

Technical Review Note

**Water Utility Service Organizational Structures
in the Republic of Serbia
for Compliance Investment Planning
and Cost Effective Service Provision**

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Objective 1: The review of technical design parameters in Serbia that define the scope (and by extension the cost) of drinking water and urban wastewater investments

Introduction:

Investments in the drinking water and urban wastewater sector are legislative driven and the costs (both of investments and future operations) are determined to a great extent by the legislative standards imposed under national law.

In order to assess the impact of legislative compliance, the standards imposed under Serbian law (in both the area of drinking water for human consumption, and in the collection and treatment of urban wastewaters) were compared with the standards included in the EC Drinking Water Directive (Directive 98/83/EC) and the EC Urban Wastewater Directive (91/271/EEC) (Refer to Section 1 for details).

Summary Conclusions:

Comparison of Drinking Water Standards

EC standards for drinking water are set within EC Directive 98/83/EC, Drinking Water Directive (DWD), on the quality of water intended for human consumption. This Directive has not yet been transposed into Serbian legislation and at present standards for drinking water in Serbia are set within the 'Serbian Rule Book 42/98 & 44/99'.

Some of the standards of the Serbian Rule Book are more rigorous than those of the DWD whilst for other parameters Serbian Rule Book standards are lower than those of the DWD.

Serbian Rule Book standards for the in-organic substances of antimony, ammonium, boron, fluoride, chloride, cadmium, nitrite and sodium are higher than those to the DWD, and the Serbian Rule Book also sets standards for barium, calcium, magnesium, molybdenum, potassium which are not set within the DWD. However for certain organic substances (PAHs, Tetrachloroethene and Trichloroethene) the Serbian Rule Book permits higher values (i.e. lower standards) than those permitted under the DWD.

In addition to the differing technical standards for individual water quality parameters there are 2 key supporting issues to be addressed by Serbia necessary for the implementation of the DWD. They are:

- i. Drinking water quality monitoring and reporting to the public

Serbia needs to implement drinking water quality monitoring and reporting systems and procedures as required by the DWD. (Note: Serbia should be aware of the on-going amendments to the DWD in particular those regarding reporting requirements),

And

- ii. Laboratories and Laboratory Methods for the analysis of water for human consumption should be reviewed and updated¹,

The regulation and certification of both the internal and external control of laboratories dealing with the analysis of drinking water for human consumption must be updated and;

Laboratories and water utility service providers should be made fully aware under the Basin Management Plans of any particular harmful or dangerous substances used in the water district within which drinking water services are provided so that audit and monitoring analysis can be designed to suit the specific local situations (e.g. for herbicides and pesticides).

¹ SFRY Official Gazette, no 33/85 on Sampling and Methods for Laboratory Analysis of Drinking Water.

Comparison of Urban Wastewater Standards

EC standards for the collection and treatment of urban wastewater are set within EC Directive 91/271/CEE, the “Urban Waste Water Directive” (UWWD).

Serbian legislation for the prevention of pollution from wastewaters is based upon the guiding principle that ‘pollution is only pollution when it exceeds the capacity of the receiving waters to assimilate it’ (similar to the approach of the Water Framework Directive wherein water quality objectives for bodies of receiving waters are set and thereafter discharges into those water bodies should not degrade the water quality classification set for that particular water body).

So Serbian standards, in terms of emission limit values for urban wastewater similar to those included within the UWWD do not exist per se.

Serbian legislation in the area of wastewater pollution control currently only contains piecemeal regulations implemented in recent years directed to specific individual polluters (Refer to Section 1-Part II). Thus, until new secondary legislation setting out universal emission limit values for urban wastewater is adopted, Serbian standards cannot be compared to the UWWD.

The problem with setting water quality objectives (WQOs) for receiving waters only without the setting of specific maximum allowable discharge limits for individual wastewater discharges is that individual polluters cannot be held accountable for their individual pollution discharge as being the one ‘that exceeded the capacity of the receiving waters to assimilate it’. As a result urban wastewaters in Serbia currently are discharged to receiving waters with little to no treatment.

The National Environmental Protection Strategy of the Republic of Serbia, adopted in March 2010, recognizes the urgent need for introducing emission limit values for urban wastewater and highlighted this as top priority.

Recommendations:

Drinking Water:

We recommend:

- That the current standards for drinking water under Serbian legislation should be reviewed and aligned with the Directive 98/83/EC (includes the alignment of technical parameters, audit monitoring and reporting requirements, and the regulation of laboratories carrying out water quality analysis). Prior to that, analysis on the impact of harmonisation with the DWD should be conducted and the planning of investments necessary for compliance with the EC DWD should be included within the context of Basin Management Planning at water district level as included in Serbia’s new Law on Water.

Urban Wastewater:

We recommend:

- That the standards for urban wastewater collection and treatment are aligned with the UWWD and should be introduced as soon as possible.
- That the adoption of new standards for urban wastewater should incorporate transitional arrangements and periods and be supported by investment and financing plans to facilitate their effective implementation.
- That prior to the adoption of new standards, analysis on the impact of harmonisation with the UWWD should be conducted and the planning of investments necessary for compliance with the EC UWWD should be included within the context of Basin Management Planning at water district level as included in Serbia’s new Law on Water,
- That the 3 PVMCs ‘Serbia Waters’, ‘Vojvodina Waters’ and ‘Belgrade Waters’ together with the Serbian Environmental Protection Agency should continue to build on their integrated cadastres of polluters which will represent the key reference documents for integrated control and management of water pollution in the future, and
- That the Inspectorates of both the Ministry of Environment & Spatial Planning and the Ministry of Agriculture, Forestry & Water Management prepare to take enforcement action against polluters once the new standards are adopted.

Objective 2: The identification of administrative challenges to implementing compliance investments in the drinking water and urban wastewater sector in Serbia

Introduction:

The implementation of EC Acquis compliance investments in the water and urban wastewater sector can be challenged and delayed by a poor ‘enabling environment’, typically characterized by:

- Poor ‘industry design’, where the organization arrangements in place made it difficult or impossible to implement investments in drinking water and urban wastewater systems that result in nationwide, legally compliant, economically sustainable water and wastewater service provision,
- Overlapping and / or conflicting legislation within the sector and between the water sector and other sectors that delays the implementation of investments into the sector and/or inhibits the effective and efficient operation of the sector, and
- Poor financial and regulatory supporting structures in place to facilitate and support investment into the water and wastewater sector.

Serbia’s general water utility ‘industry design’ together with related legislation was reviewed (refer to Sections 2 and 3 of this report) and conclusions were drawn. This general desk analysis was further supported by lessons drawn from the field experience gained during the preparation of water and wastewater compliance investments for the pilot project for the City of Novi Sad. Summary conclusions and recommendations from both are listed below.

Summary Conclusions:

General Desk Analysis:

1. ‘Industry design’ / Organizational structure:

The territorial organization of the Republic of Serbia is characterized by three layers of government:

- central government (GoS),
- two autonomous provinces (APs) and
- local self-government (LSG) units (municipalities, cities, City of Belgrade).

According to the ‘Law on Communal Services’:

- the municipalities, cities and the City of Belgrade have sole responsibility for establishing and organizing the provision of water supply and wastewater services, and,
- Public Utility Companies (PUCs) decide on tariff levels by a sole agreement with the municipal assembly of the founder (Article 23), and that the tariffs are established applying the principle of cost-recovery (Article 27).

However, according to the ‘Law on Public Companies and Activities of Public Interest’:

- ‘aside from an LSG unit, the founder of the public company can also be the autonomous province or the state’, and,
- public companies are obliged, when determining price (i.e. tariff) and wage levels, to take into account projected annual price and wage growth policy established by the GoS (Article 22). If the PUC fails to do this the finance minister has the power to temporarily halt the transfer of revenues from the Republic budget to the respective LSG or to the AP budget until prices and wages are aligned with the policy of the projected price and wage growth established by the GoS for the year in question (Article 22b).

SO, in short, local self-government units have the responsibility and authority for the provision of water supply and wastewater services and the power to set tariffs BUT central government has the facility under the Law on Public Companies and Activities of Public Interest both to found a public water utility service provider, and to regulate tariffs to follow national socio-economic policy (even if it results in tariffs that do not achieve cost recovery).

These organizational arrangements have 2 main problems:

- i. Firstly, with central government having the power to tie local water utility tariff levels to national macro-economic growth policy (which is unrelated to the principles of full cost recovery, the user/polluter pays, cost-effectiveness and disproportionate cost) it creates an intrinsic conflict of interests between central government and local service providers; and
- ii. Secondly, with the exception of the water utility service providers of the larger cities (i.e. with areas where the urban population is greater than 100.000 - Belgrade, Novi Sad, Niš, Kragujevac, Subotica, Leskovac), water supply and wastewater services in Serbia are characterized by a large number of small water supply systems operated by a large number of small water utility service providers without the economies of scale or density to provide legally compliant, economically sustainable water and wastewater services. Mergers of two or more municipal service providers for the purposes of providing water and wastewater services are rarely found resulting in the major challenges of:
 - How best to identify and implement the most cost effective compliance investments for the large number of small service providers, and,
 - How best to gain efficiencies in the operation and management of the large number of small water and wastewater systems when compliance investments have been implemented.

Compliance investments can be individually prepared by cities and bigger municipalities, but, when it comes to smaller municipalities, more efficient organizational / administrative structures have to be identified (see Objective 3).

2. Enabling Legislation

For the water sector to function effectively it needs sector specific legislation (e.g. water laws and water financing laws) and that legislation needs to be integrated with, supported by and co-ordinated with other legislation. Key areas of supporting legislation are:

- Public administration / communal services, public finances
- Regional Development / Spatial Planning / Construction,
- Public Health / Environmental Protection

Serbia is in the process of rapidly overhauling its legal system with new primary legislation adopted in recent years in the areas of: water (2010), public companies (2005), environmental protection (2004/9), local self-government (2007), the financing of local self-government (2006), public debt (2005/9), public administration (2005/9), regional development (2009/10), and 'spatial planning and construction'(2009).

The main issues are:

- The risk for overlaps, gaps and conflict between all of this new legislation is high, and
- The secondary legislation, by-laws, regulations and implementing norms necessary to implement the primary legislation in the areas of spatial planning and construction, regional development, environmental protection and water management still, for the greater part, have to be written.

The coordination between regional development, spatial planning, (water) basin planning, environmental protection action planning, and compliance planning for drinking water and urban wastewater services is critical **HOWEVER**:

- The Spatial Plan/Strategy of the Republic of Serbia for the period 2010 to 2020 was just adopted on November 23, 2010,
- At the time of writing this note, regional development policy is still in an early stage of development in Serbia (many legal acts should be adopted, institutional framework should be established, organizational capacities should be identified and mobilized). Regional development policy provides for the establishment of regions as mere statistical functional territorial entities that are not recognized as administrative territorial units and do not have legal identity. Even though regional policy did not create an interim layer of government, institutional structures and financial incentives

envisioned by the framework Law on Regional Development could become the drivers of inter-municipal cooperation in the future which could be useful in the water utility sector, and

- The newly established water basin districts as defined in the new Law on Water (Article 27) do not align with the newly established regions in Serbia (as administrative boundaries for programming, implementing and monitoring socio-economic development) nor do they align with Serbia's natural watershed boundaries (Refer to Attachments 2, 3 and 4)

3. Poor financial and regulatory supporting structures

Serbia's specific challenges in this area are:

- i. Unsustainably low water tariffs: Water and wastewater tariffs in Serbia are artificially and unsustainably low, and these low tariffs cannot be justified economically (in terms of the cost of water bills as a share of household budget). Water tariffs are controlled by local and central governments and used as social measures, not as indicators of cost recovery charges for the efficient provision of water and wastewater services.
- ii. Unsustainably low water management fees and charges: Fees from economic instruments - water use fees and water protection fees are too low to provide an adequate incentive for efficient water use or incentive to polluters to invest in wastewater treatment. The new Law on Water states that fees will be determined by the government with no methodology prescribed. On the positive side, the new Law on Water does highlight the functional role of the "economic regulator", stressing the importance of the cost-recovery principle and financial viability of the water sector in general. The Law provides the legal basis for establishing an independent "economic regulator" that balances between conflicting interests of environmentally-driven and socially-driven stakeholders in the water sector, however, the necessary by-laws required to put these mechanisms in place have not yet been written.
- iii. Unsustainable levels of over-staffing in public water utility companies: The water utility companies in Serbia have become de facto social vehicles providing artificial employment resulting in excessive overstaffing of the public water utility companies with inappropriately qualified staff. This is unsustainable.
- iv. Uncertainty on the future role of the EC: the role of the EC in terms of supporting the implementation of compliance investments in the sector is not clear. Currently, Serbia is a potential candidate country with no clear timeframe for the start of accession negotiations, not to mention the timeframe for eventual accession. Therefore, availability and level of EC funds is unknown. Moreover, compliance investment needs in the water sector in Serbia have not been adequately identified and quantified, basin management plans have not been prepared, and affordability thresholds for water tariffs have not been calculated. Hence, the funding gap and the approximation of EC funds contributions cannot be determined at this moment.

