

Financial aspects of water supply and sanitation in transboundary waters of South-Eastern Europe

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1. Introduction

The countries of South-Eastern Europe (SEE)³ face daunting water resources challenges as the needs for investments into water supply, sanitation, irrigation and hydroelectricity grow; as water quality is often described as not adequate coupled with an increase in environmental and social concerns; and as the threats posed by floods and droughts are exacerbated by climate change which was illustrated by the most recent floods in Bulgaria and Romania during the summer of 2005. Although the SEE region can be broadly characterised as water abundant, the water resources are unevenly distributed among the countries thereby leading to water shortages in some countries and during dry periods (i.e. an uneven spatial and temporal distribution of water flows) causing water shortages in localities throughout the SEE region. Moreover, surface as well as groundwater resources shared among a variety of users from different South-Eastern European countries are under a range of natural but also man-made pressures.

All these characteristics require that water policy is designed and implemented as a means for sustainable growth, poverty reduction and what is regularly underestimated, as a tool to bring positive environmental benefits beyond the direct beneficiaries. This latter aspect is of special significance in the context of water management in the SEE region considering that around ninety percent of the countries' territories are part of transboundary river basins. The share of the area located in an international water basin is in each country much higher than the world average of 50 percent with the exception of Albania where the share is 50 percent (see Table 2). Furthermore, some other countries neighbouring the SEE region, such as Slovenia,

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³ The countries of focus in the region of South-Eastern Europe (SEE) covered in this study are: Albania, Bosnia and Herzegovina (BiH), Bulgaria, Croatia, Former Yugoslav Republic of Macedonia (FYRM), Romania and Serbia and Montenegro (S&M).

Hungary, Moldova, Greece and Turkey, are also faced with issues of transboundary water resources.

The major transboundary river basin is the Danube whereas twelve minor transboundary river basins flow into Black Sea, Adriatic, and the Aegan Sea. Seven of those minor water basins are shared between three or more riparian countries making it obvious that massive efforts have to be undertaken to deal with the complex features of transboundary water management, such as water quantity and quality management and navigation. Albania, Croatia, Serbia and Montenegro and Romania are receiving about half or more of their water resources from transboundary watersheds, which emphasises the decisive role of multi- or bilateral agreements concerning transboundary water management. In addition, there are numerous transboundary aquifers within the region.

There is no doubt that SEE countries have to tackle complex issues of water legislation reform individually while developing and strengthening institutional frameworks to cope with new challenges as all of them are aiming to join the EU, and are furthermore in different stages of transforming their economies from a centrally planned to a market economy. This also implies transposing EU environmental directives and standards into national legislation. Heavy investments requirements, in particular in the water, sanitation and waste sector, must be accomplished if the countries are to meet EU standards. The infrastructure investments are rather expensive and often have to be implemented within a short time period, which increases the pressure to raise domestic resources to cover or, at least, co-finance these investments. Economic instruments in the form of water pricing as a mean according to the user pays principle or, in form of water effluent taxes in line with the polluter pays principle can be of crucial significance as they can – when properly applied – provide an economic incentive to reduce effluents at source thereby reducing the need for investments in wastewater treatment capacity. Overcoming these financial needs is a huge challenge for the countries that have rather limited financial resources for investment expenditure as compared to Central and Eastern European countries.

The objective of this study is to provide an overview of the current situation of the reform process regarding water legislation and the institutional arrangements prevailing in the seven South-Eastern European countries (Chapters 3 and 4). The study also discusses the use of economic instruments in the countries of the SEE region (Chapter 5) and highlights the investments needs for water infrastructure programmes although this information is not available in a comprehensive and consistent format (Chapter 6). Furthermore, it presents a concept developed by the German bank Kreditanstalt für Wiederaufbau (KfW) as a tool for funding water investment based on transparent selection criteria (Section 6.3).

2. Country profiles

2.1 Socio economic characteristics of the region

The seven SEE countries are in different stage of economic and political development, although they are all in the process of transition from a socialist economic system to a market economy which is largely influenced by the prospect of the membership in European Union. The two acceding countries, Bulgaria and Romania, made the biggest progress in this reform process, in particular in the area of institutional and legal reforms, even though much remains to be done in view of their anticipation of joining the EU in 2007. In addition, Croatia as the candidate country also made progress and is developing faster than the four remaining

candidate countries within the SEE region having the prospect of future membership of the EU.

The Stabilisation and Association Process (SAP) launched by the European Commission in 1999 between the countries of the Western Balkans (Albania, Bosnia and Herzegovina (BiH), Croatia, Former Yugoslav Republic of Macedonia (FYRM) and Serbia and Montenegro (S&M)) and the EU Member States is crucial in the current reform process as the underlying strategy is explicitly linked to the prospect of EU accession. Furthermore, EU provides various forms of assistance (capacity building as well as institutional and finance assistance programmes) in the EU accession process while in return the five countries have to undertake steps aiming to meet the necessary political, institutional and economic requirements. The three major elements of the SAP include Stabilisation and Association Agreements (SAA), autonomous trade measures and the pillar of providing financial assistance by a single instrument, i.e. the Community Assistance for Reconstruction, Development and Stabilisation (CARDS). The SAA is insofar of interest as it foresees the establishment of bilateral agreements among the neighbouring countries in the region therefore also covering environmental and transboundary water issues.

The countries of the SEE region have different levels of economic development as illustrated in Tables 1 and 2. The income measured in terms of GDP per capita varied between 1,642 EUR in BiH and 5,747 EUR in Croatia, e.g. a difference factor of 3.5. Differences in the monthly gross average salaries are even larger ranging from 140 EUR in Bulgaria and 744 EUR in Croatia (i.e. a factor of 4.8). Furthermore, it is interesting to report that the gross average salaries in acceding countries of Bulgaria and Romania are belonging to the lowest in the region.

Table 1: Overview of socio economic indicators (2003)

	Al	BiH	Bul	Cro	FYRM	Rom	Ser	Mon
GDP (million EUR)	5,418	1,959	17,662	25,538	4,105	50,681	16,785	1,433
GDP per capita (EUR)	1,710	1,642	2,258	5,747	2,025	2,332	2,228	2,311
GDP per capita (EUR at PPP ^(X))	4,270	5,610	6,340	9,680	5,370	6,330	5,140	5,140
Gross average salary (EUR)	155	366	140	744	193	179	176	271
Poverty (in percent below national poverty line)	25	20	13	11	n.a.	25	n.a.	n.a.

Note: ^(X) Purchasing power parity based on WIIW estimate

Source: WIIW Balkan Observatory: <http://www.wiiw.ac.at/balkan/data.html> and World Bank Data by

Country: <http://www.worldbank.org/data/countrydata/countrydata.html>

During the 1990s, total population of the SEE region declined by around 2 million (3 percent) and this trend is expected to continue in the future. A shift towards urbanisation is forecasted and is anticipated that around 60 percent of population will be living in urban areas in 2020. The contribution of Albania's agricultural sector to GDP is by far the largest with 25 percent as compared to 9 percent in Croatia. However, all the countries have in common that the service sectors are the largest contributors to GDP.

Table 2: Economic and water related data (2003)

	Al	BiH	Bul	Cro	FYRM	Rom	S&M
Value added in agriculture (% of GDP)	25	15	10	9	12	13	n.a.
Value added in industry (% of GDP)	19	32	26	29	31	38	n.a.
Value added in service (% of GDP)	56	53	64	62	57	49	n.a.
Population (thousand)	3,190	3,832	7,801	4,442	2,027	21,734	8,152
Urban population (2000)	44	44	70	69	60	56	52
Rural population (2000)	56	56	30	31	40	44	48
Percentage of country in international basins (%)	50	94	86	63	98	96	97
Hydropower (share to total elect. produced 1999)	97	61	8	54	18	36	40

Source: WIIW Balkan Observatory: <http://www.wiiw.ac.at/balkan/data.html>, World Bank Data by Country: <http://www.worldbank.org/data/countrydata/countrydata.html> and World Bank, 2003a and 2003b

Water resources play a key role in electricity production in some countries of the SEE region. For example, Albania's electricity production is almost fully depending on hydropower, while the share of hydropower is high in BiH with 61 percent and in Croatia with 54 percent.

The last decades have seen a decline in overall water use, coming as a consequence of political and economical transition towards market economies leading to a reduction in industrial production and falling income of the private sector. Additionally, the outcome of the war and the reform of water pricing mechanism – and a rather slow process of introducing the water pricing in accordance with polluter pays principle and full cost recovery contributed to that decline. The largest decline in water use took place in the agricultural sector. For example, water consumption in Romania dropped continuously from 20 billion m³ in 1989 to 9.2 billion m³ in 1997 reaching 7.3 billion m³ in 2001 (World Bank, 2004b and Platon and Dulcu, 2004), while the biggest drop in water consumption in the same time period occurred in the agricultural sector from 9 billion m³ to 1.1 billion m³, i.e. a nine-fold fall. The second largest decline is reported from the industrial sector (8.6 billion m³ to 3.8 billion m³) and only a very modest decline occurred in the water consumption for domestic purposes. The latter may be attributed to the fact that due to deteriorating water supply systems and lack of incentives for a more rational water use, very high water consumption rates (litres per capita) are found in several of these countries.

2.2 Existing water infrastructure

The countries of the SEE region inherited large stocks of water infrastructure from the past. However, during the past decades the water infrastructure was largely neglected owing to the lack of funding for necessary maintenance. Consequently, substantial deterioration of the physical infrastructure and a sharp decline in the quality of services were evidenced. Table 3 reveals significant differences in connection rates in the seven countries. All countries have in common that the share of households in urban areas connected to piped water supply or to sewerage is always higher than in rural locations. The comparison of the current situation with the target connection rates of the Millennium Development Goals (MDG) clarifies future

needs for investments into water supply and sanitation infrastructure. Connection rates in rural areas are particularly low and substantial improvements will be necessary.

Table 3: Connection rates (situation 2000) and the Millennium Development Goals

	Al	BiH	Bul	Cro	FYRM	Rom	S&M
Access to piped water supply							
– national average	67	72	95	73	71	66	83
Urban	90	87	100	91	100	92	97
Rural	50	60	84	50	28	34	68
Access to sewerage							
– national average	59	37	67	52	46	52	56
Urban	90	71	90	71	68	86	88
Rural	37	12	20	26	13	10	22
Access to piped water supply							
– MDG 2015	84	86	97	87	86	85	92
Access to sewerage – MDG							
2020	80	69	84	76	73	76	78

Note: MDG – millennium development goals

Source: World Bank, 2004b

However, the rates presented in Table 3 must be treated with some caution, as they do not properly reflect the reality. For example, water availability may be restricted to several hours per day as it is the case in Albania where it is reported that water is only available for 3-4 hours per day and that some areas only receive water once in three days (Rohde et al., 2004). Regular interruptions in water supply are also found in other countries of the region.

The sewerage connection rates in the region cannot be used as an indicator for the amount of wastewater actually being treated before discharged into open waters. Despite the rather high connection rate to the sewerage network in Albania, the wastewater is regularly not treated but discharged directly as there is no wastewater treatment existing in Albania (World Bank, 2003b). Although polluted as a consequence of the lack of wastewater treatment facilities, the surface water nevertheless remains the major water resource. The situation is similar in some of the countries of the SEE region. Around 90 percent of wastewater generated in BiH is directly discharged into water flows despite existing wastewater treatment plants. Owing to the lack of funding for maintenance and repair of already existing wastewater treatment facilities, only a small number of them are actually operational also due to war-time devastation (World Bank, 2003b). The same rate of around 10 percent of treated wastewater can be found in FYRM and S&M while the ratio is higher in Croatia with 20 percent (World Bank, 2003a). Higher shares of wastewater is treated prior to discharge into recipient waters in Bulgaria – in 2001 for example around 31 percent of the wastewater was untreated, 14 percent was treated in wastewater treatment plants using primary treatment (mechanical stage of treatment) and 56 percent using secondary treatment (biological stage of treatment) (Bardaska, 2004). In Romania 17 percent of wastewater requiring treatment was adequately treated, 49 percent was treated insufficiently and 35 percent of wastewater was not treated at all (Platon and Dulcu, 2004). The situation in Serbia is similar grim as out of 152 built wastewater treatment plants less than 15 percent have been working in 2003 (MAWM, 2003). Data on wastewater treatment are not collected in a consistent and comprehensive manner, and the ratios presented here can only be seen as indicative, illustrating the different development stages of the seven SEE countries.

The transboundary nature of water pollution is evident and should also be revealed in this context. For example, all rivers entering Serbia are so heavily polluted that no water can be used for drinking, while some of the waters are not usable for irrigation. Although the upstream countries are polluting the Danube, Serbia is also a significant polluter of the river (World Bank, 2003b and ICPDR, 2005).

