

Environmental Infrastructure Investment Project Preparation in the Water Sector

*Available Sources of Finance for Water Infrastructure Projects
in the former Yugoslav Republic of Macedonia*

Working paper



REGIONAL ENVIRONMENTAL CENTER



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Prepared by:

**THE FEDERAL MINISTRY OF AGRICULTURE, FORESTRY, ENVIRONMENT AND
WATER MANAGEMENT IN AUSTRIA**

and

THE REGIONAL ENVIRONMENTAL CENTER FOR CENTRAL AND EASTERN EUROPE

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ABBREVIATIONS AND ACRONYMS

ADA	Austrian Development Agency
AL	aerated lagoons
AM	active mud (activated sludge)
BMZ	German Federal Ministry for Economic Cooperation and Development
BOD	biological oxygen demand
BOD5	five-day biological oxygen demand
BOT	build-operate-transfer schemes
CARDS	Community Assistance for Reconstruction Development and Stabilisation
CEB	Council of Europe Development Bank
CIP	capital improvement planning
CT	conventional technology
DABLAS	Danube and Black Sea Task Force
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EURIBOR	Euro Inter-bank Offered Rate
FC	financial cooperation
FOPIP	financial and operational performance improvement programme
IBRD	International Bank for Reconstruction and Development
ICF-PSD	Italian Cooperation Fund for Private Sector Development in the Western Balkans
ICSID	International Centre for Settlement of Investment Disputes
IDA	International Development Association
IFC	International Finance Corporation
IFI	international financing institution
IPA	Instrument for Pre-Accession
ISPA	Instrument for Structural Policies for Pre-Accession
JICA	Japanese International Cooperation Agency
KfW	German Development Bank
LDCs	least developed countries
LEAP	local environmental action plan
LSG	local self-government
MAFWE	Ministry of Agriculture, Forestry and Water Economy
MIGA	multilateral investment guarantee agency
MoE	Ministry of the Environment
MoF	Ministry of Finance
MoFA	Ministry of Foreign Affairs
NCT	non-conventional technology
NDP	national development plan
NEAP	national environmental action plan
NIMBY	“not in my backyard” syndrome
ODA	official development assistance
OPE	operational programme environment
p.e.	person equivalent
PE	public enterprise

PEPSE	Private Enterprise Partnership for Southeast Europe
PIU	project implementation unit
PPP	public-private partnership
RBC	revolving biological carriers
SECO	Swiss Secretariat for Economic Affairs
SEE	South Eastern Europe
SME	small and medium-size enterprises
SIDA	Swedish International Development Agency
SP	stabilisation pools
SS	suspended solids
STIP	short-term investment programme
TA	technical assistance
ToR	terms of reference
USAID	United States Aid for International Development
USTDA	US Trade and Development Agency
ViK	Karlovac Water Supply and Sewerage Services
VROM	Ministry of Housing, Spatial Planning and the Environment
WEB	water economy body
WFD	Water Framework Directive
WMC	water management concept
WSC&TW	Water Supply, Collection and Treatment of Wastewater
WWTP	wastewater treatment plant

Foreword

This book represents a valuable addition to the continuous efforts of the Regional Environmental Center for Central and Eastern Europe (REC) to support institutional strengthening in SEE for attracting more environmental investments to the region. Special attention in this process is paid to municipalities, which experience great difficulties in investment project planning and preparation.

The publication is based on the specific needs and experience of former Yugoslav Republic of Macedonia in preparing wastewater-related environmental investment projects. The book covers issues such as the strategic planning of the investments, feasibility studies, project development and funding. Therefore, it is relevant for the whole SEE region. It provides valuable guidelines on the economic, technical and policy aspects of project preparation in the water sector. I very much hope that this publication will be a useful tool to support SEE municipalities in their efforts

to address the environmental investment challenge. In addition, I hope that the book will be of use to the donor community that provides assistance to the SEE region.

I would like to thank the authors of the book, Michael Aumer and Gottfried Lamers from the Federal Ministry of Agriculture, Forestry, Environment and Water Management of Austria and Joanna Fiedler and Eniko Artim from the REC, for their very useful product. Special thanks go to Oreola Ivanona-Nacheva for her valuable support throughout the development of the publication as well as to all of our other colleagues who contributed to the publication and made its printing possible.

Marta Szigeti Bonifert

Executive Director
The Regional Environmental Center
for Central and Eastern Europe

Introduction

As an EU candidate country the former Yugoslav Republic of Macedonia aims to transpose and implement a number of EU directives. Many of these pose serious challenges, not only in relation to the investment cost but also in relation to the skills needed to prepare and implement projects. The water sector is one of the most challenging sectors for the implementation of EU directives, and at the same time is one of the country's top priority.

Planning for water projects requires a lot of experience and knowledge. Planning normally starts with the development of a project concept, which is then further elaborated into a feasibility study and leads to the preparation and implementation of a matured water-sector investment project. Water infrastructure is the responsibility of the individual municipalities, which are therefore the key players in the preparation of investment projects. This requires both expertise and the means for project preparation and investment capital from the municipality budget, both of which are often limited.

This working paper aims to support municipalities by providing adequate knowledge about the preparation of wastewater infrastructure investment projects. In particular the paper provides information on:

- the strategic and legal framework for water management in the former Yugoslav Republic of Macedonia, the process of project identification and project-cycle management;
- the preparation of a water management concept (WMC) and issues related to strategic planning;
- the process of developing feasibility studies and terms of reference for consultants;
- the decisions that need to be made at the municipal level when developing water infrastructure projects;
- economic aspects of project development, including the process of tariff-setting and affordability issues;
- technical aspects of wastewater treatment; and
- available funding sources for water infrastructure projects, ways of working with donor institutions and key criteria for successful acquiring financing.

The target group of this document includes:

- Macedonian municipalities preparing water-sector projects;

- relevant ministries;
- relevant technical, economic/finance, legal, and environmental experts; and
- the donors' community.

This working paper is designed to be used by municipalities in South Eastern Europe planning to prepare wastewater investment projects. The former Yugoslav Republic of Macedonia is taken as an example because the development of water infrastructure is considered a high environmental priority within the country. This entails a pressing need in the water sector to develop good quality water-investment projects which are mature enough to receive funding from the IPA (Instrument for Pre-Accession) fund of the European Commission and from other funding sources.

This working paper was prepared jointly by Michael Aumer and Gottfried Lamers on behalf of Austria's Federal Ministry of Agriculture, Forestry, Environment and Water Management; and Joanna Fiedler and Eniko Artim from the REC. The authors would like to thank Ana Petrovska, Dusan Sevic and Venelina Varbova from the REC for their valuable contribution to the document and Kresimir Veble from Vodovod I Kanalizacija d.o.o. for providing a case study. The paper was prepared based on a desk study of the current situation in the former Yugoslav Republic of Macedonia and the Seminar on Developing Water-sector Infrastructure Projects in the Municipalities of Macedonia, held on November 30 and December 1, 2006 in Skopje, former Yugoslav Republic of Macedonia.

The working paper has the following structure:

- Chapter 1 provides an introduction to the document.
- Chapter 2 explains the current strategic and legal framework for water management in the former Yugoslav Republic of Macedonia, the institutional set-up in the water sector, the financial conditions of local self-governments, and the situation regarding water infrastructure and investment needs.
- Chapter 3 discusses issues related to project identification and preparation such as project-cycle management, the development of a water management concept and feasibility studies. The chapter also presents economic and technical aspects of project development.

- Chapter 4 presents options for the financing of water infrastructure projects, ways of working with the donor community as well as key criteria for the successful attainment of financing.
- Chapter 5 provides general recommendations for municipalities planning to develop water-sector infrastructure projects.
- Finally, Annex I provides an overview of the legal framework related to water management in the former Yugoslav Republic of Macedonia. Annex II describes case studies from water infrastructure investment project implementation in South Eastern Europe. Annex III provides information on Non-Conventional Technologies for wastewater treatment. Annex IV contains a list of key bilateral donors providing technical assistance or investment support for water-sector projects. Annex V presents key international financial institutions that provide technical assistance or investment support for water-sector projects.

Background information on Macedonian water management

This chapter presents an overview of the strategic, institutional and legal framework in the former Yugoslav Republic of Macedonia for the water sector. In addition it describes briefly the status of water infrastructure and investment needs in the country.

Strategic, institutional and legal framework

Strategic documents are in place in the former Yugoslav Republic of Macedonia which provide guidance to local project proponents in developing wastewater infrastructure, such as the National Wastewater Management Strategy (1999), Water Master Plan (1963, 1984, 2000), National Environmental Action Plan (NEAP II, 2005), Draft National Policy for Environmental Projects Preparation (2006), National Development Plan (2006), and the relevant Operational Programme for Environment as part of the IPA Strategic Coherence Framework.

Regarding the **institutional framework** for water management issues, the responsibilities are shared among three ministries: the Ministry of Agriculture, Forestry and Water Economy (MAFWE), the Ministry of the Environment and Physical Planning (MoEPP) and the Ministry of Transport and Communication (MoTC). A national authority was also established to deal with water issues by coordinating regional branches; this was a central public enterprise called the Water Economy Public Enterprise (WEPE), which was established by the government and supervised by the MoAFWE, while its regional branches were called “water communities.” The WEPE and regional offices were recently abolished as part of the transitional process. A new institutional water management structure will be laid out in the forthcoming Law on Water Management. However, a new water management structure has yet to be put in place, leaving the national structure for water management still pending. The MoEPP and the MoAFWE have not yet mutually clarified their exact responsibilities (the MoAFWE already has responsibilities for water supply, irrigation, and flood protection). This is one of the reasons the Law on Water Management (see below) has been blocked at the governmental level.

The only currently active water management institutions are individual public enterprises, founded by local self-gov-

ernments for provision of service on behalf of municipalities. At present there is no authority to monitor and support single public utilities. The Communal Inspectorate – which is linked to the Ministry of Transport and Communications – used to act as the supervisory body of public enterprises. With the upcoming Law on Water Management the authorities for monitoring/supervision should be further clarified. The most strategic issues are solved on a case-by-case basis.

In the process of harmonising and developing national legislation with EU requirements several new laws have been adopted or are under preparation. The key laws that have a direct impact on developing environmental infrastructure projects include, among others, the Law on Water (Official Gazette of the Republic of Macedonia No. 85/03 December 31, 2003) which regulates the entire water management sector and the Law on Water Supply, Collection and Treatment of Wastewater which regulates the service standards. The Law on Water will be replaced by the forthcoming Law on Water Management which, at the time of writing, was waiting for approval. After passing the new Law on Water Management and finalising the National Strategy on Approximation (ongoing CARDS 2005 project), there will be both a regulation and implementation timeframe for infrastructural investments to be carried out by municipalities. Other regulations concerning local self-governments and public enterprises include the Law on Local Self-Government (2002), Law on Financing the Local Self-Government (2003) and the Law on Public Enterprises. State aid and public procurement issues are regulated in the corresponding State Aid Law (2003) and Law on Public Procurement. A more detailed description of the legal framework for water management can be found in Annex I.

Financial conditions of local self-governments and public enterprises

Apart from the previous financing scheme of supporting the municipal budgets via transfers from the national government (based on the municipality area, population and number of settlements within the municipality boundaries), a municipality is entitled to collect local taxes, charges and fees as mentioned above for the Law on Self-

Government and the Law on Financing the Local Self-Government. Quarterly, detailed reports from both the municipality and the public enterprise, including expenditure justifications, must be submitted to the Ministry of Finance (MoF) and the Budget Execution Council. Until now, public enterprises have failed to adhere to such stringent criteria and the duration of the transition period is uncertain. Grants from the state and the international community are considered an additional source of funding, intended for the implementation of larger infrastructure project construction or rehabilitation.

Underdeveloped municipalities (according to the list determined by governmental decision) can also count on funds provided by the Bureau for Underdeveloped Areas. However, due to the inappropriate management of previously taken commercial loans and the difficulty of repaying the debts (which forced the government to cover the debts of municipalities) the MoF prohibited further borrowing until the middle of 2007, by which time the consolidation of municipal borrowers in budgetary terms will have been reassessed. According to the Law on Budgets, the municipal budgets must be prepared on the basis of macroeconomic aggregates. The law specifies that the government shall give guarantees for the liabilities of public enterprises and trading companies with a predominantly state-owned character, based on domestic and foreign loans.

Public enterprises are not included in the municipal budget and therefore the Law on Trading Companies is applicable. Their annual budget has to be evaluated and referred to a report from an external auditor. Annual reporting is required by the municipality to the MoF, comprising a balance sheet, an income statement, changes in property and charter capital, a report on cash flows, and a report on business operations. The annual report and accounts are submitted to the Public Revenue Office.

Situation of water infrastructure and investment needs

Water Infrastructure

Regarding water supply, in urban areas 100 percent of the population is connected to the water supply system; in rural areas the figure is between 70 percent and 80 percent (NEAP II), but new investments take place every year allowing for subsequent improvements. The existing water supply systems are not in good shape as the pipes are generally old (sometimes over 100 years old). Leakage and therefore water loss accounts for 30-60 percent of the total water produced. Regarding wastewater treatment, the Wastewater Treatment Plants (WWTPs) currently in operation are outlined in Table 1.

Currently, only 5 percent of the population nationwide is connected to WWTPs, while 80 percent is connected to wastewater collection systems.

Investment Needs

The Ministry of Environment has chosen 23 agglomerations with a population of 10,000 and above as priorities for water infrastructure development. Project preparation is underway for some of those locations, including: Skopje (developed wastewater master plan, EUR 44.5 million estimated for immediate investments); Strumica (feasibility study, EUR 10.5 million investment costs); Veles (feasibility study, EUR 15 million investment); Bitola (feasibility study, EUR 10 million investment); Prilep (feasibility study, EUR 10 million investment); Stip (on-going feasibility study); Tetovo (feasibility study, EUR 72 million investment); Kocani (on-going feasibility study); Gevgelija (funds obtained, tender for detailed design and implementation delayed); Berovo (on-going feasibility study); Kratovo (feasi-

TABLE 1.

Wastewater treatment plants (WWTPs) in operation in the former Yugoslav Republic of Macedonia (status as of November 2006)

Location	Maximum capacity (person equivalents)	Capacity in use (person equivalents)	Condition	Core Technology
Ohrid	120,000	60,000	Renewed, in permanent operation	Aerated lagoons
Resen	15,000	12,000	Renewed, in operation after a break	Activated sludge
Dojran	10,000	5,000	Renewed, in permanent operation	Biological reactor
Makedonski Brod	5,000	4,000	Newly built, in operation since 2003	Activated sludge
Sveti Nikole	35,000	20,000	Renewed, but still shows malfunctions	Biological Reactor

bility study, EUR 800,000 estimated investment); and Debar (on-going feasibility study). According to GOPA (2004), a rough estimate of the total Urban WWTP Directive compliance costs for the former Yugoslav Republic of Macedonia amounts to EUR 230 million.¹

Key issues for Macedonian municipalities

- Currently there are neither incentives nor penalty mechanisms for municipalities which do not meet national standards concerning potable water quality nor effluent/recipient quality requirements in the former Yugoslav Republic of Macedonia;
- The existing Law on Water is not fully aligned with EU legislation, and it was designed for an institutional framework which does not exist anymore because the National Water Management Public Enterprise and its respective regional branches have been dismantled. The new Law on Water Management is aligned with EU acquis.

Developing investment projects in the water sector

Infrastructure projects identification and stages of project-cycle management

The process of infrastructure project identification is linked to sectoral, national and local strategies and plans. Identified projects should serve as a tool for implementing these strategies and plans. The proponents of local projects are crucial in this process, as they are able to define local needs and outline the possibilities of implementing the project. Project identification on a national level is part of the accession-driven environmental investment planning process, which leads to the development of specific financing plans and strategies. From this perspective, it is important for local project developers to be in contact with national authorities, to be sure that their local needs are reflected in national level documents.

Project identification on the municipal level refers to the ability to identify all environmental infrastructure improvements which are needed to comply with the legislation and to give them sufficient priority among other sectors' infrastructure needs so that these projects can obtain financing.