Specific lessons learnt from the implementation of the Pilot Novi Sad Water & Wastewater Investment Project

1. Specific observations made on Serbia's new Law on Water 2010:
 - i. Serbia's Law on Water 2010 does not contain any implementing norms or by-laws that would assist define the technical parameters that are needed for the analysis and design of new sewerage and WWTP infrastructure. These implementing norms and by-laws will be drafted by the Ministry of Agriculture, Forestry and Water Management. As a result (given that these technical norms and by-laws, 'flood maps' and 'management plans' have not been prepared, and waters are not yet classified in accordance with the new law), some assumptions had to be made on what these design parameters will be for project

preparation works in Novi Sad in order to assess the Water Utilities future costs for investments and operations. These assumptions were agreed with the EC (DG ENV) and with the Ministry of Agriculture, Forestry & Water (Directorate of Waters): (See text box 1 below)

Text Box 1: ASSUMPTIONS MADE FOR THE NOVI SAD PILOT PROJECT

- a. As a result of the transposition of the EC Water Acquis, that the new normative / by-laws WILL NOT impose environmental standards for Serbia that are higher than that imposed for the UK.
- b. As a result of our ‘assumption a.’ above this would mean that for the combined sewerage system in Novi Sad:
 - i. CSOs (combined sewerage overflows) will be designed with screens to deal with a 5 year return storm, and shall have screens of 6mm spacing (as included in the UK WAPUG Guide (2006) for CSOs. (Note: In Novi Sad – the combined sewerage network has been designed and constructed for a 2 year return storm of 30 minute duration.)
 - ii. For Novi Sad, it is assumed that the receiving waters in the area of the future CSOs and WWTP discharges are **NOT** classified as **BATHING WATERS**; and do **NOT** have high recreational amenity status given that the points of discharge will be downstream of Novi Sad’s recreational / bathing water beach. As a result, **it is assumed that the CSOs can intermittently discharge during heavy rainfall events on a frequency of >30 per year.**
 - iii. The **WWTP will be designed hydraulically for 3 ADWF** (Average Dry Weather Flow) at the inlet of the works (and the preliminary and primary unit processes will be sized to cope with up to 3 ADWF). The secondary biological unit processes will be designed for 1 ADWF.
- c. As the River Basin ‘Management Plans’ have not yet been prepared for the Water districts as required under the new Law on Water, it is assumed for Novi Sad, that the **receiving waters in the area within Novi Sad’s territorial boundaries ARE CLASSIFIED as HEAVILY MODIFIED WATER BODIES**; given that those waters ARE ALREADY heavily modified to protect against flood (e.g. with levees and drainage systems), and trained for navigation. **As a result of which they will NOT be required to achieve good ecological status for those waters.**
- d. It is also assumed that the receiving waters will **NOT be classified as SENSITIVE to both Nitrates and Phosphates**; BUT the future WWTP(s) would achieve a discharge criteria of **10mg/l and 5mg/l for Nitrates and Phosphates respectively**; on the basis that nitrates and phosphates will be removed by biological unit processes, and the further removal of phosphates to a 1mg/l standard would not be required.

- ii. The Law on Water does not include the core principles of ‘**cost-effectiveness**’ or ‘**disproportionate cost**’ as included in the EC Water Framework Directive. This could / would result in higher implementation costs for Serbia.
- iii. The new water fees structure is unclear, and has yet to be developed with separate by-laws. (assumptions were made for the Novi Sad Pilot)
- iv. The penalties included in the new Law on Water are unclear. i.e. it is not clear how an enforcement agency would apply the penalties and fines on a local government or water utility.

- 2. In addition to absence of the technical norms and by-laws necessary for combined urban wastewater systems, there is another legal issue that needs to be addressed:
 - o The interface of responsibilities between the municipal water service providers and Serbia’s 40 state enterprises that are responsible for the evacuation of storm waters is overlapping and unclear.

These interfaces need to be clarified both ‘legally / institutionally’ and technically (in terms of systems design and operation) and is of particular importance for those cities like Novi Sad with combined systems).

*NOTE: The Ministry of Agriculture, Forestry and Water Management are in the process of completing the cadaster and mapping of **first order** and **second order** water courses*

throughout Serbia. When this is complete this should resolve many of these interface problems. As stated in the new Law on Water **first order water courses will be the responsibility of central government** (and managed by PVMC's Serbia Waters, Vojvodina Waters, and Belgrade Waters (and thereafter parts of these may be delegated to the 40 state enterprises that are responsible for the evacuation of storm waters), while **second order water courses will be the sole responsibility of local government**.

Recommendations:

Recommendations based upon the general analysis

We recommend:

- That the intrinsic conflict impacting the setting of water utility tariffs and wages, between central government and local service providers is resolved,
- That an organizational structure is developed and adopted to facilitate the cost effective implementation of compliance investments addressing the specific current problem of a large number of small uneconomically viable service providers (see Objective 3 recommendations below),
- That future EC Funds granted for drinking water and urban wastewater investment projects should be conditioned upon: long term financial sustainability of the service provider where the feasibility studies carried out to justify EC Funds specifically check / benchmark management / administrative costs and staffing levels with industry norms,
- That it is included as a requirement in the preparation of the Basin Management Plans, that they are fully coordinated with regional development plans and spatial plans,
- That it is included as a requirement in the preparation of environmental protection actions and measures (including the agreement of transitional arrangements and dates for compliance with the Water Acquis) that any proposed environmental protection actions and measures are fully coordinated with regional development plans, spatial plans and basin management plans (i.e. water bodies are not declared as sensitive or given special environmental status, or dates for compliance are fixed in law until the basin management plans have been completed). Drinking water and urban wastewater compliance plans and transitional arrangements should be agreed as part of the Basin Planning process wherein investment plans, tariff plans and compliance arrangements are agreed jointly by: the service providers, the Ministry of Environment & Spatial Planning, the Ministry of Health, and the Ministry for Agriculture, Forestry and Water, and the Ministry of Finance.

Recommendations based upon lessons learnt from the Novi Sad Pilot Project:

We recommend:

- That Serbia develop as soon as possible the technical implementing norms or by-laws that would assist define the technical parameters that are needed for the analysis and design of new sewerage and WWTP infrastructure, with particular guidance for combined wastewater systems.
- That Serbia develops the Basin Management Plans as soon as possible to permit the principle of cost effectiveness to be implemented in the development and implementation of compliance investments necessary for drinking water and urban wastewater.
- That Serbia develop as soon as possible a water financing by-law to clarify the water sector financing arrangements necessary to implement the requirements of the new law on water. The water financing by-law should promote the principles of 'cost-effectiveness' and 'disproportionate cost' as included in the EC Water Framework Directive.
- That Serbia clarifies the penalties and enforcement mechanisms included in its new 2010 Law on Water. (Note: the implementation of the water financing by-law should be able to address this issue wherein the 'water pollution fee' would be designed to ensure sufficient financial penalty / incentive so that the polluter constructs wastewater treatment facilities rather than pay the 'water pollution fee'.)
- That Serbia completes the cadastres and mapping of first and second order waters as soon as possible and clarifies the interface of responsibilities between the municipal water service providers and Serbia's 40 state enterprises that are responsible for the evacuation of storm waters.

Objective 3: To identify/ propose an organizational / administrative structure that could effectively implement Serbia’s drinking water and urban wastewater investments required for compliance with the EC Acquis.

Compliance investments can be individually prepared by cities and bigger municipalities, but for smaller municipalities, more efficient organizational / administrative structures have to be identified.

The options for a more efficient organizational / administrative structure are:

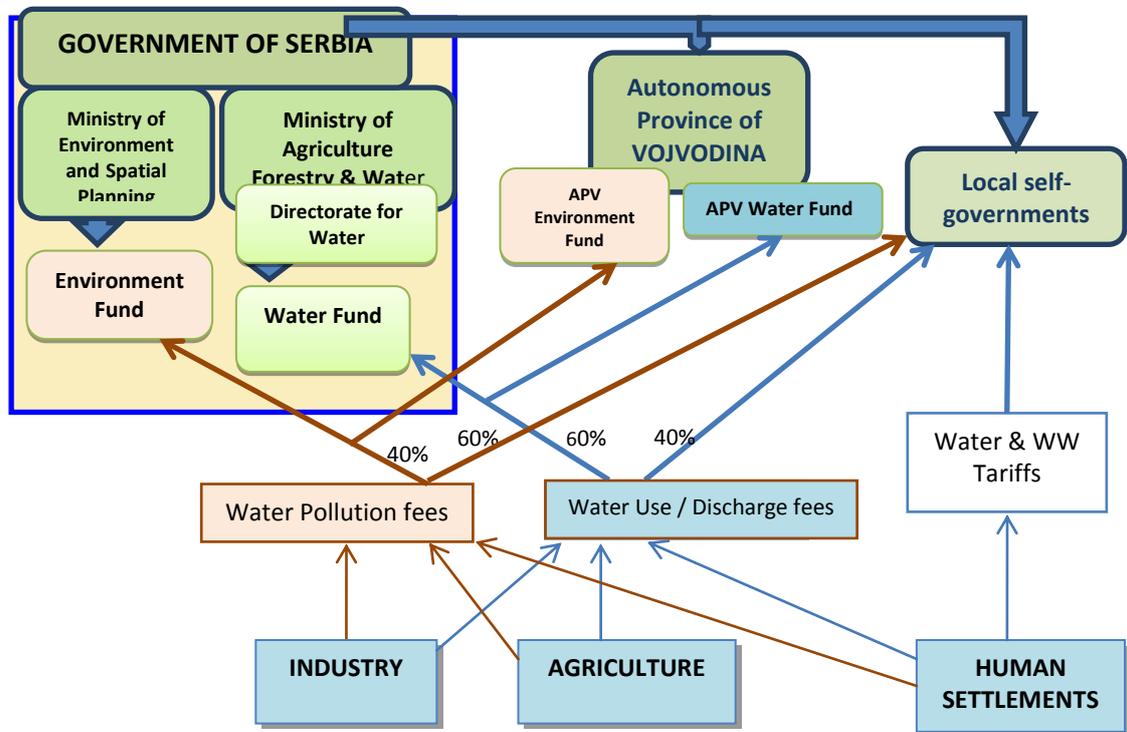
- Option 1:** *Inter-municipal cooperation or*
- Option 2:** *Central government manages the implementation of compliance investments on behalf of the large number of small municipalities and hands it over to them upon completion for their respective operation.*

Option 1: Inter-municipal cooperation

The current legislative framework offers two methods for potential inter-municipal cooperation:

1. Inter-municipal cooperation facilitated under the Law on Communal Services:
Both sectoral legislation covering communal services and the legislation pertaining to local self-government units in general provide the legal basis for the establishment of inter-municipal companies providing communal services in order to achieve economies of scale and to cost effectively implement compliance investments in the water and wastewater sector in Serbia. However, these laws do not offer financial mechanisms for budgetary transfers from central government to inter-municipal forms of cooperation and do not prescribe institutional arrangements to facilitate the smooth functioning of such cooperation. Hence there is an absence of adequate stimuli to promote cooperation between these smaller municipalities.
2. Inter-municipal cooperation facilitated under the framework Law on Regional Development:
Institutional structures and financial incentives envisioned by the framework Law on Regional Development could become the drivers of inter-municipal cooperation in the future. At present however regional development policy is still in an early stage of development in Serbia and many legal acts should be adopted, the institutional framework has yet to be established and organizational capacities identified and developed.

Option 2: Central government management of compliance investments for small municipalities



Picture 1: Water financing mechanism in Serbia (Refer to 2010 Law on Water / 2004 Law on Environment)

The Law on Water includes a framework financing mechanism for the sector (see Picture 1 above) that could be developed in order to facilitate the co-funding and implementation of EC water and wastewater compliance investments. Picture 2 below indicated a proposed structure wherein this financing mechanism is developed that facilitates the implementation of compliance investments by central government on behalf of small municipalities.

In summary, as shown in Picture 2 below, the preparation and implementation of compliance investments is divided into 2 separate groups:

Group 1: Compliance Investments (and associated applications for EC Funds) are prepared individually for cities and municipalities with the population over 50 000.

And

Group 2: Compliance Investments (and associated applications for EC Funds) are prepared at the level of Water Basin Districts as defined in the Law on Water. This would result in the preparation of 6 applications for EC Funds (1 for each of the water basin districts with the exception of the City of Belgrade). The main counterparts for these 6 projects would be the Water Funds (Water Fund & APV Water Fund) together with the participation of the small municipalities as the End Recipient of Assistance.

The legal / organizational / institutional structures should already be in place to address the preparation and implementation of compliance investments for Group 1 that accounts for around 66%² of the total compliance investments in the water and wastewater sector in Serbia.

Compliance investments for Group 2 represent 34% of the total compliance investment in the water and wastewater sector in Serbia.