Further differences can be found in the principal source of water as Bulgaria and Romania are relying on surface water to meet their drinking water demand: around 65 percent of public water system abstraction stemmed from surface water in Bulgaria in 2002 (Bardaska, 2004) while the other countries in the region depend on groundwater. For example, groundwater provides around 90 percent of drinking water in BiH and S&M, around 86 percent in Croatia and a slightly lower dependency rate, around 70 percent can be found in Albania.

A common problem in regard of water supply is the high amount of unaccounted water, i.e. water losses during transport and distribution which amount between 50 and 60 percent in all seven SEE countries (EBRD, 2001 and World Bank, 2003b) and are very high compared to the benchmark for unaccounted water in Western Europe and transition economies, such as Poland, which is about 15 to 30 percent.

3. Water legislation and policies

Water policies and legislation are undergoing fundamental changes in the seven SEE countries as a part of the overall reform process. Progress in revising and reforming the legal and institutional frameworks of water management is being reported from all countries, although the speed of this process varies between the countries. The fundamental driving force of this process is the wish to join the EU and therefore national legislation and institutions are revised in accordance with the EU directives and regulations, in particular with the EU Water Framework Directive (2000/60/EC). This policy process may serve as the background for the strategic direction of water policy while the immediate need for improving the delivery of water supply and sanitation is often driving the actual process.

The need for cooperation between countries on the pan-European level in addressing the transboundary nature of water supply and sanitation issues is also reflected in the adoption of 'The Convention of the Protection and Use of Transboundary Watercourses and International Lakes (the Water Convention)' which was adopted in Helsinki on 17 March 1992 and entered into force on 6 October 1996. The principal intention of the Water Convention is '*to strengthen national measures for the protection and ecologically sound management of transboundary surface waters and groundwaters*' (<http://www.unece.org/env/water/welcome.html> - see for the status of ratification of the Water Convention and the two Protocols with regard to the countries of South East Europe Table A1 in the Annex). The Convention addresses water quality issues as parties to the convention are obliged to prevent, control and reduce water pollution from point and non-point sources. The 'Protocol on Water and Health' adopted under the Convention but which only entered into force in August 2005 deals with water supply issues as it '*is the first international agreement of its kind adopted specifically to attain an adequate supply of safe drinking water and adequate sanitation for everyone, and effectively protect water used as a source of drinking water*' (http://www.unece.org/env/water/text/text_protocol.htm). This protocol is furthermore interesting as it links water management issues with the social and economic aspects as it is seen that the improvement of water supply and sanitation is fundamental in breaking the vicious cycle of poverty.

The most recent protocol adopted under the Water Convention is ‘The Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters’ adopted at the 2003 Ministerial Conference in Kiev. The Protocol has not entered into force so far. The novelty of this Protocol is that individuals will get a legal claim for adequate and prompt compensation if they are affected by the transboundary impact of industrial accidents on international watercourses (e.g. fishermen or operators of downstream waterworks). This Protocol closes a gap in international environmental legislation and solves the problem of uncompensated damage in neighbouring countries as it ensures the non-discrimination of victims. A ceiling of the financial limits of liability is established in the Protocol and companies are required to establish financial securities, such as insurance or other guarantees so that they can cover this liability (<http://www.unece.org/env/civil-liability/welcome.html>).

Apart from these multilateral environmentally agreements tackling transboundary water issues many countries including the ones in South East Europe established bilateral and also some multilateral agreements on transboundary waters. These agreements are dealing with water related questions on the level of individual water basins and the first of them has already entered in force in the 1950s (see for an overview of these agreements and cooperation between countries in South East Europe Table A2 in the Annex).

Bulgaria and Romania have already transposed EU legislation into national legislation and harmonised the institutional framework with that of the European Union. The basic structure for their policies is based on internationally recognised principle of good water management meaning that water will be managed at the basin level, addressing water quality and quantity issues jointly as well as the application of the user pays principle and polluter pays principle (World Bank, 2003a). The process of organising the institutional framework of water management at the river basin level is underway in Bulgaria and Romania, while the other SEE countries are following the same approach. This process has started late and some factors, such as the lack of institutional and human capacity, are further delaying it.

Water legislation and the institutional arrangements vary between the countries and the main legislation currently implemented is briefly discussed below:

- Albania

The 1996 Law on Water Resources is based on the modern principles of water management. Some of the provisions of the law are worthwhile to mention as it organises water resources management by river basin; introduces the issuing of permits, concessions and authorizations for using water and for discharging wastewater; and it furthermore calls for the development of a water strategy (World Bank, 2003b). Under its provisions, the National Water Council was established as the main policy institution for water management and development. Notwithstanding its good points, this law is seen as outdated and is currently being revised (Rohde et al., 2004).

In 1997, a National Water Strategy for Albania was developed identifying national objectives for water use and sanitation. Some of the components of the strategy were rather radical, causing stiff opposition and resulting in a situation where the Strategy was never adopted. The National Water Supply and Sanitation Strategy were recently adopted instead, and are seen as the framework for reaching the long-term objectives of achieving sustainable water supply and sanitation services. The strategy distinguishes between urban and rural areas and promotes decentralisation in water management policies and building on private sector involvement in service delivery.

- Bosnia and Herzegovina

The present structure of the country was established under the General Framework Agreement for Peace (Dayton Peace Accord) and according to the adopted regulations the water management system is under the authorities of two entities: the Federation of Bosnia and Herzegovina (FBiH) and Republika Srpska (RS). The two entities have their own constitutions and laws and is therefore not surprising that they have two independent water laws and organisational structures. The current water laws have been adopted in 1998 (FBiH) and the new revised water law came into force in 2001 in RS. The two entities agreed to develop new water laws as well as to reorganise the water sector by applying the EU WFD as the basis for the new water policy and the institutional and regulatory frameworks (UNECE, 2004).

Both entities adopted almost identical laws on water protection (Republika Srpska in 2002, FBiH in 2003). The new laws developed with the financial support of EU PHARE programme are establishing river basins in two entities and are calling for water protection strategy for both of them. The strategies should be integral part of the National Environmental Action Plan (NEAP) drawn up by the two entities and in cooperation with the World Bank. The main objectives for the water sector are the provision of sufficient quantities of adequate drinking water, the protection of water resources and the preservation of surface water and groundwater.

Furthermore, a Mid-term Development Strategy was adopted for the years 2004-2007 aiming to provide a comprehensive platform and perspective of the reform and investment priorities in Bosnia and Herzegovina developed in co-operation with the World Bank (World Bank, 2004a). The strategy points out that more attention has to be paid to the sustainable management of water resources and it identifies several development priorities including the repairing of the existing wastewater treatment system and the construction of new treatment facilities as well as the adequate provision of water supply to inhabited areas.

An interesting aspect of the water legislation in BiH, in particular in the context of transboundary issues, is the absence of a representative water body for water management on the state level. However, two inter-entity steering committees (Water Steering Committee and Environmental Steering Committee) were established at the state level in mid 1998 aiming to eliminate water management problems; this is particularly important as six of the seven rivers in BiH extend across both entities (Alic, 2004).

- Bulgaria

The general principles of the EU policy in the water sector have been transposed into the national legislation with the 1999 Water Law, which came into force in 2000 and was amended in the following years. The Water Law introduced the principle of integrated river-basin water management. The Ministry of Water and Environment, as the responsible institution for the implementation of the EU WFD in Bulgaria, drafted a new Water Law in 2004 aiming to fully harmonise EU water related legislation into the national legislation. It is expected that the new Water Law will be adopted by the Bulgarian Parliament during the second half of 2005 (Bardaska, 2004).

Water management issues are exclusively dealt with by the Council of Ministers and the Ministry of Environment and Waters (MoEW). The MoEW is in charge of the Basin Directorates which are responsible for implementing the water resources strategy. During the recent years, the strategies and national programmes, including the 'National Strategy for Management and Development of the Water Sector in the Republic of Bulgaria until 2015',

the ‘Environmental Strategy to implement the ISPA objectives’ and the ‘National Programme for Priority Construction of Urban Wastewater Treatment Plants’, have been approved by the government. Part of these strategies is to establish programmes and lists of priority investment projects.

The policy process of decentralisation of responsibility in the water sector started already in 1991. The 1999 Water Law consolidated the potential for state and municipal ownership as well as the fully private ownership of water infrastructure facilities.

- Croatia

The main Croatian water legislation is the Water Resources Management Act (1995) and the Water Management Financing Act (2001) which have been amended during the past years mainly driven by the necessity of adjusting national laws with EU legislation. The former determines, among other issues, the institutional framework for water management activities, regulates the legal status of water and its ownership; and establishes a water agency, the Croatian Waters (Hrvatske Vode). Additionally it introduced the concept of managing water at the basin level. A requirement laid down in the Water Act is the preparation of development plans by the four water basins and by the city of Zagreb as an independent unit. One of the main objectives of these development plans is to specify the investment requirements to meet the water management objectives in each of the five basin levels (World Bank, 2003b). Priority is presently given to investments ensuring adequate water supply for population, while - and in contrast - water sanitation projects are attracting less attention because of the lack of funds (Mokos and Klakočer, 2004).

The Water Management Financing Act regulates policies associated with the financing of water management activities. A further important piece of legislation in the water management sector is the Municipal Service Act providing the basis for privatisation of the water supply and wastewater sector.

The current national legislation is not fully harmonised with the relevant EU legislation. The main deficit in transposing the legal framework is at the local authority level, as much of the legislation and administration at the state level is aligned with the EU legislation (ICPDR, 2004).

- FYR Macedonia

The 1998 Law on Water and some by-laws are the main pieces of legislation on water resource management. Overall responsibility of water management is given to the Ministry of Agriculture, Forestry and Water Economy. The Law on Water established rules and regulations regarding the management and control of water uses as well as issues of financing of water management activities. It furthermore includes a whole range of instruments and institutions to be established, including: the creation of a water fund aimed at financing water infrastructure; the establishment of public water management enterprises and water users’ association; and the introduction of the water effluent taxes according to the polluter pays principle. There is a clear lack of implementation of these requirements of modern water resource management into reality as, so far, only the Water Fund was launched (World Bank, 2003b).

A revision process of the Law on Water has recently started since parts of the law (f.e. the concept of an integrated approach of water management at the river basin has not been integrated in the law) were not in accordance with the relevant EU legislation.

- Romania

The key legal acts of water policy in Romania are the 1995 Water Management Strategy and Water Law from 1996 with its subsequent revisions and modifications. The strategy outlined the main directions of the water sector and has identified the implementation of the EU water related directives, particularly, the Water Framework Directive in Romania as one of its objectives. In 2000, an intensive legal process took place ensuring the approximation of the Romanian legislation to the EU directives. This process has been completed in the first half of 2004 when the Water Framework Directive has been transposed by the modification of the Water Law from 1996 including the river basin concept as the guiding approach for the management of water as well as the application of the polluter pays principle (ICPDR, 2004). The main tasks of overseeing water management policies is assigned to the Ministry of Water and Environmental Protection (MoWEP) which also controls the work of the National Administration Romanian Waters (NARW) and its eleven River Basin branches that are responsible for implementing water strategies, enforcement of water polices and regulations at the basin level and are the major regulatory units in the field of water management (Platon and Dulcu, 2004).

- Serbia and Montenegro

Water management is regulated at the level of the two constituent republics of the State Union Serbia and Montenegro, while very few issues remain regulated by the laws adopted at the former federal level (an example are drinking water quality standards). The current water legislation has several shortcomings hampering the effective management of water resources, including lack of clear allocation of responsibilities between different government levels/agencies, which sometimes adds to the problems with transboundary issues (World Bank, 2003a, and UNECE, 2002a). Water laws are in place in both republics⁴, even though they are outdated and mainly not in line with the EU directives. New laws (Law on Water and Law on Water Management Financing) are currently being prepared, which should introduce the approaches embodied in the EU legislation (ICPDR, 2004). Overall responsibility for water management at the state level lies with the Ministry of Agriculture and Water Management in Serbia, while Montenegro recently (2004) introduced a water agency. The Water Directorate of Serbia was formed by a resolution of the Serbian Parliament in 2002 but some problems have been encountered as the Directorate was not constituted within the Ministry of Agriculture and Water Management. However, it is seen as a priority to establish the Water Directorate as its objective is to provide the prerequisites for organised and synchronised activities in the reorganisation of water management respectively of the water sector (MAWM, 2003).

In 2002, the Water Master Plan for Serbia was approved presenting a strategic programme for water supply infrastructure investments for the period 2002-2012). Similarly, wastewater master plan was recently adopted in Montenegro, indicating high investment needs for the sector. Since 1990 there is a clear tendency to decentralise urban water services and nowadays municipalities are responsible for water service delivery. This approach is valid for both republics and a new policy was recently adopted in Montenegro as it introduced private public partnership in water utility management (World Bank, 2003b).

⁴ Serbian Law on Waters from 1991 with several subsequent modifications until 1996, and Montenegrin Water Law from 1995.