Several tools have been developed that can support these processes, including:

- **Capital improvement planning (CIP).** This tool is used to identify all the improvements required in the municipality and to prioritise them. It is important for municipal planners to see the overall picture of needed improvements if they are to give them the correct priority. The key elements of developing CIP plans are: developing a municipal development strategy; an effective public-awareness campaign; adopting the council's decision for developing the CIP; collecting investment proposal forms; prioritisation; analyses of financial projections of income and expenditures of the municipality; determining the structure of finance and sources of finance; publishing and implementing and monitoring of CIP.²
- **Local environmental action plan (LEAP).** This tool supports the planning of environmental improvements in local communities. In the context of investment planning for the wastewater sector, LEAPs can contribute to

the proper identification of environmental investments, and, through dialogue with the key stakeholders, can facilitate an understanding of the financial burden ahead and the consequences for local communities.³

Developing wastewater infrastructure projects is divided into several phases:

- **Project need:** states the environmental justification behind the development of a project. The project proponents know why a project is necessary and where it should be located (i.e. within which municipality). Some of the risks in this phase lie in insufficient analyses of the existing situation, lack of knowledge of existing/upcoming legislation; the possibility of political influence on the decision.
- **Project concept:** justifies the project by stating how the environmental demand will be met (e.g. a new wastewater treatment plant for a city). At this stage consultations with potential beneficiaries and stakeholders usually take place as well as a review of existing strategies and plans. It is important at this stage to estimate the eligibility of the project, including the funding from external sources; to cross-check with surrounding municipalities in order not to duplicate the infrastructure; as well as to identify elements of needed infrastructure. To avoid costly mistakes, it is important that experienced people are involved.
- **Project development:** deals with collecting all necessary data to facilitate the project preparation process. A short project overview (project fiche) is useful at this stage to provide a tool to communicate the project to stakeholders. The responsibilities and initial costs should be identified, reflecting the size of project. There is a need to identify possible alternatives to the project idea; to define the structure of implementing bodies and to analyse operation and maintenance costs.
- **Project preparation:** this stage requires the development of all necessary documents such as feasibility studies, cost benefit analyses, affordability analyses, etc. These are usually developed with the assistance of consultants and are linked to the allocation of financial resources.

TABLE 2.

Steps in developing a water management concept

Steps	Activity	Responsible entity	Involved stakeholders	Comments
Gaining statistical data	Collection of relevant data from different sources	Municipal administration	Central and regional authorities	
Gaining additional information	Obtaining information regarding the financial and technical situation	Municipal politicians	Central authorities and financial institutions	Priority list, financial contributions, technical requirements
Definition of the area	Evaluate the objects, their size and water consumption	Municipal administration	Households, city council	Four-eyes principle
Definition of alternatives	Consideration of possible treatment for each building	Municipal administration together with experts	Households, city council	Determine only the obvious
Confirmation of the survey	The results of the survey have to be fixed as the basis for further planning	City council	Households should have the possibility to react to the decision	Objections/recourse should be possible, requires an in-depth check
Estimation of total costs	Costs for all treatments for the whole area (not only the envisaged WWTP)	Municipal administration	National and international benchmarks of costs	Very rough, based on the costs per m ³ sewer, costs per m ³ water
Setting the timeframe	The WWTP has to be scheduled as part of the total range of future projects	City council	Central water and financial authorities	Signals commitment to when the realisation will start
Report	All information and survey results should be compiled in a report	Municipal administration	Central water and financial authorities	The report serves as a planning tool for the municipality and involved stakeholders
Confirmation of the WMC	The report with all determinations (timeframe, area, alternatives) becomes a strategic concept	City council	Central water and financial authorities	From now on the WMC is the basis for further actions

Key issues for Macedonian municipalities

- LEAPs development is obligatory in the former Yugoslav Republic of Macedonia, and can therefore facilitate the process of identifying wastewater projects.
- Concept and project development stages are crucial for successful project preparation; otherwise there is a risk that the money spent on a feasibility study will be wasted.
- Municipalities should start conducting feasibility studies only if they are sure that the proposed project will solve the environmental problem in the most efficient way and that the project will be supported by regional/national administration.
- At the early stages of project development it is important to estimate not only what the possible sources of finance are but also how long it will take to access them.

Water management concept (WMC)

The water management concept (WMC) is a tool used by Austrian municipalities to plan water projects and needed improvements. This tool takes into consideration the fact that a wastewater system is developed, extended and upgraded over decades. The WMC was introduced as a response to the requirements of the water authorities and funding institutions to see the longer-term plans for water infrastructure improvements in the municipalities as opposed to short- and medium-term investment projects. The main difference between the WMC and the pre-feasibility study is that WMC applies a broader and holistic approach. The pre-feasibility study provides guidelines on the feasibility of one concrete solution (including alternatives to this solution), where-

as the WMC assesses all problems in the municipality and categorises and prioritises them within the given (municipal) borders. In doing so, the planned or existing infrastructures of the neighbouring areas are also taken into account.

Experience shows there are several benefits to using a WMC. These include, among other things, the promotion of ecological optimisation by taking into account the whole area of the municipality; standardisation of the planning process; long-term sustainability; increased transparency; and broad participation of inhabitants. The WMC covers the phases of identifying a problem right through until the decision to start the project is made. The various steps can be seen in Table 2.

Once the environmental problem, and therefore a project need, is identified several decisions have to be made to move the project forward.

Pre-requisites for the preparation of WMC

Legal requirements (ownership)

Experience shows that the central level of administration should decide to what extent the private sector should be involved in wastewater operations and ownership. If the public-private partnerships are welcomed, a clear signal is sent to private companies to engage in the business. In order to encourage the private sector, all relevant legal acts need to reflect the potential role of the private sector. Also, public financial sources need to be made accessible to private partners. The role to be played by various private and municipal associations is also a country level decision. Water legislation could reflect to what extent associations can take over responsibilities from municipalities.

The municipality should investigate which legal and organisational forms are to be adopted. This can be clarified if municipalities, private companies, PPP models or enterprises of municipalities are treated equally in all legal aspects. If, for instance, fewer subsidies for enterprises or PPP models are available, then public organisational forms might be preferred.

Data requirements

Developing a water management concept also requires the collection of data not available at a local level.

Usually these data include:

- **Meteorological statistics:** These are necessary to estimate the maximum street effluents into the sewers. In cases of a separated sewer system the maximum rainfall is the basic input in the dimensioning of the rainwater sewers. In mixed systems it is necessary to build overflows in the sewer system and not to transport all the rainfall to the WWTP. Usually meteorological data are collected at a regional level but the meteorological regions may be different to political/administrative regions.
- **Hydrological statistics:** The quantity and quality of rivers is important as it defines the necessary purification degree and the self-purification capacity of the surface water. These statistics are usually made on a hydrographical regional basis and are available at the central level of government.
- **Knowledge about conflicting infrastructure:** It is important to consider the broader development plans of the region, namely where conflicting infrastructure might be located, such as roads, health service centres, schools, intensification of industrial sites.

When gathering data the following sources of information should be analysed:

- Central level: water policy, priority lists, possible financial sources, technical specifications (goals of the treatment), best practice examples, possible additional subsidies.
- Regional level: meteorological, hydrographical and economic information about the region, regional financial contributions, loan conditions from regional banks.
- International level: international sources of grants and loans.

Administrative tasks for the preparation of WMC

Municipal experts need to prepare and guide the process of project development as elected politicians cannot have access to all the necessary knowledge. Administrative structures can also provide certain stability within the time-frame of the realisation of a WMC. The administrative work to be undertaken by the municipality in the preparation for WMC includes:

Definition of the area

Within a defined area, all buildings (and objects) will be the subject of a detailed survey (see Box 1). The survey contains the size and character of each object (i.e. m² living space, non-productive space, number of regular inhabitants, number of occasional inhabitants, water demand, effluent, possible harmful substances, etc.). These figures are the main input for the technical planning of a WWTP or sewer system. They also serve as the basis for the calculation of connection fees and wastewater charges. It is advisable to introduce in this process a “four-eyes” principle to secure the maximum information level (the administration usually knows inhabitants in cities of up to 10,000) and to be secure against corruption.

Inhabitants should have a chance to comment on the survey and to submit additional information. The results of the survey should be presented to the political level of the municipality. In practice such a survey can be conducted as a questionnaire which has to be filled in by the administra-

tion representative together with the owner of the object. In the survey all objects of the municipality, and also the different forms of legal entities, need to be evaluated (e.g. industrial or agricultural enterprises).

Identification of alternatives

For each object of the survey it has to be decided what kind of treatment of wastewater would be the best or the most appropriate. Houses in the centre of a town should normally be connected to a central WWTP. For decentralised houses or farms individual solutions might be the most appropriate, or no treatment at all might be sufficient (for example, for a small house next to a big river). The initial considerations of the municipality administration on types of treatment needed are revised by the expert and followed by the political decision. Also, the owners of objects under consideration should be given the chance to comment on the proposed solution for their premises.

Estimation of costs

It is important to have a general expectation of the total cost at an early stage in the project. This can be done by using standardised indicators such as: cost per m² sewer, cost per household, cost per m³ wastewater, etc. Country benchmarks can also be used.

Setting the timeframe

In the WMC all the required activities are ranked. Based on this the priority and timeframe is given to carry out specific activities. This initial timeframe is cross-checked with available sources of finance so that the financing will be in line with the timeframe. As wastewater projects are in competition with other public investments

such as health, childcare, roads, electricity etc., the ranking of wastewater projects in comparison to other projects must be clarified. The initial cost estimates might also be useful for the national level, which has to decide upon priorities and portfolios of finance sources. Possible content of the WMC is presented below.

Key issues for Macedonian municipalities – possible chapters of a WMC

- Introduction (outlining the investor, purpose, legal framework)
- Current status (meteorology, hydrographical situation, existing treatment or sewers, quality of ground- and surface water)
- Spatial planning (future development as number of inhabitants increases or decreases, industrial sites, development of agriculture in the area)
- Basis for planning (requirements, inclusion of existing water treatment, existing infrastructure such as roads etc.)
- Survey (list of all relevant objects already categorised into: connection to WWTP, small decentralised WWTP, dense wastewater tank, enterprises, agriculture, no further necessity, future objects)
- Alternatives (justification for the suggested solution, calculation method, results of the calculation)
- Timeframe (description of the phases of realisation, investment and pay-back phases)
- Subsidies and financing possibilities (available – but not applied for – subsidies from central, regional and international levels, condition of banks, maximum available own resources)

BOX 1.

Survey in detail

The most important step of the WMC is the evaluation of all existing buildings, their water demand and their water treatment. The evaluation can be undertaken in a written form. Together with the water authority and/or the external consultant the relevant areas need to be determined. For this purpose a detailed map can be drawn and all relevant buildings marked. A different colour system could help to visualise the most relevant areas. At least the following categories should be marked on this map:

- buildings with already existing wastewater treatment or sewer;
- buildings which are connected to a central WWTP;
- buildings where no further treatment is necessary/possible;
- buildings where decentralised treatment is needed;
- Buildings with a dense wastewater tank;
- buildings with agricultural treatment;
- enterprises with special wastewater that can be treated in a central WWTP; and
- enterprises with special wastewater – own wastewater treatment necessary.

- Description for the ranking of the WWTP within the list of all bigger municipal projects
- Documentation of the process (protocols of meetings with central and regional authorities, complaints of inhabitants and reaction of the municipality to them, protocols of the public participation process)

Decisions to be made when preparing WMC

The following decisions are made at the political level when preparing WMC:

- **Choosing a planner:** The involvement of an external professional consultant for a planning stage is recommended in two main cases:
 - When the alternative options and the final decisions on the project require professional expertise which cannot be provided by the staff of the municipality;
 - When elaborating a concrete project for a WWTP and sewage system, as this job typically goes beyond the expertise of municipalities.

The choice of the consultant should be made following the national procurement law. It might be difficult for inexperienced municipalities to judge the consultants. It could be useful if there is a central administration system to ensure the quality of the planners via an authorisation system. The authorisation could be made either through legislation or by an own authorisation system. Education, experience and references can serve as criteria for this choice.

- **Approval of the survey for the WMC:** The results of the survey should be accepted at the political level in the municipality. The inhabitants should have a right to revise the results. In the event of complaints or requests for changes, the approval procedure needs to be restarted by the city council. Once the final decision about the case has been made, no further objections should be possible.
- **Approval of the suggested technical alternatives:** Based on the survey results the municipality must decide which areas need to be connected to a central WWTP, which areas will build decentralised plants and which buildings will remain unconnected or have to be equipped with dense wastewater tanks. This decision could be prepared by an external expert who has to give reasons for each single alternative. For the decision making, the municipality needs to have at least some technical knowledge (either with the politicians or the technical staff of the administration). The consultant might also have his/her own interests so political approval needs to be made with a critical view on the presented alternatives.
- **Approval of the WMC:** After the confirmation of the

survey and the alternatives the final version of WMC is prepared which includes a timeframe and a rough estimate of costs. The WMC will help the municipality to make further investment decisions in subsequent years. Thus political approval, preferably with a broad majority, should conclude the work on the WMC. Once the decisions have been taken, the public should be informed. This can take place in local newsletters or leaflets and in public consultation meetings.

Key issues for Macedonian municipalities

- Those municipalities which have already been selected as a national priority could be encouraged to conduct a WMC to justify the decision and to get an overview of the upcoming challenges.
- Municipalities which are not selected as national priorities could prepare the WMC in order to improve their chances for inclusion on the priority list.
- On the basis of a tendering procedure engage a professional external consultant to take over the WMC preparation for tasks where there is insufficient expertise within the municipality.
- Assess the need for financing, taking into account the revenues from fees.

Strategic planning for infrastructure project development by the municipality

Preparation of a water infrastructure project also requires well thought out planning by the municipality at the strategic level. First of all the cost of investment has to be planned within the overall municipal budget. It is recommended that the municipality draw up a multi-annual investment plan, which incorporates the water investment in an integrated way. Including the environmental project in the municipal budget planning also helps to keep the municipality committed to the project.

When planning for concrete water investments, **the size of the infrastructure** needs to be carefully considered. It is always a question whether to opt for cheaper small-scale solutions or go for large-scale but more costly infrastructure. Economies of scale are easier to achieve with larger projects, and thus developing joint projects with the cooperation of other municipalities, such as river basin management projects, could turn out to be the most efficient solution. Establishing an association of municipalities (as a consequence of a WMC, for example) is a good starting point for joint project development. These solutions, however, require a legal basis for the creation of such institutions. Working in municipal associations on joint projects requires a high level of cooperation. It

has to be kept in mind that it is easier to find financial resources, especially EU grants and IFI loans, for larger projects. Low-cost solutions refer to projects which require small investments, non-conventional technologies, renovation, efficiency and other cost-saving measures. There is a general tendency for municipalities to attempt to maintain the current situation with end-of-pipe solutions, such as small renovations to mitigate the leakage in the water pipeline, instead of entering into large-scale investment projects.

Proper **location of the infrastructure** is also a strategic issue. When assigning the location it is also necessary to consider the social and economic development of the area besides the technical solution. Some issues include: availability of land, ownership of the land, protected areas, potential to create jobs, costs involved (such as operation and maintenance), and project management. In general two approaches can be followed:

- “Concentrate the pain,” a centralised approach: all elements of the infrastructure are placed in one site.
- “Split the pain,” a decentralised approach: elements of infrastructure are placed at different sites.

“Pain” here refers to the fact that local authorities are often confronted with public opposition when locating sites for environmental infrastructure such as a WWTP. Hosting a modern environmental infrastructure can also bring public support and thus electoral advantage for the mayor if it is well communicated to the citizens. On the other hand, if the NIMBY (not in my back yard) syndrome is not tackled in time, public opposition can cause serious delays in implementation. Some tips on overcoming NIMBY are presented in Table 3.

As shown above, the best way to overcome opposition against environmental projects is an active information policy.

If the municipality opts to develop a water sector investment project, it has to bear in mind that it is a time-consuming and costly process which requires specialised know-how. For large-scale projects it is not rare for the preparation to take longer than the actual implementation. It is advisable to draw up an institutional development plan including the identification of tasks that can be completed by the municipal administration and tasks that have to be outsourced. This needs to be accompanied with a timeline of staffing and analysis of gaps in skills. Subsequently, training and know-how exchange with other municipalities could be planned and delivered to address these gaps.

After the completion of the WMC the municipality has to carry out the following tasks during the project preparation phase:

- developing terms of reference for the feasibility study;
- supervising the preparation of the feasibility study;
- organising the tender to select the best consulting company;
- participating in decision making to select the best project alternative;
- implementing the recommendations for project sustainability; and
- applying for project funding and ensuring the needed co-financing.

While performing the above-listed tasks, the municipality is often confronted with the following difficulties:

- insufficient information or lack of data and time to prepare an operational plans (this problem decreases after the completion of a WMC);

TABLE 3.