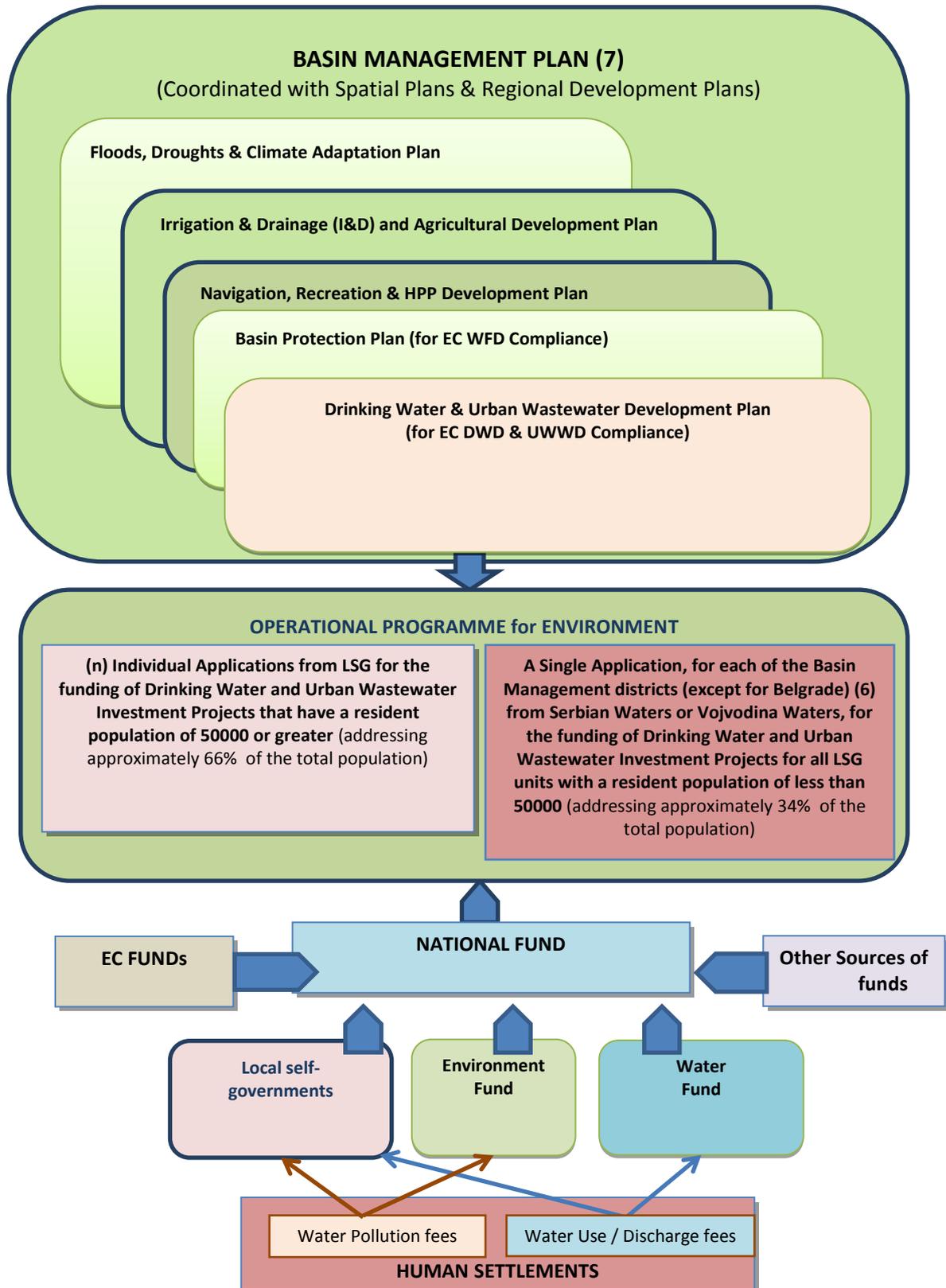
Summary Conclusions & Recommendations:

We recommend Option 2 as shown in Picture 2 on the basis that:

- the institutional arrangements to facilitate the smooth functioning of inter-municipal cooperation in the field of water are not in place and take generations for a culture of co-operation to develop, and
- Option 2 can be quickly and effectively implemented with careful drafting of the water financing by-law.

² The percentage calculated according to the 2008 population estimate in the publication Municipalities in Serbia 2009, Statistical Office of the Republic of Serbia, Belgrade 2010.

Picture 2: Proposed Organizational / Administrative structure that could effectively implement Serbia's drinking water and urban wastewater investments required for compliance with the EC Acquis



SECTION 1: Comparison of the current legislation between EU and the Republic of Serbia for the provision of Drinking Water and for the provision of Urban Wastewater Treatment services

PART I: COMPARISON BETWEEN SERBIA AND EC STANDARDS FOR DRINKING WATER

EC standards for drinking water are set within EC Directive 98/83/EC, Drinking Water Directive (DWD), on the quality of water intended for human consumption.

In Serbian legislation, standards for drinking water are set in the Rule Book on Hygienic Quality of Drinking Water (the Rule Book), (Official Gazette of the Republic of Serbia, no 42/98 and 44/99). It was first published in 1998 and amended in 1999. The Rule Book was prepared taking onboard guidelines from the World Health Organization (WHO)³ and the draft EU Directive from 1994⁴. However, it was passed in 1998 before the current EC Directive was adopted and is therefore not in full compliance with the current EU standards.

The differences between standards under Serbian and EU legislations can be clearly seen in Table 1 below. Namely, while the DWD lists the chemical parameters under one table, the Serbian legislation subdivides the substances into different categories: “non-organic substances in drinking water” (Rule Book, Table IIIa), “organic substances in drinking water” (Table IIIb), “pesticides in drinking water” (Table IIIc), as well as “disinfectants in drinking water” (Table V). Out of these, the standards for “non-organic substances in drinking water” are defined more rigorously under the Serbian Rule Book compared to the DWD (antimony, ammonium, boron, fluoride, chloride, cadmium, nitrite, sodium)⁵. Regarding the “organic substances” the Rule Book allows higher values for PAH, Tetrachloroethene and Trichloroethene. ...

Table 1: Summary of DWD and Serbian National Drinking Water Parameters

Parameter (see Note 1)	Parameter Value		Unit
	EC DWD	Serbian Rule Book 42/98, 44/99	
Microbiological Parameters			
Escherichia coli (E.coli)	0	0	(number/100 ml)
Enterococci	0	0	(number/100 ml)
Chemical Parameters			
Antimony	5,0	3,0	µg/l
Arsenic	10	10	µg/l
Benzene	1,0	1,0	µg/l
Benzo(a)pyrene	0,010	0,010	µg/l
Boron	1,0	0,3	mg/l
Bromate	10	10	µg/l
Cadmium	5,0	3,0	µg/l
Chromium	50	50	µg/l
Copper	2,0	2,0	mg/l
Cyanide	50	50	µg/l
1,2-dichloroethane	3,0	3,0	µg/l
Fluoride	1,5	1,2	mg/l
Lead	10	10	µg/l
Mercury	1,0	1,0	µg/l
Nickel	20	20	µg/l
Nitrate	50	50	mg/l
Nitrite	0,50	0,03	mg/l

³ Guidelines for Drinking Water Quality, WHO, 1993.

⁴ Council Directive, Com (94) 612.

⁵ For “non-organic substances in drinking water”, the Rule Book also prescribes standards for barium, calcium, magnesium, molybdenum, potassium, which are not set in the DWD

Pesticides-individual ⁶	0,10	0,10	µg/l
Pesticides – Total	0,50	0,50	µg/l
Polycyclic Aromatic Hydrocarbons	0,10	0,20	µg/l
Selenium	10	10	µg/l
Tetrachloroethene and Trichloroethene	10	40/70	µg/l
Trihalomethanes – Total	100	100	µg/l
Indicator Parameters			
Aluminium	200	200	µg/l
Ammonium	0,50	0,10	mg/l
Chloride	250	200	mg/l
Clostridium perfringens (including spores)	0	n/a	(number/100 ml)
Colour	Acceptable	5 - Platinum Cobalt Scale	-
Conductivity	2 500	up to 1000	µS/ cm at 20 °C
Hydrogen Ion Concentration	>6,5 and < 9,5	>6,8 and < 8,5	pH units
Iron	200	300	µg/l
Manganese	50	50	µg/l
Odour	Acceptable	none	-
Oxidisability	5,0	up to 2,0	mg/l O ₂
Sulphate	250	250	mg/l
Sodium	200	150	mg/l
Taste	Acceptable	none	-
Colony count 22 Deg. C	No abnormal change	n/a	
Coliform bacteria	0	0	number/100 ml
Total organic carbon (TOC)	No abnormal change	-	mg/l
Turbidity	Acceptable(not exceeding 1.0 NTU for surface water treatment)	up to 1.0	NTU
Free Residual Chlorine	-	0,5	mg/l
Radioactivity Parameters			
Tritium	100		Bq/l
Total Indicative Dose	0,10		mSv/year

- (1) See table 2 below for the product specified parameters Acrylamide, Epichlorohydrin and Vinylchloride

Table 2: Product specified parameters Acrylamide, Epichlorohydrin and Vinylchloride			
Parameter	Parameter Value DWD	Serbian Rule Book	Text explaining how the Drinking Water directive provision is fulfilled
Acrylamide	0,10 µg/l	0,025 µg/l	
Epichlorohydrin	0,10 µg/l	0,40 µg/l	
Vinylchloride	0,50 µg/l	0,50 µg/l	

⁶ DWD, Annex 1, Note 7: “The parametric value applies to each individual pesticide. In the case of aldrin, dieldrin, heptachlor and heptachlor-epoxide the parametric value is 0,030 µg/l.” (p. 43). In the Rule Book (Table IIIc), the values for lindan and dieldrin are 0,2 and 0,1.

SECTION 1: PART II:

COMPARISON BETWEEN SERBIA AND EC STANDARDS FOR URBAN WASTEWATER

EC UWWD Requirements Summary

Council Directive 91/271/EEC of 21 May 1991 concerning urban wastewater treatment, the “Urban Wastewater Treatment Directive” (UWWD), deals with the "collection, treatment and discharge of urban wastewater and the treatment and discharge of wastewater from certain industrial sectors".

Wastewater standards in Serbia

Serbian standards, in terms of emission limit values for urban wastewater, are basically non-existent. This is because Serbian legislation has, until recently, only prescribed the “receiving water standards”, as opposed to “(urban) wastewater standards” that are mainly the subject of the UWWD. In other words, according to the outdated Serbian legislation, a polluter can release unlimited quantity and quality of wastewater, as long as the maximum permitted standards for receiving waters are not exceeded. In contrast, the UWWD prescribes emission limit values for urban wastewater together with supplementary limit value standards for receiving water, as can be seen from the table below.

Current legal framework broadly covering wastewater discharge, but actually regulating “receiving water standards”, is extremely old and does not reflect contemporary circumstances of the Republic of Serbia:

- Decree on Categorization of Watercourses (Official Gazette of the Socialist Republic of Serbia, no 5/68),
- Decree on Classification of Inter-republic Watercourses, Inter-state Waters and Waters of the Yugoslav Coastal Sea (Official Gazette of the Socialist Federative Republic of Yugoslavia, no 6/78),
- Decision on the Maximum Permitted Concentrations of Radionuclides and Dangerous Substances in Inter-republic Watercourses, Inter-state Waters and Waters of the Yugoslav Coastal Sea (Official Gazette of the Socialist Federative Republic of Yugoslavia, no 8/78),
- Rule Book on Hazardous Substances in Waters (Official Gazette of the Socialist Republic of Serbia, no 31/82).

On the other hand, two relatively new laws, the Law on Water (Official Gazette of the Republic of Serbia, no 30/10) and the Environmental Protection Law (Official Gazette, no 135/04) have provided the legal basis for regulating “urban wastewater standards” by stating that emission limit values at the point of release to the environment and contaminant emission levels of the environment shall be set out by the Government. However, the bylaws which should prescribe these standards have not yet been adopted. In order to bridge this legal vacuum, the relevant authorities have started prescribing wastewater standards to individual polluters in recent years, but there is still no universal legal act regulating urban wastewater standards. Therefore, Serbia is currently in an interim phase, transferring from the outdated focus on “receiving water standards” to the combined focus on “urban wastewater standards” and quality of receiving water. Until the relevant secondary legislation is passed, Serbian standards will not be comparable to the UWWD.

