
Water
Quality

Overview

The water-related part of Chapter 27 requires that candidate countries align their national legislation with the EU acquis. The objective of the relevant legislation is to protect human health, preserve aquatic ecosystems and ensure the sustainable management of water resources. Accordingly, this area covers not only water quality but also the integrated management of surface water and groundwater. Pursuant to the Water Law[83] of the Republic of Serbia, integrated water management comprises a set of measures and activities aimed at maintaining and improving the water regime; ensuring the availability of the required quantities of water of the appropriate quality for different uses; protecting water resources against pollution; and preventing and mitigating harmful effects of water. These activities are carried out at the national, provincial and local levels, involving several competent ministries, authorities of the Autonomous Province, local self-government units and public enterprises.

Given the complexity of the institutional framework, before assessing the progress achieved, it would be useful to recall the key obligations that the European Union places before candidate countries in the area of water, since the EU acquis in this field requires the adoption and implementation of several interrelated directives and regulations. These include:

- The Water Framework Directive,[84] the overarching legislative instrument aimed at preserving and protecting surface water and groundwater in order to ensure sufficient quantities of water of an appropriate quality for human and environmental needs, through the establishment of a coherent and transparent institutional framework that promotes public participation in water management.

83 Water Law, Official Gazette of RS, 30/2010, 93/2012, 101/2016, 95/2018, 95/2018 – as amended.

84 Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, OJ L 327, 22. 12. 2000, p.1.

- The Drinking Water Directive,[85] which protects human health by ensuring that water intended for human consumption is safe and clean, while improving access to such water. It establishes quality standards and requires the public to be informed about the quality of drinking water.
- Urban Wastewater Treatment Directive,[86] which establishes rules for the collection, treatment and discharge of urban wastewater and certain industrial wastewater, with the aim of protecting the environment from adverse effects of such discharges.
- Bathing Water Directive,[87] which monitors and classifies the quality of bathing waters in order to protect public health during recreational use and provides the public with information on water quality and pollution incidents.
- The Groundwater Directive,[88] which complements the Water Framework Directive by establishing measures to prevent and control groundwater pollution, achieve good groundwater chemical status and prevent deterioration in the status of groundwater bodies.
- Legislation on protecting water from pollution originating from industrial and agricultural sources, including the Industrial Emissions Directive (integrated pollution prevention and control),[89] the Nitrates Directive,[90] which addresses the protection of water against pollution caused by nitrates from agricultural sources, and the Environmental Quality Standards Directive in the field of water policy.[91]

85 Directive (EU) 2020/2184 of the European Parliament and of the Council of 16 December 2020 on the quality of water intended for human consumption (recast), OJ L 435, 23. 12. 2020, pp. 1–62.

86 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02024L3019-20241212

87 Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC, OJ L 064, 4. 3. 2006, p. 37.

88 Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration, OJ L 372, 27. 12. 2006, p. 19.

89 Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Recast), OJ L 334, 17. 12. 2010, p. 17.

90 Council directive of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (91/676/EEC), OJ L 375, 31. 12. 1991, p. 1.

91 Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy, OJ L 226, 24. 8. 2013, p. 1.

- The Floods Directive,[92] which establishes a framework for assessment and management of flood risks in order to reduce adverse consequences for human health, the environment, cultural heritage and economic activity.
- The Birds Directive[93] and the Habitats Directive,[94] which need to be integrated into the water sector. Since a significant part of Serbia's future Natura 2000 environmental network will include rivers, lakes, wetlands and other aquatic habitats, it is essential to integrate species and habitat conservation objectives into water management planning and the implementation of water management measures. This would contribute to achieving favorable conservation status for protected species and habitats, while also supporting the objectives of the Water Framework Directive and other water protection policies.

The Nature Restoration Regulation[95] is a key component of the EU Biodiversity Strategy, which establishes binding targets for restoring degraded ecosystems, particularly those with the greatest potential for carbon sequestration, as well as for preventing and reducing the impact of natural disasters. Restoring wetlands, rivers and lakes will help increase biodiversity, secure the free benefits provided by nature, such as water purification and flood protection, contribute to limiting global warming to 1.5°C, strengthen resilience and help prevent natural disasters, among other benefits.

The above-mentioned directives have been transposed, to varying degrees, into Serbian legislation. However, meeting the requirements of Chapter 27 involves more than merely transposing directives into national legislation. It

92 Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks, OJ L 288, 6. 11. 2007, p. 27.

93 Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version), OJ L 20, 26. 1. 2010, pp. 7–25, amended by Council Directive 2013/17/EU of 13 May 2013, OJ L 158, 10. 6. 2013, p. 193 and Regulation (EU) 2019/1010 of the European Parliament and of the Council of 5 June 2019, OJ L 170, 25. 6. 2019, p. 115.