Summary

All countries in the region have recognised that steps have to be undertaken to develop and implement water legislation as a precondition for effectively responding to a range of major challenges they are facing in the area of water management. The revision of the legal frameworks and their alignment and harmonisation with EU policies are almost completed in the acceding countries of Bulgaria and Romania in contrast to BiH, FYRM and S&M where this process has only started some years ago. The delegation of responsibilities among different institutions and authorities – a requirement under the EU WFD - is in these countries unclear. Additionally, there is a lack of a clear division of responsibilities between the federal and republic/entity levels evidently hampering transboundary issues. Principles of good water management, such as managing of water at the river basin level, although anticipated within national legislation are not transposed and the enforcement is far away from a satisfactory. The user- and polluter pays principle are the foundation for water pricing but are not adhered to in reality. There is a lack of institutional capacity at national and local government level to address the broad challenges of legal reforms, in particular in the countries of the SAp; additional problem for all seven countries is the lack of sufficient funds for improving and extending the water infrastructure.

4. Water management institutions

The process of reforming national water policies and legislation must be accompanied by an institutional framework ensuring that the reforms are actually working in reality. Clear division of responsibilities and coordination between different institutions and the establishment of accountable and financially sound water utilities are of the utmost importance.

- Albania

At the national level, the National Water Committee consisting of representatives from various ministries has been set up with responsibility for water resource management. At the local level, the water management issues should be dealt with by water basin authorities. However, these agencies have not been established so far and therefore the limited success in implementation of water management issues is of no surprise (World Bank, 2003b).

In 2000, the Albanian Government started the decentralisation process by transferring responsibility for water supply and sanitation to the communes and municipalities. The striking problem is nowadays that the majority of water supply and sanitation infrastructure is in a very bad condition often beyond the point of cost-effective repairs (Rohde et al., 2004). There are 54 water supply utilities currently existing in Albania and their financial situation is not very promising considering that only around 18 percent of total water production is being paid for. Taking this low collection rate into account it is quite surprising that still 8 out of 54 water supply companies have a positive financial balance (Rohde et al., 2004, p.10). The first examples of involving the private sector in delivering water services happened in Albania (cities of Elbasan and Kavaja) and are supported by Kreditanstalt für Wiederaufbau (KfW). The World Bank is preparing similar strategies in several cities along the coast (KfW, 2005).

- Bosnia and Herzegovina

The Ministries of Agriculture, Forestry and Water Management (MoAFW) in the two entities are responsible for water management policies. Within the entity of the FBiH the

responsibility of executing water management is allocated to two Public Companies for Watershed Areas. One of them is the competent authority for the watershed of the Sava River and the other of the watershed of the Adriatic Sea. The companies are also responsible for the preparation of strategic decisions and planning as well as for investment decisions of water infrastructure measures.

The situation differs in RS as water management is highly centralised at the MoAFW. The Ministry itself and, to some degree, the Directorate for Waters within the MoAFW is responsible for water strategy and planning. Worthwhile to mention is that the Directorate for Waters – which is subordinated to the MoAFW - is responsible for the implementation of plans and enforcement of policies.

According to the Water Law, water and wastewater services can only be provided by public companies (Alic, 2004). Municipalities mainly own and control water utilities in BiH (Alic, 2004) but other forms of ownership are also possible as water utilities can be owned by the private and public sector (KfW, 2005).

- Bulgaria

As mentioned earlier the Council of Ministers and the Ministry of Environment and Water (MoEW) are responsible for water management at the national level, while the four basin directorates perform water management tasks at the basin level. The basin directorates have only limited financial and regulatory authority. However, other ministries have also been allocated some responsibilities concerning the investments of water infrastructure facilities owned or partially owned by the state. The Ministry of Regional Development and Public Works (MoRDPW) oversees any political decisions regarding investments and the ministry is also the owner of utilities in case they are owned by the state.

It is worthwhile highlighting the aspect of ownership of water utilities since out of 29 regional water utilities 13 are completely state owned while the remaining 16 are jointly owned by the state (51 percent of the shares) and municipalities (49 percent) (Bardaska, 2004). In addition there are 20 smaller municipal owned utilities in Bulgaria. In the case of municipal owned utilities the municipal major is responsible for their operation, construction and modernisation.

The water utilities are responsible for the provision of water services and they are setting their own water tariff on the basis of methodology developed at the national level. Private sector involvement did happen in the Bulgarian water sector in the past – although this process of private sector involvement was suspended in 2001 (Peneveska, 2003)- in the form of establishing Water Associations where managerial functions have been transferred to such Water Association, of which there were 4 in entire Bulgaria. Water associations are responsible for day-to-day management and investment decisions, while the control and the ownership remain in the municipal hands. The other form of private sector involvement is the concession for the operation and maintenance of water services in Sofia given to a private sector company owned jointly by an international consortium and the Municipality of Sofia.

- Croatia

The State Water Directorate (SWD) and Croatian Waters (Hrvatske Vode) are the two government institutions having direct responsibility for water management. The tasks of the former one are related to administrative issues and activities, while the latter one can be described as an implementing agency. SWD is also responsible for developing and coordinating large water supply and sanitation infrastructure investment programmes. Investments of national interests are under the control of the Ministry of Public Works,

Reconstruction and Construction (World Bank, 2003b). Municipal and county governments are the responsible institutions dealing with infrastructure programmes at the local level, which requires a clear and transparent division of tasks between various institutions responsible for water infrastructure planning.

Local Government Act of 2001 defines responsibilities of the local government and includes activities such as water supply and sewerage. Currently about 130 water utilities are providing water services and the majority of them are so called Municipal Public Corporations, i.e. public companies with communities holding the majority of shares. In smaller municipalities the water supply and sanitation services may also be operated by municipal departments. Under the Croatian law up to 49 percent of the shares of these utilities can be held by private companies, i.e. private sector involvement and operating concessions are possible. A concession contract on the BoT (Build Operate Transfer) basis was recently signed for the Zagreb wastewater treatment plant. This investment is co-financed by the EBRD and by the German Government via a loan provided by the German bank Kreditanstalt für Wiederaufbau (KfW).

- FYR Macedonia

The main authority responsible for water management is the Ministry of Agriculture, Forestry and Water Economy although there are four other ministries sharing some of the responsibilities of managing water. Planning of public water supply and sanitation infrastructure investments for municipalities falls under the authority of the Ministry of Transport. The diffusion of water management responsibilities between the various ministries impedes the adoption of an integrated approach (World Bank, 2003b).

The responsibility of water supply and sanitation services in municipalities is lying with the Municipal Public Enterprises. These enterprises are facing major challenges as collection rates of water tariffs are very low leading to a situation where they are unable to carry out the necessary maintenance work on the system. Furthermore, they should, at least in theory, be autonomous although the municipalities control them and nominate the majority of the members of the management boards (EBRD, 2001). However, reform proposals have been put forward in the Parliament to allow the private sector participation in the water sector (World Bank, 2003b).

The responsibility of water supply to farmers, i.e. irrigation, as well as the supply of bulk water to municipalities is assigned to the Public Water Management Enterprise and its 24 local offices. The plan was to have these local offices acting as autonomous water authorities within a water catchment area at a later stage, but the implementation of this reform process has been delayed. The World Bank tackles this problem as part of an overall project addressing institutional issues in water management (World Bank, 2003b).

- Romania

The publicly owned company National Administration Romanian Waters (NARW) is the authority responsible for the preparation of water management programmes, while its 11 branches are responsible for enforcing water legislation in the 11 river basins.

Public services, such as the supply of drinking water and wastewater disposal, are under the authority of local governments. Local governments are also in charge of preparing investment plans for public projects as they are the owners of the infrastructure. The administration of these assets is carried out by water utilities which are public companies owned by municipalities or by the counties they are serving.

Interesting to note is that the 1998 Law on Local Public Finance gave local authorities an increased fiscal autonomy, in particular when compared to the situation in other SEE countries.

- Serbia and Montenegro

Following the shift of competencies from former federal level to the republics, especially with the establishment of the state union in 2002, the role of the state union institutions in water management has shrunk to water issues in an international context. A rather centralised approach can still be found at the level of the two republics. In Serbia, water management is organised at the state level under the Ministry of Agriculture and Water Management, while at the level of the Autonomous Province of Vojvodina there is the Provincial Secretariat of Agriculture, Water Management, and Forestry. However, other ministries, such as Ministry for Science and Environmental Protection, Ministry of Urban Planning and Construction, Ministry of Mining and Energy, Ministry of Tourism and Services, Ministry of Justice, are also involved in water policies, in particular with regard to specific water-related functions. In 1996, Serbia Waters Management Company (WMPE) was set up to perform the water management function, with three water management centers according to river basins: the Sava, the Danube, and the Morava. This structure was changed when the new Vojvodina Waters company came into existence. Operational tasks are currently performed by 45 water management companies, under contractual arrangements with Serbia Waters WMPE (MAWM, 2003). In the area of communal water supply and sewerage, the tasks of system operation and maintenance are performed by a large number of water supply and sewerage public utilities (Mileusnic Vucic, 2005).

Overall responsibility for water management in Montenegro lies with the Ministry of Agriculture, Forestry and Water Resources, while other ministries and institutions, including recently (2004) established Water Directorate, also have various responsibilities.

Provision of water supply and sanitation services are under the control of municipalities, which are the founders and majority shareholders in public companies tasked with management of water supply and sanitation systems. However, the republics remain nominal owners of water sector infrastructure. In the case of Serbia, the public utilities are all working under the jurisdiction of the Ministry of State Governance and Local Self-governance. Conditions for the involvement of private sector are gradually being created, as for example in Montenegro where an attempt to launch public private partnerships in utility management has been made in the coastal region and the municipality of Cetinje. The project was financially supported by the German Government (World Bank, 2003b) but currently withdrawn because of the complexity involved in establishing such public private partnerships (KfW, 2005). Meanwhile, majority of public companies in both Serbia and Montenegro are meeting with serious operational and financial problems as infrastructure deteriorated due to lack of investment during the past one and a half decades, and as water tariffs remain rather low with poor collection rates.

Although the water management system is rather centralised in both republics, a whole range of ministries and other institutions are involved in various aspects of managing water resources and provision of water and wastewater services. Improved coordination and clearer division of tasks among them, i.e. further institutional reform is one of the most pressing needs.

Summary

The institutional context of water management is not consistent in the countries of the SEE region. It can often be found that a whole range of different institutions are somehow involved which may lead to the fragmentation of the political decision making process as clear responsibilities for water management issues have not been established. In addition, this situation may influence investment decisions and in particular the channelling of funds for such investments as decisions may be made at both the national and the local level. However, in all countries a move took place to delegate water service provision to local authorities, i.e. municipalities or regions.

5. Use of economic instruments in the water sector

The application of economic instruments in the field of environment and in particular water management has been advocated by many as an effective means of promoting the protection of the environment - internalising environmental concerns and impacts into economic actors' decisions. Water pricing – in accordance with the user pays principle - is thereby of central significance, as well as the use of other economic instruments, such as water abstraction taxes and water pollution taxes (also called trade effluent taxes). These instruments can encourage the adequate consumption of waters and can internalise the external costs water pollution entails. The latter are in line with the requirements of polluter pays principle – the foundation of all European environment policies, i.e. a requirement that the external costs of water pollution are borne not by the public but by the polluter.

The level and revenue generating effect of these instruments, in particular of user charge for water services, must be highlighted as very important in the context of SEE countries. A greater move towards full cost recovery in setting water prices can be found in many EU Member States as asked for by the EU WFD. However, the progress is rather limited in the SEE countries – often due to the affordability of concerns – where water prices are often lower than the cost of supply, offering some perverse incentives regarding the efficient use of water.

5.1 Water pricing

Although water tariffs in SEE countries have in recent years increased, the revenues collected by water utilities are regularly not sufficient to cover operating and maintenance costs as the tariffs are still set below cost recovery levels. For example, this situation prevails in BiH as the revenues would not cover annual expenses from utilities even if all water bills would have been paid (Alic, 2004).

Full financial cost recovery would furthermore require integration of a capital cost element into the setting of water tariff covering future investment costs. One of the main obstacles is the low collection rates present in all seven countries. Collection efficiency is rather low in all the countries with reported collection rates of around 50 percent and sometimes even lower as, for example, in Albania. Water leakage also carries financial implications as raw water costs and raw water treatment costs are accruing. The high rates of water leakages are driving the costs, but they are not covered.

Table 4 presents water tariffs of the SEE countries, which are only a snapshot of the situation as major differences in the actual sizes between municipalities within a country exist.