UWWD Requirements for UWW Discharges to fresh waters and estuaries:

Parameters	<2000p.e.	2000 – 10,000p.e.	10,000-100,000p.e.	>100,000p.e.
	Conc. / (Min. % Red)	Conc. / (Min. % Red)	Conc. / (Min. % Red)	Conc. / (Min. % Red)
UWWD BOD5	‘Appropriate treatment’ to achieve WQOs: (UWWD Art. 7)	25mg/l O ₂ / (70-90%) (For mountain areas above 1500 ASL 40% minimum reduction in BOD5 only: UWWD Art 4.2) (Less sensitive Estuaries only: min. 20% reduction only: UWWD Art 6.2)	25mg/l O ₂ / (70-90%) (For mountain areas above 1500 ASL 40% minimum reduction in BOD5 only: UWWD Art 4.2)	25mg/l O ₂ / (70-90%) (For mountain areas above 1500 ASL 40% minimum reduction in BOD5 only: UWWD Art 4.2)

UWWD COD	‘Appropriate treatment’ to achieve WQOs: (UWWD Art. 7)	125mg/l O ₂ / (75%) (Less sensitive Estuaries only: no limit)	125mg/l O ₂ / (75%)	125mg/l O ₂ / (75%)
UWWD TSS	‘Appropriate treatment’ to achieve WQOs: (UWWD Art. 7)	35mg/l / (or 90% reduction optional) (For mountain areas above 1500 ASL 60mg/l O ₂ / (70% reduction only)) (Less sensitive Estuaries only: min. 50% reduction only: UWWD Art 6.2)	35mg/l O ₂ / (or 90% reduction optional)	35mg/l O ₂ / (or 90% reduction optional)
TN (where receiving waters identified as sensitive to P) TP(where receiving waters identified as sensitive to N)	-	-	Either 2mg/l P or 80% reduction if sensitive to Phosphates. Or 15mg/l N or 80% reduction if sensitive to Nitrates Or 75% reduction in N and 75% reduction in P (If sensitive to both P and N)	Either 1mg/l P or 80% reduction if sensitive to Phosphates. Or 10mg/l N or 80% reduction if sensitive to Nitrates Or 75% reduction in N and 75% reduction in P (If sensitive to both P and N)

SECTION 2: Summary of key elements of each relevant Serbian law or regulation to drinking water supply and wastewater services

Law No. & Name	Article No. & Name	Description
<p>Law on Water (Official Gazette of the Republic of Serbia [OGRS], no 30/10)</p>	<p>Article 24 – Definition and competencies</p>	<p>Water management is the competence of the Republic of Serbia. The Republic of Serbia exercises its competencies through the Ministry of Agriculture, Forestry and Water Management, other relevant ministries, relevant institutions of autonomous provinces, local self-governments (LSGs) and public water management companies (PWMCs).</p>
	<p>Article 93 – Emission limit values</p>	<p>Emission limit values are determined for the following categories of contaminating substances: 1) industrial wastewater before discharge into the public sewerage, 2) industrial and other wastewater directly discharged into the recipient, 3) treated wastewater discharged into the receiving water body and 4) wastewater discharged into the receiving water body from the septic tanks and sump pits. The GoS, upon the proposal from the Minister in charge of environmental protection, prescribes: 1) all emission limit values mentioned above, including compliance timeframe and 2) limit values of contaminating substances in surface and ground waters and sediment, including compliance timeframe.</p>
	<p>Article 113 – Water acts</p>	<p>With the aim of ensuring universal water regime and water management, following water acts are issued: water conditions, water consent, water permit and water order.</p>
	<p>Article 114 – Adoption of water acts</p>	<p>Water acts are issued by the Ministry of Agriculture, Forestry and Water Management, by the competent authority of the autonomous province, the city of Belgrade or the LSG on their respective territories. As provided for by the Planning and Construction Law, applications for issuing water acts are submitted by persons applying for building permit, those responsible for spatial or town planning and those responsible for the forest management (hereinafter referred to as the applicant)</p>
	<p>Article 118 – Competences for issuing water conditions</p>	<p>Water conditions for facilities, installations, works and planning documents (including public water companies and wastewater treatment plants) are mostly issued by the relevant Ministry, relevant authority of the autonomous province or relevant authority of the City of Belgrade. Exceptionally, water conditions for facilities, installations, works and planning documents are issued by the relevant authority of an LSG in the following cases: public water companies in rural settlements, three planting and felling in the water bed and on the banks, change of cadastre policy in erosion-prone land, water-mill and water dwellings, other facilities and works that might temporarily, occasionally or permanently cause changes in water regime. Water permit determines modes, conditions and quantity of water intake as well as modes, conditions and quantity of wastewater discharge, including storage and emission of hazardous and other substances that might contaminate water. Water permit is issued by the same authority responsible for issuing water conditions and water consent.</p>
	<p>Article 122 – Issuing of water permits</p>	<p>Reference tariff is based on operating costs of drinking water supply and operating costs of wastewater collection, conveyance and treatment through the public water company system, including maintenance and depreciation costs.</p>
<p>Article 157 – Reference water tariff</p>	<p>The Government of Serbia (GoS) establishes the methodology for calculating water and wastewater tariffs, establishes criteria for calculating reference water tariff and sets reference water tariff. The government will</p>	

	Article 192 – Establishing water fee levels	determine all water fee levels (water extraction, water discharge, water pollution etc.), including the surplus for water discharge and water pollution fees if the recipient is a protected area, as well as the reduction of the water pollution fee if the wastewater is treated, having regard to the effects of the specific treatment.
Law on Communal Services (OGRS, no 16/97 and 42/98)	Article 2 Article 7 Article 8 Article 13 Article 23 Article 24	Municipality, city or the City of Belgrade regulates and provides the conditions for performance and development of communal services, [including drinking water supply and wastewater services]. Performance of communal activities can be organized for two or more municipalities, or more settlements, under conditions established by law and the agreement between municipal assemblies. A municipality establishes a public utility company (PUC) in order to perform a communal service, or delegates the performance of a communal service to other company or entrepreneur in accordance with the law and municipal assembly act. Municipal assembly regulates the conditions and mode of organization in performing communal services and the conditions for consumption and usage of communal products and services. PUC, with the approval of municipal assembly, decides on the water tariff. Elements for calculating the prices of communal services include: type, quantity and quality of communal service determined by municipal standards, value of resources mobilized for the provision of communal service, material costs of communal service provision and other elements.
Law on Public Companies and Activities of Public Interest (OGRS, no 25/00 25/02 107/05 и 108/05)	Article 1 – Definition of the public company Article 3 Article 22 Article 22b	Public company is a company performing the activities of public interest [including drinking water supply and wastewater services] which is established by the state or by the LSG unit or by the Autonomous Province (AP). Activity of public interest is performed by the public company. Activity of public interest can also be performed by the company or an entrepreneur if the competence for performing the activity was delegated by the relevant authority. Public utility company prepares the Annual Business Program for each calendar year and submits it to the founder for the approval. The Program determines prices and wages which are aligned with the policy of the projected price and wage growth established by the GoS for the year in question. Annual Business Programs of PUCs, which were previously approved by the founder, have to be submitted to the ministries in charge of commerce, labour, finance and LSG for the monitoring of annual price and wage trends. In the event that the relevant body of the founder (the LSG or the AP) approved the program which is not in line with the policy of the projected annual price and wage growth established by the GoS, the finance minister can temporarily halt the transfer of revenues from the Republic budget to the LSG or the AP budget until prices and wages are aligned with the policy of the projected annual price and wage growth established by the GoS.
Environmental Protection Law (OGRS, no 135/04 and 36/09)	Article 39 – Limit values Article 84 – Natural resources extraction	Emission limit values at the point of release to the environment and contaminant emission levels into the environment shall be set out by the GoS. 60% of the natural resources extraction fee is directed towards the Republic budget, 40% is allocated to the budget of LSGs.

	<p>fee</p> <p>Article 85 – Pollution fee</p> <p>Article 124</p>	<p>40% of the pollution fee is directed towards the Republic budget, 60% is allocated to the budget of LSGs.</p> <p>Water Master Plan adopted in 2002 represents the basis for water management until new strategies and national action plans are adopted.</p>
<p>Law on Local Self-government (OGRS, no 129/07)</p>	<p>Article 7</p> <p>Article 20 – Competencies of the municipality</p> <p>Article 88 – Cooperation and association of LSGs</p>	<p>In order to perform its rights and duties and to satisfy the needs of local population, LSG can be a founder of a company, an institution or other organization performing public service in accordance with the law and statute. Having regard to the Constitution and the law, the municipality regulates and provides the performance and development of communal services, including the provision of drinking water supply and wastewater services.</p> <p>LSG unit, its bodies and institutions, as well as companies and other organizations founded by the LSG can cooperate with other LSG units, its bodies and institutions in the areas of common interest and can pool resources and establish joint bodies, companies, institutions and other organizations.</p>
<p>Law on Financing of Local Self-government (OGRS, no 62/06)</p>	<p>Article 5 – Types of revenues of LSGs</p> <p>Article 7</p>	<p>Budgetary funds for the LSG units are provided from the own and assigned revenues, transfers from the central level of government, income from borrowings and other revenues and income specified by law.</p> <p>Level of own revenues, as well as the method and criteria for determining levels of local fees and charges are established by the decision of the assembly of local government as provided by law.</p>
<p>Law on Public Debt (OGRS, no 61/05 and 107/09)</p>	<p>Article 36 - Long-term borrowing of LSGs</p>	<p>Local authorities cannot enter into long term borrowing, save for financing or refinancing capital expenditures envisaged in the local government budget.</p> <p>The amount of outstanding long term borrowing for capital purposes cannot exceed 50% of realized local government budgetary revenues in the previous year.</p> <p>The amount of outstanding long term borrowing for capital expenditure purposes may exceed 50% of realized local government budgetary revenues in the previous year in case of long term loan with the repayment period of minimum five years, excluding grace period.</p> <p>The amount of principal and interest due each year on all outstanding long term borrowings can exceed 15%, provided that two-thirds of the current budget surplus make up a share larger than 15% in relation to total current revenues.</p>
<p>Law on the Territorial Organization of the Republic of Serbia (OGRS, no 129/07)</p>	<p>Article 2</p>	<p>Territorial organization of the Republic of Serbia is comprised of municipalities, cities and the City of Belgrade which represent territorial units and autonomous provinces which represent modes of territorial autonomy.</p>
<p>Law on the Capital City (OGRS, no 129/07)</p>	<p>Article 8</p>	<p>In addition to performing the competences of the municipality and the city, the City of Belgrade regulates and provides the protection of water, the protection from water and water extraction and usage, respecting the principle of integrated water management. The City of Belgrade also organizes and finances water management activities on its territory, establishes PVMC for its territory [“Beogradvode”], manages water installations and facilities under its competence and conducts supervision inspection regarding water management issues for its territory.</p>

<p>Law on the Establishment of Competencies of the Autonomous Province of Vojvodina (OGRS, no 99/09)</p>	<p>Article 16 – Water sector</p> <p>Article 17</p>	<p>AP of Vojvodina manages water sector competences at the territory of Vojvodina with the exception of water protection from pollution, it manages water resources, adopts Water Master Plan for the territory of Vojvodina in line the Water Master Plan of the Republic of Serbia, establishes public water management company for the territory of Vojvodina [“Vode Vojvodine”], conducts supervision inspection regarding water management issues for the territory of Vojvodina.</p> <p>AP of Vojvodina collects revenues from the water extraction fees which are set by the GoS, issues all kinds of water permits for the territory of Vojvodina, including water intake and wastewater discharge permits for water companies.</p>
<p>Law on Public Administration (OGRS, no 79/05 and 101/07)</p>	<p>Article 38 – Definition of the managing county</p>	<p>Managing counties are established for conducting public administration tasks below the central government level.</p>
<p>Law on Regional Development (OGRS, no 52/09 and 30/10)</p>	<p>Article 4</p>	<p>Region is a statistical functional territorial unit established for the planning and implementation of the regional development policy, aligned with NUTS 2 statistical territorial units; the region is not an administrative territorial unit and has no legal identity.</p>
<p>Law on Planning and Construction (OGRS no 72/2009)</p>		<p>The Spatial Plan of the Republic of Serbia for the period 2010 to 2020 was adopted on November 23, 2010 and entered into force on December 1, 2010 and constitutes the basic planning document of spatial planning and development in Serbia. Other planning documents must comply with the Spatial Plan of the Republic of Serbia. The Spatial Plan of the Republic of Serbia has a strategic-developmental and general regulatory function. Further to the adoption of the Law on Planning and Construction in 2009, the Republic Agency for Spatial Planning is currently preparing the Implementation Programme that follows the adoption of the Spatial Plan. This ‘Implementation Programme’ will be adopted by the Government not later than one year from the entry into force of the Spatial Plan of the Republic of Serbia (i.e. not later than December 1, 2011). The Program will define:</p> <ul style="list-style-type: none"> · Priority projects for spatial development, · The dynamics of spatial development, · Financial resources, · Responsibilities for projects implementation, and · Criteria for monitoring of status in spatial development.

SECTION 3: Summary of functional role and responsibility of each level of government in the provision of drinking water supply and wastewater services, and revenues / budget allocation for supporting the provision of water supply and wastewater services

Functional roles and responsibilities of different layers of government, both horizontally and vertically, in the provision of drinking water supply and wastewater services in Serbia are not clearly delineated. Legal framework suffers from incompleteness and inconsistencies which are then mirrored into the institutional framework demonstrating functional overlaps and lack of clear accountability lines in the provision of drinking water supply and wastewater services in Serbia.

In early May 2010, a new framework Law on Water was adopted which is supposed to set the ground for the thorough reform of water management in Serbia and to build the legal and institutional frameworks which will underpin sectoral compliance investments in the years to come. At the time of writing this note (July 2010), the legal framework is still in legal “limbo”, since secondary legislation (numerous by-laws, acts, strategies and master plans) is missing to complete the legislative reform of water management in Serbia. All by-laws regulating the water sector which were adopted before the new Law on Water came into force will continue to be implemented until new legal acts, aligned with this Law, are passed. Legal acts which should be proposed, according to the Law, either by the relevant Minister for Agriculture, Forestry and Water Management or by the GoS should be adopted within six months or within two years at the latest from the date of coming into force of the Law on Water.

In particular, new water financing mechanisms are still not in place, methodologies for calculating water fees, as well as water supply and wastewater tariffs are not clear since, according to the new Law on Water, the GoS will determine the levels of all water fees (Article 192) and the reference water tariff for the provision of drinking water supply and wastewater services (Article 157). Even though the first part of Article 157 introduces reference water tariff following the cost-recovery principle, the second part states that the GoS establishes the methodology for calculating water and wastewater tariffs, establishes criteria for calculating reference water tariff and sets reference water tariff.

Basic statistics on the provision of water and wastewater services

According to estimations of the Statistical Office of the Republic of Serbia, there were 7,350,222 inhabitants living on the territories of Vojvodina, Central Serbia and Kosovo and Metohija in mid-2008⁷ (the last population census was conducted in 2002).