How to overcome the NIMBY syndrome

Explain possible solutions of locating infrastructure, and give arguments why the proposed location is the best. People have to see the justification.

Explain what the costs (tariffs, etc.) will be for people if the infrastructure is located somewhere else.

Give access to all information, even to mistakes. It is important to show that your project is fully transparent.

If you plan to organise any international events (sports championships, etc.), it might stimulate the local community to solve the environmental problem and find the location for the infrastructure project.

Always listen to why people are against the proposed solution. Never underestimate local knowledge.

Involve a PR company to assist you with proper tools of communication with the local communities.

Involve local NGOs, they can work with you to propose a better solution.

Always inform people about developments in the project. Avoid surprising the public by informing that, for example, there will be a period of increased traffic or noise, due to construction.

It can be useful to use the conclusions of the EIA to show project impact and what needs to be done to minimise the impact.

- terms of reference are not clear or not comprehensive;
- terms of reference are overloaded and too ambitious and/or too ambiguous to be implemented;
- no clear division of responsibilities among stakeholders, lack of clear ownership;
- following the donor-driven approach and designing the project primarily for the available support programmes and donor's priority;
- insufficient negotiation skills and ill-prepared project promoters to defend project interests against those of the donors; and
- insufficient local resources to drive project implementation and closely control the work of the consultants and companies.

For very large investments a project implementation unit (PIU) can be formed. This team is responsible for the implementation of the project. Cohesion Fund countries, such as Ireland, recommend the appointment of full-time PIU members who are responsible for the project from beginning to end. In this way the accumulated experience stays with the project and the PIU can parry any political changes after elections.

Listed below are selected key issues for the municipality to consider when developing a water infrastructure project:

- Cooperation between municipalities, regional administration and national authorities should be developed and central authorities should provide incentives for municipalities to develop investment projects.
- Decentralisation of environmental functions for providing public services leads to the need to identify clear ownership of projects.
- Environmental infrastructure investment projects need to be integrated into the overall local government budget over the financing period.
- Proper sizing of projects is essential to avoid oversized investments and unutilised infrastructure.
- Project location needs to be carefully selected based on the impact on the environment and on the ecosystem. The decision should also take into account job creation, social acceptance, availability and ownership of land, costs incurred during and after implementation, and last but not least the will of the municipality to implement the project.
- An effective public relations campaign might assist in overcoming the NIMBY syndrome.

Developing feasibility studies and terms of reference

This section will introduce the main elements of the feasibility study (FS) which should be part of the terms of reference for consultants preparing such a study. The feasibility study narrows the open WMC to one concrete solution. At this point, technical alternatives and the area for central treatment have already been determined by the council's decision. The feasibility study determines how feasible the selected project would be from technical, financial, economic and social points of view. It does not mean that all possible problems have to be solved at the preparation stage of the feasibility study, but the FS should identify gaps, prepare the project proponent to implement the project, identify areas for improvement and provide recommendations.

The following analyses are usually part of the FS:

- **Assessment of the financial performance of the project owner (utility/municipality).** This assessment demonstrates how financially sustainable the project owner is and whether the project owner will be able to implement the project. The commonly used method of assessing the financial standing of the project owner includes: review of accounts, specification of revenues and costs, liabilities, estimated costs of operation, and current tariffs system. The project owner is obliged to provide access to all financial information. The FS should identify possible improvements of the financial situation of the project owner.
- **Institutional framework assessment.** The legal status of the project owner has to be assessed, including roles and responsibilities as well as relations between the utility and municipality. This also includes an assessment of specific legal issues affecting utility operations such as enforced payments and illegal connections.
- **Operational efficiency.** In cases of WWTP improvement, the assessment of operational efficiency focuses on areas where cost savings can be achieved. It also reviews organisational structure and management, administrative systems and procedures and operational and maintenance costs.
- **Socio-economic/affordability analyses.** The review provides the scope of tariff changes needed in relation to market rates (polluter-pays principle) and customer affordability (social aspects). It also assesses the adjustments for restructuring of tariffs, the need for transitional arrangements and willingness to pay for different service level options. (See the section, "Process of tariff setting and affordability issues," page 25, for further details on the subject.)
- **Technical evaluation of current service and development needs.** This includes analyses of the level of service provided, the physical state of infrastructure assets and future development needs. (This step already completed if a WMC was undertaken.)

- **Planning.** As a result of the above-mentioned analyses, two plans should be prepared: a long-term strategic plan, which includes the key development objectives, the required levels of service provision, priorities and tariffs policy and affordability problems; and a short-term investment programme (STIP), which identifies priority investment needs and their financial analyses, and/or bankability, project procurement and implementation plan, and environmental impact assessment. The STIP should also pay attention to analysing alternatives and their technical and financial implications.
- **Additional analyses.** Depending on the legislation and donor requirements additional analyses should be conducted such as environmental impact assessment, utility preparation (financial and operational performance improvement programme, preliminary design, cost benefit analyses, etc.).

Terms of Reference (ToR) for the feasibility study is the critical document that specifies the tasks and requirements of the contractor. ToR is the primarily tool at the disposal of municipalities with which to control the work of the consultant. It is important that the ToR requires the production of a full feasibility study (or requires the preparation of those parts of the WMC which require professional expertise). This includes: the identification and evaluation of all technical solutions, presentation of the lowest-cost financial solution and the optimal economic solution, identification of the preferable technical solution and provision of ample justification for the recommended option. ToR has to be designed in accordance with national legislation. The main elements include the selection criteria and the eligibility requirements of the applicants. Furthermore, ToR specifies the timetable for announcing results, how to submit offers, how the tenders will be evaluated, what kind of staff are needed, reporting requirements, the tender submission form, and finally, the points that must be covered in the technical offer.

Once the municipality is ready to start the implementation of the project, the setting up of benchmarks for implementation costs and cross-checking with the FS results is recommended. Cost benchmarks are a great help in monitoring the implementation of the planned projects. With the system of upper and lower benchmarks, projects can be divided according to cost-effectiveness (i.e. good, average and poor performers). Examples of benchmarks for project implementation costs are presented in Table 4. Since the actual investment cost will depend on the result of the tender, the municipality needs to keep close control over the tendering process for works to ensure it receives the best value for money.

These benchmarks could already be used in the estimation of possible total costs in the WMC phase. The benchmarks are also kept in mind for all further project phases to compare the actual project with experiences from former investments.

Key issues for Macedonian municipalities

- Municipalities should pay attention to financial and economic analyses, as in the past the focus was put mainly on technical aspects of the feasibility studies. For many donors the findings of financial and economic analyses are crucial when reviewing the assistance.
- When developing terms of reference for the feasibility study, it is recommended to analyse the terms of reference of major international organisations or donors to ensure that all aspects are covered.
- In the realisation phase real costs could be constantly compared with benchmarks from international and other completed investment projects in the country.

Economic aspects of project development

Besides the cost-benefit ratio of a wastewater project, the municipality has to prepare and decide on the basic economic framework. This section presents issues linked to economic aspects of project preparation.

The municipal budget has the main influence on the time-frame and the necessary subsidies. The financing of infrastructure investments usually consists of two components:

- own resources; and
- subsidies.

Own resources and subsidies are obviously linked while operating costs and investment costs are also related (see Box 2). Postponing payment at the beginning shifts the payment and the operating costs (by increasing the capital costs) to the future. Thus the different cost elements should be considered together.

In the setting of own resources it should be remembered that these “own resources” are divided into contributions from municipalities and income from the mentioned connection and operating fees paid by the inhabitants. Solidarity within a municipality should be considered as all inhabitants contribute to the WWTP and not only those who are connected. Also, in principle the state subsidies are socially founded, as the normal “polluters” can usually never pay the full costs. Therefore, in addition to the direct link to the connecting fees and operating fees, additional forms of fees can also be considered by the city council. If the whole water project is operated by a concessionaire (PPP models), the cost calculation is quite similar. In this case all the social and/or solidarity aspects are covered by the way the concessionaire is operating.

In most countries in the region a lack of knowledge and skills in relation to setting fees is one of the main obstacles for cost-recovery and repaying the loan. The

TABLE 4.

Examples of benchmarks	
Drinking water	
Cost of the provision of treated water to meet legal requirements	Denar per supplied inhabitant
Wastewater treatment	
Cost of the treatment of wastewater in new plant	Denar per population equivalent
Cost of the reconstruction of existing wastewater treatment plant	Denar per population equivalent
Cost of the provision of stormwater retention capacity	Denar per m ³ storage capacity
Cost of the extension of wastewater treatment plant for the provision of stormwater treatment	Denar per population equivalent
Sewerage	
Construction – cost of connection of one person to the sewerage network	Denar per metre sewer Denar per person connecte
Reconstruction – cost of reconstruction of main sewer	Denar per metre of main sewer

BOX 2.

Investment costs	Operating costs
<ul style="list-style-type: none"> Connection fee Private bank loan National subsidy (grant) National subsidy (loan) International subsidy 	<ul style="list-style-type: none"> Increases according to interest rates Decreases according to interest subsidy maintenance, personnel costs, energy, etc.

dilemma is how to balance between providing a cost recovery rate while at the same time providing an adequate service to all inhabitants, safety of operation and efficiency of management in order to have a rate which is affordable for service users.

Connection fees

Once the treatment plant is operational users of the service pay a connection fee. The calculation method is usually stipulated in the legislation and should be the same for all municipalities, while the municipality should have flexibility in applying the rates. The method of calculating the fee should be made transparent, so that inhabitants have a clear insight. It is a good idea if the maximum and minimum ceilings are laid down at a central level, and in this decision regional circumstances (such as altitude, welfare of the region, etc.) can also be included.

Social criteria can be used to set the ceiling on fees, which is also sometimes related to the welfare of the region

or the municipality. Connection and operating fees are an indispensable financial resource for covering the costs of the water project. Fees are calculated on the basis of the investment, financing and operating costs of the project. Thus the calculation methods have to enable the municipality to cover the gap between the (other) means of the municipality plus the contributions of donors (other public households) and the total cost of the project, while complying with the financial affordability of the connection fee for the end user. Alternatively, if the project is operated completely outside the supervision of the municipality (i.e. a concession system) the municipality should at least control the stipulated tariff-structure in the concession-granting procedure.

Different methods are used to calculate connection fees, including:

- **Calculation on the basis of the surface (EUR per m²):** The floor space of buildings in square metres could serve as one calculation indicator. All connected areas (multiplied by the number of floors) are taken into

account. A differentiation of the rates could be made between the purpose of the rooms (living space, garage, cellar, etc.), decided upon by the city council. This method favours modern buildings with a clear structure and room purpose, whereas old agricultural buildings are at a disadvantage.

- **Calculation on the basis of objects (EUR per household):** A flat-rate model with the calculation of fees based on the household itself. In this model the number of inhabitants or the size of the buildings play no role. This model favours poor households (if a large number of people live in them).
- **Calculation on the basis of inhabitants (EUR per inhabitant):** Total costs are divided among all inhabitants on the basis of the number of inhabitants on a fixed day. This could be a good basis to also include those inhabitants who are not connected. On the other hand this method insufficiently reflects the total costs, as costs are much more related to the connected houses and not to the number of inhabitants. This method favours big houses with only a few people living in them, as found in areas of economic downsizing and depopulation.
- **Mixed calculation:** In most cases the calculation methods are adapted to the local situation and some elements of all methods are mixed. Often a low fixed-rate per household is combined with rates per square metre.
- **Additions and reductions:** Instead of ceilings, reductions and additions can also be considered, with the rates differentiated by approximately 15 percent.

Operating fees

Operating fees should cover the operating costs of the water management. The operating costs include, for instance, energy costs, personnel costs and the payment of interest on loans. The calculation method for operating fees might be laid down by the central administration or in the legal framework. As for connection fees, the municipality should have the freedom to set the rates but not to choose the calculation method. A higher transparency and objectivity could be provided by pre-setting fees. Again – as in the case of the connection fee – different calculation methods are possible (related to the floor area, the household or the number of connected inhabitants). A mixture of these methods is probably the best.

Invoices and own contributions

For all measures, consultancy and other services, official invoices are required by the central authorities. Checking the invoices could be extended to checking the authorisation of the enterprises engaged in the work. In this way central authorities can secure the quality of the services. Part of the work, especially in the construction phase,

requires no specialised enterprises. In order to reduce costs municipalities could decide to perform this work themselves. The subsidy system could reflect this possibility and allow the introduction of own contributions (without invoices) into the total costs. Nevertheless, a limit could be drawn (for instance 25 percent) to avoid misuse. If own contributions are considered, minimum standards could also be applied.

Key issues for Macedonian municipalities

- The central administration of the former Yugoslav Republic of Macedonia could decide whether a common methodology of tariff-setting is to be applied to the whole country or whether each municipality should create its own system. A common methodology would create more transparency and also allow easier benchmarking of financial parameters.
- If the municipality is free to choose the calculation basis of the fees, a broad consensus of political parties could decide which system is to be used. The calculation system should provide stability and also enable the inhabitants to calculate their future financial burden. Prices could rise within the system, but this would have fewer effects than changing the tariff system.
- In the first attempt tariffs could be calculated on the basis of costs without the inclusion of national or international subsidies. Then a clear political signal could be sent about how much reduction each household would receive from the subsidies. This would increase the awareness of total costs and the benefits of subsidies.
- In the calculation of fees, both connection and operating fees could be calculated at the same time. This would allow both fees to be optimised and a long-term pay-back plan (for loans) to be drawn. Also this long-term indicative fee plan would provide inhabitants with more transparency, security and enable them to estimate their future financial burden.
- The methodology for setting water and wastewater fees is already in place in the former Yugoslav Republic of Macedonia. The methodology provides a list of expenditures related to operation and maintenance which should be reflected in the fee. On the other hand, the methodology does not contain either a reference to the requirement to achieve cost recovery of operations or to improve service efficiency. The legislator (in this case the Ministry of Transport and Communications) requires only the listing of costs. As long as the public utility shows that the fee (revenues) correlates with costs accounted, no one will raise problems about how to reduce the costs.

Process of tariff increase and affordability issues

In cases where fees for water or wastewater already exist, the process of increasing the tariffs is one of the most important and also most sensitive in the process of developing environmental infrastructure projects. The common problems with tariffs in most countries in the region include: political influence, lack of a regulatory body, lack of a methodology for tariff increase, and the lack of a developed process for tariff increase. The process to increase tariffs influences different stakeholders participating in the process and creates possible conflicts of interest. As an example we can take a situation where a municipality receives a loan from an international financing institution and the project is developed by a utility company owned by the municipality. The differing interests of stakeholders will appear, as presented in Table 5.

Looking at the diverse relations among different stakeholders, it can be seen that the proper process of tariff design requires special attention. Issues to be taken into account include:

- Increased rate of tariff might include deficiencies in the management of the utility. Therefore, special attention should be taken to assess if the utility has done everything to improve efficiency in management and operation before the rate of tariff is set.
- Improper accounting might produce a false tariff rate if irrelevant budget categories are included in the calculation of the fee. A proper system of accounting is needed to distinguish which expenses are linked to the capital cost and which are linked to operational costs.
- In addition, an analysis must take place of which costs should be capitalised by the utility and how the inflation rate was taken into consideration to adjust tariffs in the future.
- If each municipality uses different calculation methods, the lack of benchmarking might promote an inefficient tariff rate. Benchmarking with tariffs of other utilities within the country as well as outside the country provides more transparency and the possibility of comparing rates.
- Knowledge and best practice examples provide deeper insight and help to speed up the process of tariff-setting. In a case where independent utilities are in place, the utility should identify and analyse what the requirements of the regulatory bodies are, which documents are needed and how quickly the process of tariff increase could advance.
- Transparency and public participation improves the acceptance of increased tariffs. The municipal government (which wants to be re-elected) should prepare a strategy for public hearings about the process of offsetting and increasing tariffs. This information about the planned project as well as about the new tariffs should

be distributed to all service customers to make them understand what infrastructure is going to be improved or/and constructed and what the benefits for their quality of life in that area will be. If a WMC is carried out, this information is already an important part of the process. In addition, a strategy for treating disadvantaged groups (the poor, the unemployed, the retired, etc.) should be elaborated.

Optimising usage of the service helps to avoid over-sizing of the infrastructure. The utility should inform the customers on how they can optimise their usage of a service (for example, water consumption) and reduce their cost. Through this the future design of the infrastructure will better reflect the future usage of the service. The introduction of individual metering of the service might improve the situation in this respect.⁴ In fact all methods of tariff-setting need exact data (such as m² per building or m³ water consumption). The collection of this data (or the installation of water meters) should stand at the beginning of a project.