Table 4: Water tariffs applicable for households in SEE countries

Country	Water supply EUR/m ³	Wastewater services EUR/m ³
Albania (Durrës, 2003)	0.58	^(x)
BiH (range and Sarajevo, 2001)	0.05 – 0.46 and resp. 0.36	0.01 – 0.15 and resp. 0.15
BiH (Una-Sana region, 2003)	0.21 – 0.55 (average tariff for water supply and wastewater services)	
Bulgaria (range and Sofia, 2003)	0.1– 0.64 and resp. 0.33	0.06 – 0.31 and resp. 0.28 ^(xx)
Croatia (range and Zagreb, 2003)	0.09 – 0.9 and resp. 0.28	0.37 – 1.5 and resp. 0.56
FYRM (range and Skopje)	0.13 – 0.70 and resp. 0.24	included in water supply tariff (42 percent of the price, or 0.1 in Skopje)
Romania (Bucharest, 2003)	0.23	0.05
Serbia&Montenegro (Belgrade and Podgorica)	0.24 and 0.18 resp.	0.06 and 0.09 resp

Note: ^(x) a wastewater tariff was introduced only recently (Rohde, 2004); ^(xx) the Bulgarian tariff for wastewater services consists of a sewerage tariff and the tariff for treated wastewater. The rate of the latter can be set in accordance with the BOD content of the wastewater.

Source: Al – World Bank, 2004b; BiH (2001) – Acic, 2004; BiH (2003) – KfW, 2005; Bul – Bardaska, 2004; Cr – Croatian Waters - <http://www.voda.hr/cijene.html> ; FYRM – UNECE, 2002b, KfW, 2005, and <http://www.vodovod-skopje.com.mk/>; Ro – Platon and Dulcu, 2003; S&M - http://www.propisi.co.yu/novi/48h/BEOGRAD/41_4/48.htm and personal communication

The adoption of two different tariffs for water supply and wastewater services is very common, with water tariffs for enterprises being generally set at a higher level than the ones for households allowing cross-subsidisation.

Water tariffs have significantly increased in Albania while the wastewater tariffs have been introduced in the beginning of 2003. Furthermore, utilities announced additional tariff increases in the coming years aiming to recover all operation and maintenance costs by 2007 (Rohde et al., 2004).

During the 1990s many of the SEE countries faced high inflation rates and the water tariffs in FYRM have been frozen during these years in order not to further increase inflation. However, the actual costs of water supply and wastewater disposal services have increased during these years making the goal of cost recovery impossible to achieve. Although water tariffs in FYRM are similar to the tariffs of other SEE countries (see Table 4), affordability issue is a major concern for politicians as 50 percent of households and 60 percent of other users (such as hospitals and municipalities) were unable to pay their water bills in the beginning of 2000's (UNECE, 2002). However, it must be stressed that affordability concerns are of some relevance but that the lack of the willingness to pay for water services by households and other users which is reflected in the low collection efficiency is a much greater threat impairing the aim to achieve sustainable water management and to create economical viable water utilities. The low collection rate results in high payment arrears

enhancing the financial difficulties of water utilities and of the local communities responsible for providing water services. The calculation of an average water bill based on the current water tariffs and combined with average water consumption rates of families reveals that the widely accepted international limit of spending around 4 percent of disposable income for water services is often not met in SEE countries. One of the reasons for the low willingness of household to pay water bills is based on historical facts as water was seen as a 'free' good and not as an 'economic' good⁵. In addition, water pricing policies should not be seen as means to address social policy problems, in particular poverty related issues, as other policy instruments and measures can be designed in a better and more effective way to address and alleviate such issues.

The problem of affordability must be considered fully as it may influence investment decision. A recent analysis showed that the average Bulgarian water tariff of 0.51 EUR/m³ – broken down in the water supply tariff of 0.41 EUR/m³ and wastewater charge of 0.1 EUR/m³ - have been at the international affordability limit of 4 percent of an average household income (World Bank, 2004c, p. viii). In a further step the authors of this study calculated that the tariff for wastewater should be in the range of 0.29 EUR/m³ so that investment and operation costs would be covered leading to a combined tariff of around 0.7 EUR/m³. This example clarifies the affordability constraints, in particular in the context of how future water infrastructure investments could be financed.

The current major problem utilities - and therefore local governments as the owners/managers of the utilities - are facing is that user charges for the water services rendered do not cover the financial costs, as this is a clear requirement for any financially sustainable water supply and sanitation system. Further increases in water prices are required, but they must be accompanied with institutional reforms and in particular with improvements in the collection efficiency.

5.2 Water related taxes and environmental funds

Water abstraction taxes as well as water pollution /effluent taxes are in widespread use in the SEE countries, in particular when compared with the situation in the EU15 where water abstraction taxes are only being used by eight countries and effluent taxes by seven. Table 5 provides an overview of the widespread application of these economic instruments. Furthermore, the table lists the countries with environmental and or water funds. These funds are institutions that can be found in the majority of Central and Eastern European countries designed to channel public revenues earmarked for environmental (water) protection purposes.

Revenues from water related taxes are often fully or partly earmarked for environmental or water funds, as it is the case in Bulgaria, Croatia and Romania. A specific feature of the pollution charge system implemented in Bulgaria and Romania is that pollutant-specific charge rates are set for discharges within predefined limits, whereas the permit holder has to pay much higher rates, i.e. non-compliance fees or fines, for discharges exceeding these limits. Another feature of this scheme is that such charges are levied on quite a large number of pollutants (Speck and Özdemiroğlu, 2004). For example, far more than 60 different pollutants are subject to the pollution charge in Romania compared to the Danish waste water tax which is only levied on three pollutants. The down side of such a complex system of

⁵ The author wants to thank Vibeke Reckhard (Kreditanstalt für Wiederaufbau (KfW), Germany) and Alexandra Pres (Inwent, Germany) for indicating this issue.

charge setting is that it requires a proper, functional and effective monitoring system, as well as a proper enforcement policy. Furthermore, it can be expected that the administration and compliance costs will increase with the number of chargeable pollutants.

Table 5: Overview of water related taxes implemented in SEE countries

Country	Water quantity	Water quality	Environmental / water funds
Albania	WAC		
BiH	WMC (FBiH and RS)	WMC (FBiH and RS)	
Bulgaria	WAC	PC – ncf	Environmental fund
Croatia	WAC	PC	Environmental fund and water management fund
FYRM	WAC		Environmental fund and water fund
Romania	WAC	PC – ncf	Environmental fund and water fund
Serbia&Montenegro	WAC	PC	Environmental fund

Note: WAC – water abstraction charges; PC – pollution charge; ncf – non compliance fees/fines; WMC – water managing charges for exploitation and pollution; Albania – the legislative cleared the way for the introduction of abstraction charges. However, they have not been implemented as the rates have not been set (situation in 2002/2003: World Bank, 2003b). The Serbian Environmental Fund was founded in June 2005.

Source: Speck et al., 2001, Speck and Özdemiroğlu, 2004, Mileusnic Vucic, 2005, and OECD/EEA database on economic instruments <http://www2.oecd.org/ecoinst/queries/index.htm>

The extensive use of water related taxes does not say whether they are effective. A crucial criterion for an effective instrument is that its rate is set in such a way as to provide a real incentive for pollution reduction at source. This is significant as it determines investment decision. An analysis of the effectiveness of urban wastewater treatment policies in some EU Member States concludes that ‘*the main reason for the marked decline in gross industrial discharges in the Netherlands is that the levies have been effective in providing incentives to industries to reduce pollution at source, thereby reducing the need for public investment into wastewater treatment plants* (EEA, 2005)’. In other words, it is essential that the charge rates are high enough to provide such incentives. According to the available assessments for the SEE region, this objective is not achieved. For example, Croatian water pollution charge rates are reported to be too low to provide right incentives, and in addition, the already mentioned problems with the collection are present (World Bank, 2003c, p. 194).

A common problem is that the environmental effectiveness of pollution charge systems have been further diminished when there is a high inflation rate and the charge rates have not been indexed. This problem is also valid while setting the water tariffs. To overcome this problem Romania has recently adopted a policy allowing utilities to ask for an adjustment of the water tariffs if the inflation rate measured by the consumer price index exceeds three percent during a period of three months (Platon and Dulcu, 2004).

The revenue generating effect of the charge systems can be of some significance, in particular when the revenues are earmarked for environmental or water funds as they are used to act as the financial mechanism for environmental investment programme lacking funding. For

example, revenues from different economic instruments amounted to 55 percent of total income of the Croatian Water Management Fund (Mokos and Klakočer, 2004) and are used mainly for water infrastructure investments as drawn up by Hrvatske Vode in consultation with municipal companies. Such water fund did also exist in some of the EU15, notable in France and in the Netherlands. Revenues from water pollution taxes were used to co-finance wastewater treatment facilities. The Macedonian Water Fund is financed via revenues generated by water abstraction charges as well as by charges levied on the extraction of sand and gravel.

In addition to the economic instruments listed in Table 5 some of the SEE countries introduced some further instruments. In 1998 the Republika Srpska introduced a general water management charge with a charge base which is not related to water management issues as the charge is levied on gross salary and / or gross earnings from copyright and patent rights with a charge rate of 1.5 percent (Alic, 2004).

The Croatian system of water pricing is insofar interesting because the total water tariff consists of different components. First of all, water consumers have to pay the municipal service charge for water supply and sewerage which are set by water utilities and differ between them. These charges are subject to VAT. Four additional economic instruments are added to get the final water tariff: a water abstraction charge consisting of the water user charge and a concession charge; a water pollution charge – the water protection charge; and a charge for the development of infrastructure. The charge rates have not been increased for several years on the grounds of having a weak economy, the low purchasing power of economic actors as well as of low inflation rates (Mokos and Klakočer, 2004). Keeping charge rates and therefore the water tariff constant over some years will limit the financing as well as the incentive function of these instruments.

6. Investments and the water sector

6.1 Investment needs

The financial challenge of water resource management facing all countries with respect to water supply and sanitation was highlighted in the discussions related to the Millennium Development Goal (MDG) and the World Summit on Sustainable Development (WSSD). Another factor driving the need for water investments is the wish of the seven countries of the SEE region to join the EU. However, it should be kept in mind that apart from these political aspects, the improvement in the living conditions of the local residents is one of the main driving factors. Access to clean drinking water is seen as one of the crucial elements in efforts to eradicate poverty, and is also important for sustainable growth. Another important aspect is that environmental benefits from investment in water pollution abatement are often not restricted to the region where the project takes place. Other localities also benefit from such interventions, and this can be especially expected in the SEE region where transboundary issues are of great significance considering that ninety percent of the countries' territories are part of transboundary river basins.

The improvement of water and wastewater infrastructure in SEE countries will require huge investments, as the current status of the infrastructure is far from optimal. The starting point is slightly different compared to the situation in other emerging countries as substantial investment into the water sector has taken place between 1950 and 1980, resulting in relatively high connection rates for water supply and sewage – at least in the urban areas. In several SEE countries, the past 15 – 20 years were however characterised by the lack of funds

not only for new infrastructure, but also for the necessary repair and maintenance of the existing one.

Several assessment studies have been undertaken on the investment needs in the different SEE countries. A common point for all these studies is the estimate that the largest investments will be needed for water infrastructure projects during the coming decades. The main problem will be how to mobilise the necessary funds, given the fact that domestic resources are limited and that funds provided from international donors or private companies will indeed contribute to such investments, but will never be enough to cover a large share. For example, during the 1990s the domestic public sector contributed 65–70 percent, domestic private sector 5 percent, international donors 10–15 percent and international private companies 10–15 percent of financial sources for water investments throughout the world (World Water Council et al., 2003). These figures show that the involvement of the private sector has been rather limited and this fact is confirmed by the figures of the World Banks' Private Participation in Infrastructure (PPI) database revealing that the water sector only received 5 percent of total private investment in infrastructure between 1990 and 2002 (Baietti and Raymond, 2005). Furthermore, water infrastructure projects are also affected by the general decline in the provision of loans by international private investment and commercial bank. The reason for this rather low interest is the number of risks which are specific for the water sector. Baietti and Raymond summarise that 'These risks include high capital intensity, political pressure on tariffs, a frequently held conviction of water as a "free" good, deficient regulation, subsovereign risk and lack of subsovereigns' access to financing, poor condition and insufficient knowledge of networks and customer bases, and currency mismatch between revenues and financing sources (Baietti and Raymond, 2005, p.1).

The two acceding countries, Bulgaria and Romania, and the South-Eastern European countries that have negotiated Stabilisation and Association Agreements (SAAs) with the EU to bring their countries closer to EU standards are facing a challenge to raise the necessary funds to cover the investment costs required to achieving EU environmental compliance in the water sector.

The financing of large-scale water infrastructure was traditionally a task carried out by the public sector. It appears that the SEE countries face serious challenges to raise the required funds and it seems unlikely that investments can be met from public source alone within the anticipated timeframe. However, it can be expected that private sector investment will take place in the large urban areas as it is already happening in cities, such as Bucharest, Ploiesti, Sofia, and Zagreb.