Also, according to the data of the Republic’s Statistical Office, the percentage of households connected to public water supply networks was 69% in 2002 and 78.31% in 2008. In the AP of Vojvodina, the percentage is significantly higher and amounts to 93.38%.

Out of the number of households connected to public water supply network, only 43.02% is also connected to a public sewerage network. Approximately 75% of the urban population is connected to public water supply networks, whereas only 9% of the rural population is connected. There are 28 cities in the Republic of Serbia with a wastewater treatment plant, but only 5 were operating in 2006. In terms of industrial consumers, there are 152 industrial locations that provide for effluent treatment. However, only 13% of industrial wastewater treatment plants operate efficiently⁸.

Average specific water consumption is 350 l per inhabitant per day⁹.

According to the data of the Republic’s Statistical Office, the percentage of households connected to public sewage systems in 2002 was 33%, and 35.03% in 2008. The National Environment Protection Programme (Official Gazette of RS, number 12/10) states that the percentage of households connected to sewage

⁷ Municipalities in Serbia 2009, Statistical Office of the Republic of Serbia, Belgrade 2010.

⁸ National Environmental Protection Strategy of the Republic of Serbia, adopted in March 2010.

⁹ Water Master Plan of the Republic of Serbia, adopted in 2002.

networks that have appropriate systems for urban waste water treatment in 2002 was 5.30%, and 6.0% in 2008. However, the Report on the Environmental Status in the Republic of Serbia for the year 2009 states that 11.5% of population is connected to a sewage system that has a system for the purification of waste waters. The available data related to the percentage of population connected to sewage system are unreliable and differ depending on the source of data. This discrepancy originates from the absence of a consistent reporting methodology.

PART I: Central (Republic) Level of Government

The overall responsibility for integrated water management is assigned to the Ministry of Agriculture, Forestry and Water Management. Even though the previous Law on Water assigned these competences to the Directorate for Water as the operational body of the Ministry, the new framework Law does not mention the Directorate for Water as such. Under the law on Ministries the competence is assigned to the Directorate of Water. Law on Ministries takes precedence. Other ministries and central government bodies also have competences in specific areas of water management, monitoring and enforcement.

Mainly, the PWMC “Srbijavode” was founded in accordance to amendments to the previous Law on Water in 1996 by merging three PWMCs “Dunav”, “Sava” and “Morava”. Furthermore, PWMC “Vode Vojvodine” was founded in accordance to the Law on the Establishment of Specific Competencies of the Autonomous Province of Vojvodina in 2002 (this Law was superseded by the Law on the Establishment of Competencies of the Autonomous Province of Vojvodina in 2009). Ever since, “Srbijavode” performs its water management competencies on the territory of the Republic of Serbia with the exception of the AP of Vojvodina. Finally, former social water company “Beograd-vode” was reorganized into the PWMC “Beogradvode” founded by the City of Belgrade, in accordance to the decision of the Assembly of the City of Belgrade in 2008. Core competencies of PWMCs are management of water resources, water usage (except distribution to households), flood, ice, erosion protection, land drainage, watercourse diversion, and protection of water against pollution.

Drainage and irrigation activities, as well as flood protection, are competencies of PWMCs in accordance to water basin districts division of Serbia. The new Water Law divides the territory of Serbia in seven water basins (Article 27): water basins Sava, Morava, Lower Danube and Kosovo and Metohija fall under the competence of “Srbijavode”, water basins Srem and Banat and Backa fall under the competence of “Vojvodina Vode”, while water basin Belgrade falls under the competence of “Beogradvode”. Each water basin is divided into a number of drainage and irrigation areas. PWMCs subcontract drainage and irrigation competencies per each drainage and irrigation area to one water management company on annual basis. For example, the territory of the AP of Vojvodina is divided into 18 drainage and irrigation areas and thus, the PWMC “Vode Vojvodine” signs an annual contract on regular maintenance of the drainage and irrigation area with the watermanagement company in charge of the particular area. While regular maintenance of drainage and irrigation areas is accorded to these water management companies, PWMCs perform investment and development activities directly without subcontracting. However, most of these watermanagement companies are still “social” companies whose legal and institutional roles have become unclear in the current legal framework of Serbia. Hence, there is an urgent need for restructuring of property issues of these watermanagement companies in accordance with the current situation and for the incorporation of their databases and local know-how into integrated information systems along the lines of the newly identified water basins.

Flood protection represents the competence of PWMCs for main water bodies (first-rank waters), while the flood protection competencies for the second-rank waters are accorded to the LSG units (Law on Water, Article 53). Flood control is performed in accordance to the six-year Master Flood Protection Plan prepared by the relevant Ministry and adopted by the GoS (Article 54) and in accordance with annual Operational Flood Protection Plans (Article 55). In the case of first-rank waters, Operational Flood Protection Plans are prepared along the lines of water districts by the PWMCs and passed by the relevant Ministry. In the case of second-rank waters, these Plans are adopted by LSG units in consultation with the relevant PWMC. Emergency response duties in flooded areas are performed by the respective PWMCs that have a special budgetary line reserved each year in its annual agreement / budget for this purpose. In years where this

special budgetary line item is insufficient the GoS is obliged to assign direct budget assistance to make up any short-fall to help the flooded areas.

In terms of monitoring, functional roles and responsibilities are divided among several relevant ministries and institutions. Firstly, according to the Environmental Protection Law, the Environmental Protection Agency is in charge of the environmental protection information system which should provide the basis for the efficient identification, classification and monitoring of natural resources and environmental management in Serbia (Article 74), however the Directorate of Water in the Ministry of Agriculture, Forestry and Water is in charge of the water information system (WIS) which should provide the basis for the efficient identification, classification and monitoring of water resources and water management in Serbia. The Environmental Protection Agency also acts as the focal point for managing the integrated cadastre of polluters and for issuing the annual environmental report (Articles 75 and 76). Secondly, according to the Law on Water, Republic Hydrometeorological Service of Serbia is assigned with the responsibility to monitor the status of all water systems in Serbia and to issue an annual report on the status and qualitative changes of water systems (Article 109). Thirdly, public health institutes monitor and report on the quality of drinking water as stated in Article 22 of the Food Safety Law (Official Gazette of the Republic of Serbia, no 53/91, 24/94, 28/96, 37/02, 79/05, 101/05). Fourthly, monitoring of wastewater discharge is almost non-existent. The legal obligation for systematic monitoring of wastewater discharge (Law on Water, Article 99) is not implemented in practice. The polluters are obliged to monitor and report the quality of discharged wastewater, but since standards on wastewater are not universally regulated for urban wastewater (as demonstrated in part II, Section 1) and therefore inspections are left without relevant legal basis to enforce compliance, most polluters simply ignore these legal obligations.

In line with the new Water Law, permitting authorities lie with all levels of government depending on the territory and the type of permitting request submitted: from the relevant Ministry of Agriculture, Forestry and Water Management, autonomous province, the city of Belgrade or the LSG unit. Water acts include water conditions, water consent, water permit and water order. Firstly, water conditions determine technical and other standards to be met when building or reconstructing facilities and preparing planning documentation (Article 115). Secondly, water consent confirms that both technical documentation for facilities and works and planning documentation for urban planning and forest management are aligned with the previously issued water conditions (Article 199). Thirdly, water permit determines modes, conditions and quantity of water intake as well as modes, conditions and quantity of wastewater discharge, including storage and emission of hazardous and other substances that might contaminate water (Article 122). Fourthly, water order requires the water permit holder to perform or refrain from performing certain activities in order to mitigate the dangers caused or likely to be caused to water regime, i.e. disturbances in river bed and banks stability, and restore the affected area to its former condition in line with the conditions set forth in the water permit issued (Article 128).

Similarly, enforcement competences are divided among relevant institutions (Law on Water, Article 196). Inspection over general implementation of the framework Law on Water is accorded to the General Inspectorate in charge of water issues of the Ministry of Agriculture, Forestry and Water Management which represents a separate organizational unit from the Water Directorate. Drinking and bathing water quality is inspected by the relevant sanitary inspector in the Ministry of Health. Enforcement competencies regarding the quality of wastewater discharged into recipient lie with the Ministry of Environment and Spatial Planning, inspectorate for environmental protection.

PART II: Autonomous provinces

According to the Law on the Territorial Organization of the Republic of Serbia, autonomous provinces represent autonomous territorial communities in which citizens enjoy the right on provincial autonomy (Article 25). Therefore, the AP of Vojvodina enjoys a certain level of autonomy from the central government when it comes to a number of functional roles and responsibilities. Its competencies are regulated in the Law on the Establishment of Competencies of the Autonomous Province of Vojvodina. The second autonomous province, according to the Constitution of the Republic of Serbia, is Kosovo and Metohija which will not be discussed at this occasion due to its special status.

AP of Vojvodina is the northern province of the Republic of Serbia, covering almost a quarter of the territory of the Republic of Serbia or 21.506 square kilometers, with estimated population of 1.979.389 in mid-2008¹⁰ (see annex 1 for further details). According to the Law on the Territorial Organization of the Republic of Serbia, it consists of 39 municipalities and 6 cities.

According to the Law on Public Companies and Activities of Public Interest, autonomous provinces have the right to establish public companies and perform LSG unit's competencies of a founder. The AP of Vojvodina is the owner of the public property which is used by its authorities and by the public companies and institutions founded by the province.

Articles 16 and 17 of the Law on the Establishment of Competencies of the Autonomous Province of Vojvodina assign significant financial (collecting revenues from the water extraction fees, issuing all kinds of water permits), managerial (managing water sector and water resources, adopting Water Master Plan for its territory, establishing PWMC) and enforcement competencies (conducting inspection supervision regarding water management issues) to the AP of Vojvodina. All the enforcement competencies specified in the Law on Water (Article 196) are fully delegated to the AP to be performed on its territory. The province has its own revenues to finance the competences it performs. However, types and levels of own revenues are supposed to be governed by a separate law (Article 8) which has not been adopted yet.

In terms of financing specific water-related competencies, the Law on Water provides for the establishment of the Provincial Water Fund which earmarks the fund for the water-related activities of public interest on the territory of the province (Article 188). Furthermore, the Environmental Protection Law provides for the possibility of establishing a Provincial Environmental Fund which will allocate budget to finance environmental programs, projects and activities on the territory of the province (Article 100).

¹⁰ Municipalities in Serbia 2009, Statistical Office of the Republic of Serbia, Belgrade 2010.

PART III: Local self-government units – municipalities and cities

According to the Law on the Territorial Organization of the Republic of Serbia, there are 150 municipalities (with minimum 10.000 inhabitants), 23 cities (with minimum 100.000 inhabitants) and the City of Belgrade, as a separate territorial unit, in Serbia. Municipalities, cities and the City of Belgrade have the same legal status of the LSG unit. The city territory can be divided into city municipalities by the city statute. The city statute regulates the specific competencies assigned to the city municipality from the range of city competencies. The city is assigned with the same competencies as the municipality, but also performs other delegated public administration responsibilities. The city establishes the communal police, regulates and provides its performance. The Law on Local Self-government prescribes the same functional roles and responsibilities to both municipal and city authorities (Article 66). Exceptionally, the City of Belgrade enjoys the separate status.

According to the current legislation, rights and responsibilities in terms of management and decision-making in water companies are split between central and local governments which might create institutional overlaps or gaps in accountability. According to the Law on Communal Services, the municipalities, the cities or the City of Belgrade have the sole responsibility for establishing and organizing the provision of water supply and wastewater services. However, the Law on Public Companies and Activities of Public Interest introduces the central government into the managing and decision-making processes of water companies. According to this Law, aside from an LSG unit, the founder of the public company can also be the autonomous province or the state.

More importantly, the Law on Communal Services states that the PUCs decide on tariff levels by a sole agreement with the municipal assembly of the founder (Article 23) and that the tariffs are formed following the cost-recovery principle (Article 27). Nevertheless, the Law on Public Companies and Activities of Public Interest obliges public companies to take into account the policy of the projected annual price and wage growth established by the GoS when determining price and wage levels (Article 22). Otherwise, the finance minister has the power to temporarily halt the transfer of revenues from the Republic budget to the relevant LSG or the AP budget until prices and wages are aligned with the policy of the projected price and wage growth established by the GoS for the year in question (Article 22b).

PART IIIa: Revenues of local self-government units

According to the Law on Financing of Local Self-government, the budgets of LSG units (municipalities, cities and the City of Belgrade) are comprised of own revenues, assigned revenues, transfers, income from borrowings and other revenues specified by law. Own revenues also include property tax, local administrative tax, local communal fees, environmental protection fees, revenue arising from the concession fee relating to public utilities and revenues from other concession contracts awarded by the local self-governments in accordance with the applicable laws (for a full list, please refer to the Article 6 of the relevant Law). Article 7 states that the method and criteria for determining levels of local fees and charges are established by the decision of the Assembly of local government as provided by the law. Nevertheless, concerning water sector, Article 192 of the new Water Law assigns the power for determining all water fee levels (water extraction, water discharge, water pollution etc.) to the Government of Serbia. In practice, this is usually determined by an annual governmental decree establishing all water fees for the relevant year.

Assigned revenues of LSG units are comprised of assigned taxes and assigned fees. Assigned taxes include personal income tax, inheritance and gift tax, absolute rights transfer tax. Revenues collected from assigned fees also include environmental pollution fee, fee for mineral raw material exploitation, sand and gravel extraction fee, forest use fee, water use fee (for a full list, please refer to the Article 36 of the relevant Law). Furthermore, Articles 84 and 85 of the Environmental Protection Law have defined the formula for dividing the natural resources extraction fees and environmental pollution fees between the Republic level and local level.