94 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive), OJ L 206, 22. 7. 1992, pp. 7–50, Directive (EU) 2025/1237 of the European Parliament and of the Council of 17 June 2025 amending Council Directive 92/43/EEC as regards the protection status of the wolf (Canis lupus), PE/8/2025/REV/1, OJ L, 2025/1237, 24. 6. 2025.

95 2024/1991, REGULATION (EU) 2024/1991 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 June 2024 on nature restoration and amending Regulation (EU) 2022/869.

also requires their effective application, planning and implementation of investments, establishment of monitoring and reporting systems, strengthening administrative and institutional capacities and mobilization of significant financial resources, including financing from EU funds and international donors.

Since the signing of the Stabilization and Association Agreement and Serbia's attainment of candidate status for European Union membership, the water sector has consistently been identified as one of the most financially demanding and institutionally complex areas under Chapter 27. More than a decade later, it remains difficult to identify reform processes that have been fully completed, institutionally consolidated and consistently implemented in practice. Despite individual infrastructure projects, strategic documents and announced investments, implementation of water management measures often remains fragmented and slow, while cooperation among the competent institutions remains insufficiently transparent and coordinated.

What is particularly concerning is the fact that alignment with European Union policies in this area is still largely viewed as a financial cost or an administrative obligation, even though the measures in question have a direct impact on public health, access to safe drinking water, quality of surface water and groundwater, preservation of ecosystems and society's resilience to the impacts of climate change, including droughts and floods. The key question, therefore, is no longer limited to the cost of implementing these measures, but also concerns the cost of failing to implement them over the long term. Insufficient access to drinking water of adequate quality, inadequate wastewater treatment, pollution of watercourses and the degradation of natural resources all contribute to increased health risks and long-term economic consequences, including rising costs associated with pollution remediation, flood and drought risk management and the restoration of ecosystems that continue to deteriorate as a result of human activities. In addition, long-term environmental, social and economic consequences are still not being fully recognized or adequately accounted for.

Strategic and Legislative Framework

According to the amendments to the National Program for the Adoption of the EU Acquis (NPAA 2024–2027), adopted on August 7, 2025,[96] the adoption of a new Water Law, which has been postponed on several occasions, is expected in the fourth quarter of 2026.

The same document sets new deadlines for the adoption of several regulations in the water sector. These include the Rulebook on Drinking Water, by-laws establishing quality standards and monitoring requirements for surface waters, as well as regulations governing the assessment and status of groundwater. The adoption of the Drinking Water Law is expected by the end of 2026 or during 2027. We expect to provide a more detailed assessment of their content in future Shadow Reports.

Following the public consultation held in the summer of 2024 on the Draft Action Plan for the Implementation of the Water Management Strategy on the territory of the Republic of Serbia from 2024 to 2026, the document was not adopted in its final form. As a result, the website of the Republic Water Directorate still contains the previous version of the Action Plan, covering the 2021–2023 period. Without a document covering the current implementation period, it is not possible to adequately monitor the implementation of the measures and works envisaged by the Water Management Strategy.

In March 2026, the Government adopted the Regulation on Determining the Water Management Program in 2026.[97] The Program defines works of general interest in water management that, pursuant to the Water Law, fall within the remit of the water sector and are to be funded during the current year in the fields of water management and use, water protection, river training

96 National Program for the Adoption of the EU Acquis adopted on October 24, 2024, as amended on August 7, 2025, https://www.mei.gov.rs/srl/dokumenta/nacionalna-dokumenta/npaa

97 Regulation on Determining the Water Management Program in 2026, Official Gazette of RS, 24/2026 dated March 13, 2026.

and protection against harmful effects of water, as well as planning and international cooperation in the field of water management. The Program also specifies the funding allocated for these activities. Funding has been earmarked for the construction and rehabilitation of water infrastructure for the supply of drinking water and water for sanitary and hygiene purposes throughout the territory of the Republic of Serbia, excluding the autonomous provinces. However, no information is provided on the specific works planned. The implementation status of the measures and works is also difficult to monitor, as the competent authorities do not publish regular, consolidated reports on the implementation of the Program. Instead, information, where available, is provided only in a fragmented manner through individual announcements and news concerning specific projects or activities. The Program also does not cover measures or projects related to the protection of water from pollution, where a substantial portion of investments in sewage infrastructure and wastewater treatment plants is implemented through different ministries (the Ministry of Construction, Transport and Infrastructure and the Ministry of Environmental Protection, etc.), the Province or individual local self-government units. Publicly available information does not allow for a reliable assessment of the current status of the Clean Serbia project,[98] valued at approximately EUR 3.5 billion, which covers works at 93 sites in 73 cities and municipalities across Serbia. The project involves the construction of municipal wastewater (sewage) infrastructure and solid waste disposal infrastructure. Its implementation falls under the responsibility of the Ministry of Construction, Transport and Infrastructure. The project is financed through a loan from a Chinese bank (repaid by the citizens of the Republic of Serbia), and is being implemented by China Road and Bridge Corporation (CRBC). The Clean Serbia project website states that the project is part of the Serbia 2020–2025 program, which contains a plan of investment projects aimed at further development of Serbia over the following five years. This underscores the project's importance and the need for its urgent implementation. In light of the above, the Water Management Program does not provide a basis for assessing overall progress toward achieving Serbia's water management objectives.