It must be noted that the challenge of raising the required funds for environmental compliance with EU standards was well-known as the EU stressed from the beginning of accession negotiations that around 90 percent of the costs must be borne from the domestic resources expecting that around 5 percent of GDP has to be invested in the environmental field for many years to come covering environmental related expenditure. In 2000, total environmental expenditure in Romania and Bulgaria amounted to about 1.3 and 1.5 percent of GDP while this share was 0.7 percent in Croatia and around 0.1-0.3 percent of GDP should be allocated to finance environmental investments in S&M at the federal level (REC, 2003a)⁶.

The following section is an attempt to present estimates of the investment requirements of the seven SEE countries. As mentioned above environmental investment is partly driven by the

⁶ Comparable figures for the other four SEE countries are not available: either are environmental expenditures not reported (Albania) or environment is not seen as a national priority and allocations of resources is limited (BiH, FYRM).

EU accession process and therefore information and data regarding compliance with the so-called investment heavy directives is rather good for Bulgaria and Romania. Initial assessments for Croatia can also be found in the literature while the data for the other four SEE countries are not available to this detail. However, national priority investments have been done often initiated and carried out with the support of the World Bank⁷.

- Albania

Rohde et al. (2004) are referring in their paper to a survey of the World Bank, which concluded that the investment requirements for the water sector amounted to about 170 million US\$ per year for a period of up to 10 year. Worthwhile to mention is the fact that this sum corresponds to 4.6 percent of GDP of the year 2000 and it only includes water infrastructure investments.

- Bosnia and Herzegovina

The recently published World Bank report Bosnia and Herzegovina Infrastructure and Energy Strategy (2004a) estimates the priority investments needs for the period 2003-2007. These estimates are based on indicative goals for eight sectors including water supply and sanitation. The total sum amounts to 2,440 million USD, while investments into water supply and sanitation total adds up to 190 million USD. Initial estimates show that a total financial gap of 1,260 million USD and of 115 million USD regarding water infrastructure. The water related investment would almost double if lower priority sanitation projects would be included. These lower priority projects would require an additional funding in of approximately 170 million USD.

Large inflow of international donor funding of 210 million USD for improving the water infrastructure happened after the war. Initial estimates of bringing water services in line with the service level of EU Member States would be around 1 billion USD through the year 2030 (World Bank, 2003b).

Estimates of the Office of the High Representative and EU Special Representative reveal that the total investment sum in the water supply and sanitation sector will be much larger than the sums presented in the above mentioned World Bank strategy amounting to around 6.9 billion USD for achieving full compliance with all relevant EU standards (KfW, 2005).

- Bulgaria

A whole range of studies either assessing the total investment needed for EU compliance of only for specific heavy investment directives have been carried out in Bulgaria. The investments in water supply, nitrate, sewerage and wastewater are estimated to be in the range of 1.6-3.6 billion EUR (EBRD, 2001 based on figures produced by the World Bank). The figure presented by Bardaska (2004) using estimates of the Bulgarian Ministry of Regional Development and Public Works (MoRDPW) distinguishing between different infrastructure types is at the upper range of the World Bank estimate.

⁷ All these figures have to be considered preliminary and are often not comparable as they may be based on different methodologies. Furthermore, a variety of sources have been used to compile these sections of the report and the problem we encountered was not to have access to information and data but the reliability of them. In addition, water policy is currently undergoing major reform processes in all countries covered in this report and it could be therefore the case that some developments are not mentioned.

Table 6: Investment needs in Bulgaria

Purpose of investments	Investment required (million EUR)
Rehabilitation of water supply networks and decrease of water losses	1,726
Construction of new and completion of already started facilities	857
Construction of sewerage networks	562
Construction of wastewater treatment plants – phase I	325
Total	3,470

Source: Bardaska, 2004

Interesting to note is the EBRD finding that environmental investments will be a larger burden in Bulgaria as compared to the Czech Republic and Poland. This is obvious when the total burden of environmental investments is measured as a share of GDP, as the World Bank estimates that Bulgaria will be required to invest between 11-16 percent of 1997/98 GDP (as quoted in EBRD, 2001).

Compliance with the Urban Wastewater Treatment Directive (UWWTD – 91/271/EEC) is always seen as one of heavy investment directives. An analysis assessing the cost implications with regard to this directive has been carried out by the World Bank (World Bank, 2004c). It is estimated that full compliance with the requirement of the directive will be 2,894 million EUR. The report also discusses financial gap and suggest it could be reduced by adopting the least cost strategy (see for a detailed discussion: World Bank, 2004c).

- Croatia

Based on earlier reports estimating the investment and recurrent costs which are necessary to apply environmental standards in the new EU Member States the World Bank published an estimation of the costs Croatia will be facing to achieve the same standards (World Bank, 2003c). Table 7 shows the costs associated with the water sector.

Table 7: Estimates of investment needs – water and sanitation

Investments – water and wastewater	Investment costs (million EUR)
Settlements >15,000 p.e.	500-1,000
Settlements between 2,000 and 15,000 p.e.	750-1,000
Settlements below 2,000 p.e.	500
Connections to sewerage system	1,000 – 2,500
Public water supply:	600 - 1,200
Total	3,350 – 6,200

Note: p.e. – population equivalent

Source: World Bank, 2003c

The World Bank estimate of the total investment costs to achieve the EU environmental standards is in the range of 6.1 to 11.8 billion EUR which, meaning that the investments in the water sector will probably be accounting for more than 50 percent of total costs. The sheer magnitude of investment needs become apparent as it is computed that the capital expenditure would account for between 4 and 5 percent of GDP if the outlays would be spread over a 20

year period (World Bank, 2003c). The annual operating costs are being estimated to be 82.5 million EUR annually.

- FYR Macedonia

A new water master plan setting out a long-term strategy for the management and development of water resources was developed by the Water Fund for the Ministry of Agriculture, Forestry and Water Economy with support from the German Government. This plan should replace the water management plan of 1975. A national strategy for wastewater and solid waste management was developed under the EU PHARE transboundary cooperation programme. The strategy included priority investments mainly related to improving the sewerage system and the construction of wastewater treatment plants which would cost around 360 million EUR (UNECE, 2002b).

- Romania

There is also a need for large water infrastructure investments in Romania. The costs are expected to be in the range of around 9.6 billion USD (10.5 billion EUR), as published in a government strategy in 2001 (see Table 8).

Table 8: Investment in the water supply sector

Investments – urban vs. rural	Unit value (USD per inhabitant)	Investment costs (million USD)
Urban areas – total		4,170
drinking water stations	40	490
drinking water distribution and transporting	110	1,350
sewerage service/network	100	1,230
wastewater plants	90	1,100
Rural areas – total		5,400
drinkable water service	250	1,980
for sewerage	350	3,420
Total – urban and rural areas		9,570

Source: Ministry of Public Administration, National Strategy for the Development of Communal Public Services, Bucharest 20. August 2001; in: Platon and Dulcu, 2004

Interesting to note is that a later estimate (Table 9) published in 2003 reveals an even higher investment need of around 12.3 billion EUR as the unit values have been adjusted (see Table 9).

Table 9: Required investment in the water supply and wastewater service, by categories of localities in Romania

Investment	Specific value EUR/inhabitant	Total investment (billion EUR)
Urban areas total		6.2
Drinking water treatment plants	110	1.1
Water transport and distribution	130	1.3
Sewerage network	160	1.6
Wastewater treatment plants	220	2.2
Drinking water supply	235	1.9
Sewerage and treatment plants	528	4.2
Rural areas total		6.1
Total – urban and rural areas		12.3

Source: RWA (November 2003) The Strategy for the Sustainable Development of the public water supply and wastewater services – Romania 2025, presented at the National Forum on the Public Services of General Interest with a view to Romania’s integration in the European Union, Bucharest; in Speck and Özdemiroğlu, 2004

- Serbia and Montenegro

Detailed estimates (as for Romania, Bulgaria and Croatia) are not available for Serbia and Montenegro. However, different institutions published figures related to water sector investment programmes. A Water Master Plan for 2002-2012 was recently prepared for Serbia, putting together a water supply investment programme with a cost of 940 million EUR over the five years period (2002-2007) (UNECE, 2002a)⁸. In addition, to the above mentioned plan, the Ministry of Agriculture and Water Management which is the responsible institution for water management in rural areas prepared a priority list of 70 drinking water supply investment projects. An investment programme with regard to water pollution was also developed, where total investment costs of priority projects in the period 2002 – 2007 were estimated at 484 million EUR.⁹

Some estimates of investments for improving and extending the current water supply network in Montenegro can be found in the UNECE Environmental Performance Review (UNECE, 2002a). The total estimated costs amount to 180 million EUR, of which 20 million EUR would be required for some priority projects. More detailed assessment of investment needs for the sewage systems and wastewater treatment became available following the preparation of the wastewater master plans¹⁰ with the assistance of European Agency for Reconstruction (CARDS programme). Investment needs for wastewater in the coastal area alone (home to about 25% of country’s population and the main tourist region) were estimated at 280 million EUR over the course of 25 years, which amounts to 11.2 million or close to 0.8% of 2003 GDP annually.

⁸ The Water Master Plan is also discussed in the World Bank report (World Bank, 2003b). However, the total investment costs are estimated to be 947 million DM over the five years period. Unfortunately, we haven’t been able to check which figure is correct, i.e. the amount expressed in EUR or in DM.

⁹ An estimate of the total infrastructure investment needs in Serbia has been carried out by the European Agency for Reconstruction (EAR). The EAR reckons that a total sum of around 1.8 billion EUR is required and around two thirds of this amount is needed in the water supply, sanitation and waste sector (KfW, 2005). This amount is rather low compared to the figures of the Water Master Plan and also compared to the investment needs in other SEE countries.

¹⁰ Wastewater Master Plan for Coastal Region was prepared in 2003, while Master Plan for Central and Northern Regions is in the final stages of preparation.

All these estimates are only revealing some aspects of the total investment burden Serbia&Montenegro is facing considering that investments for implementing EU Directives are estimated to be in the area of 11 billion EUR (ICPDR, 2004).

Summary

As expected, the most detailed assessments of future investment costs in the water sector are to be found in the two acceding countries (Bulgaria and Romania). Unfortunately, such comprehensive analyses have not been carried out in the other five SEE countries, even though national sectoral strategies and plans (with cost estimates) are increasingly being prepared. The World Bank applied the widely used approach of estimating these investment outlays to Croatia. Several other institutions have in the meantime compiled priority lists of infrastructure projects in the water sector or are in the process of doing it (for example, REC, 2003b, and ICPDR, 2004)¹¹. However, these lists are focusing mainly on investments aiming to reduce water pollution (i.e. public as well as private wastewater treatment plants) and the geographical borders are also different. Furthermore, the determination of priority projects are based on different prioritisation criteria making it difficult to compare the findings of the published studies although detailed information has been compiled for carrying out these prioritisation exercises. It should be mentioned that investments improving the situation regarding water supply services are not included in these studies therefore providing a blurred picture of the total investment costs required in the water sector. The estimates presented in Tables 6-9 show that these investment costs can account for up to 50 percent of total required investments (see for example the estimates for Bulgaria in Table 6).

6.2 Funding opportunities for water investments

To make a comprehensive overview of projects undertaken in the water supply and sanitation sector of SEE countries is rather difficult. Many international institutions, organisations and international financial institutions (IFIs), such as the EC, DABLAS Task Force, ICPDR, World Bank, the European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), Kreditanstalt für Wiederaufbau (KfW), etc., as well as governmental websites provide an overview of ongoing projects. This information cannot be described as comprehensive, since it is scattered and often incomplete. Table A3 in the Annex provides an overview of infrastructure investment projects in the SEE region financially supported by international organisations and the German KfW bank which carries out work on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ)¹². A further major independent financial organisation providing grants to developing countries as well as countries in transition is the Global Environment Facility (GEF). One of the six GEF focus areas is 'international waters'. The Black Sea/Danube Basin Strategic Partnership Program funded by GEF addresses the most pressing problem of water quality management, in particular aimed to nutrient reduction (see Table A4 in the Annex for an overview of GEF funded projects in the countries of South East Europe). In addition to the GEF projects listed

¹¹ See also information provided at the website of the international assistance for the reconstruction and development of South East Europe supported by the joint office of the European Commission/World Bank at www.seerecon.org; the DABLAS Task Force at www.europa.eu.int/comm/environment/enlarg/dablas_en.htm; the Danube Regional Investment Support Facility <http://www.danube-isf.com/index.htm> (website accessed on 13 October 2005) a project supported under the EU CARDS programme (the information on this website are rather limited in terms of a list of environmental investments projects although the project has been launched in January 2004).

¹² KfW finances investment projects but also consulting services, i.e. technical assistance programmes aiming to build up human and institutional capacity in the beneficiary countries. Some of the projects listed in the annex are such consulting services.

in the Table A.4 in the Annex, which are mainly focused on capacity building activities, the World Bank-GEF Investment Fund supports investment projects in the Black Sea/Danube Basin. The overall budget of these investment projects amounts to 70 million USD disbursed in three tranches. The main aim of the supported investment projects is to remediate and mitigate nutrient pollution in municipalities, industry and agriculture, as well as policy and legal reform and capacity building for enhanced monitoring and enforcement (see for more information www.thegef.org).