Affordability can be determined by the income of households and the level of consumption. The tariff policy, the subsidy schemes and the level of payment collection influence the total costs for the municipality and therefore also the own resources of the municipality. The municipality has to cover the costs and puts the burden on households. In this process shifting the burden to future generations (in the form of debt) and non-connected areas can be considered. All these methods help to provide affordability for households. The two most common ways to estimate affordability are:

- the share of monthly household income which is spent on utility services; and
- the share of utility payments in total household expenditures.

Estimating affordability based on household expenditures seems to be more accurate than the latter as the income basis does not capture all sources of household income, which is especially true for low income countries. Both methods are based on statistical data as concrete household income is not normally subject to an evaluation. The affordability within one municipality can also be approximated by a benchmarking system. As already mentioned, the tariffs should be fixed on the basis of a transparent calculation method, although thresholds (which reflect estimated affordability) can also be introduced for social reasons.

The two most common tools used to mitigate the social effects of cost recovery are:

- **Block tariffs:** services up to a certain threshold are provided at low cost or no cost. Consumption above this point is charged at full cost. This allows all consumers access to the service and stimulates savings in service usage. Nevertheless, this system requires a well-developed metering system, which is not always in place in SEE countries.

- **Assistance programmes:** programmes are developed to transfer cash to vulnerable groups of society (e.g. pensioners, those on social benefits), to cover the minimum level of consumption. This system requires a good identification of the vulnerable members of society, which might be problematic in SEE countries. These programmes also depend on funding sources being available and fiscal expenditure management.

Technical aspects of wastewater treatment

This chapter provides a brief description of the technical aspects of wastewater treatment. Before starting a project or even a WMC it is necessary for the municipality to know a minimum of the possible technical solutions. Even if a detailed insight into different purification technologies is not appropriate some information about the basics is useful.

In addition to the concrete technical knowledge of specialised consultants, a basic technical understanding of water management projects is also necessary for the municipal staff. It should be remembered that hired consultants are often paid a percentage of total costs. Another potential problem is that experts might have close links with producers of equipment or technology. Both circumstances can lead to a conflict of interests as the external experts are often not objective enough and have their own financial interests. This demands a certain amount of awareness and knowledge on the part of the municipality in order to secure the best and cheapest solution.

Mechanical wastewater treatment

Wastewater treatment starts with mechanical treatment (or preliminary treatment). Mechanical treatment consists of:

- Bars: rough, medium, fine, which filter solid waste larger than the bar gap (larger than 6 mm, and usually larger than 10 mm).
- Sand filter (filters sand particles and other anorganic, easily sedimented substances).
- Grease filter (separates grease and oils, i.e. substances lighter than water).

In practice, the filtering of sand and grease takes place in a single unit: an aerated sand filter. Extracted waste is usually pressed and drained, stored in appropriate containers, and subsequently disposed of at the city's waste disposal site. Preliminary treatment is the section of the WWTP with the strongest presence of dangerous gases and odour, which is why this part is usually enclosed, and the air is ventilated and filtered before being released into the atmosphere.

Sedimentation

Sedimentation is the primary level of wastewater treatment and is used for the extraction of suspended matter. Wastewater is withheld in the sedimentation tank long enough to extract the desired quantities of suspended substances, usually for 1.25 to 2.5 hours. The extracted suspensions are taken for further processing together with the mud from the second level of treatment. Removal of suspended matter is between 50 percent to 70 percent dependent on the time of retention. The biological oxygen demand (BOD) removal ranges between 25 to 40 percent, depending on the time of retention. The efficiency of sedimentation can be significantly increased by adding certain chemicals: aluminium, iron, and lime. Suspended matter removal with chemicals is between 80 to 90 percent, and for BOD it is between 50 to 70 percent, depending on the quantity and the type of chemicals. Except for increased removal efficiency, the use of chemicals requires smaller sedimentation tanks.

Biological wastewater treatment

The second level of wastewater treatment is most often biological treatment. This is used to extract dissolved organic substances from the water. The basic process is the biological oxidation of the organic substance in the water. There are currently several methods of biological treatment available: active mud (AM), aerated lagoons (AL), stabilisation pools (SP), percolator (P), revolving biological carriers (RBC), as well as different combinations of these methods. The efficiency of biological treatment as well as its speed depends on the temperature of wastewater. The latest technology, increasingly applied, is the membrane technology of wastewater treatment. The efficiency of the second level is usually between 70 to 95 percent in relation to BOD₅, between 80 to 90 percent in relation to suspended solids (SS) and between 70 to 95 percent in relation to coliform bacteria.

Small decentralised wastewater treatment plants

Not all buildings can be connected for a reasonable cost to a central wastewater treatment plant. Nevertheless the municipality is responsible for the environmental situation of all objects and has to offer solutions to all buildings (i.e. households and enterprises).

Dense water tanks are the most expensive solution for households and work only for small wastewater flows. For groups of households (e. g. five to 10 houses) small wastewater treatment plants are often cheaper than connection to the central WWTP. In many countries the sewage system is the most expensive part of a WWTP. Sometimes the costs are not foreseeable because the soil is not evaluated properly in advance. Rocks can rapidly double the costs predicted in the cost estimate. Also street crossings, railways or other

TABLE 5.

Interest of stakeholders regarding tariff levels

Stakeholder	Role	Statement	Interest	Action
International financing institution	Providing capital investment	"We want our money back"	To ensure cost-recovery	To increase tariffs
Municipality	Compliance with EU legislation	"We are providing better life conditions"	To win next elections. To control tariff-setting.	To decrease tariffs
Utility	Provision of adequate services	"We provide high quality service"	To have the highest profit as possible. To have a liberal market for tariff-setting.	To increase tariffs
Regulatory body (if it exists)	Ensuring that tariff rates are set at an appropriate level	"We are taking into consideration all relevant aspects"	Fairness of tariffs (profit/expansion/coverage of service)	Neutral
Service users	Using the service	"We expect high quality service"	To pay as little as possible	To oppose the increase of tariffs. To use the service less.

infrastructure (water, gas, electricity) always require additional care and extra costs. So one of the main items of a WMC is to find alternatives to centralisation and propose the cheapest solution.

There are two principal solutions:

- Mechanical WWTP (50 to 100 inhabitants equivalent): The installation and maintenance is fairly simple as these plants can be bought prefabricated in containers. The quality of the effluent water is normally sufficient for small rivers. The crucial task is proper maintenance, which should be undertaken by the municipality rather than the connected household. Also, effluent control becomes easier when the municipality takes responsibility for it.
- Water purification by plants: In this case the same purification mechanism takes place as in a biological treatment. Wastewater is still purified by micro organisms, but in this instance in a more natural environment at the roots of specific plants. For this technology more area is necessary thus the scope is limited to more rural areas or areas where the land price per square metre is low. Approximately 5 m² per inhabitant equivalent is normally calculated as being necessary to secure a sufficient purification record. Wastewater mostly flows through the pools vertically and several parallel pools are put in place. The interval workload guarantees enough time for reaction and a sufficient purification. The optimal size for this technology is less than 50 inhabitants equivalent. Bigger units are still under evaluation and further research is taking place.

Dense water tanks

If houses stand completely alone and the effluent needs to be purified (e.g. in water sensitive areas, for drinking water purposes) dense wastewater tanks will be required. This group of objects should also be covered in the wastewater management concept. The collected wastewater has to be brought to a WWTP. This means that the individual household has to prove the density and security of the tank. On the other hand the collected wastewater is different to fresh wastewater and the planning of the WWTP has to assure the proper treatment of these special water inlets. It is necessary to estimate the amount of this type of wastewater in the planning process in order to include it in the calculation of the WWTP.

Agricultural wastewater treatment

Agricultural enterprises have a lot more wastewater flows than normal households. The wastewater and sludge containing animal excrement are usually collected and introduced back to the fields as natural fertiliser. The amount and time of this fertilization are often regulated in soil protection acts. Irrigating fields with this kind of wastewater is normally forbidden in times of heavy rain, due to the danger of the wastewater flowing into the groundwater. In most cases the farm's household water is collected into this agricultural wastewater storage as it is only a minor part of the total wastewater flow. The soil protection act often deter-

mines the possible (approved) mixture and states the storage capacity of the soil. According to the mixture and the available agricultural area, other households can also be connected to these agricultural waste (water) collection pools. In all cases it should be ascertained that no effluent from the collection pool can seep into the groundwater. This means that the pool requires at least a concrete bottom.

Non-conventional technologies

In the case of smaller settlements, with limited budgets and a shortage of specialised staff, certain factors should be considered when choosing the WWTP technologies to be applied, and priority should be given to technologies which: a) have minimum or zero energy consumption; b) are simple to run and maintain (with non-specialised personnel); c) are efficient; d) can continue to function when subject to large changes in influent loads (typical for small towns); e) have simple handling of the WWTP sludge. Non-conventional technologies (NCTs) fulfil most of these criteria. NCTs produce less negative environmental impacts and achieve the same levels of contaminant load reduction at lower costs than conventional technologies (CTs). Annex III presents the main groups of NCTs and their advantages and disadvantages.

WWTP sludge treatment and disposal

After the treatment of the wastewater the next question is what to do with the WWTP sludge. The sludge contains the micro organisms which purified the wastewater and has a water content of 80 percent. In rural areas without big industrial wastewater flows the sludge is normally good enough to use as fertiliser on agricultural areas. In these cases the water content is no problem and the sludge disposal is easy to manage. Of course, in this case the regulations of the soil protection act have to be met.

In bigger municipalities and/or for industrial polluters the sludge is contaminated with metals and toxic substances (hospitals in particular can create major problems with hazardous substances). The sludge has to be further treated. Appropriate solutions are incineration and dumping on

dumping sites (which are, of course, state-of-the-art and leak no effluent into the groundwater). But for both solutions further dewatering is necessary and increases the costs of the total WWTP. Sometimes large municipalities manage to keep the quality of the sludge high (meeting the soil protection criteria). This means that industrial sites have their own purification systems and a constant information effort has to be made to convince the household to take care of their wastewater. The wastewater must not be used as a waste disposal facility for liquid waste (such as motor oil or other hazardous substances). Constant information and monitoring of the sludge quality has to be made. In cases of pollution, devices have to be made available to polluters.

Key issues for Macedonian municipalities

- It is advisable for the municipal staff to obtain a minimum level of technical know-how regarding water treatment installations. Before starting a water sector project, the administration could be trained on basic technical issues.
- Be aware that external planners (consultants) sometimes have their own interests, which can conflict with the priorities of the municipality. Procurement procedures, selection criteria and alternatives should be properly checked by the staff. If possible, additional advice from central authorities with knowledge and benchmarks should be consulted. For large investments a second planner (hired only to discuss the chosen alternatives) can help to save costs. Such quality management is used in many countries, especially for large investments.
- As in the water management concept mentioned above the surrounding area needs to be taken into account and solutions (or at least considerations) about all settlements should be made. NCT could be considered for decentralised buildings.
- The question of sludge disposal should be raised at the start of the process and in the case of agricultural treatment contracts with farmers could be concluded.

Options for financing Macedonian water infrastructure projects

Securing funding for the investment project is a time-consuming process and requires specific knowledge about the financial sources available to project beneficiaries. This section aims to describe available sources of finance for water infrastructure projects in the former Yugoslav Republic of Macedonia and presents key requirements for acquiring financing with the ultimate goal of assisting municipalities.

Offered financial products

Project developers need to have a basic knowledge about available forms of financing. In the majority of cases project proponents look for grants or loans, although other financial products are also available which might contribute to an optimal financial mix for the project. Such financial products include loan guarantees, interest-rate subsidies, equity finance, bonds and different forms of private finance involvement. A list of financial products and their descriptions can be found in Box 3.

Available sources of finance for Macedonian water infrastructure projects

Of the above-mentioned options, the most widely used forms in SEE for water sector investment projects are grants, loans and credit guarantees. It is important to note that such financial products are normally available not only for capital investment but also for project preparation, such as the water management concept or the development of the feasibility study. The stakeholders listed below are involved in funding water infrastructure projects in the former Yugoslav Republic of Macedonia.

Domestic financial sources

Funding from the central budget

Three funds are offered from the central budget for water sector projects:

- The Ministry of Agriculture, Forestry and Water Economy administers a water-fund for water-related investments. This fund is managed directly by the government and linked to the implementation of programmes;

- The Ministry of Transport and Communication also has a fund from which water investment projects can receive support;
- Within the Ministry of Environment there is an investment department which funds water infrastructure. The investment department formerly operated as an extra budgetary environmental fund. Despite the fact that three funds exist, they all operate with small budgets. Due to the lack of inter-ministerial coordination it can happen that a single proponent receives finance from all three sources, which makes administration complicated. Thus it is recommended that the ministries coordinate the water funding strategies of the three sources.

Own contribution of the project proponent

The project proponent is the most important stakeholder in the financing of the project. In addition to the proactive search for different financing sources, the municipality's (or the utility's) own resources (i.e. tariffs and resources from the general budget or cash flow) are also crucial to the success of the project. Furthermore, project developers have to ensure cost-recovery of the project and budget monitoring in order not to exceed the given budget. In the case of municipalities, own sources can also derive from budgetary allocations for investments and from revenues from charges and fees. The availability of own resources is often limited in the municipalities and often cover only a very small share of the needed investment cost.

Commercial banks

Although listed as a source of funding, in the SEE countries the financial market for public investments is often underdeveloped. In addition to the underdeveloped financial markets and high interest rates, the current legal circumstances do not allow local self-governments to take out loans, which prohibits the deeper involvement of private capital. Also, municipalities are generally unable to take up loans under market conditions. Despite the fact that at present only a few commercial banks offer financial products to public water infrastructure projects in SEE, this market is expected to develop very slowly.

Private sector involvement

The private sector is mostly involved in investment pro-

BOX 3.

Financial products

Grant: This type of financing does not require repayment, thus it is often used to finance projects with a low rate of return and priority projects in which implementation is more important than the yield of financial benefits. Grants reduce the financial burden of the beneficiary and the need for commercial loans. While grants allow capital costs to be kept low, no professional financial institution is involved in the project and thus possible gains of financial efficiency remain undetected. Grants are usually provided at the state level and by regional authorities, multi- and bilateral donor agencies and special purpose funds. When financial markets in the country are well developed, grants allow the beneficiary to choose the cheapest complementary solutions. Regardless of the value of the grant, the costs of operation and maintenance usually have to be secured by the beneficiary.

Loan: This type of financing needs to be repaid under specific repayment terms stipulated in financial contracts. Loans can be compared by their size, interest rate, grace period, maturity period and other security requirements. It can be offered in different forms such as a soft loan, commercial loan, and loan with guarantees. Loans are often used to finance public infrastructure investments. Loans can be provided by state funds or by private banks which are repaid by public donors. Interest rates determine the rate of the tariffs for a long period.

Credit guarantee: This type of subsidy serves as insurance for the creditor that he will receive his money in any event. The credit guarantee covers the risk of the borrower becoming unable to make repayments. In return, with a credit guarantee the borrower will be able to receive larger loans or loans under more favourable terms. In most cases the state issues the guarantee, in which case it is called sovereign credit. When the regional entities issue the guarantee they are called sub-sovereign. In addition, multi- and bilateral agencies, commercial financial banks and other private entities can also provide such guarantees. In these cases the financial situation of the creditor is evaluated very properly by all stakeholders.

Equity finance: This type of finance requires an investor who buys a share of the utility, becomes a co-owner of the environmental investment and receives dividend payments (from the tariffs). This does not mean direct project finance but a new investment into the utility/company can result in increasing the own contribution.

Involvement of private fund: This type of finance includes several forms of partnership between the public and private sector. These are management contracts, leasing contracts and concession contracts such as build-operate-transfer (BOT) schemes. Such arrangements should already be regulated in the country's legislation. Often these forms of PPP models are possible in principle but are often excluded from the subsidy scheme, which discourages applications.

Bond: This type of financial product can be considered as a long-term debt security. The issuer of the bond pays the investor a fixed amount with interest over a certain period of time. As opposed to equity investors, bond investors are not involved in the management and do not own the company. Bonds can be issued by the municipality to finance a specific investment project; in this case it is called a municipal bond. Also, the state can be the issuer.