98 https://cistasrbija.rs/

According to data from the Statistical Office of the Republic of Serbia,[99] the total volume of wastewater generated in 2025 amounted to 425 million m^3. Of this amount, 300 million m^3 were discharged into public sewage systems, while the remainder was discharged into septic tanks. Only 68 million m^3, or approximately 16%, underwent treatment, with secondary treatment being the most common treatment method. This means that approximately 232 million m^3 of wastewater discharged through public sewage systems remained untreated before being released into rivers, lakes and other watercourses. According to the same source, with regard to drinking water supply, 61.2% of the total volume of water abstracted came from groundwater and spring water, 28.6% from rivers, and 10.1% from lakes and reservoirs. This suggests that a significant share of the water used by citizens of the Republic of Serbia for drinking is sourced from the same rivers and lakes into which wastewater is discharged. Under the European Union's new Urban Wastewater Treatment Directive, wastewater treatment plants serving agglomerations of 150,000 or more population equivalents in EU Member States will, within the prescribed deadlines, be required to provide treatment to a level that includes even quaternary treatment. Belgrade and Novi Sad are among the largest European cities that continue to discharge their municipal wastewater without adequate treatment into two major international rivers, the Sava and the Danube. As these cities account for a significant share of the country's wastewater pollution load, the construction of wastewater treatment plants (WWTPs) in both cities is seriously behind schedule or, in some cases, nowhere near beginning. Given that the implementation of such major infrastructure projects requires a considerable amount of time (including the preparation of technical documentation, securing financial resources, procurement, and the actual construction works), it remains unclear how the Republic of Serbia intends to address these challenges and what priorities it has established in this area.

One area that remains insufficiently addressed in water management in Serbia is the systematic assessment of hydromorphological pressures on water bodies. Although the effectiveness of implemented measures is most often evaluated based on the completion of infrastructure projects and the amount of funding

99 https://publikacije.stat.gov.rs/G2026/HtmlL/G20261142.html

spent, considerably less attention is given to changes in the physical characteristics of watercourses and their impact on ecological status. In accordance with the Water Framework Directive, the assessment of the status of water bodies is not based solely on physicochemical indicators. It also requires an analysis of hydromorphological elements, including river continuity, flow regime, sediment transport, the connectivity of rivers with riparian areas and other relevant criteria.

On a positive note, in recent years, the Republic of Serbia has undertaken efforts to identify hydromorphological pressures on certain water bodies through the preparation of technical studies. However, the pace at which these studies are being developed remains insufficient to meet the needs of the process of alignment with the EU acquis. If the current rate of progress were to continue, completing the assessment of all water bodies could take more than two decades, significantly delaying the establishment of a reliable basis for assessing ecological status and planning appropriate management measures. It is therefore necessary to secure additional financial resources and accelerate the implementation of these activities. The particular importance of these studies is reflected in their ability to provide systematic mapping of hydromorphological alterations and barriers within watercourses, including dams, weirs and other transverse structures that disrupt the longitudinal connectivity of river ecosystems. Such information provides an important technical basis for planning restoration measures, including consideration of the removal or modification of obsolete and non-functional structures where the necessary technical, ecological and social conditions exist. These measures can contribute to restoring river continuity, and achieving good ecological status of water bodies.

The Regulation on Establishing the General Flood Defense Plan[100] was adopted with a minor delay and will remain in force until August 16, 2031. The Order on Establishing the Operational Flood Defense Plan for 2026[101] was adopted in a timely manner and in its standard form. Incorporating the designations

100 The Regulation on Establishing the General Flood Defense Plan, Official Gazette of RS, 70/2025 dated August 8, 2025.

101 Order on Establishing the Operational Flood Defense Plan for 2026, Official Gazette of RS, 117/2025 dated December 24, 2025.

of pumping stations into internal waters section of the Plan (covering each hydromelioration system) would further contribute to its completeness.

A particular challenge in flood risk management concerns the organization and implementation of activities related to 2nd order streams, which fall under the responsibility of local self-government units. In practice, a significant number of municipalities and cities lack the financial resources, qualified personnel and technical capacity required for systematic maintenance of watercourses, implementation of preventive measures and timely response to emergency hydrological events. As a result, the level of flood protection varies among local self-governments, while measures are often taken only after damage has already occurred. Given that flash floods and flooding of smaller watercourses can have serious consequences for communities and infrastructure, it is necessary to consider models for strengthening local-level capacity and improving cooperation with national institutions, in line with the principles of integrated flood risk management promoted by the EU Floods Directive.