The GEF is also a supporter of the UNEP Mediterranean Action Plan (MAP). Four of the SEE countries (Albania, Bosnia and Herzegovina, Croatia, Serbia and Montenegro) are parties to the MAP and also contracting parties to the Barcelona Convention and its Protocols. The MAP must be seen in the context of the Barcelona Convention as a tool to meet the challenges of protecting the marine and coastal environment while boosting regional and national plans to achieve sustainable development (<http://www.unepmap.org/home.asp>).

The main funding partner is the European Commission through various financial instruments. The Instrument for Structural Policies for Pre-Accession (ISPA) supports candidate countries in the preparation for EU accession providing assistance for infrastructure projects in the fields of transport and environment. After the 2004 EU enlargement, Bulgaria and Romania became the main beneficiary countries, while Croatia became eligible for ISPA funds since 2005. During the period 2004-2006 1,528 million EUR are available for the three countries, with 440.5 million EUR allocated for Bulgaria, 1,027.9 million EUR for Romania and 60 million EUR for Croatia. The projects eligible for financial assistance under the ISPA programme can be supported by a grant of up to 75 percent of the eligible public expenditure (up to 85 percent in exceptional cases). However, the actual grants are regularly lower and depend on criteria such as the allocation of matching funds and the application of the polluter pays principle. Unfortunately, the absorption rate of ISPA funds is rather low because of bureaucratic problems within the beneficiary countries¹³ as well as problems of raising the matching funds. This is a particular problem in Romania as the municipalities are responsible for funding water infrastructure projects since financial autonomy of local government was established in 1999. This means that the central government does not provide any funds for infrastructure projects at the local level and are not contributing to ISPA co-financing. To overcome the problem of raising matching funds by local authorities, Romanian municipalities issued municipal bonds amounting to around 600 billion RoL (about 18 million EUR) to cover investment costs in 2002. The Romanian Ministry of Finance established a guarantee fund hedging them (Platon and Dulcu, 2004). Sources for co-financing of ISPA grants are provided by IFIs, such as EBRD and EIB. Another form of financial support for municipalities, also aimed at overcoming (at least partially) the lack of creditworthiness of municipalities is the provision of municipal funds by the World Bank aiming to develop regional (multi-municipal) companies. However, World Bank assistance to water management issues is described as '*quite limited in scope to date* (World Bank, 2003a, p.21)' with the main focus on improving the delivery of water services. Furthermore, an intention of developing public private partnerships opportunities in water management is often associated with these financial assistance programmes but so far the success in establishing public private partnerships was only moderate and took place only in some of the major cities and capitals in the SEE region. However it is important to state that public private partnerships are not a direct financing source but rather a financing strategy. The intention behind this concept is to transfer part of the responsibility for infrastructure investment projects as well as for the

¹³ Bardaska (2004) reports that 40 million EUR allocated for two sanitation infrastructure projects have been lost due to the failure of reaching an agreement on project terms and conditions.

management of the completed projects to private partners as it is expected that some advantages are associated with this transfer. Advantages of private public partnerships may occur in different areas: increase in cost efficiency through streamlined management practices, increase in the collection efficiency of water bills, technical as well as operational and managerial skills, and the provisions of additional funds for the infrastructure projects (PERSGA/UNEP, 2005). There is not only one kind of public private partnership as the allocation of responsibilities between the private and the public sector can take different forms (see for a more detailed discussion on the forms of public private partnerships: UNEP, 2004 or OECD, 2003).

The other SEE countries are also eligible for EU financial support under the CARDS assistance programme (Community Assistance for Reconstruction, Development and Stabilisation). The EU committed a total of 4.65 billion EUR to the region between 2000 and 2006 and during the first four years (2000-2004) 113 million EUR have been used for supporting the development of environmental policy and for infrastructure projects. One of the main focuses of the CARDS programme is the support of regional projects. The funds provided under the CARDS programme regarding assistance to water resource management have been rather modest so far.

Regional projects addressing transboundary water issues are not necessarily to the forefront in national policies at the current moment although projects and innovative approaches addressing such issues can be found in the SEE region.

The example of the Lake Ohrid as a bilateral framework for co-operation in the management and use of transboundary rivers and lakes (agreement on transboundary project involving Albania and FYRM was signed in 1996) is well-known and can certainly serve as an example of such co-operation. Following the success of this agreement and considering that Lake Ohrid's watershed is influenced by the water quality of Lake Prespa, the cooperation extended to include Greece, and an agreement between the three countries (Albania, FYRM and Greece) was signed in 2000 on protecting Lake Prespa and the surrounding. German financial assistance to some of the major towns in this area (Pogradec and Struga) to construct water supply and wastewater services further improved the situation.

One of the main transboundary problems is the sharing of water between countries, in particular in the context of water shortages. Interesting to note is the fact that the water use in upper riparian countries is often non-consumptive as compared to lower riparian countries, such as FYRM, Albania and Bulgaria, which are using large amounts of water for irrigation. The 1996 water sharing agreement between Bulgaria and Greece on the Nestos River must be characterised as an example of solving potential transboundary water conflicts in this area.

A further example of successful programme addressing transboundary cooperation in water management in South Eastern Europe is the Danube River Protection Convention of 1994 committing the riparian countries to coordinated management of water resources. To coordinate work to be carried out under the Convention the International Commission for the Protection of the Danube River (ICPDR) was founded. The work of the ICPDR so far can be described as a success considering that the establishment of a Sava Commission in 2005 is based on the ICPDR approach. The Sava River Basin, a sub basin of the Danube river, covers areas in S&M, BiH, Croatia and Slovenia and is facing several transboundary challenges including the lack of coordination on environmental protection of the river. However, the first priority of the Sava Initiative which was initially launched by the Stability Pact in 2001 with the aim to address and overcome these challenges is to restore and expand navigation on the river which is still impeded as a consequence of the war.

The Baia Mare Cyanide spill in Romania in 2000 was probably the most striking example of the significance of transboundary water management cooperation. This disaster demonstrated the special feature of water as a common asset as the environmental pollution originating from Romania spread all over the Tisza basin affecting the water quality of the river in lower riparian countries dramatically. Partly as a consequence of this accident the five countries sharing the river basin (Hungary, Romania, Serbia and Montenegro, Slovakia and Ukraine) signed a memorandum of understanding ‘Towards a River Basin Management Plan for the Tisza river supporting sustainable development of the region’ in December 2004. This initiative is fully embedded in the work of the ICPDR as the main institution to provide transboundary water management cooperation in the Danube River Basin in which the Tisza Basin is the largest sub-basin.

6.3 Challenges ahead

All countries in the SEE region are facing the same formidable challenge as the investment costs in the water and sanitation sector are huge. This is especially visible as the acceding countries are struggling to achieve EU environmental compliance in due course, and as the other countries in the SEE region are striving to upgrade conditions and bring them closer to EU standards.

One of the main challenges of the countries is to raise the necessary funds for implementing investment projects. The limited availability of domestic funds is the main bottleneck as it can be seen in Romania where the construction of 31 wastewater treatment plants has been stopped as funds are missing for completion (Platon and Dulcu, 2004). Furthermore, this overview paper reveals that the current water pricing regimes implemented in all countries do not provide for coverage of operation and maintenance costs of utilities, because the water tariffs are too low and the collection efficiency is very poor. On the other hand, a rapid increase in water tariffs is politically and economically not viable because of affordability issues. An interesting result is provided by the World Bank analytical work which estimated that water bills would have to be increased dramatically – by at least 200 percent for urban households and by at least 400 percent for rural households - to meet EU water related directives in Bulgaria (World Bank, 2003a). These figures must be treated with some caution but nevertheless they are worthy to note as an indication of the potential ranges of such increases. This result is remarkable in another sense too, as it clearly shows the differences in conditions between urban and rural areas. It should also be kept in mind in this context that it can be expected – as is already happening – that public private partnerships are taking part in urban, but not in rural infrastructure schemes. As discussed above, the first examples of public private partnerships can be found in SEE countries. However, the overall experience with such partnerships is repeatedly ambiguous as disclosed by the Camdessus Group: ‘*The introduction of private operators in a country that has no experience in this matter is a long and difficult process. Compared with other types of infrastructure, the water sector has been the least attractive to private investors, and the sums involved have been the smallest. Only 3% of the population of poor or emerging countries is now served by operators that are fully or partially private*’ (World Water Council et al., 2003, p. 7). This report points out that private international investment is more geared towards energy, transport and telecommunication than to water. Reasons for the lack of the private sector interest are manifold as ‘*the private sector does not generally find investment in water infrastructure an attractive proposition because the risks involved are too great, pay-back periods are too long, and many projects are financially not viable in the private sector*’ (SIWI, 2004). Furthermore, the findings of the ‘Seminar on Financing Water Infrastructure’ which took part during the

World Water Week in Stockholm in 2004 are also of relevance in the context of the situation in SEE countries: *‘Many water projects, especially those serving poorer communities, are not suitable for private financing. There will be a continuing need for a high level of public investment in some areas of water infrastructure, but it is important to create conditions that leverage as much private sector support as possible. The Multilateral Development Banks (MDBs) have an important role to play through their loans, credit enhancement mechanisms and other facilities (SIWI, 2004)’*. When discussing the potential of public private partnerships in the water sector it may also be considered that the pool of potential international water operators has shrunk and is rather small as this economic sector experienced increased merger activities during the recent years. This process is insofar of significance as the therefore limited human and financial capacities of the water operators allow to manage only a limited number of projects (OECD, 2003).

The problem of raising not enough resources through water pricing regimes brings a dilemma for the countries that have to cope not only with the actual investment into infrastructure, but also maintenance costs. This is increasingly realised in countries such as FYRM and Serbia and Montenegro, where the lack of resources combined with the low collection rate of water bills impedes proper maintenance of the existing infrastructure. A possible solution of this problem is the use of output-based aid (OBA) as practised by the World Bank Group in countries, such as Cambodia, the Philippines and Chile. The aim of the OBA strategy is to use explicit performance-based subsidies to support the delivery of basic services, such as water and sanitation, where policy concerns justify public funds to complement or replace water tariffs paid by households¹⁴. Such an approach could initiate further public private partnerships in the water sector.

This rather novel approach could solve some of the problems highlighted as it can close the gap between water tariffs set because of affordability reasons and tariffs based on cost recovery principles. However, this approach must be subject to clearly defined rules as the scheme links the payment of subsidies to the outputs delivered. An intention of this subsidy scheme is to create opportunities for mobilising private financing (see for more detailed discussion: Marin, 2002, and Baietti and Raymond, 2005).

The dilemma of securing financial sustainability of water investments is regularly be seen as one of the greatest challenge in this context. Interesting to note is the fact that not only the countries where the water investments takes place but also potential donors – foreign governments, IFIs and private companies – are being aware of this problem. This was a reason that KfW developed a concept which this problems directly addresses and reduces the risk of failing.

Box 1: The Open and Phased Programmes in South-Eastern Europe – developed by KfW¹⁵

Background

Experience with water projects in South Eastern Europe has been very mixed. One of the greatest challenges has been to secure financial sustainability of new investments. The financial situation of most water utilities is so weak that they hardly cover their operating expenses, leaving alone systematic maintenance or replacement of assets. Traditional approaches of donors to strengthen financial capacities of water utilities such as management support and creating financially viable water associations have failed if they were not backed by the management of water utilities and municipalities. Furthermore, incentives of donors

¹⁴ See for more information on OBA: the website of The Global Partnership of Output-Based Aid’: <http://www.gpoba.org/index.asp>.

¹⁵ We want to thank Miss Vibeke Reckhard (KfW) for providing this information.

for financial improvements decrease significantly once financing contracts are concluded and construction works under way. Given the significant risk for the sustainable operation of financed water supply and sewerage systems, donors began to ask whether funds have been spent in the most efficient way or whether better ways could be found to increase the impact of investments. Open and phased programmes might be one answer to the problem.

The Concept of Open and Phased Programmes

Competition is at the heart of Open and Phased programmes. Municipalities need to compete for funds in several phases on the basis of transparent selection criteria. These criteria aim at improving the financial performance of water utilities and include targets regarding billing and collection efficiency, maintenance and tariff levels. Management support is financed to support water utilities in achieving the selection criteria. An example of these selection criteria is included in Table A5 in the Annex.