Source: PPC project financing workshop manual

jects in the form of public-private partnerships (PPP). Such partnerships have several advantages. In cases when the municipality or utility lack the necessary manpower, the private partner can provide the necessary staff. It is also relevant when expertise is lacking for the preparation, design and the final implementation of the water investment project. The private sector often proves to be better in the management and operation of the infrastructure. Private partners can bring in innovative technologies, and last but not least cover the missing part of investment capital. The private sector can take over the risks associated with the implementation of the project, depending on the degree of their involvement. The private sector can be involved in not only the financing but also the design and construction of the infrastructure in the form of turnkey contracts. BOT schemes apply when the private sector is also responsible for the operation and maintenance.

However, even new EU member states are still in a learning phase regarding the use of PPP in environmental pro-

jects. This is mostly because there is not yet enough experience accumulated in these countries in the preparation and implementation of such projects. There is often insufficient expertise in performing financial management and in some countries the legal background has not yet been developed. In order to address this issue, it is important to adapt the legal framework to PPP, for the ministry to issue guidelines for project proponents on how to apply PPP schemes to water projects and implement pilot projects.

Foreign financial sources

European Commission

From January 2007, Instruments for Pre-Accession (IPA) funding will be available for the former Yugoslav Republic of Macedonia as a candidate country to EU membership. These new instruments substitute the previous PHARE and ISPA programmes. IPA regulation is still being finalised by the EC. It has four sections: institution strengthening, rural

development, regional development and cross-border cooperation. The former Yugoslav Republic of Macedonia has prepared an indicative framework programme for the years 2007-10 to allocate IPA funding. Finance for environmental infrastructure is channelled through the regional development component. Approximately EUR 35 million will be allocated for the transport and environment sectors. Around a third of this amount will be allocated for environmental projects. The water sector will enjoy a priority mostly related to the implementation of the Water Framework Directive. It is important to point out that although the budget is made available by the European Commission, it is the task of the Macedonian government to commit the fund to projects.

As mentioned above, it is in the government's interest to commit all available funding for water infrastructure projects of the EU. Preparation of the pipeline for such projects is under preparation, coordinated by the Ministry of Environment. The list of projects will be submitted to the EC for approval. Projects to be included in the IPA list should be considered national priorities and address objectives laid down in the national development plan. It is important to note that only projects on this list will be able to receive IPA funding for the three-year allocation period. Generating projects for IPA support entails the assistance of the central government to project proponents to develop and then later implement the projects. Due to the co-financing requirements of the EU, the government needs to develop a financial mechanism by which co-financing is ensured. Regarding IPA, a minimum of 20 percent national co-financing is required. With the expected IPA it is very important for the former Yugoslav Republic of Macedonia to put co-funding mechanisms into operation and allocate funding for this at governmental level in the budget or consider loans from IFIs. In the former Yugoslav Republic of Macedonia the administrative structure is still under development and the project pipeline is being prepared.

International Financial Institutions

International financial institutions (IFIs) are considered to be a more viable source of loan finance than commercial banks. Several IFIs are active in the region and have a history of supporting water infrastructure development. In the former Yugoslav Republic of Macedonia the following IFIs should be considered:

- EBRD – European Bank for Reconstruction and Development;
- WBG– World Bank Group;
- EIB – European Investment Bank; and
- CEB Bank – Council of Europe Development Bank.

IFIs are able to provide ample funds for water investments under much more favourable terms than commercial banks. Often they are able to assist in project preparation as

well. However, loans are tied to strict requirements that must be complied with. In some respects this provides a driving force for municipalities to exercise rigorous financial management of the project and provides an impetus to introduce sound multi-annual investment budget management and to respect sustainable development. Pre-conditions are also set to steer municipalities towards priority areas by the strategies of IFIs. Project proponents need to manoeuvre to find the balance between project objectives and IFI strategies for development support. However, IFI support is available for large capital investments, thus projects have to reach the eligible project size. This is a clear challenge in the former Yugoslav Republic of Macedonia, where municipalities are in general small and cannot generate large enough projects to be financed. IFIs finance matured and bankable projects. In order to achieve economies of scale and the required project size, municipalities are encouraged to develop joint projects and apply regional approaches such as joint river basin management. See Box 4 for an example of a water sector project financed by an IFI.

When looking for IFI support the following criteria should be considered:

- Is the IFI present in the country? How to contact the relevant desk officer?
- Do they lend to the public or also to the private sector? Do they lend directly to municipalities?
- Which sector do they support? Is water infrastructure included?
- What type of financial product do they offer? Grant, loan, credit guarantees, equity finance?
- What are the terms of loan financing? Interest rate? Grace period? Maturity period?
- Are there any co-financing requirements? At what rate?
- What are the security and guarantee requirements? Do they require sovereign or sub-sovereign guarantees?
- What are the main financial criteria?

See examples of the EBRD's criteria in Table 6.

Bilateral donors

Several bilateral donors offer support for water projects in the former Yugoslav Republic of Macedonia. They mostly provide grants for technical assistance and to a smaller degree for investments. In general they support smaller projects than IFIs, thus they might be a suitable option to fund small-scale projects. They also play an important role in bridging the financial gap between the municipality's own finances and an IFI loan or IPA support. It should be remembered that bilateral donors are political institutions. This means they often have a priority to promote and disseminate technology and skills of their home country. As a result grant support can be tied to certain conditions such as using experts and

BOX 4.

Case Study: World Bank Group's Water Utility Improvement Project

The Water Utility Improvement Project aimed to enhance the operational efficiency of Skopje Vodovod – the largest water and wastewater utility in the former Yugoslav Republic of Macedonia – to provide quality service at affordable prices and provide a sound basis for the development of the solid waste sector in Skopje. The project components were:

- 1) Water and wastewater development, which included five sub-components:
 - a) water supply rehabilitation, through the construction of an additional water supply feeder line, and sewerage rehabilitation;
 - b) financing water network efficiency improvements, and sewerage rehabilitation, based on contracting effectiveness between the City of Skopje, Vodovod, and the operating company;
 - c) vodovod restructuring, through technical assistance and equipment supply;
 - d) engineering and construction supervision services; and
 - e) project management support.
- 2) Development of a strategy and action plan for the implementation of solid waste management in Skopje, including an assessment for private sector involvement. Technical assistance was provided for the completion of this strategy, which outlined the expansion of services by the Komunalna Higijena operating company and the required investments in equipment, waste containers and sanitary landfills to enable services to be provided to underserved low-income groups.
- 3) Project management and operating costs to cover audit, consulting and incremental services.

The total project cost was USD 42.37 million and the WB contributed a specific investment loan of USD 29.27 million (USD 16.17 million from the IBRD and USD 13.1 million from the IDA [International Development Association of the WB]).

Source: World Bank's website

TABLE 6.

Criteria of EBRD support

Key criteria when attempting to match funds from IFIs	EBRD public sector
1. Regional focus	SEE
2. Borrower	Public and private sector – direct lending to municipalities possible without sovereign support
3. Financial products	Loans, guarantees, equity
4. Terms of loan financing	Market-based rates (LIBOR, EURIBOR, local currency base + margin) reflecting project and country risk plus commitment fee of 0.5-1 percent annually on the un-disbursed amount. Grace period: not fixed, negotiable but less than three years. Maturity: 5-10 years
5. Sector preference	Includes municipal and environmental infrastructure
6. Co-financing requirements sector projects	Yes. EBRD finances a maximum of 70 percent of total capital for public
7. Guarantee and security requirements	Depends on the project risks – security may be required for private projects
8. Main financing criteria	Financially sound projects, strong management

Source: PPC project financing workshop manual

TABLE 7.

Key bilateral donors to former Yugoslav Republic of Macedonia

Country	Institution	Technical assistance/ Investment support	Form of support
Austria	ADA (Austrian Development Agency)	TA+Inv	Grant (public sector projects below EUR 2 million)
Germany	KfW Bank (German Development Bank)	TA+Inv	Loan, grant, interest-rate subsidy
Greece	MoFA (Ministry of Foreign Affairs)	TA+Inv	Loan, grant, interest-rate subsidy
Japan	JICA (Japanese International Cooperation Agency)	TA	Grant
Netherlands	MoFA (Ministry of Foreign Affairs)	TA+Inv	Grant
Norway	MoFA (Ministry of Foreign Affairs)	TA+Inv	Grant
Sweden	SIDA (Swedish International Development Agency)	TA+Inv	Grant, loan
Switzerland	SECO (Swiss Secretariat for Economic Affairs)	TA+Inv	Grant 50-90 percent of total project cost, for projects worth EUR 5-10 million)
USA	USTDA (US Trade and Development Agency)	TA	Grant

companies of the donor country for project preparation and implementation. Bilateral donors have their own strategies, priorities and programmes to support a region, sector or project type. These can change frequently following changes in the foreign policy of the donor country.

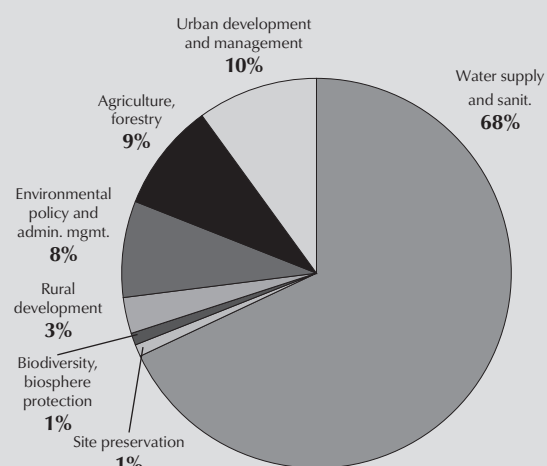
In general water sector support is a high priority for the majority of active bilateral donors in the former Yugoslav Republic of Macedonia. Chart 1 presents bilateral Official Development Assistance (ODA) grants to the former Yugoslav Republic of Macedonia by environmental sectors in the period 2002 to 2004. The chart indicates that 68 percent of total bilateral assistance was channelled into water supply and sanitation projects.

As mentioned before, bilateral donors mostly provide grants. However, a few of them offer more diversified support, such as loans and interest-rate subsidies. As opposed to IFIs, funding conditions are fairly flexible. Some of them have co-financing as a prerequisite. Table 7 below presents the major bilateral donors supporting water sector projects in the former Yugoslav Republic of Macedonia.

In conclusion, project proponents should seek bilateral donor support if the project is small in size or technical assistance is needed; and also in the case of large-scale projects if co-financing is needed to complement EU or IFI funding.

CHART 1.

Environment-related bilateral ODA assistance to former Yugoslav Republic of Macedonia 2002-2004



Approaching donors for funding

When a project proponent is in the project preparation phase, it is very important that project development donors are considered at an early stage and that a plan on how to finance project expenses is drawn up. (Preferably, this process has already been covered by a water management concept.) It is also important that project proponents gather information on donors' requirements for receiving funds and know how to meet them.

Donor requirements for receiving funds

Different donors have various requirements and roles in the project finance phase. If their requirement is taken into account when designing the project, money and time can be saved as less modification is needed at a later date. It is also important to consider the application process of the potential donor. Significant delays can be caused in the implementation if the approval takes a long time. How the disbursement of funds is set up should also be considered. Despite the diverse funding conditions, there are some general prerequisites with which the project should comply:

- the project usually has to be a national priority and fit the donor's funding strategy;
- the project has to comply with all relevant national laws and international conventions, and it is also advisable to take into account the related EU regulations;
- the project has to prove cost recovery with the implementation of the polluter pays principle;
- when taking out a loan, it is necessary to prove that the borrower is able to pay back the loan.

Ways of working with donor institutions

When the municipality considers looking for a loan, it is important to remember that it is also in the IFI's interest to fund projects. Therefore IFIs often actively search for potential projects and if they find an interesting project they often support the project preparation activities with expertise and money. A general project cycle within the IFI consists of: identifying the potential project; preparing the project; and appraising the project. In this last phase negotiations also take place. It is vital for the project proponents to be well prepared for the appraisal phase in order to be able to negotiate favourable conditions for the loan, such as the grace period, interest rate, etc.

Before contacting possible donors, it is important that the project proponent is familiar with the donor's eligibility criteria and the funding conditions. Project proponents need to have a basic knowledge of risk management and financial issues and they also need to be clear about deadlines and requirements for project submission and procurement rules.

It is advisable to present the financial information according to the donors' terminology and to become familiar with the calculation methods used. Knowledge of these issues is essential if the proponent is to be an equal partner in the negotiations and to be able to negotiate better terms of finance.

Some IFIs have indicated that project proponents often lack a sense of ownership in the project. This can become apparent when there is too much focus on fundraising. This can give the donor the impression that the project was submitted primarily because there is money available for it. Project proponents have to convince the donor that the project is a priority need and is targeted to solve or mitigate the described problem. In addition, the donor can question proper ownership of the project if there is an inadequate system of control staff and monitoring foreseen in the implementation phase. Thus the proponent should specify the supervision of persons and institutions involved, and also develop quality check procedures for the work of consultants. Involving own financial sources in project finance can also help to prove strong ownership.

It is important to approach the donor with the "right" attitude. This means avoiding any culture of secrecy, which is interpreted as being not transparent. It is better to inform the donor upfront of existing difficulties and expected challenges in the future. At the same time plans should be presented to overcome the problems and to suggest options for solutions. It is important to be aware of the manifold risks and manage them properly in the project implementation phase. The right attitude also means avoiding the "eager to please" culture, which accepts every requirement of the donor without being able to comply with it later on. It is better to inform the donor about limitations in advance rather than be confronted with non-compliance at a later date.

Key issues for Macedonian municipalities

Key criteria of acquiring financing successfully (The majority of this information is included in the WMC.):

- provide project cost estimates that are as detailed as possible;
- present alternatives and justify the chosen solution, consider also low-cost measures;
- provide sufficient information on the applicant and project owner, using financial indicators to prove there is a sufficient revenue base to return the loan;
- provide information about current and planned tariff levels, about the plans for changes in the tariff policy, and the intended improvement of the collection rates;
- include data on the affordability of households to pay the tariffs;
- if co-funding is required, have a plan to cover the remaining part and show how own sources are allocated; and
- if a guarantee is needed, plan in advance how long it will take to acquire.

Issues to be considered regarding the municipal budget when financing investments

The following section presents key issues that need to be taken into account by the municipality when considering taking out loans for investments.

Budget supervision by the central or regional government

Municipalities usually have their own budget and can make decisions within the limits of this budget. An environmental infrastructure goes far beyond the limits of an annual budget and influences the municipal budget for a long period (up to 25 years, according to the duration of the loan). On the other hand the additional operating fees and operating costs will affect the budget for the lifetime of the infrastructure. So in many countries the decisions upon loans of this size are taken with the involvement of a regional or central authority. In some countries loans of this size even have to be approved by the government, although this approval comes with a guarantee, giving the creditor a high level of security. A guarantee also reduces the risk and thus the interest rates of private banks. As precondition for the guarantee and the approval, some key figures and limits have to be met by the municipal budget.

Budget and current debts of the municipality

The limits and criteria for approval in most cases reflect the current status of the budget and include also the debts for other measures. Limits for the total debt amount (for instance, five times the annual income) limit not only the budgetary resources of this investment but also the margin for future investments and future debts. Usually the main incomes of municipalities are transfers from the central or regional level to the municipality in a certain ratio formula. The municipality cannot influence this income (as it is a share of the total state income, related to the economic growth of the country) but depends totally on this transfer. So for large infrastructure projects which are indicated mainly by national (or European) policy, a higher security for the municipality should be achieved. In addition to the subsidies targeted for the concrete project, the investment should also be reflected in the annual budget transfer and the cost coverage of this transfer should be partly fixed and remain stable over the pay-back period of the loan.

Creditworthiness of municipalities

Creditworthiness reflects, inter alia, the size of the budget. Thus a small municipality with a big infrastructure project will receive worse conditions than a big town with a huge budget. The state guarantee can equalise these differ-

ences and bring the security level of the loan to the basis of the central budget. Thus the interest rates of the loans get better and all stakeholders (except the private banks) profit from this decrease. Therefore state guarantees affect not only the municipality but are also a tool to help the total economy in the region. Municipalities are usually good debtors (as they cannot disappear) but require long pay-back periods. In some countries specialised banks have been created to serve these special clients. In the long run these banks operate very successful. Kommunalkredit Austria AG is given as an example in Box 5.

Calculation basis for interest rates

In looking at the interest rates of the various banks the municipality needs to decide on which basis to ask for the banks' conditions. It is usually good to get bids on all kinds of interest rates, although the categorisation should be undertaken by the investor in advance. If not, a decision will have to be taken at a later date between interest rates based on a fixed ratio (usual higher but also providing security against changing interest rates), those based on (for instance) the EURIBOR (lower but flexible), or those based on foreign currency (which also contain elements of international money markets), thus making the entire process much more complicated.