The Law on Financing of Local Self-government provides different types of budgetary transfers from the central to the LSG level. Annual value of total non-specific transfer amounts to 1,7% of realized gross

domestic product according to the latest available data issued by the Republic Statistical Office. Furthermore, total amount of funds intended for the general transfer is calculated by deducting the required amount of the equalization transfer and compensation and transition transfers from the above mentioned aggregate non-specific transfer (Articles 37-41).

Amount of the general transfer to be allocated to the individual LSG units is established based on the following common criteria:

- 65,0% of total funds appropriated for the general transfer is divided by the population number;
- 19,3% is divided by the surface area of the territory;
- 4,56% is divided by the number of classes in primary schools;
- 1,14% is divided by the number of primary school facilities;
- 2,0% is divided by the number of classes in secondary schools;
- 0,5% is divided by the number of secondary school facilities;
- 6,0% is divided by the number of children covered by direct child welfare program, in particular the children in full-day, i.e. half-day program;
- 1,5% is divided by the number of child welfare facilities.

Total functional transfer is calculated based on total costs required for the performance of particular function in the year before the transfer of powers to the local self-governments took place. Finally, the Republic may allocate specific-purpose transfer to local self-government units for the performance of tasks within their original scope of activity or for the tasks the execution of which is delegated to them.

Regarding the borrowing ceiling for the LSGs, the 2005 Law on Public Debt allowed LSGs to borrow on domestic and international markets in domestic and international currencies, but did not allow LSGs to issue debt guarantees directly. According to this Law, LSGs could not obtain a long-term credit that surpassed 50% of their annual revenues for the previous financial year (Article 36). This Law was amended in December 2009 due to severe reduction of liquidity of LSGs, relaxing limits for LSGs to borrow. At the time of writing this Note, new Law on Public Debt is being drafted by the Ministry of Finance, which is supposed to introduce new borrowing terms for LSGs, and allow for issuance of municipal bonds.

PART IIIb: Legal basis for establishing associations of LSGs for supporting the provision of water supply and wastewater services

Legal basis for the establishment of associations of smaller LSGs and/or settlement agglomerations in order to achieve economies of scale and to cost effectively implement compliance investments in the water and wastewater sector in Serbia can be found both in the sectoral legislation and in the legislation pertaining to LSGs in general. Firstly, the Law on Communal Services provides for the possibility of two or more municipalities / settlements organizing communal services jointly with an important disclaimer of the municipalities / settlements in question reaching an agreement on all relevant issues (Article 7). Secondly, the Law on Local Self-government recognizes the cooperation of LSGs in the areas of common interest and provides for LSGs to pool their resources and establish joint bodies, companies, institutions and other organizations (Article 88).

However, these laws do not provide for the budgetary transfers from the central or provincial level of government to the respective companies or organizations of two or more LSGs / settlements. Inter-municipal cooperation is not institutionalized and recognized by the central government as a standard form of providing water and wastewater services or implementing investments and thus LSGs / settlements do not have legally prescribed and institutionalized possibility to apply for funds. National / provincial level funding is directed towards municipalities by default and does not provide for instruments to stimulate inter-municipal cooperation. This issue is a significant reason why LSGs in practice often do not pool their resources together.

The concept of inter-municipal cooperation is a relatively new mode of providing municipal services in Serbia and has been intensively promoted first by the European Agency for Reconstruction and then by the Delegation of the European Commission (renamed into the Delegation of the European Union) in recent years. Many projects financed by CARDS and IPA funds were and still are geared towards stimulating inter-municipal cooperation and institutionalizing it through different agencies. Thus, a number of EC-funded projects have tried to institutionalize inter-municipal cooperation by mobilizing municipalities to establish regional development agencies. These actions created a situation whereby a number of ad hoc regional development agencies were founded covering a sample of neighbouring municipalities that successfully reached an agreement and leaving other municipalities (for different reasons) not covered by any agency. The Law on Regional Development followed in mid-2009 that should provide a universal institutional framework of inter-municipal / regional cooperation for the whole territory of Serbia (further analysis will follow in Section 4).

PART IV: The City of Belgrade

The City of Belgrade, with estimated population of 1.621.396 in mid-2008¹¹, represents a separate territorial unit according to the Constitution and the Law on the Territorial Organization of the Republic of Serbia. Therefore, status, competencies and relevant authorities of the City of Belgrade are regulated by a separate Law on the Capital City. All issues referring to the City of Belgrade as a separate LSG unit not regulated by this Law, are regulated by the Law on Local Self-government (Article 1). In order to perform specific competencies more efficiently and effectively, the City of Belgrade establishes City municipalities which have their own legal identity. The City statute assigns the competencies, which were originally the competencies of the City of Belgrade, to the City municipalities. The City of Belgrade has the right to abolish a City municipality and to merge its area to one or more existing City municipalities (Article 6). The Law on Financing of Local Self-government also refers to the City of Belgrade as an LSG unit. In terms of specific competencies in the water sector, the City of Belgrade, beside the rights and responsibilities of a city laid down in the Law on Local Self-government, also performs other functional roles relating to management (regulates and provides the protection of water, flood protection and water extraction and usage, establishes PWMC “Beogradvode” for its territory, manages water installations and facilities under its competence), financing and enforcement (conducts inspection supervision regarding water management issues for its territory) of the water sector (Law on the Capital City, Article 8). All the enforcement competencies specified in the Law on Water (Article 196) are fully delegated to the City of Belgrade to be performed on its territory.

Note on Managing counties

According to the Law on Public Administration, managing counties are established for conducting public administration tasks below the central government level. Public administration authorities have the right to perform one or more of the following public administration competencies on the managerial county level: resolve administrative disputes in the first instance, that is, appeals against first-instance decisions brought by the statutory authorities and office holders, monitor and supervise the work of statutory authorities and office holders and conduct supervision inspection (Article 38). The GoS passes a bylaw which constitutes managerial counties, their areas and seats (Article 39). Managerial counties are not recognized in laws regulating territorial organization and LSGs and therefore do not represent an independent level of government in Serbia. Rather, they are used by the central government for deconcentration of certain competencies for reasons of efficiency. Hence, managerial counties do not perform functional roles and responsibilities of relevance for the provision of water supply and wastewater services in Serbia.

¹¹ Municipalities in Serbia 2009, Statistical Office of the Republic of Serbia, Belgrade 2010.

SECTION 4: Summary Analysis of the Law on Regional Development and its relevance to facilitating the provision of drinking water supply and wastewater services

In 2009, Serbian Parliament adopted the Law on Regional Development which was supposed to represent a framework law for the introduction of regional development policy in Serbia for the purposes of tackling staggering developmental discrepancies throughout Serbia and for successful future absorption of the EU's Structural Funds. The Law was amended in 2010 and the progress relating to the adoption of additional legal acts, which should uphold the legal environment of regional policy in Serbia, has been slow ever since. The Law establishes the names of the regions (which were changed by the above mentioned amendment from seven to five regions) and regulates the following issues: methodology for determining areas and LSG units which comprise a region, development indicators of regions and LSGs, ranking of regions and LSGs according to their development levels, development documents, subjects of regional development, measures, incentives and sources of financing regional development policy.

According to this Law, region represents a statistical functional territorial entity, comprising of one or more areas, established for the purposes of planning and implementing regional development policy in line with The Nomenclature of Territorial Units for Statistics (NUTS) level 2. Region is not an administrative territorial unit and does not have legal identity (Article 4). The Law provides for the establishment of the National Regional Development Agency (NRDA) which accredits regional development agencies (RDAs). An RDA can be registered either as a company (with the majority owners of capital being LSGs) or as an association (with the majority founders being LSGs) for the purpose of improving regional development and has to be accredited. The Law also provides for the minimal number of RDAs that have to be accredited in each identified region (for example, three RDAs in the Vojvodina region, one RDA in the Belgrade region etc). In this way, the Law provided for the continuity of the existing RDAs which were mentioned in Part 3, Section IIIb.

Resources for financing regional development include: budget of the Republic of Serbia, budget of the AP, budget of the City of Belgrade, budget of LSGs, IPA - Instrument for Pre-accession Assistance of the EU, development grants of the international community and other EU programs, development loans of IFIs and commercial banks, donations and contributions of legal and private persons. Regional development is stimulated by measures and incentives.

Measures for stimulating regional development are determined by the GoS in accordance with the relevant development documents. Incentives for stimulating regional development that might be of relevance for water and wastewater sector are allocated for (Article 45):

- Implementation of regional development projects of national, regional, and local interest to the Republic of Serbia,
- Improvement of regional competitiveness,
- Development of cities and municipalities,
- Improvement of environmental protection,
- Development of less developed regions,
- Improvement of infrastructure on republic, regional and local level,
- Improvement of inter-municipal, inter-regional, cross-border and international cooperation in areas of common interest.

Beneficiaries of these incentives are identified in the relevant development documents. Types and levels of incentives are determined in accordance with the development levels of regions (Article 9 classifies regions in two groups, using GDP per head as a benchmark) and LSG units (Article 11 classifies LSG units in four groups, using national average of LSGs' development levels as a benchmark).

Beneficiaries of these incentives that might be of relevance for water and wastewater sector include (Article 46):

- LSG units and RDAs,
- Companies and funds on regional and local level,
- Institutions and organizations on republic, regional and local level,
- Associations.

This Law could represent a trigger of inter-municipal cooperation since it provides for the institutional setup and financial instruments to stimulate and channel regional development and, by extension, inter-municipal cooperation. Thus, it could be a stimulus for smaller neighbouring municipalities from the same region to pool resources together for implementing compliance investments in water and wastewater sector.

ATTACHMENT 1: Map of municipalities, managing counties¹², and autonomous provinces of the Republic of Serbia with summary table of population per municipality / city¹³



¹² Managing counties are standard statistical units used by the Statistical Office of the Republic of Serbia and are therefore presented in this map.

¹³ Municipalities of Serbia 2008, Statistical Office of the Republic of Serbia, Belgrade 2009

1-1. GENERAL DATA, 2007

Administrative district City Municipality	Area, km ²	Agricultural area, %	Settlements		Population ²⁾ , as of 30 June 2007		Cadastré municipa- lities ¹⁾	Registered local communi- ties ³⁾	Local offices ³⁾
			Number	Average size, km ²	Total	Per 1 km ²			
REPUBLIC OF SERBIA	88 361	65.2	6 169	14.3	7381579	...	5 825	4610	1706
Central Serbia	55 968	59.1	4 253	13.2	5390072	96	4 078	3595	1293
Vojvodina	21 506	81.3	467	46.1	1991507	93	448	561	238
Kosovo and Metohia	10 887	...	1 449	7.5	...	...	1 299	454	175
City of Belgrade	3 227	66.2	166	19.4	1611333	499	174	307	83
Belgrade - Barajevo	213	71.2	13	16.4	25146	118	13	14	-
Belgrade - Voždovac	148	63.0	5	29.6	154648	1045	8	24	7
Belgrade - Vračar	3	-	1	3.0	55880	18627	1	4	-
Belgrade - Grocka	289	72.1	15	19.3	79819	276	14	15	14
Belgrade - Zvezdara	32	53.9	1	32.0	140559	4392	4	17	-
Belgrade - Zemun	150	63.0	2	75.0	157021	1047	4	22	2
Belgrade - Lazarevac	384	60.4	34	11.3	59043	154	34	44	11
Belgrade - Mladenovac	339	80.5	22	15.4	52071	154	19	24	13
Belgrade - Novi Beograd	41	24.0	1	41.0	219208	5347	1	18	-
Belgrade - Obrenovac	411	73.2	29	14.2	71521	174	29	29	9
Belgrade - Palilula	451	62.0	8	56.4	163382	362	11	23	6
Belgrade - Rakovica	31	38.5	1	31.0	102702	3313	3	13	-
Belgrade - Savski Venac	14	-	1	14.0	40819	2916	1	9	-
Belgrade - Sopot	271	72.2	17	15.9	20207	75	16	16	14
Belgrade - Stari Grad	5	-	1	5.0	53256	10651	1	17	-
Belgrade - Surčin	288	67.5	7	41.1	39615	138	7	7	7
Belgrade - Čukarica	156	47.5	8	19.5	176436	1131	8	11	-
North Bačka	1 784	89.2	45	39.6	194573	109	24	55	13
Bačka Topola	596	91.6	23	25.9	36051	60	10	15	-
Mali Idoš	181	93.4	3	60.3	12770	71	3	3	-
Subotica	1 007	87.1	19	53.0	145752	145	11	37	13
Central Banat	3 256	84.5	55	59.2	197585	61	60	69	45
Žitište	525	90.3	12	43.8	18661	36	12	12	11
Zrenjanin	1 327	79.5	22	60.3	127416	96	27	37	22
Nova Crnja	273	90.7	6	45.5	11338	42	7	6	-
Novi Bečej	609	85.5	4	152.3	25271	41	4	4	3
Sečanj	523	87.0	11	47.5	14899	28	10	10	9
North Banat	2 328	87.7	50	46.6	157155	68	37	49	7
Ada	227	88.4	5	45.4	18189	80	4	7	-
Kanjiža	399	84.5	13	30.7	26566	67	8	9	7
Kikinda	782	89.1	10	78.2	63324	81	10	13	-
Novi Kneževac	305	86.4	9	33.9	11985	39	5	5	-
Senta	293	90.1	5	58.6	24457	83	3	8	-
Čoka	321	87.2	8	40.1	12634	39	7	7	-
South Banat	4 245	79.3	94	45.2	306133	72	100	103	44
Alibunar	602	85.3	10	60.2	21608	36	10	10	-
Bela Crkva	353	76.7	14	25.2	19009	54	20	14	11
Vršac	800	77.1	24	33.3	53290	67	24	29	22
Kovačica	419	88.0	8	52.4	26867	64	7	7	-
Kovin	730	64.8	10	73.0	36650	50	10	10	8
Opovo	203	78.0	4	50.8	10755	53	4	4	3
Pančevo	755	82.6	10	75.5	125769	167	12	16	-
Plandište	383	88.9	14	27.4	12185	32	13	13	-

¹⁾ Data have been taken over from the Geodetic Office of the Republic Serbia.