Open and Phased Programmes planned in Macedonia and Serbia include two phases; further phases might follow however if the programmes show positive results. Those municipalities that achieve the selection criteria for phase I, are able to take a small loan, e.g. EUR 50 per house connection, to reduce primarily administrative losses. In phase I the procurement and installation of bulk and house water meters is therefore of paramount importance, complemented by acquiring repair material. If the municipalities implement the measures of phase I successfully and meet the selection criteria for phase II, they will be able to take a bigger loan to rehabilitate their water supply systems including the extension of physical facilities if necessary and to adjust assets to increase energy efficiency. Those municipalities that do not fulfil the selection criteria will either not take part in the programme or drop out after the first phase. It is hoped that via this concept funds will be channelled to those municipalities that are most capable of operating and maintaining the investments long-term and thereby creating the greatest impact. Table A6 in the Annex includes a schematic graph of the concept.

Outlook

Until now, the concept has not been implemented. Restrictive laws regarding loan-financed infrastructure investments in many South Eastern countries as well as the lack of support by central institutions might hamper seriously its implementation. Even though open and phased programmes are one of the most promising ways to achieve an impact long-term, it remains to be seen whether its implementation prove this assumption to be right.

Source: Reckhard, 2006

7. Summary

This overview of the situation in the seven South-Eastern European countries illustrates that major efforts in water resource management at the national level but also at the transboundary level have to be undertaken in the coming years. Progress has been made in the context of adapting water legislation and policies to international practices as well as with reforming water management institutions. The achieved progress differs depending by and large on the process of joining the EU. This brings Bulgaria and Romania to the forefront as both countries adopted water management legislation consistent with EU requirements; nevertheless they are still facing some challenges in the implementation of the new policies and legislation, in particular at the regional and local level. Croatia also made some progress and is ahead in terms of the process of developing an appropriate institutional framework for modern water management compared to the other four SEE countries. All countries are still in the phase of allocating responsibilities to the different institutional levels, which is important for effective water resource management as well as the reinforcing the role of river basin

authorities. One of the most common obstacles found in all countries is a lack of institutional capacities. Strengthening the institutional framework as well as reforming water policies should be accompanied with investments into water infrastructure as the World Bank states: “*Capacity building*” without investment does not often accomplish much (World Bank, 2003, p. 22)’.

All countries are standing in front of huge investment needs in all water related fields including water supply and sanitation, irrigation and flood control. Interesting to remind is that the whole region will benefit from national investment programmes, as ninety percent of the countries’ territories are part of transboundary river basins. But this also means that further efforts have to be undertaken by the countries to make the legal agreements more effective and to establish new ones (see BMU, 2004 for a more detailed analysis).

Apart from the above mentioned challenges, the countries are confronted with huge investments needs as the water infrastructure was neglected and excessively depreciated during the past decades due to the lack of maintenance. On the other hand, lack of proper economic incentives either in terms of adequate water tariffs or water effluent taxes, coupled with low collection efficiency, decreases the ability to generate the required funds. In addition, investments are required to bring the water sector in accordance to the relevant EU directives and legislation. It is decisive to stress the importance of adequate economic incentives as studies have demonstrated that they can reduce the need of investing in additional public sewage treatment capacity as water effluent taxes can reduce effluents at source (EEA, 2005). Probably one of the best examples supporting this hypothesis is the situation in the Netherlands where pre-treatment activities of industries can be found as a consequence of having relatively higher effluent tax rates so that 40 percent less public sewage treatment plant capacity has been constructed as compared to Denmark. As discussed earlier, the majority of SEE countries are making use of such water effluent taxes. However, the tax and charge rates are not adequate to provide industries with the incentives of reducing pollution at source, since they are initially set at a low level and are not regularly increased over the time (meaning that the real rates have been further diminished). The application of a wide choice of economic instruments in the water sector alone will not be sufficient to overcome these problems. Economic instruments and the improvement of the water pricing schemes, in particular with regard to increasing the collection rates of water bills, must be embedded in a structural and institutional reform process. In addition, public private partnerships involving international water operators are a financial strategy already applied with some success in SEE countries but which will not be replacing the need for the involvement of the public sector in providing water services: ‘*Public-Private Partnerships are not the panacea that some might claim* (OECD, 2003, p. 6)’. This statement is clearly supported by the findings recently published in a new World Bank report analysing the development of infrastructure in Latin America and the Caribbean (LAC) (Fay and Morrison, 2005). It can probably be concluded that the four key messages of this World Bank report – although not analysed in detail - have some validity for the situation in SEE countries, in particular, with regard that ‘*Governments remain at the heart of the infrastructure challenge* (Fay and Morrison, 2005, p. i)’. The private sector is needed in LAC – as it is undoubtedly the case in the SEE region – but it will involve serious efforts by Governments (see for a detailed discussion: Fay and Morrison, 2005).

Other features influencing the implementation of the UWWTD are analysed in the EEA study where the authors are coming up with interesting results also of relevance for the SEE countries: the implementation of this piece of legislation can be distorted when institutional responsibilities are shared between municipalities and water basin authorities. Although

international support schemes – either provided by the EC, IFIs or foreign governments - are important in this phase of economic development of SEE countries they can also lead to some problems of over-investments in wastewater treatment capacity.

Our analysis highlights that the efforts of improving the situation concerning water supply and sanitation in the countries of the SEE region are generally driven by the political process and wish of EU accession, and in particular by the political goal to comply with EU legislation and criteria set out in the relevant directives. That is to say that the financing needs in the water sector are guided by political contemplations instead of environmental considerations. It is not questioned what and whether the other financing options are available to reach the same environmental quality objectives as the ones laid down in the EU directives. For example, reports questioning the requirements and approaches set by the UWWTD are rare. However, an Irish study assessing recent water investments carried out under the Cohesion Fund by applying a Cost Benefit Analysis (CBA) methodology found that *'most of the waste water schemes appear to have been poor value'* and that *'...our results for waste water projects are less than ideal'* (Lawlor and McCarthy, 2004, p.7). However, the authors confine their findings - at least partly - as they faced severe problems with valuing the environmental benefits of these schemes fully due to the lack of information and environmental data. Nevertheless their main findings can be of some relevance for the future development of the water sector in the SEE region: *'The water investment programme includes what might be termed optional and mandated elements: Ireland was bound over this period by various EU Directives, notably the Urban Waste Water Directive, which prescribes certain treatment levels. Cost-benefit analysis is strictly speaking irrelevant where compliance is mandatory. But our results suggest that projects designed to comply with Directives may not be achieving hurdle rates of return, which raises questions about the Directives themselves. Specifically, our results suggest that better projects, within the water sector, may have to be foregone in order to provide resources for lower-yielding but mandatory schemes'* (Lawlor and McCarthy, 2004, p.12).

In addition, studies have been carried out in other countries analysing in particular the funding implications for compliance with EU legislation. One of these studies supported by the World Bank *'shows clearly that an approach based solely on specifying effluent control standards and corresponding treatment technologies for various sources of pollution is extremely expensive relative to the amount of environmental improvement achieved. Applying least cost solution for meeting specific water quality standards in the Odra river costs significantly less. Adopting a least cost strategy for meeting specific water quality objectives therefore offers great potential for both reducing compliance costs in the interim period and accelerating the environmental benefits that will result'* (Kindler et al. 1998, p. 283). Furthermore, the results of this analysis reveal that least cost water quality management strategies can be an attractive option but may require a temporary modification of the water quality regulations. However, this modification with regard to easing the stringent emission standards must be seen in the context that environmental considerations, i.e. the water quality in the rivers, are still observed and are conforming to the adopted water quality requirements.

A rather detailed analysis of the financial implications of complying with the requirements of the UWWTD was carried out by the World Bank in Bulgaria (World Bank, 2004c). This analysis is again based on a least cost strategy and undoubtedly shows that the financial gap has been reduced as compared to a full cost implementation schedule of the UWWTD (see Section 6.1). However, it has to be stated that the analysed deflection from the anticipated full cost implementation option is still in line with the EU Directive. This least cost strategy option does not connect all households to wastewater treatment plants (secondary treatment)

but instead they will rely on septic tanks (World Bank, 2004c, p. 29) as this approach can achieve the same level of environmental protection.

These last discussed studies demonstrate that the financing of water supply and sanitation services should not necessarily be seen only in the context of simply achieving full compliance with EU legislation as this option is often the expensive one. Policy makers in SEE countries may assess other options of investing into water infrastructure that could be reaching the same environmental quality objectives. These options may be cheaper which is of central significance for the SEE countries as domestic and international resources are rather limited as our analysis showed.

Endnote

This report is based on secondary literature published either by national governments of the SEE region or on reports of international organisations, such as the European Commission, World Bank, etc. or on other – accessible and available - reports. Data on the situation concerning water policies in Kosovo (territory under interim UN administration) is not readily available and therefore it was not possible to analyse the situation there. Furthermore it must be stated that water policies and water management issues in all South-Eastern European Countries are currently in a transition process meaning that they are reviewed and revised accordingly. Therefore some of the findings of this report may be no more completely accurate although we have searched for the latest available information. In addition, the participants of the ‘Roundtable on Trans-boundary Water Management’ - part of the ‘Petersberg Process Phase II - Protection and Sustainable Use of Trans-boundary Waters in South-Eastern Europe’ held in Berlin, December 5th to 7th, 2005 – have been asked to review the draft report and provide supplementary information. All information received during this phase has been incorporated into the final report.

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Annex

Table A1: Status of Ratification of the Water Convention and the two Protocols (Protocol on Water and Health and Protocol on Civil Liability) in South East Europe

	Water Convention		Protocol on Water and Health		Protocol on Civil Liability	
	Signed	Ratified ^(x)	Signed	Ratified ^(x)	Signed	Ratified ^(x)
Albania	X	X	X	X		
BiH ^(xx)					X	
Bulgaria	X	X	X		X	
Croatia		X	X			
FYRM						
Romania	X	X	X	X	X	
Serbia&Montenegro						

Note: ^(x) Ratification, acceptance, approval or accession; ^(xx) BiH is an observer to the Water Convention

- Water Convention (The Convention of the Protection and Use of Transboundary Watercourses and International Lakes) – was adopted in Helsinki on 17 March 1992 and entered into force on 6 October 1996. The amendment of the Convention was adopted on 28 November 2003. However, the amendments did not come into force as only two countries have ratified so far.
- Protocol on Water and Health – was adopted in London on 17 June 1999 and entered into force on 4 August 2005.
- Protocol on Civil Liability (Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters) – was adopted in Kiev on 21 May 2003.

Source: <http://www.unece.org/env/water/status/legal.htm> (accessed October 10, 2005)

Table A2: Overview on bilateral and multilateral agreements on transboundary waters in South East Europe

- Agreement between the Government of the Federal People's Republic of Yugoslavia and the Government of the People's Republic of Albania concerning water economy questions – signed in Belgrade on 5 December 1956 and entered into force 6 August 1957 (river basin: Danube, Drin)
- Agreement concerning water economy questions between the Government of the Federal People's Republic of Yugoslavia and the Government of the People's Republic of Bulgaria – signed in Sofia on 4 April 1958 and entered into force 29 December 1959 (river basin: Danube, Struma)
- Agreement between the Federal People's Republic of Yugoslavia and the Kingdom of Greece concerning hydro-economic questions - signed in Athens on 18 June 1959 and entered 1 April 1960 (river basin: Lake Prespar, Vardar, and Drin/Seman)
- Agreement on cooperation between the Government of the People's Republic of Bulgaria and the Kingdom of Greece concerning the utilization of the waters of the rivers crossing the two countries - signed in Athens on 9 July 1964 and entered into force the same date (river basin: Maritsa, Nestos, and Struma)
- Agreement on cooperation between the Government of the People's Republic of Bulgaria and the Republic of Turkey concerning cooperation in the use of waters of rivers flowing through the territory of both countries - signed in Istanbul on 23

- October 1968 and ratified 28 November 1968 (river basin: Maritsa, Rezvaya, and Veleka)
- Agreement concerning the study of the overall improvement of the Axios/Vardar basin – signed in Belgrade on 12 June 1970 (Yugoslavia and Greece) (river basin: Vardar)
 - Agreement concerning the Joint Construction of the Stinca-Costesti Hyrdualic Engineering Scheme on the River Prut and the establishment of the conditions for its operation - signed 16 September 1971 and entered into force 15 March 1973 Republic of Moldova and Romania) (river basin: Danube)
 - Agreement between the Government of Romania and the Government of the Union of Soviet Socialist Republics concerning cooperation in the field of transboundary waters – signed in Moscow on 9 April 1986 (contracting parties: Republic of Moldova and Romania) (river basin: Danube)
 - Convention between the Government of Romania and the Federal Executive Council of the Assembly of Yugoslavia concerning the exploitation and maintenance of the hydro-energy and navigation systems Iron Gate I and Iron Gate II on the Danube River - signed in Belgrade on 22 May 1987 and entered into force 27 August 1987 (river basin: Danube)
 - Agreement between the Government of Romania and the Federal Executive Council of the Assembly of Yugoslavia concerning the further use of the hydro-energy potential of the Danube - signed in Belgrade on 22 May 1987 and entered into force 27 August 1987 (river basin: Danube)
 - Agreement between the Government of Croatia and the Government of the Republic of Hungary on water management relations – signed in Pecs on 10 June 1994 (river basin: Danube)
 - Convention on Cooperation for the Protection and Sustainable Use of the River Danube – signed in Sofia on 29 June 1994 (river basin: Danube)
 - Bilateral institutional framework for the management of Lake Ohrid was signed between Albania and FYR Macedonia
 - Agreement between the Government of Romania and the Government of Ukraine on cooperation in the field of transboundary water management (Romania and Ukraine) – signed Galati on 30 September 1997 (river basin: Danube)
 - Framework Agreement on the Sava River (Bosnia and Herzegovina, Croatia, Slovenia and Serbia and Montenegro) – signed in Kranska Gora on 3 December 2002 (river basin: Sava)