Pre-financing and invoicing

When the project is approved to be financed by the IPA, the beneficiary has to pay the expenses immediately and send the invoices for repayment afterwards. There is a list of eligible expenditures and only these costs will receive reimbursement from the EC. In general this is also the case with subsidies from regional, central or international sources. Most of them reimburse already paid invoices. So the investor (i.e. utility/municipality) has to pay the invoice in advance and request the refinancing from the funds. Depending on funding conditions, this refinancing could be done regularly, occasionally (once or twice a year) or only once (as the final invoice). The refinancing can become even more delicate when criteria besides the paid invoices have to be met. Quality management in the construction phase and constant comparison of the situation with the requirements of the subsidy contract have to be made. As soon as there are indications that a delay occurs or some criteria cannot be properly met, information of the funding administration has to be forwarded. Despite the problems which may follow in the discussion with the administration, this is in all cases better than shifting the discussion to the invoices. Such a discussion can take a considerable time, and during this time no payment will be made. So it is in everyone's interest to discuss possible changes as soon as possible.

Such pre-financing of expenses requires certain liquidity within the investor's budget. This liquidity can be achieved by collection of connection fees in advance or by an addi-

BOX 5.

Kommunalkredit Austria AG

Established in 1958, Kommunalkredit Austria AG (KA) is a European specialist bank for public finance. Its core business is the provision of finance for investment projects of public and quasi-public institutions. Kommunalkredit primarily finances local authorities, municipalities, regions and states as well as enterprises under public control all over Europe. Kommunalkredit's majority shareholder is Osterreichische Volksbanken. Kommunalkredit's excellent ratings enable it to offer its customers most attractive terms and to provide a high level of security for investors.

KA has the following fields of businesses:

Public finance and treasury – As a partner to the public sector, Kommunalkredit focuses its marketing efforts on public finance, health care/education, social housing and infrastructure financing. The range of services offered includes long-term infrastructure finance, debt rescheduling and private placements, tailor-made solutions for local authorities wanting to outsource expenditure items, and many more. Kommunalkredit offers a variety of products on the capital market: Covered Bonds, Environmental Bonds, and structured private placements.

Consultancy and management services for the public sector – Kommunalkredit Public Consulting (KPC) manages public support programmes (environmental support, residential water management, and rehabilitation of contaminated sites) and implements national and international consultancy projects. KPC has also been managing the Austrian Joint Implementation/Clean Development (JI/CDM) Programme, which is intended to contribute towards the achievement of the Austrian Kyoto target.

Corporate sustainability – As the first European credit institution to be certified according to the EMAS regulation (Eco-Management and Audit Scheme), Kommunalkredit introduced an environmental management system as early as 1997. Kommunalkredit Dexia Asset Management AG, a joint venture of Kommunalkredit and Dexia Asset Management, offers the public sector and institutional investors a variety of sustainable investment products and asset management services.

Source: Information received from the Federal Ministry of Agriculture, Forestry, Environment and Water Management in Austria

tional loan. If a loan is taken, it is known as “bridging finance” because this loan will help to finance all the expenditures until the promised subsidy or awarded IPA grant arrives. If a loan is achieved it should be remembered that the pay-back time of the loan should be less than one year and the interest rates should be low. The security in this case is the subsidy itself and not the municipal budget. The procedure of tendering is the same as in the procurement of the main loan and the call for interest should include both.

Financial conditions for taking out loans in the former Yugoslav Republic of Macedonia

There is a general grant seeking mentality and a general aversion to taking out loans by the municipalities. This partially derives from the fact that municipalities are operating under budget shortages and that financial allocations for investments in the municipal budget are low. The indebtedness of the municipality can also have an effect on election results, thus mayors are reluctant to enter into debt. Besides the general hesitant attitude towards taking out loans, the legal basis has not yet been finalised in the former Yugoslav Republic of Macedonia. It is expected that by summer 2007 the Ministry of Finance will revise the budgetary conditions of municipalities in terms of their ability to take out loans. Having a legal framework for making use of financial sources is the starting point; the second step is to consider their applicability.

Revenue sources of municipalities and utilities are restricted. As a result, there is often a need for structural and financial reforms within the utility and municipality. Extrapolating this to water infrastructure projects, in parallel with affordability calculations, it is equally important that the municipality develop tools – including legal tools – to increase the collection rate and improve efficiency of operations. In general, the region's tariffs are set only to cover operation and maintenance, not capital expense, and the collection rate is low. Thus the municipality can hardly ever finance capital investments from own sources and thus external sources are required. When considering loans, the municipality has to be creditworthy and able to generate surpluses for debt service. This is a challenge for most municipalities operating with budget deficits.

General recommendations for municipalities planning to develop water sector infrastructure projects

Policy aspects:

- The new institutional water management structure is to be set in **the new Law on Water**. Municipalities should pay special attention to how the new structure **will influence operations of individual municipal public enterprises** and how the decision-making process will influence the **identification and preparation** of individual water management projects.
- Municipal authorities should ensure that **local politicians support the project**, while at the same time making the **project development process independent of political changes** and influences. One solution could be to designate a standing team for developing and implementing the project from the beginning to the end. This could help to buffer any potential political changes in the municipality.
- With increasing decentralisation, more and more responsibilities are delegated to local governments. It is a widespread phenomenon across the region that such delegations are not accompanied with local competences to raise revenue while state support is insufficient. Under these circumstances other mandatory tasks such as education and health are competing for resources with environmental projects. **Thus project developers** of water infrastructure need to learn to **lobby the local self-government** to have the project included in the municipal investment budget and to **promote the project at the national level** to be selected for national priority. In order to succeed the municipality together with the public utility needs to take a pro-active approach and start discussions with the relevant ministries.
- It is advisable that one municipality (or several municipalities together) develop a **WMC** which is essentially a long-term regional or (inter-) municipality water management plan or strategy. The preparation of a WMC should involve reliable planning, technical, economic, and environmental experts and other relevant consultants. The preparation should also include politicians, the authorities, the affected public, the general public and all related groups and associations. Therefore a genuine consultation and **public participation process** should be organised during the whole WMC preparation period. Ideally,

WMC preparation would include a strategic environmental (impact) assessment (SEA) process, which could also serve as the basis for organising the consultation and public participation mentioned above.

- As previously mentioned, municipalities should consider the possibility of developing a **joint WMC and joint projects with surrounding municipalities** in order to achieve **economies of scale**, as this would result in lower project costs for the inhabitants. Inter-municipal cooperation is often needed to develop projects which are large enough to be **eligible for IFI and IPA funding**. Thus the establishment of municipal associations are strongly encouraged and the developments of regional solutions such as river basin management projects are recommended.

Technical aspects:

- **Dialogue between municipalities** developing similar water infrastructure projects and a common database containing background data can prevent the duplication of preparatory work. Furthermore, the **development of benchmarks** on costs can provide reference prices.
- Municipalities should **prepare themselves from an administration point of view** to be able to manage consultants (project preparation, construction and implementation) and to supervise all work done in the project preparation stage. This requires the allocation of additional staff, changing responsibilities of existing staff, and providing adequate and targeted training and capacity building for relevant positions.
- **Location of infrastructure** is always one of the most sensitive moments of the project. Broad public participation and an information campaign are needed to make clear the benefits of a developed infrastructure.
- Developing a project concept should involve a **preliminary environmental impact assessment (EIA)**, as well as consultation and public participation.
- The municipality should have a clear picture of **which sets of data will be needed** in order to prepare an investment project and who owns these data, especially at the national level, and moreover how easy it is to access the data.

Financial aspects:

- The decision **on allocating financial resources** for the feasibility study should be taken only if all stakeholders have reviewed and agreed to the concept of the project. The feasibility study should cover a wide range of aspects; not only technical, but also financial and economic aspects should be extensively discussed. Assessment of potential sources of external funding should be undertaken at the early stages of project development (i.e. in the feasibility study).
- In order to develop financially sustainable projects which will attract external sources of finance, special attention should be placed on **increasing collection rates of bills** to cover maintenance and operation costs.
- Although the initial work on regulating **tariffs** has been done, further work is needed on **benchmarking** and setting clear rules for **maximum rates and rates composition**. Municipalities should be in an active dialogue with national authorities to be sure that the developed benchmarks are realistic.
- Once the levels of tariffs have been increased, **affordability** causes **problems**. The most vulnerable groups should be identified and mitigation solutions should be designed to reflect the local community's mentality and acceptance.
- Special care should be taken when planning for private sector involvement. **Private sector involvement** in the project (e.g. concessions) might decrease the possibility of receiving grants or loans on favourable conditions.

End notes and references

End notes

- 1 GOPA 2004. "Economic, Financial and Administrative Requisites of Approximation to the European Union", EU-funded study by GOPA consultants.
- 2 For more information see: *Capital Improvement Planning in Municipalities* (May 2005, Development Alternatives, Inc and IGE Consulting, <www.ige.hu>)
- 3 The methodology for developing LEAPs is described in the *Guide to Implementing Local Environmental Action Programmes* (REC 2001).
- 4 For more information on the process of tariff increase see *Targeting the Environmental Investment Challenge in SEE, REC* (2005).

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- Development Alternatives Inc. and IGE Consulting. *Capital Improvement Planning in Municipalities* (May 2005). Available at: www.ige.hu
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- REC. *Guide to Implementing Local Environmental Action Programmes* (2001). Available at: www.rec.org/REC/Publications/LEAP_Guide/LEAP_Guide.pdf
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Annex 1: Legal framework related to Macedonian water management

(Current) Law on Water: Water management is currently regulated by the Law on Water (Official Gazette of the Republic of Macedonia, No. 85/03, December 31, 2003) and was issued by the Ministry of Agriculture, Forestry and Water Economy. The law regulates the whole water management sector, including irrigation, flood protection and control, drought control, protection regimes of water supply sources (artificial lakes, springs, wells, groundwater aquifers, etc.). It is considered as a framework law. This law is not harmonised with EU legislation.

The delivery of drinking water and the collection/treatment of wastewater is charged to users/polluters. The owners of the service providers are also in charge of the supervision of their financial management. These providers may be:

- regional authorities established by the government (in which case revenues go to the central budget);
- regional service providers/utilities jointly established by groups of municipalities (fees are collected by themselves and revenues are managed by boards and with the consent of the founders); or
- communal public enterprises which charge the beneficiaries for the delivery of the service.

(Forthcoming) Law on Water Management: The forthcoming Law on Water Management will replace the current Law on Water and will transpose all relevant EU requirements. It is currently in draft version, being reviewed by international and local experts within the scope of the National Approximation Strategy (CARDS 2005 programme). It should be passed by Parliament in 2007. One of the reasons the law has not yet been passed is the unresolved matter of the competencies of the various ministries.

Law on Water Supply, Collection and Treatment of Wastewater (issued in the Official Gazette of the Republic of Macedonia, No. 68, October 5, 2004) was issued by the Ministry of Transport and Communication and it concerns only the service standards. The Law on WSC&TW can be considered as a vertical (i.e. special) law. It is expected to be amended after the passing of the forthcoming Law on Water, complying with EU requirements. It

regulates the standards and **financing** of the services for water supply as well as wastewater collection, treatment and discharge. Basic provisions for financing are set in the same way as described in the Law on Public Enterprises. Therefore, in the following text, only relevant additional provisions, specific to the Law on WSC&TW will be described. The tariff level for overspending (overspending means water usage over a determined average consumption) is double of the tariff set for the average consumption. The fee may include the following: a fee related to water supply and wastewater collection; a fee related to water supply only; a fee related to wastewater only; and a fee related to connection to the system. The tariff for overspending creates room for municipalities to penalise, for instance, use of potable water for irrigation. In practice the application is very dependent on political will and has not yet been executed.

Law on Local Self-Government: The Law on Local Self-Government (2002) regulates competences, financing, and ownership issues of public agencies and utilities, as well as municipal administration. Water supply and wastewater collection and treatment is regarded as a duty of local governments.

Law on Financing the Local Self-Government: The Law on Financing the Local Self-Government (2003) defines the structure of the municipal budget, accounting and auditing rules. Possible sources of revenues are as follows:

- local taxes (property, inheritance and gifts, transfer of real estate and other);
- local fees (communal, administrative and other – e.g. 1 percent value added tax allocation based on the number of inhabitants);
- local charges (urbanization, utility operations, spatial/urban plans, other);
- revenues from ownership (lease, interest, sale of property);
- portion of the personal income tax (3.1 percent on salaries and 100 percent on persons dealing with craftsmanship);
- self-taxation, fines, donations; and
- other grants from the government/funds (earmarked, capital, and block).

Law on Public Enterprises: A municipality can establish a Public Enterprise (PE) either alone or together with

other municipalities. Municipalities can award a concession or a license for the performance of public work to private or legal entities. The infrastructure may be transferred to third persons under concession or a service contract. In practice, municipalities often lack the finances and skills to prepare development programmes, so they usually set aside funds for water investments and delegate this to the PE. Operation and maintenance of water supply and wastewater infrastructure are to be financed by the PE. Thus the PE has to finance operation, maintenance, upgrading and replacement of the infrastructure from fees.

Current Financing Patterns: Existing public enterprises finance most activities from fees and (rarely) by provisions from the municipal budget. The PE cannot enter into bankruptcy and the owner is obliged to make arrangements guaranteeing uninterrupted service operations. On the other hand, municipalities can raise funds for some public services, such as maintenance of public parks via communal taxes, and these revenues are sometimes used to pay private companies contracted to provide public services.

The **Law on Trade** (Official Gazette No. 25, 2004) formulates rules on tariff-setting in articles 29 and 30. The Macedonian government has defined the highest level of charges on goods, including water, only in cases of natural or other disasters that directly influence the regular service provision to citizens and their health and security. The government approves tariff increases in cases when the additional revenues generated will be used for investments in new infrastructure.

State Aid Law (issued by the Ministry of Economy, March 2003): EU countries must comply with the EC State Aid Regulations and therefore have national State Aid Laws in place. Since water projects always include funds from public budgets, the question of state aid becomes relevant to the extent that state aid can support the development of wastewater projects. This is also important because private undertakings might be involved or public entities can enhance their activities outside the area of the municipality. Since EU regulations have to be applied, the financial relation between the public budget and public undertakings must be made transparent. There is a State Aid Law in the former Yugoslav Republic of Macedonia that defines regional (development) aid in the form of grants, soft loans, state guarantees or tax incentives, with aid constituting up to 50 percent of the investment amount. This is in accordance with the EU law. The State Aid Law also defines aid for SMEs, supporting investment up to 30 percent of the eligible investment cost, as well as rescue and restructuring aid (subject to the availability of an enterprise's restructuring plan) or 100 percent cost coverage when there is a special mandate to provide water management as a service of general interest.

Law on Public Procurement (March 2004): The EU Public Procurement Regulations give specific rules on public procurement, especially regarding construction and opera-

tion financing of water projects, in which cases specific rules have to be applied. The Macedonian Law on Public Procurement is in line with EU requirements. Municipalities are obliged to follow this law in any development of infrastructure projects. This law is also mandatory in the case of direct or indirect state subsidies granted by any public institution (i.e. regional/federal government, public funds) to municipalities amounting to over 50 percent of the total value of the investment. Procurement criteria are set out in the law, such as: transparency, confidentiality, ban on negotiations upon open invitations with bidders, and the ruling out of splitting the total amount of the investment into "packages" with the aim of by-passing the law. The Macedonian Law on Public Procurement Planning defines in detail the public procurement procedure; the mechanisms and actors in the decision making on public procurement; as well as conflict-of-interest issues and procedures. Other relevant laws regarding public procurement are: the Law on Budgets, the Law on Accounting for Budgets and Budget Users and the Law on Trading Companies. These will be discussed below.

Annex II. Case studies of water infrastructure investment project implementation in South Eastern Europe

This annex aims to show good examples of water sector investment projects in the South Eastern European region. Three wastewater investment projects are described from the former Yugoslav Republic of Macedonia, Bulgaria and Croatia, with the aim of presenting the justifications upon which they were selected for support. A brief overview of the financial and technical set-ups is also provided.

