in the City of Lutsk, Ukraine. OECD, Paris.
- OECD, 2003b: Infrastructure Investment Capacity, Planning and Management in Mono-Functional Municipalities in Ukraine.
- OECD EAP Task Force, 2000a: Reforming Environmental Finance Institutions in Kazakhstan: Conclusions and Recommendations from a Performance Review of the Kazakh State Environmental Protection Fund.
- OECD EAP Task Force, 2000b: The Use of Economic Instruments for Pollution Control and Natural Resources Management in the New independent States – Preliminary Draft Survey.
- OECD EAP Task Force, 2002c: Performance of the National Environmental Fund of Moldova and the Chisinau Municipal Environmental Fund.

- OECD EAP Task Force, 2002d: Principles for Effective Environmental Enforcement Authorities in Eastern Europe, Caucasus and Central Asia. Draft.
- OECD EAP Task Force, 2003a: Financing Environmental Protection in Eastern Europe, Caucasus and Central Asia (EECCA): Background Report. Report presented at the 5<sup>th</sup> Ministerial Conference Environment for Europe held in Kiev, Ukraine, 21-23 May, 2003 (KIEV.CONF/2003/INF/2).
- OECD EAP Task Force, 2003b: Environmental Financing in Transition Economies. Report presented at the 5<sup>th</sup> Ministerial Conference Environment for Europe held in Kiev, Ukraine, 21-23 May, 2003 (KIEV.CONF/2003/INF/37).
- OECD EAP Task Force, 2003c: Trends in Environmental Expenditure and International Commitments for the Environment in Eastern Europe, Caucasus and Central Asia 1996 – 2001. Report presented at the 5<sup>th</sup> Ministerial Conference Environment for Europe held in Kiev, Ukraine, 21-23 May, 2003 (KIEV.CONF/2003/INF/10).
- OECD EAP Task Force, 2003d: Good Practices of Public Environmental Expenditure Management in Transition Economies. Report presented at the 5<sup>th</sup> Ministerial Conference Environment for Europe held in Kiev, Ukraine, 21-23 May, 2003 (KIEV.CONF/2003/INF/13).
- OECD EAP Task Force, 2004a: Local credit systems for municipal water and environmental infrastructure in Russia, Ukraine, Kazakhstan and China. Draft report.
- OECD/DANCEE, 2000a: Environmental Expenditure in the NIS - Georgian Country Report.
- OECD/DANCEE, 2000b: Environmental Expenditure in the NIS - Russian Country Report.
- OECD/DANCEE, 2000c: Moldova Background Analysis for the Environmental Financing Strategy.

- 
- OECD/DANCEE, 2000d: Novgorod Background Analysis for the Environmental Financing Strategy.
- OECD/DANCEE, 2001a: Municipal Water and Wastewater Sector in Georgia Environmental Financing Strategy.
- OECD/DANCEE, 2001b: Municipal Water Services, Kazakhstan – Background Analysis for the Financing Strategy.
- OECD/DANCEE, 2001c: Background Analyses for the Municipal Water and Wastewater Financing Strategy, Pskov, Russia.
- OECD/DANCEE, 2003: Financing Strategies for Water and Environmental Infrastructure. OECD, Paris.
- PPC, 2005, Clean Development Mechanism in Caucasus and Central Asia, presentation by Jan-Willem van de Ven, at the Joint Meeting of the EU Water Initiative's EECCA Working Group and the EAP Task Force Environmental Finance and Water Networks, Chisinau, Moldova, 29 March to 1 April 2005.
- Royal Danish Consulate General, St. Petersburg, 2002: Report on Russian Finance Opportunities.
- Schiavo-Campo, S., Tommasi, D., 1999: Managing Government Expenditure. Asian Development Bank, April 1999.
- Sultan M. and Michev D. G. , 2000: Role of the Financial System in Economic Growth in Transition Countries – the Case of Ukraine's Banking System. Harvard Institute for International Development, Development Discussion Paper No. 767, June 2000.
- UN ECE, 2000: Environmental Performance Reviews: Ukraine.
- World Bank, World Development Indicators (Data and Statistic Internet Database).
- World Bank, 1998: Transition Toward a Healthier Environment. Environmental Issues and Challenges in the Newly Independent States,

A background paper prepared for the Fourth Pan-European Conference of Environment Ministers (Washington D.C.: World Bank).

World Bank, 1999: Handbook for Public Expenditure Management. World Bank, Washington D.C.

World Bank, 2001a: Where Has All the Foreign Investment Gone in Russia - Policy Research Working Paper.

World Bank, 2001b: Towards Improving the Efficiency of Public Investment Expenditures.

World Bank, 2002: Global Development Finance.

World Bank, 2002a: Public Environmental expenditure Review of Ukraine – draft report for consultations. Washington, D.C.

World Bank, UNEP, IMF, 2002: Financing for Sustainable Development: An Input to the World Summit on Sustainable Development. Environment Department, The World Bank Division of Technology, Industry and Economics, United Nations Environment Programme, Fiscal Affairs Department, International Monetary Fund.