Source: <http://www.unece.org/env/water/partnership/part621.htm> and World Bank, 2003b

Table A3: Overview of selected investment projects in SEE countries with international financial support

Country - municipality	Investment project	Institution	Funds provided (mio EUR)
Albania			
Albania	Water supply and wastewater rehabilitation	EC	29.3
Albania	Municipal water and wastewater projects	WB	21.9 mio USD
Albania	Municipal water infrastructure	EIB	27
Albania	Integrated Water and Ecosystems Management Project	WB	20 mio USD
Albania	Water supply and wastewater rehabilitation in five municipalities (Durrës, Korce, Lezhe & Shengjijn, and Saranda)	EIB	27
Albania - Kruja	Municipal water and wastewater projects	KfW	6.2
Albania - Kruja	Municipal water and wastewater projects	KfW	0.3

Albania - Korca	Municipal water and wastewater projects	KfW	17.9
Albania - Korca	Municipal water and wastewater projects	KfW	0.3
Albania - Kavaja	Municipal water and wastewater projects	KfW	7
Albania - Kavaja	Municipal water and wastewater projects	KfW	0.2
Albania - Elbasan	Municipal water and wastewater projects	KfW	12
Albania - Lake Ohrid – Pogradec	Municipal water and wastewater projects	KfW	9.1
Albania - Lake Ohrid – Pogradec	Municipal water and wastewater projects	KfW	1.1
Albania - Kavaja	Municipal water and wastewater projects	KfW	4.9
Albania - Kavaja II	Rural water and wastewater projects	KfW	1.5
Albania - Kavaja II	Rural water and wastewater projects	KfW	2
Albania	Municipal water and wastewater projects	KfW	11.2
Albania - Kruja II	Municipal water and wastewater projects	KfW	1.5
Albania - Kruja II	Municipal water and wastewater projects	KfW	2.6
Bosnia i Hercegovina			
BiH	Urban Infrastructure and Service Delivery	WB	20
BiH - Kakanj	Municipal water and wastewater projects	KfW	3.8
Bulgaria			
Bulgaria - Sofia	Water system concession (private) - 2000	EBRD	35
Bulgaria - Sofia	Sofia Water Infrastructure – PPP - 2005	EBRD	30
Bulgaria - three municipalities in the Maritsa Basin	Water supply and wastewater rehabilitation	EIB	28
Bulgaria - Burgas	Water supply and wastewater rehabilitation	EBRD	11
Croatia			
Croatia - Zagreb	Wastewater treatment plant (private)	EBRD	55.2
Croatia - Rijeka	Sewerage services improvement programme	EBRD	7.5
Croatia	Coastal Cities Pollution Control Project	WB	47.54
Croatia	Municipal environmental infrastructure project	WB	60
Croatia	Municipal environmental infrastructure project	EBRD	30
Croatia-Karlovac	Wastewater treatment plant	EBRD	10
Croatia - Zagreb	Wastewater treatment plant (private)	KfW	115
FYR Macedonia			
FYRM	Municipal and Environmental Action Programme (MEAP)	EBRD	20.8
FYRM - Lake Prespa	Water and wastewater projects	KfW	2.5
FYRM - Lake Ohrid	Water and wastewater projects	KfW	10.2
FYRM - Lake Ohrid	Water and wastewater projects	KfW	0.5
FYRM - Lake Ohrid	Water and wastewater projects	KfW	0.5
FYRM - Lake Ohrid	Water and wastewater projects	KfW	0.2
FYRM - Struga	Water and wastewater projects	KfW	5.1
Romania			
Romania - Apa Nova	Water treatment plant (private)	EBRD	55
Romania - Timisoara	Water concession project	EBRD	85
Romania - Constanta	Municipal Environmental Loan Facility	EBRD	
Romania - Arad	Municipal Environmental Loan Facility	EBRD	4.5
Romania - Bacau	Municipal Environmental Loan Facility	EBRD	7
Romania - Brasov	Municipal Environmental Loan Facility	EBRD	14.5
Romania - Iasi	Municipal Environmental Loan Facility	EBRD	13
Romania - Oradea	Municipal Environmental Loan Facility	EBRD	6
Romania - Sibiu	Municipal Environmental Loan Facility	EBRD	5

Romania - Targu Mures	Municipal Environmental Loan Facility	EBRD	7
Romania - Timisoara	Municipal Environmental Loan Facility	EBRD	6.5
Romania	Water and wastewater infrastructure	EIB	12.6
Romania - Satu Mare, Piatra-Neamt and Buzau	Water and wastewater infrastructure	EIB	29
Romania	Water and wastewater infrastructure (five municipalities)	EIB	55
Serbia & Montenegro and Kosovo			
Serbia - Belgrade	Municipal infrastructure rehabilitation programme	EBRD	40
Serbia- Subotica	Municipal infrastructure reconstruction programme	EBRD	9
Serbia - Kragujevac	Municipal infrastructure reconstruction programme	EBRD	5
Serbia - Novi Sad	Municipal infrastructure reconstruction programme	EBRD	5
Serbia – Nis	Municipal infrastructure reconstruction programme	EBRD	6
Serbia- Novi Sad, Nis	Municipal infrastructure reconstruction programme	EIB	25
Serbia - Novi Sad, Nis, Belgrade	Municipal water and wastewater projects	KfW	10.2
Serbia - Novi Sad, Nis, Belgrade	Municipal water and wastewater projects	KfW	5.1
Montenegro - regional (adriatic coast)	Water and wastewater projects	KfW	1
Montenegro - regional (adriatic coast)	Water and wastewater projects	KfW	1
Montenegro - regional (adriatic coast)	Water and wastewater projects	KfW	2
Kosovo	Municipal water supply	KfW	4.8
Kosovo	Municipal water supply (Istog and Kline)	KfW	1
Kosovo	Water and wastewater projects	KfW	5.6
Kosovo	Municipal water supply	KfW	2.6

Source:

Office for South East Europe - EC/World Bank, Implementation of Regional Infrastructure Projects Status as of November 2004, www.seerecon.org

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Table A.4: GEF funded projects in South-Eastern Europe

Country/region	Name of Project	Funds provided (million USD)
Bosnia-Herzegovina	Strategic Partnership for Nutrient Reduction in the Danube River Basin and the Black Sea: Water Quality Protection Project	8.500
Bulgaria	Wetland Restoration and Pollution Reduction Project - component of Danube/Black Sea Strategic Partnership: Nutrient Reduction Investment Fund	7.850
Romania	Agricultural Pollution Control Project	5.450
Romania	Hazard Risk Mitigation and Emergency Preparedness Project	7.350
Serbia and Montenegro	Strategic Partnership for Nutrient Reduction in the Danube River Basin and the Black Sea: Reduction of Enterprise Nutrient Discharges Project (RENDR)	9.370
Regional	Lake Ohrid Management	4.280
Regional	Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea - World Bank-GEF Nutrient Reduction Investment Fund: Tranche 3	24.980
Regional	Danube/Black Sea Strategic Partnership - Nutrient Reduction Investment Fund: Tranche 2	9.000
Regional	Danube/Black Sea Basin Strategic Partnership on Nutrient Reduction, Tranche I	2.400
Regional	Developing the Danube River Basin Pollution Reduction Programme	4.190

Regional	Danube River Basin Environmental Management	8.500
Regional	Transfer of Environmentally-sound Technology (TEST) to Reduce Transboundary Pollution in the Danube River Basin	0.990
Regional	Black Sea Environmental Management	9.300
Regional	Developing the Implementation of the Black Sea Strategic Action Plan	1.839
Regional	Control of Eutrophication, Hazardous Substances and Related Measures for Rehabilitating the Black Sea Ecosystem: Tranche 2	6.000
Regional	Control of Eutrophication, Hazardous Substances and Related Measures for Rehabilitating the BLACK SEA Ecosystem: Phase 1	4.350
Regional	Strengthening the Implementation Capacities for Nutrient Reduction and Transboundary Cooperation in the Danube River Basin-Phase I Project Short Title:Danube Regional Project Phase 1	5.350
Regional	Strengthening the Implementation Capacities for Nutrient Reduction and Transboundary Cooperation in the Danube River Basin (Tranche 2)	12.000
Regional	Building Environmental Citizenship to Support Transboundary Pollution Reduction in the Danube: A Pilot Project	0.750

Source: www.gefonline.org/projectList.cfm

Table A.5: Water Supply and Sewerage Programme FYR Macedonia (Reckhard, 2006)

Criteria to be achieved prior to phase 1
measurement-period: 3 months prior to programme participation

Communal Enterprise	
1.	100% of all registered customers receive water bills;
2.	Monthly cash (excluding compensation) generated from water sales is >60% of the invoiced amount within the same month;
3.	Water tariffs enable the Municipal Enterprise to cover at least <ul style="list-style-type: none"> • Operating costs (staff, energy, chemicals, administration), • Maintenance / reinvestment costs: 5 EUR/connection/year, • Debt service, if applicable, • Any other expenditures to be covered by the cash generated from water sales, e.g. cleaning of streets and parks;
4.	Monthly cash generated from other activities covers the expenditure of these other activities;
5.	The Municipal Enterprise proves that it is willing to <ul style="list-style-type: none"> • introduce separate accounts according to different activities within the Municipal Enterprise and to strive for autonomous departments whose costs are covered by their revenues, • reduce water consumption and losses prior to increasing water production; • oversee/implement force account works, • coordinate investment measures if financed from other sources.

Municipality	
1.	The Municipality pays for the water supply and sewerage services of the Municipal Enterprise;
2.	The Municipality proves that <ul style="list-style-type: none"> • it grants the Municipal Enterprise the right to <ul style="list-style-type: none"> ○ disconnect defaulting customers, ○ access water meters, • coordinate investment measures if financed from other sources.

Criteria to be achieved prior to phase 2

Communal Enterprise	
1.	In phase 1, the Communal Enterprise continued achieving the criteria 1-4 that were to be achieved prior to phase 1: <ol style="list-style-type: none"> 1. 100% of all registered customers receive water bills; 2. Monthly cash (excluding compensation) generated from water sales is >60% of the invoiced amount within the same month; 3. Water tariffs enable the Municipal Enterprise to cover at least <ul style="list-style-type: none"> • Operating costs (staff, energy, chemicals, administration), • Maintenance / reinvestment costs: 5 EUR/connection/year, • Debt service, if applicable, • any other expenditures to be covered by the cash generated from water sales, e.g. cleaning of streets and parks; 4. Monthly cash generated from other activities covers the expenditure of these other activities;
2.	The Municipal Enterprise introduced separate accounts according to different activities within the Municipal Enterprise;
3.	The Municipal Enterprise approved a tariff adjustment plan which demonstrates that in the following five years the projected cash to be generated from water sales covers at least <ul style="list-style-type: none"> • Future operating costs (staff, energy, chemicals, administration), • Maintenance / reinvestment costs >20 EUR/connection/year, • Future debt services, including investments made in phase 1 and 2; • Any other costs to be covered by the cash generated from water sales, if the Municipal Enterprise can prove that cross-subsidisation continues to be necessary;
4.	The Municipal Enterprise repairs any visible leaks within 3 days;
5.	The Municipal Enterprise implemented the force account works in the quality required and according to the time schedule defined at the beginning of phase 1.
6.	The Municipal Enterprise concluded customer service contracts with all registered customers;
7.	The Municipal Enterprise concluded a service level agreement on water services with the Municipality that defines the rights and obligations of each party;

Municipality	
1.	In phase 1, the Municipality paid for the water supply and sewerage services of the Municipal Enterprise;
2.	The City Council approved a tariff adjustment plan which demonstrates that in the following five years the projected cash to be generated from water sales covers at least <ul style="list-style-type: none"> • Future operating costs (staff, energy, chemicals, administration), • Maintenance / reinvestment costs >20 EUR/connection/year, • Future debt services, including investments made in phase 1 and 2; • Any other costs to be covered by the cash generated from water sales, if the Municipal Enterprise can prove that cross-subsidisation continues to be necessary;
3.	The Municipality concluded a service level agreement on water services with the Communal Enterprise that defines the rights and obligations of each party.

Table A5: Schematic diagram of the KfW concept (Reckhard, 2006)