Case study 1: Water and wastewater programme in Karlovac, Croatia

The Karlovac project has been identified by the Danube and Black Sea Task Force (DABLAS) as a priority project due to the inclusion of the town of Karlovac on the Danube basin emission inventory. The inclusion in the inventory indicates that the discharge from the town has a regional, as well as national, significance. In addition, due to the project fulfilling the established priority investment criteria, it is listed in the Croatian National ISPA Strategy for the Environment Sector as a priority project contributing to the improvement of water quality in the tributaries of the River Sava.

The city of Karlovac is concerned that the condition of many elements of the water supply and wastewater systems are such that there is an increasing risk of non-compliance with the parametric limits set out in EU directives due to high levels of water loss. There is also a significant risk of drinking water wells being contaminated by river water at

times of high flow or flood and from ingress of polluted water into damaged distribution pipes. As a result of the absence of a completed wastewater collection and treatment system in the city, the current water quality in the receiving waters in the vicinity of Karlovac consistently fails to meet the objectives set under the relevant legislation. Moreover, the pollution discharged into the River Kupa is one component of the pollution reaching the River Sava and thence the River Danube. The main objective of this project is to contribute to remedying these failures, in compliance with European Community legislation and Croatian legislation in the fields of water and wastewater.

The EBRD in conjunction with the European Commission are involved in the development of the Karlovac Water Supply and Sewerage Services (ViK) development programme. The EBRD has made a loan commitment to Karlovac ViK to provide EUR 10 million of financing that can be used to provide part of the required co-financing for the European Union ISPA grant. As a first step to assess the viability of the project and its impact on the beneficiaries, the EBRD initiated a feasibility study, undertaken by Jacobs, for the Karlovac ViK programme. The key objective is to eliminate the water and wastewater problems in the town of Karlovac thereby ensuring a greater degree of compliance with EU Directives through the most cost-effective and sustainable means.

The project consists of five groups of investment items, which are divided into three categories: water supply (water source works, network modelling, metering of the distribution network, leak detection programme, water distribution pipe replacement and refurbishment of reservoirs), wastewater (construction of main collector sewers, pump stations and secondary and tertiary sewers, replacement of damaged sewers and, most importantly, a new wastewater treatment plant with tertiary treatment which will be the first of its kind in Croatia) and technical assistance and supervision.

The total value of the project is EUR 36 million, financed with an EBRD loan of EUR 10 million, an EU ISPA grant of EUR 22.5 million and EUR 3.5 million from the state budget. The anticipated timeframe for the implementation of this project is from 2007-2010. The city and the water company set up a project implementation unit (PIU) to ensure the technical implementation and supervision of all measures in the ISPA Environmental Programme. Within the context of a major investment project, the EBRD also assists in the preparation of a financial and operational performance improvement programme (FOPIP) through the Italian Cooperation Fund for Private Sector Development in the Western Balkans (ICF-PSD). One of the FOPIP's targets is to set tariffs which will eliminate the cross-subsidy between industrial and household customers; provide a fair and equitable basis for charging both wholesale and retail customers; and maintain the affordability of water and sewer services for the water company's customers. The duration of this project is two years.

Case study 2: Construction of a wastewater treatment plant in Makedonski Brod, former Yugoslav Republic of Macedonia

The municipality of Makedonski Brod ranks as one of the smallest (around 5,000 inhabitants) and poorest urban municipalities in the former Yugoslav Republic of Macedonia. Investments are scarce, while predominantly bilateral grants are used for the development of environmental infrastructure. The Austrian Development Cooperation Agency (ADA) allocated funds to develop a primary sewerage system and construct a modern WWTP for the town of Makedonski Brod, within the scope of its bilateral financing programme. The ADA is very active in the field of wastewater infrastructure in the former Yugoslav Republic of Macedonia, acting as a facility for technical assistance as well as for supporting capital investments. The Ministry of Environment has not been involved during the project preparation phase, thus the negotiations about the project were carried out directly between the municipality and ADA representatives. Cooperation with international consultants during the project implementation was very successful; it contributed significantly to the strengthening of local capacities for increased absorption capability for investments.

The justification for the initiation of the project was that the municipality of Makedonski Brod is located in the valley of River Treska, which is considered an appreciated source of future water supply for a large downstream area. The investment was conducted in several phases (2001/2002), with a total value of EUR 1.8 million. The beneficiary of the project is the municipality of Makedonski Brod, while the operator is the public enterprise which was established for the provision of various kinds of communal services. Three people are responsible for the operation and maintenance of the WWTP, but only one is completely trained to operate the whole system.

The WWTP treats sewage effluents at an average of 250,000 m³ per year, or 700 m³ per day. All urban households, as well as commercial and public entities, are connected to the system. Annual operation costs are calculated at MKD 1,400,000. The WWTP technology applied is extended aeration, using aerated lagoons. The effluent quality is monitored regularly. The analysis of the water after treatment, dating from 2005, shows that all parameters fulfil the requirements of the national regulations and relevant EU directives. After treatment, water is transported to the recipient River Treska. The sludge (disposed of at drying beds) is used by local farmers as fertiliser. Analysis conducted by the Faculty of Agriculture shows that sludge can be used for this purpose. The utility doesn't charge agricultural producers for the sludge delivery. (According to the Sewage Sludge Directive 86/278/EEC, only treated sludge can be used in agriculture and this sludge must not be applied to soil in which fruit and vegetable crops are growing or grown, or less than 10 months before fruit and vegetable crops are to be harvested.)

Until 2003, water tariffs were set based upon the calculation of total incurred costs, including costs associated with the collection and treatment of wastewater. Consumers were charged separate tariffs: MKD 8 per m³ plus 5 percent VAT for water supply and MKD 5 per m³ plus 18 percent VAT for sewerage. Due to the differing levels of VAT for water supply and wastewater, the utility established a common tariff at MKD 10 per m³, encompassing both kinds of service. This action was taken after an enormous drop in the fee collection rate immediately after raising the tariffs. However, these tariffs were not adjusted to the levels recommended in the feasibility analysis, according to which the tariff for treated water was calculated at MKD 7 per m³ (or MKD 14 per m³ including depreciation). The recommended tariff levels could not be implemented for political reasons (i.e. lack of political decisiveness) as well as the low level of affordability (unemployment is a critical problem in the municipality and it is rising due to the closure of many manufacturers and industries). Under the assumption of an increased fee collection level of 85 percent (fees are currently collected with 35 percent efficiency) the provision of satisfactory service quality could be enabled under the current tariff levels. ADA runs follow-up measures intended to reduce operational costs. Ministry of Environment and Physical Planning provided some funds to cover electricity bills, and even ADA injected small grants to help the utility. As yet no sustainable policy is being promoted.

Case study 3: Wastewater treatment plants in three municipalities in Bulgaria

The municipality of Stara Zagora is the first beneficiary of a large-scale project for the construction of wastewater treatment plants in the Maritza basin. The total budget for two of the three wastewater treatment plants (Stara Zagora and Dimitrovgrad) is EUR 19,554,075 and is co-financed by ISPA (75 percent), the European Investment Bank (15 percent) and the state budget (10 percent). In addition, the European Investment Bank will fully finance the third WWTP in the town of Haskovo, with a total budget of EUR 17,123,585. The Financing Memorandum for the Construction of Wastewater Treatment Plants Located in the Maritza Basin was signed by the European Commission and Bulgaria in 2000.

The overall objective of the project is the reduction of pollution in the River Maritza and its tributaries, which should result in an improvement in the water quality of the Aegean Sea and minimise the risks to public health. The Maritza River basin has a catchment area of 21,314 square kilometres and a length of 322 kilometres within Bulgaria. The river flows through central Bulgaria to the southeastern border with Greece. It then flows along the border between Greece and Turkey to discharge into the Aegean Sea. The population of the catchment area is roughly 1.75 million and the area contains important agricultural and industrial activities.

The commencement date of the contract was January 5, 2005 and the project should be completed by July 14, 2007. The defects notification period expires on July 13, 2009. The WWTP projects will treat the domestic, commercial and industrial effluents of a region with a population of around 280,000. The cities concerned have an extensive network of sewage collection but no wastewater treatment facilities.

The project is consistent with Bulgaria's National Priority Investment Programme for the Construction of Wastewater Treatment Plants in Settlements with a Population Equivalent of over 10,000, the principles of which are in line with the priorities of the Accession Partnership (1999) and the National Programme for the Adoption of the Acquis (2000). The latter programme, attached to the Bulgarian ISPA Environment Strategy, has been elaborated in order to contribute to the implementation of EC Directive 91/271 on Urban Wastewater Treatment. Furthermore, the project implementation will contribute to the goals set out in the Helsinki Convention for the Protection and Use of Trans-boundary Watercourses and International Lakes.

The municipalities concerned were identified as priorities for new WWTP facilities in a study funded by the PHARE programme Review of Water Pollution in the Cross-Border Region of South Bulgaria (final report October 1998) and another ad hoc PHARE study entitled Study of WWTPs for Stara Zagora, Haskovo and Dimitrovgrad. Each town has an industrial concentration and sewage collectors for a large part of their domestic and industrial sewage. At present, none of the municipalities have an operating WWTP. The three municipalities of Stara Zagora, Haskovo and Dimitrovgrad currently discharge untreated wastewater into the River Maritza or its tributaries.

Only Dimitrovgrad has a partially built WWTP, started in the mid-1980s, but the construction was brought to a halt. Given the poor quality of these partial works, most of the existing infrastructure will be demolished in order to guarantee the quality of the new WWTP. The cost of demolition is included in the overall costs.

The new plants will provide full biological secondary treatment in accordance with EC Directives. The municipalities concerned have existing wastewater collector systems, which were constructed in the 1950s and 1960s. These are combined systems. The collector systems of the three cities are in a poor state. In order to tackle the problems, ISPA assistance will be conditional on the preparation of comprehensive sewerage rehabilitation programmes for the areas concerned and on the preparation of plans for extensions of the sewerage network where necessary.

The technical process recommended by consultants for each of the wastewater treatment plants is the Sequencing Batch Reactor (SBR). This process has been compared to other possible technical solutions, all of which comply with the standards of EC directive 91/271/EEC. A final decision on the most appropriate technical solution will be taken by the Bulgarian authorities in agreement with the EC and the

EIB. The Bulgarian government has received a loan from the World Bank for the restructuring and modernisation of the utility companies. Investments are provided for water loss reduction and to improve water quality and wastewater discharges, so that they comply with the requirements of the relevant EC Directives.

Annex III: Main advantages and disadvantages of non-conventional technologies for wastewater treatment

NCT	Advantages	Disadvantages
1. Tanks		
Septic tanks Imhoff tanks	<ol style="list-style-type: none"> 1) Low investment and running costs 2) The facility can be buried. 3) Units can be prefabricated, making installation easier. 	<ol style="list-style-type: none"> 1) Low level of performance achieved in reducing organic load and elimination of pathogens. 2) Low stability at flow peaks.
2. Lagoons		
Anaerobic lagoons Facultative lagoons Maturation lagoons	<ol style="list-style-type: none"> 1) Low investment cost and easy construction. 2) Zero or low energy consumption. 3) Simple maintenance and no mechanical breakdowns. 4) Tolerant to flow and organic load changes. 5) Very efficient elimination of pathogenic micro-organisms. 6) Low amount of sludge. 	<ol style="list-style-type: none"> 1) Large surface area required. 2) Source of unpleasant smells. 3) Dependence on climatic conditions, and therefore limited geographical scope (cold areas with little sunlight).
3. Constructed wetlands		
Free water surface flow (FWS)	<ol style="list-style-type: none"> 1) Simple operation. 2) No breakdowns. 3) Zero energy consumption. 	<ol style="list-style-type: none"> 1) Large surface area required. 2) High generation of sludge in the primary treatment stage. However, this problem is easily solved by introducing Imhoff Tanks to the primary stage.
Subsurface flow (SFS)	<ol style="list-style-type: none"> 4) Perfect integration into the rural environment. 	
4. Land application treatment systems		
4.1 Surface Application Processes		
Low-load processes Rapid infiltration surface irrigation green filters	<ol style="list-style-type: none"> 1) Simple operation. 2) No breakdowns. 3) Zero energy consumption. 4) Income from the sale of produced wood can offset operation costs. 5) No sludge. 6) Perfect integration into the rural environment. 7) Very efficient purification (for suspended solids, organic matter, nutrients and pathogens). 8) Very tolerant to flow and organic load changes. 	<ol style="list-style-type: none"> 1) Large surface area required (more than any other NCT, so the cost of establishing the system is directly related to the costs of land). 2) Requires relatively flat land with a certain filtering capacity, with no aquifers near the surface. 3) Cannot be used in areas of high rainfall.

NCT	Advantages	Disadvantages
4. Land application treatment systems (continued)		
4.2 Subsurface application processes		
Filtering trenches Filtering beds Filtering Wells Intermittent sand peat filters (Fs)	1) Relatively simple operation (although periodical low intensity earthworks are required). 2) No breakdowns. 3) Zero energy consumption. 4) No sludge. 5) Tolerant to flow changes. 6) Intermittent Sand Filters have small surface area requirements compared to other NCTs.	1) Very high rainfall makes it impracticable. 2) Higher labour needs than with other NCTs, since the exhausted filters have to be regenerated at the end of each filtering cycle. 3) The peat must be changed after every 8-10 years of operation. (Peat bogs are not formally protected in the country. There are a few peat extraction sites operating under concession.)
5. Biofilm processes		
Bacteria beds (percolating filters)	1) Lower energy consumption compared to RBCs (below) and to CTs. 2) Therefore, lower noise levels. 3) Simpler operation (no need to control the dissolved O ₂ levels of dissolved oxygen, nor of suspended solids: operation simpler than CTs. 4) Aerosols are not formed, safer for operators.	1) High installation costs. 2) Generation of sludge during the process, which must be stabilised before discharge.
Rotary biological contactors (RBC)	1) Lower energy consumption compared to CTs. 2) Same as above. 3) Same as above. 4) Not necessary to recirculate sludge from the secondary settling tank. 5) Better performance in the presence of toxic substances compared to CTs. 6) Can be constructed gradually (modular concept). 7) Good performance in cold periods compared to other NCTs, since RBCs are enclosed.	Same as above.

Annex IV. Key bilateral donors providing technical assistance or investment support for water sector projects

AUSTRIA

Austrian Development Agency

Zelinkagasse 2, 1010 Wien
 Tel: (43-1) 903-990
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 E-mail: programme@ada.gv.at

The Austrian Development Agency (ADA) supports: Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, as well as Serbia, including Kosovo (territory under interim UN administration). The priority environmental sectors are: water supply, wastewater treatment, energy efficiency, renewable energies (solar, geothermal energy) and institutional strengthening. The agency provides technical assistance and investment support. The ADA supports projects from the public sector (in general below EUR 2 million) in the form of grants. The rate of support depends on the project; co-financing is obligatory in the majority of cases. Projects have to be in line with country strategies and show strong ownership. Projects have

to be considered a priority, being sustainable (socially, environmentally and economically), and take into account gender issues and the impact on the country's development. The total budget for the SEE countries in 2005 was EUR 17 million, with approximately one third earmarked for environmental projects.

GERMANY

German Development Bank

Palmengartenstrasse 5-9, 60325 Frankfurt am Main

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Website: www.kfw-entwicklungsbank.de/EN

The German Development Bank (KfW) finances development cooperation on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ). The priority environmental areas vary from country to country. In the former Yugoslav Republic of Macedonia, the priority areas are environmental protection and the promotion of SMEs. Support is primarily directed to water supply and sewage treatment. Technical assistance and consulting is available for project preparation. KfW provides not only loans but also grants and interest-rate subsidies. Loans can be promotional loans at market conditions or loans with favourable interest rates. Least developed countries (LDCs) can receive financial cooperation (FC) grants; developing countries receive FC loans at an interest rate of 75 percent for 40 years with 10 years repayment and free grace years. More advanced countries can also receive loans at an interest rate of 2 percent for a term of 30 years, with 10 repayment-free grace years. Loans containing market funds, mixed and composite finance and interest reduction are designed primarily for public infrastructure projects for developing countries. The size of projects varies and the type of support includes: budget funds provided by the German Federal Ministry for Economic Cooperation and Development; FC development loans (mixed and composite finance, interest reduction); and FC promotional loans. Both public and private sectors (SMEs) are eligible for support.