²⁾ Estimate.

³⁾ Data have been taken over from the Register of Legal Entities, state as of 31 December 2006; for Kosovo and Metohia the state as of 31 December 1998.

1-1. GENERAL DATA, 2007 (continued)

Administrative district City Municipality	Area, km ²	Agricultural area, %	Settlements		Population ²⁾ , as of 30 June 2007		Cadastr municipa- lities ¹⁾	Registered local communi- ties ³⁾	Local offices ³⁾
			Number	Average size, km ²	Total	Per 1 km ²			
West Bačka	2 419	82.3	37	65.4	200951	83	37	46	23
Apatin	350	64.5	5	70.0	30870	88	5	6	-
Kula	481	90.6	7	68.7	45960	96	6	9	-
Odžaci	411	82.3	9	45.7	32490	79	9	9	8
Sombor	1 177	84.1	16	73.6	91631	78	17	22	15
South Bačka	4 015	79.4	77	52.1	603244	150	83	118	42
Bač	365	70.8	6	60.8	15283	42	6	6	5
Bačka Palanka	579	80.7	14	41.4	58110	100	15	17	12
Bački Petrovac	158	88.6	4	39.5	14108	89	4	4	3
Beočin	186	44.9	8	23.3	15704	84	8	10	7
Bečej	486	87.0	5	97.2	39317	81	5	8	-
Vrbas	376	87.6	7	53.7	44202	118	8	8	5
Žabalj	400	83.5	4	100.0	26748	67	4	4	3
Novi Sad - city	699	71.5	16	43.7	319259	457	18	47	-
Srbobran	284	92.6	3	94.7	17017	60	4	4	-
Sremski Karlovci	51	46.7	1	51.0	8782	172	1	-	-
Temerin	170	90.3	3	56.7	28273	166	4	4	2
Titel	262	80.8	6	43.7	16441	63	6	6	5
Srem	3 485	73.0	109	32.0	331866	95	107	121	64
Indija	385	86.1	11	35.0	48944	127	9	14	-
Irig	230	74.6	12	19.2	11595	50	14	9	8
Pećinci	489	69.2	15	32.6	22055	45	15	15	-
Ruma	582	74.2	17	34.2	57713	99	18	20	16
Sremska Mitrovica	762	73.9	26	29.3	83205	109	23	34	22
Stara Pazova	351	85.2	9	39.0	71931	205	9	10	-
Šid	687	59.7	19	36.2	36423	53	19	19	18
Mačva	3 264	67.4	228	14.3	316999	97	218	236	107
Bogatić	384	80.0	14	27.4	31551	82	14	14	13
Vladimirci	337	79.9	29	11.6	19125	57	30	30	8
Koceljeva	257	71.8	17	15.1	14650	57	18	18	6
Krupanj	342	58.3	23	14.9	18722	55	24	24	4
Loznica	608	59.0	54	11.3	84074	138	49	56	24
Ljubovija	356	56.7	27	13.2	15557	44	24	22	10
Mali Zvornik	184	42.1	12	15.3	13320	72	10	11	4
Šabac	795	75.7	52	15.3	120000	151	49	61	38
Kolubara	2 474	68.8	218	11.3	184014	74	207	187	54
Valjevo	905	64.3	78	11.6	94157	104	74	51	24
Lajkovac	186	74.5	19	9.8	16119	87	18	20	6
Ljig	279	65.5	27	10.3	13518	48	26	26	-
Mionica	329	66.1	36	9.1	15623	47	35	32	5
Osečina	319	66.2	20	16.0	13951	44	17	23	6
Ub	456	81.1	38	12.0	30646	67	37	35	13
Podunavlje	1 250	81.7	59	21.2	205911	165	65	78	39
Velika Plana	345	78.5	13	26.5	43126	125	14	17	13
Smederevo	484	78.8	28	17.3	109007	225	30	38	26
Smederevska Palanka	421	87.7	18	23.4	53778	128	21	23	-

¹⁾ Data have been taken over from the Republic Geodetic Office of Serbia.

²⁾ Estimate

³⁾ Data have been taken over from the Register of Legal Entities, state as of 31 December 2006; for Kosovo and Metohia the state as of 31 December 1998.

1-1. GENERAL DATA, 2007 (continued)

Administrative district City Municipality	Area, km ²	Agricultural area, %	Settlements		Population ²⁾ , as of 30 June 2007		Cadastr municipa- lities ¹⁾	Registered local communi- ties ³⁾	Local offices ³⁾
			Number	Average size, km ²	Total	Per 1 km ²			
Braničevo	3 865	61.9	189	20.4	193944	50	196	198	142
Veliko Gradište	344	72.1	26	13.2	19868	58	26	26	20
Golubac	388	42.4	24	15.3	9248	25	24	24	7
Žabari	265	80.5	15	17.7	12270	46	16	18	13
Žagubica	760	48.2	18	42.2	14047	18	19	15	12
Kučevo	721	47.4	26	27.7	17497	24	29	24	13
Malo Crniče	270	83.4	19	14.2	13064	48	19	19	18
Petrovac	655	73.4	34	19.3	32891	50	34	35	33
Požarevac	482	75.0	27	17.9	75059	156	29	37	26
Šumadija	2 387	69.5	175	13.6	292340	122	176	195	73
Arandjelovac	376	68.0	19	19.8	47146	125	19	20	16
Batočina	136	77.3	11	12.4	11771	87	12	12	6
Knić	413	65.0	36	11.5	15087	37	36	33	15
Kragujevac - city	835	64.4	57	14.6	174626	209	62	79	35
Lapovo	55	82.5	2	27.5	7844	143	1	1	1
Rača	216	79.9	19	11.4	11986	55	17	17	-
Topola	356	77.1	31	11.5	23880	67	29	33	-
Pomoravlje	2 614	62.5	191	13.7	219934	84	190	208	89
Despotovac	623	48.5	33	18.9	23942	38	30	31	27
Jagodina	470	70.6	53	8.9	70085	149	53	62	17
Paraćin	542	58.4	35	15.5	56913	105	36	43	21
Rekovac	366	63.3	32	11.4	12122	33	32	32	-
Svilajnac	326	75.4	22	14.8	24599	75	22	22	11
Čuprija	287	71.3	16	17.9	32273	112	17	18	13
Bor	3 510	48.1	90	39.0	136437	39	98	111	83
Bor	856	58.1	14	61.1	52042	61	19	27	12
Kladovo	629	45.8	23	27.3	22364	36	23	23	21
Majdanpek	932	21.6	14	66.6	21267	23	14	14	12
Negotin	1 093	64.4	39	28.0	40764	37	42	47	38
Zaječar	3 623	56.9	173	20.9	128056	35	169	171	77
Boljevac	827	46.5	20	41.4	14291	17	19	24	17
Zaječar	1 088	63.7	42	25.4	62743	59	41	46	39
Knjaževac	1 202	57.6	86	14.0	33684	28	85	76	12
Sokobanja	525	58.3	25	21.0	17338	33	24	25	9
Zlatibor	6 142	55.4	438	14.0	302228	49	361	225	54
Anilje	349	57.7	22	15.9	19272	56	22	22	-
Bajina Bašta	673	44.9	36	18.7	28081	42	35	30	11
Kosjerić	358	56.6	27	13.3	12964	36	28	15	-
Nova Varoš	581	57.1	32	18.2	18678	32	32	13	6
Požega	426	61.6	42	10.1	30762	72	42	37	-
Priboj	553	33.3	33	16.8	28603	52	24	15	-
Prijepolje	827	44.7	80	10.3	39869	48	74	30	6
Sjenica	1 059	76.3	101	10.5	27959	26	53	12	11
Užice	667	54.7	41	16.3	80700	121	31	31	14
Čajetina	647	57.7	24	27.0	15340	24	20	20	6
Moravica	3 016	59.3	206	14.6	218612	72	194	176	78
Gornji Milanovac	836	65.5	63	13.3	45670	55	61	53	23
Ivanjica	1 090	47.0	49	22.2	33878	31	42	18	16
Lučani	454	63.0	36	12.6	22810	50	34	36	9
Čačak	636	69.3	58	11.0	116254	183	57	69	30

¹⁾ Data have been taken over from the Republic Geodetic Office of Serbia.

²⁾ Estimate

³⁾ Data have been taken over from the Register of Legal Entities, state as of 31 December 2006; for Kosovo and Metohia the state as of 31 December 1998.

1-1. GENERAL DATA, 2007 (continued)

Administrative district City Municipality	Area, km ²	Agricultural area, %	Settlements		Population ²⁾ , as of 30 June 2007		Cadastral municipa- lities ¹⁾	Registered local communi- ties ³⁾	Local offices ³⁾
			Number	Average size, km ²	Total	Per 1 km ²			
Raška	3 922	48.8	359	10.9	297713	76	305	148	81
Vrnjačka Banja	239	43.0	14	17.1	26456	111	13	10	8
Kraljevo	1 530	46.9	92	16.6	119994	78	84	69	29
Novi Pazar	742	48.9	99	7.5	93859	126	99	26	16
Raška	670	49.7	61	11.0	25809	39	51	18	15
Tutin	742	53.5	93	8.0	31595	43	58	25	13
Rasina	2 664	58.7	296	9.0	248895	93	286	206	76
Aleksandrovac	387	55.8	55	7.0	27828	72	51	54	12
Brus	606	52.9	58	10.4	17394	29	61	35	11
Varvarin	249	69.9	21	11.9	18871	76	21	21	6
Kruševac	850	57.8	101	8.4	128758	151	92	54	22
Trstenik	448	63.0	51	8.8	46046	103	49	32	20
Ćičevac	124	63.5	10	12.4	9998	81	12	10	5
Nišava	2 727	63.7	285	9.6	376946	138	277	225	66
City of Niš	596	63.7	74	8.1	254970	428	71	16	-
Niš - Mediana	49	16.2	2	24.5	88602	1808	6	-	-
Niš - Niška Banja	145	51.1	18	8.1	15325	106	15	-	-
Niš - Pallula	91	83.2	16	5.7	73610	809	12	-	-
Niš - Pantelej	137	67.7	14	9.8	43371	317	14	16	-
Niš - Crveni Krst	174	74.3	24	7.3	34062	196	23	-	-
Aleksinac	705	63.9	72	9.8	54467	77	72	71	24
Gadžin Han	325	54.1	34	9.6	9216	28	34	34	6
Doljevac	121	75.9	16	7.6	18389	152	16	16	4
Merošina	193	76.5	27	7.1	14042	73	22	27	5
Ražanj	289	59.2	23	12.6	9927	34	23	23	11
Svrđij	497	64.6	39	12.7	15935	32	40	38	16
Toplica	2 229	52.8	267	8.3	97036	44	263	182	30
Blace	306	57.6	40	7.7	12780	42	35	30	8
Žitorađa	214	84.0	30	7.1	17597	82	29	30	3
Kuršumlija	950	39.5	90	10.6	19930	21	95	29	12
Prokuplje	759	58.9	107	7.1	46729	62	104	93	7
Pirot	2 761	55.6	214	12.9	98681	36	216	226	45
Babušnica	529	55.0	53	10.0	13849	26	51	53	8
Bela Palanka	517	49.5	46	11.2	13101	25	49	44	8
Dimitrovgrad	483	60.0	43	11.2	10765	22	42	42	5
Pirot	1 232	56.7	72	17.1	60966	49	74	87	24
Jablanica	2 770	54.4	336	8.2	231793	84	318	313	56
Bojnik	264	71.8	36	7.3	12120	46	36	36	4
Vlasotince	308	52.7	48	6.4	31762	103	47	50	10
Lebane	337	63.2	39	8.6	23681	70	39	37	4
Leskovac	1 025	56.2	144	7.1	151964	148	140	142	27
Međveđa	524	39.6	44	11.9	10351	20	39	34	6
Crna Trava	312	50.4	25	12.5	1915	6	17	14	5

¹⁾ Data have been taken over from the Republic Geodetic Office of Serbia.²⁾ Estimate³⁾ Data have been taken over from the Register of Legal Entities, state as of 31 December 2006; for Kosovo and Metohia the state as of 31 December 1998.