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The Greek Ministry of Foreign Affairs (MoFA) has developed the Hellenic Plan for the Economic Reconstruction of the Balkans (HiPERB) for the period 2002-2006. After three years of stagnation due to economic, institutional, technical and political shortcomings, HiPERB was reactivated in 2005. This important five-year plan has a budget of EUR 550 million and undertakes the financing of projects, investments and activities in six Balkan countries. Of this

amount, EUR 74.84 million will be channelled into the former Yugoslav Republic of Macedonia. Around 80 percent of the aid allocated will be given directly to the benefiting states. The remaining 20 percent of the EUR 550 million will be forwarded to the beneficiary Balkan countries in the form of the co-financing of private productive investments directed towards the areas of agriculture and processing. Priority areas include modernisation of infrastructure. Proposals by the beneficiary countries are received through the respective Greek embassies in the region. Based on the recommendations of the monitoring committee, the minister of foreign affairs will accept the inclusion of these proposals into the HiPERB programme. Upon completion of this procedure, the financing of projects through the five Greek banks already present in the region will start. The forms of financial support are: free capital support; the payment of part of the interest for the servicing of loans concluded for the implementation of the above objectives; gratis coverage of operating costs of the Economic Cooperation Programme; and participation, individually or in cooperation with domestic or foreign financial institutions, in equity capital.

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The Japan International Cooperation Agency (JICA) is an implementation agency for technical assistance, focusing on systems building, organisation strengthening and human resource development that will enable developing countries and countries in transition to a market-oriented economy to pursue their own sustainable socio-economic development. JICA's four main pillars are: 1) aiming for a more result-oriented approach and enhanced efficiency; 2) enhancing transparency for the administration and activities; 3) promoting public participation; and 4) intensifying assistance for peace-building and post-conflict work. Among others, JICA carries out the following activities: technical assistance projects; development studies; and grant aid (surveys, expediting implementation). JICA supports countries in the western Balkans, including the former Yugoslav Republic of Macedonia. In the former Yugoslav Republic of Macedonia, JICA has assisted capacity development of water supply, sanitation and waste management, environmental policy and administration management. Highlighted examples of JICA's support are the Study on Air Pollution Monitoring System (1999) and a Master Plan Study on Integrated Water Resources Development and Management (1999). JICA is responsible for the implementation of Japan's official technical assistance. The policy and decisions on which projects are implemented is decided by the Japanese government, namely the Ministry of Foreign Affairs and related ministries.

THE NETHERLANDS

Ministry of Housing, Spatial Planning and the Environment (VROM)

P.O. Box 30945, 2500 GX, The Hague
Tel: (31-70) 339-486
Fax: (31-70) 339-1306
Website: international.vrom.nl

The Ministry of Housing, Spatial Planning and the Environment (VROM) supports SEE countries including the former Yugoslav Republic of Macedonia. VROM finances feasibility studies to prepare ISPA projects and the activities of EBRD projects through the Dutch Environmental Technical Cooperation Fund. The size of projects that can receive support varies from EUR 25,000 to EUR 100,000 from VROM alone, and up to EUR 1 million together with the Dutch Ministry of Foreign Affairs (MoFA). The support covers up to 100 percent of the project costs. VROM finances grants, with conditions differing from programme to programme. Details can be found on <www.vrom.nl/international>, <www.minbuza.nl> and <www.evd.nl>. The budget for environmental projects in SEE differs from year to year, depending on demand and availability. In 2005 and 2006 together, a total of EUR 2 million was available for the environment (VROM and MoFA).

Dutch Ministry of Foreign Affairs

P.O. Box 20061, The Hague
Tel: (31-70) 348-4971
Fax: (31-70) 348-4303

The Dutch Ministry of Foreign Affairs (MoFA) supports Albania, Bosnia and Herzegovina, and the former Yugoslav Republic of Macedonia. MoFA supports environmental investments such as the clean-up of environmental hotspots. It also supports technical assistance for project preparation through their regional environmental expert at the Dutch Embassy in Tirana (covering various projects). The size, type and rate of project support vary and depend on the scope of the Dutch regional environmental programme. The conditions of support differ from programme to programme. For more information, visit: <www.vrom.nl/international>, <www.minbuza.nl> and <www.evd.nl>. Both public and private sectors are eligible. The total budget for the region in 2005 was EUR 45 million, while for environmental projects in 2005 the total was EUR 3 million. Future budgets will depend on the scope of the Dutch regional environmental programme.

NORWAY

Norwegian Ministry of Foreign Affairs

Postboks 8114 Dep, NO-0032 Oslo
Tel: (47-22) 243-501
Fax: (47-22) 242-751
E-mail: vest-balkan.seksjonen@mfa.no
Website: www.mfa.no

The Norwegian Ministry of Foreign Affairs supports Albania, Bosnia and Herzegovina, Croatia, the former

Yugoslav Republic of Macedonia, Montenegro and Serbia. The priority areas are water supply, wastewater treatment, and waste management. In some cases the ministry supports environmental investments. It supports technical assistance for project preparation. The strategy for future allocations is subject to parliamentary decisions. The ministry supports only grants, up to 100 percent of coverage. There is no fixed amount for projects. The conditions for financing refer to well-defined projects with clear objectives and good documentation, a detailed budget and reporting requirements. The eligible sector is preferably the public sector and non-commercial projects. The duration of projects is normally 12 months. The total budget in 2005 was NOK 750 million (EUR 95 million).

SWEDEN

Swedish International Development Agency

Sveavägen 20, 105 25 Stockholm
Tel: (46-8) 698-5000
Fax: (46-8) 208-864
E-mail: sida@sida.se
Website: www.sida.se

Development assistance from the Swedish International Development Agency (SIDA) to the Balkans, including the former Yugoslav Republic of Macedonia, amounted to approximately SEK 700 million in 2005. Target areas for SIDA support are: environmental policy development and capacity building; environmental protection, maintenance of eco-systems; environmental infrastructure and technology; and environmental improvements in local communities/municipalities. SIDA provides investment support to water and wastewater projects, waste management and heating projects, and reforming the municipal sector. It also supports industry in cleaner production technologies and management. SIDA supports demand-driven environmental improvements, meaning that local communities take the lead on environmental improvements, decide on the costs and are responsible for operation and maintenance. SIDA finances feasibility studies, business and organisational development, project implementation support, and investments leading to reduced pollution. For infrastructure improvements environmental impacts and affordability must be assessed, and infrastructure improvement projects need to address institutional aspects. SIDA provides complementary financing in the form of grants and credit financing.

SWITZERLAND

State Secretariat for Economic Affairs – Infrastructural Financing Unit

Tel: (41-31) 324-0915
Fax: (41-31) 324-0962
E-mail: info@seco-cooperation.ch
Website: www.seco-cooperation.ch

The State Secretariat for Economic Affairs (SECO) supports: Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, and Serbia including

Kosovo (territory under interim UN administration). Financing by SECO is provided for basic public infrastructure (water, energy and waste); policy dialogue with regard to sector reforms for provision of public services; environmental protection, management and monitoring; co-financing with multilateral donors; and environmentally friendly trade and technology. Environmental priority areas in the Western Balkans include: water supply and wastewater; river basin management; energy and energy efficiency; environmental protection and monitoring; and energy efficiency and cleaner production by SMEs. The size of supported projects is large, with a range of EUR 5 million to EUR 10 million, covering 50-90 percent of the project costs, depending on the financing capacity of the beneficiary institution. A local contribution, financially and in kind, is normally expected. Only grants are provided, and only the public sector is eligible. The conditions to receive a grant are: project quality (technical, financial, institutional); embedding in a broader strategy or programme; correspondence with SECO's sector focus for the respective country (see *Country Strategy Notes* on <www.seco-cooperation.ch>); local ownership and local contribution. Generally, projects must be submitted to SECO or its local cooperation office by the partner government. The total budget in the region is about EUR 12 million, of which 80 percent is committed to environmental infrastructure projects. For further information, contact the Infrastructural Financing Unit.

UNITED STATES OF AMERICA

U.S. Trade and Development Agency

Suite 1600, 1000 Wilson Boulevard, Arlington,
Virginia 22209-3901
Tel: (1-703) 875-4357
Fax: (1-703) 875-4009
E-mail: info@tda.gov
Website: www.tda.gov

The U.S. Trade and Development Agency (USTDA) supports Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro and Serbia. The priority areas are air quality, hazardous waste management, water treatment, and energy efficiency. The agency funds various forms of technical assistance, feasibility studies, training, orientation visits and business workshops that support the development of a modern infrastructure and a fair and open trading environment. USTDA supports up to 100 percent of project costs. USTDA provides grants, according to the following conditions: the project is a developmental priority for the host country; is likely to receive implementation financing and have a procurement process that provides "equal access" to U.S. firms; has the potential to result in significant U.S. exports during project implementation (at least USD 10-15 million, or roughly EUR 8.5-13 million); and whether USTDA support will help to level the playing field for U.S. firms relative to foreign competitors.

United States Aid for International Development

1300 Pennsylvania Avenue, NW, Washington, DC 20523
Tel: (1-202) 712-4810
Fax: (1-202) 216-3524
Website: www.usaid.gov

United States Aid for International Development (USAID) supports Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro and Serbia, including Kosovo (territory under interim UN administration). The priority areas are water and sanitation (no solid waste or air programmes). USAID cannot provide environmental investment support, as the programmes in the region are limited to technical assistance. The focus of USAID's work in this sector and region is on national strategies, performance improvement, and financing options. USAID previously provided this type of support, but now co-funds only the infrastructure component of the Private Enterprise Partnership for Southeast Europe (PEP-SE) programme and the project development facility in Sofia. (PEP-SE provides technical assistance and advisory services to private sector and infrastructure in Albania, Bosnia and Herzegovina, Bulgaria, Croatia, former Yugoslav Republic of Macedonia, Moldova, Montenegro, Romania and Serbia. The programme commenced in July 2005 for a five-year period.) Technical assistance is supplied through contracts to US firms. Only the public sector is eligible for financing. For all information, visit <www.usaid.org.mk>. USAID provides grants covering up to 100 percent of project costs for projects of various sizes. The total budget in 2005 was USD 278 million (EUR 235 million). Estimated water and sanitation programmes are less than 5 percent of the total. In the future, support to the region on environmental infrastructure projects will decrease.

Annex V. Key international financial institutions providing technical assistance or investment support for water sector projects

Council of Europe Development Bank

55 avenue Kleber, F-75116 Paris
Tel: (33-1) 4755-5500
Fax: (33-1) 4755-3752
Website: www.coebank.org

The Council of Europe Development Bank (CEB) finances three types of projects/programmes: 1) individual projects (IPs), which concern a single field of action and a single site, or several sites, but limited in number and technically linked; 2) sector-based projects (SPs), which are made up of a number of sub-projects in one or several fields of action and come under national or regional development programmes for the sector(s) concerned; and 3) multi-project

programmes (MPs), which are confined to funding a large number of eligible small-scale projects (awarded a loan not exceeding EUR 5 million), regardless of the fields involved. Borrowers can be the state, or regional and local authorities, as well as the public and private financial institutions. The CEB's activity in SEE countries is increasing. The environmental sector is considered important by the Bank. Presently, 15-20 percent of the total amount approved concerns environment and prevention of natural disaster projects. A loan request is prepared by the borrower in close cooperation with the CEB's departments. In some cases, the CEB can provide technical assistance in the preparation of the project and during its implementation. CEB finances up to 50 percent of the total project cost in the form of a loan. It finances up to 50 percent of the total eligible costs of the project. In SEE this proportion may be increased to 90 percent for public borrowers. The grace period is up to five years (in specific cases interest-rate subsidies can be provided). Eligible projects include urban infrastructure such as drinking-water supply networks. Applications can be submitted directly to the CEB headquarters. Projects need to be communicated to the government of the respective country before submission.

European Bank for Reconstruction and Development

1 Exchange Square, London EC2A 2JN, United Kingdom
Tel: (44-20) 7338-7168
Fax: (44-20) 7338-7380
E-mail: newbusiness@ebrd.com
Website: www.ebrd.org

The financial products available from the EBRD are loans, equity investments and credit lines. EBRD finances a maximum of 35 percent of the total capital for private sector projects and 70 percent for public sector projects. The maximum amount provided is EUR 250 million for the private sector and the minimum investment size is EUR 5 million. Small projects are usually supported through financial intermediaries such as leasing facilities, local commercial banks and micro-business banks. The EBRD finances large, small and medium-sized private sector projects under different conditions. For large projects in the private sector, the EBRD provides an average of EUR 25 million for financing, ranging from EUR 5 million to EUR 250 million. The eligible types of investment projects are: water supply, wastewater collection and treatment, solid waste management, district heating, natural gas distribution, and urban public transport. The bank invests in municipal services, infrastructure projects, restructuring and privatisation. Project ideas from the private sector can be presented to the EBRD via the internet by filling out an online form at www.ebrd.com/apply/large/index.htm.

European Investment Bank

100 boulevard Konrad Adenauer, L - 2950 Luxembourg
Tel: (352) 43-791
Fax: (352) 437-704
E-mail: info@eib.org

The European Investment Bank (EIB) gives either direct loans or global loans through financial intermediaries (banks). The total funds available for SEE are roughly EUR 300-400 million per annum, while the funds available for environmental investments depend on the appropriateness of the projects, since there is no specific limit. Loans can be combined with grants to cover technical assistance from other bilateral or multilateral sources (e.g. with European Agency for Reconstruction grants). As a rule, the EIB funds a maximum 50 percent of the total project cost. There is no specific limit on the maximum amount provided, while the minimum amount is EUR 5-10 million, depending on project packaging. In cases when the project cost exceeds EUR 25 million the borrower can agree directly with the EIB on the amount of the loan. Both the public (direct lending to municipalities possible with sovereign support) and private sectors are eligible for support. The eligible types of investment projects are: water supply and sewerage wastewater collection and treatment; solid waste collection and treatment; and industrial pollution abatement facilities. For direct loans, the minimum project cost is EUR 10-20 million. A sovereign guarantee is required. No fees are charged on the applicant for processing the loan application.

The World Bank

1818 H Street, N.W., Washington DC, 20433 U.S.A.
Tel: (1-202) 473-1000
Fax: (1-202) 477-6391
Website: www.worldbank.org

The World Bank Group consists of the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). These two organisations provide low-interest loans, interest-free credit, and grants to developing countries. They are part of the World Bank Group, which also includes the International Finance Corporation (IFC), promoting private sector investment; the Multilateral Investment Guarantee Agency (MIGA), providing political risk insurance (guarantees) to investors in and lenders to developing countries; and the International Centre for Settlement of Investment Disputes (ICSID), settling investment disputes between foreign investors and their host countries. Investment loans can be obtained to finance goods, works and services in various sectors. Projects usually run for 5-10 years and include inter alia the development of public policy infrastructure and the improvement of sanitation and water supply. The World Bank has a variety of lending terms and instruments. The Ministry of Finance of the borrower country chooses the instrument, which is not related to the technical details of a loan project. A creditworthiness and country assessment is performed when a new programming period commences for a country. Each country has its own programming cycle of three to four years. Every project is also tailored to the specific priority development needs of the beneficiary

country. Priority focus is on supporting institutional reforms and policy development. The eligible types of investment projects are: water rehabilitation and reform; district heating; solid waste services; promoting clean water supply; sanitation in rural areas. The loan is disbursed in specified instalments after fulfilment of pre-agreed conditions such as passing reform legislation. To apply, local offices should be contacted. The World Bank's main interlocutor is the Ministry of Finance (MoF) of the respective country. Therefore any request for World Bank funding needs to come through the MoF.

THE REGIONAL ENVIRONMENTAL CENTER FOR CENTRAL AND EASTERN EUROPE (REC) is a non-partisan, non-advocacy, not-for-profit international organisation with a mission to assist in solving environmental problems in Central and Eastern Europe (CEE). The center fulfils this mission by promoting cooperation among non-governmental organisations, governments, businesses and other environmental stakeholders, and by supporting the free exchange of information and public participation in environmental decision making.

The REC was established in 1990 by the United States, the European Commission and Hungary. Today, the REC is legally based on a charter signed by the governments of 28 countries and the European Commission, and on an international agreement with the government of Hungary. The REC has its head office in Szentendre, Hungary, and country offices and field offices in 17 beneficiary countries, which are: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, the former Yugoslav Republic of Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia and Turkey.

Recent donors are the European Commission and the governments of Austria, Belgium, Bosnia and Herzegovina, Bulgaria, the Czech Republic, Croatia, Denmark, Estonia, Finland, Germany, Hungary, Italy, Japan, Latvia, Lithuania, the Netherlands, Norway, Poland, Slovakia, Slovenia, Sweden, Switzerland, the United Kingdom, and the United States, as well as other inter-governmental and private institutions.



Environmental Infrastructure Investment Project Preparation in the Water Sector