1-1. GENERAL DATA, 2007 (continued)

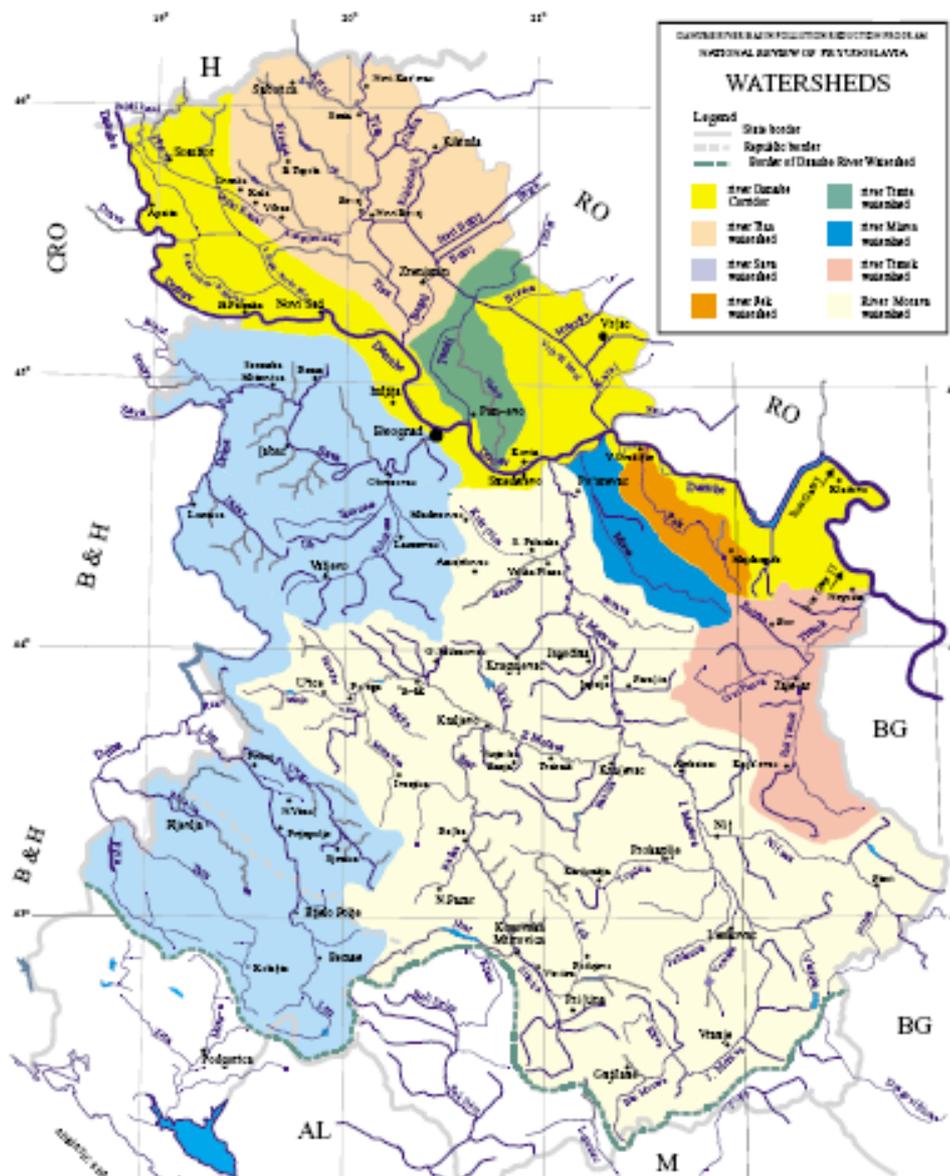
Administrative district City Municipality	Area, km ²	Agricultural area, %	Settlements		Population ²⁾ , as of 30 June 2007		Cadastral municipa- lities ¹⁾	Registered local communi- ties ³⁾	Local offices ³⁾
			Number	Average size, km ²	Total	Per 1 km ²			
Pčinja	3 520	55.0	363	9.7	229200	65	365	203	60
Bosilegrad	571	61.7	37	15.4	8758	15	38	37	6
Bujanovac	461	57.8	59	7.8	45212	98	59	27	6
Vladičin Han	366	45.2	51	7.2	22639	62	51	51	6
Vranje	860	51.8	105	8.2	87095	101	107	33	21
Preševo	264	60.5	35	7.5	38849	147	37	24	6
Surdulica	628	53.8	41	15.3	20957	33	39	26	11
Trgovište	370	56.4	35	10.6	5690	15	34	5	4
Kosovo	3 095	...	393	7.9	...	...	382	135	47
Glogovac	290	...	37	7.8	...	...	37	17	5
Kačanik	294	...	42	7.0	...	...	40	12	4
Kosovo Polje	89	...	18	4.9	...	...	16	6	-
Lipljan	401	...	70	5.7	...	...	66	14	6
Obilić	105	...	18	5.8	...	...	18	5	-
Podujevo	625	...	78	8.0	...	...	78	17	12
Priština - city	564	...	46	12.3	...	...	47	35	10
Uroševac	344	...	46	7.5	...	...	44	19	10
Štimlje	134	...	22	6.1	...	...	21	6	-
Štrpce	248	...	16	15.5	...	...	15	4	-
Peć	2 460	...	317	7.8	...	...	273	94	34
Dečani	402	...	40	10.1	...	...	33	11	-
Đakovica	587	...	83	7.1	...	...	69	27	11
Istok	464	...	50	9.3	...	...	47	11	7
Klina	403	...	64	6.3	...	...	54	17	8
Peć	603	...	80	7.5	...	...	70	28	8
Prizren	1 902	...	220	8.6	...	...	214	92	29
Gora	310	...	19	16.3	...	...	18	6	2
Orahovac	401	...	55	7.3	...	...	52	18	6
Prizren	757	...	96	7.9	...	...	94	53	13
Suva Reka	434	...	50	8.7	...	...	50	15	8
Kosovska Mitrovica	2 054	...	335	6.1	...	...	248	72	37
Vučitrn	353	...	67	5.3	...	...	65	15	13
Zvečan	123	...	35	3.5	...	...	18	9	2
Zubin Potok	328	...	63	5.2	...	...	28	8	5
Kosovska Mitrovica	336	...	49	6.9	...	...	38	21	6
Leposavić	539	...	71	7.6	...	...	47	7	5
Srbica	374	...	50	7.5	...	...	52	12	6
Kosovo - Pomoravlje	1 388	...	184	7.5	...	...	182	61	28
Vitina	289	...	43	6.7	...	...	42	12	9
Gnjilane	510	...	57	8.9	...	...	54	28	13
Kosovska Kamenica	509	...	74	6.9	...	...	76	18	6
Novo Brdo	81	...	10	8.1	...	...	10	3	-

¹⁾ Data have been taken over from the Republic Geodetic Office of Serbia.

²⁾ Estimate

³⁾ Data have been taken over from the Register of Legal Entities, state as of 31 December 2006; for Kosovo and Metohia the state as of 31 December 1998.

ATTACHMENT 3: Map of the Natural Watershed boundaries of Serbia and Montenegro

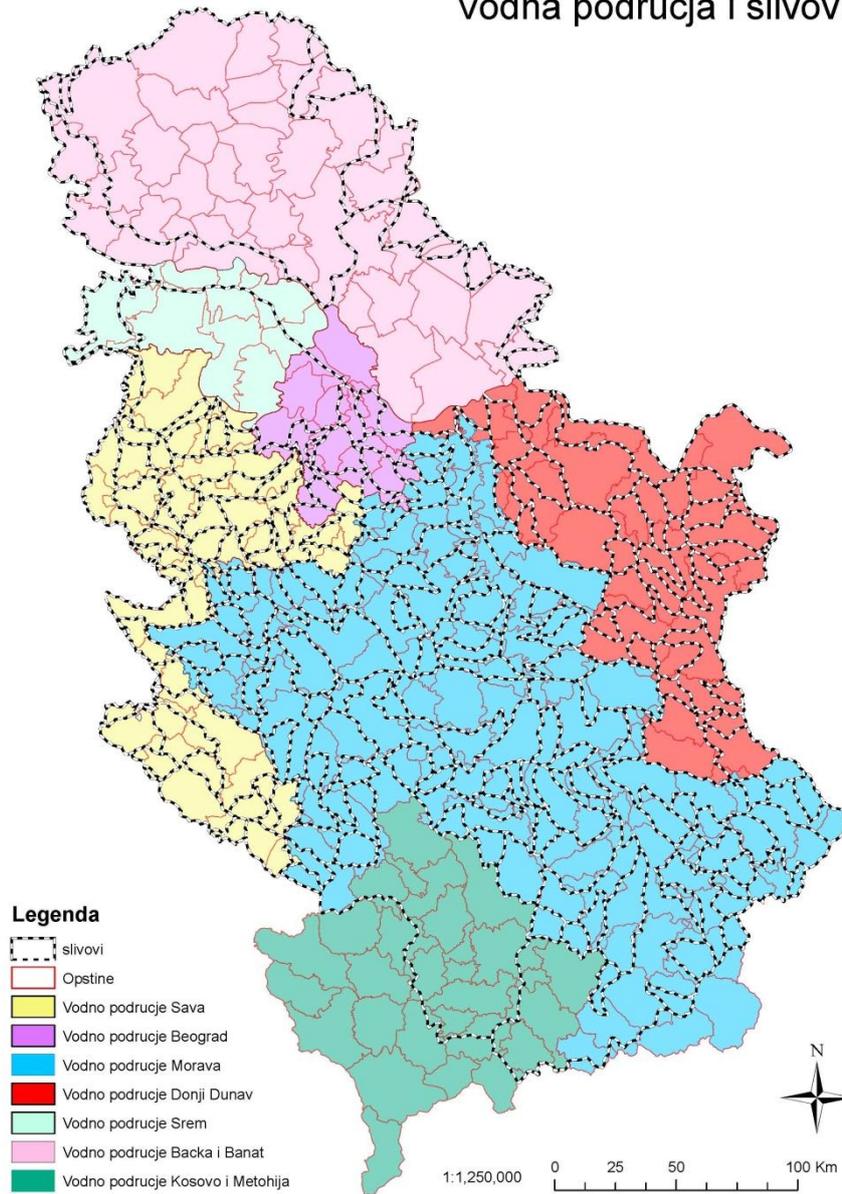


- | | |
|---|--|
|  river Danube Corridor |  river Timis watershed |
|  river Tisa watershed |  river Mlava watershed |
|  river Sava watershed |  river Timok watershed |
|  river Pek watershed |  River Morava watershed |

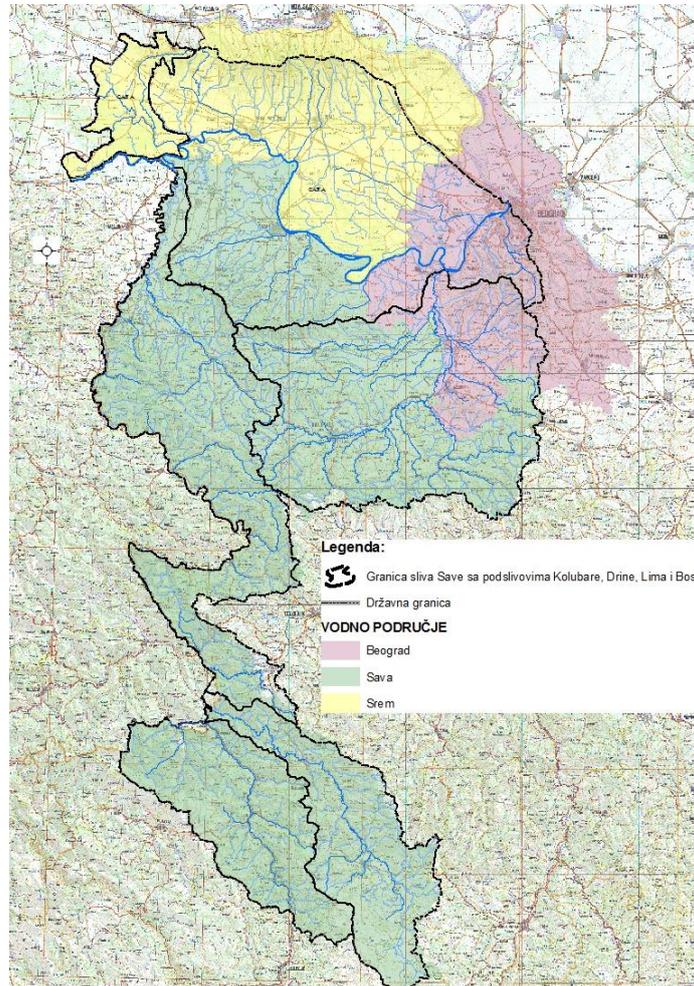
ATTACHMENT 4: Map of the seven water basins in Serbia: Sava, Belgrade, Morava, Lower Danube, Srem, Backa and Banat, Kosovo and Metohija

1. **Yellow** – Sava Water Management Basin
2. **Purple** - Beograd Water Management Basin
3. **Sky Blue** - Morava Water Management Basin
4. **Red** - Lower Danube Water Management Basin
5. **Light Blue** - Srem Water Management Basin
6. **Light Purple** - Backa and Banat Water Management Basin
7. **Blue-Green** - Kosovo and Metohija Water Management Basin

Vodna podrucja i slivovi



ATTACHMENT 5: Map of the natural watershed area of the Sava within Serbia (outlined in black line – with its 3 sub-catchments shown) overlaid upon the administrative water management basin of Serbia (Sava, Srem and Beograd - shown in color).



A similar issue with the non-alignment of administrative water management districts and natural watershed boundaries also occurs within Serbia's natural Danube/Tisza Watershed area, and for the Morava Watershed area.