The Rulebook on Establishing the River Sediment Extraction Plan[102] has been adopted, together with a map atlas identifying locations where sediment extraction is necessary, prohibited or permitted subject to obtaining specific conditions. However, the atlas has not been updated since 2019, despite the requirement for it to be revised in conjunction with each new River Sediment Extraction Plan.

The Regulation on Establishing the Annual Water Status Monitoring Program for 2026[103] was adopted in March 2026.

Plan for Water Protection against Pollution is yet to be adopted. According to information on the website of the National Water Directorate, drafting of this plan was in its final stages and was expected to be adopted more than ten years ago.

102 Rulebook on Establishing the River Sediment Extraction Plan, Official Gazette of RS, 118/2025 dated December 26, 2025.

103 Regulation on Establishing the Annual Water Status Monitoring Program for 2026, Official Gazette of RS, 22/2026. dated March 9, 2026.

The repeated delays in adopting the Plan for Water Protection against Pollution have consequences that extend beyond the formal failure to fulfill statutory obligations. In the absence of a unified planning document, it is more difficult to establish priorities for reducing pollution from municipal, industrial and agricultural sources, as well as to coordinate activities of various institutions responsible for water management and environmental protection.

In 2025, the Republic Water Directorate initiated the development of a Rulebook on the Methodology for Determining Water Land Boundaries and invited interested stakeholders to submit comments and proposals on the draft text by June 14, 2025.[104] However, no publicly available information appears to exist regarding the subsequent progress of the process or the adoption of the Rulebook. This case points to a broader issue concerning the availability of information on regulatory development processes in the water sector. Calls for public consultations are often published only on specialized portals or on websites of the competent authorities, failing to involve or inform the broader interested public.

In this context, the lack of publicly available information on the work of the National Water Conference is particularly concerning. Under the Water Law, the Conference is intended to serve as a mechanism for public participation and cross-sectoral dialogue in water management. Similarly, there is no publicly available information regarding the possible establishment of the Water Council, a body envisaged to consider technical and professional matters, provide expert opinions and participate in the implementation of project-related tasks. More active engagement by these bodies would contribute to greater transparency, improved public access to information and more meaningful involvement of the professional and expert community in decision-making processes.

Pursuant to the Law on Management of Companies Owned by the Republic of Serbia,[105] the Public Water Management Company Srbijavode changed its

104 E-consultation – REPUBLIC WATER DIRECTORATE

105 Law on Management of Companies Owned by the Republic of Serbia, Official Gazette of RS, 76/2023 dated September 7, 2023.

legal form and, as of January 21, 2026, operates as a limited liability company (LLC). The Republic of Serbia has retained 100% ownership of the company.

Implementation of Regulations

The construction of dams with reservoirs remains part of a state policy that continues to view large-scale water infrastructure as a key response to challenges related to water supply, flood protection and regional development. According to the Water Management Program, the Svračkovo Reservoir on the Veliki Rzav River and the Selova Reservoir on the Toplica River are primarily intended to provide water for households and industry, protect against floods, generate electricity, support irrigation, improve water quality, retain sediment and manage downstream flow regimes by ensuring an environmental flow. These two dams are often presented publicly as green investments, although it is unclear what criteria are used to characterize them as such.

The justification for continuing or resuming these projects on karst terrain after several decades of construction interruptions also remains an open question. Construction and other works in landslide-prone karst terrain engender some of the most complex engineering and geological challenges. Karst processes (limestone dissolution and the formation of caverns and underground channels) combined with unstable slopes can increase the risk of severe ground subsidence and landslides. In the meantime, climatic conditions have changed, alternative water supply solutions have been developed, renewable energy sources have become more accessible, and modern water management policies increasingly prioritize nature-based solutions for retaining water within river basins and preserving the natural river continuity. This raises the question of whether large reservoir systems remain a sustainable and economically viable solution under changing climatic, social and technological conditions. In addition, the Veliki Rzav valley has been undergoing the protection procedure to be established as a Category I protected natural area since 2022, under the proposed designation of the Veliki Rzav Special Nature Reserve.[106] Under the

106 https://www.ekologija.gov.rs/obavestenja/zastita-prirode/obavestenje-o-postupku-pokretanja-zastite-specijalnog-rezervata-prirode-veliki-rzav-izvod-iz-studije-zastite-srp-veliki

Law on Nature Protection,[107] an area for which a protection procedure has been initiated is considered protected, and until the formal designation act is adopted, the protection measures specified in the protection study apply. The Environmental Impact Assessment Study for this project dates back to 2011. Under the Law on Environmental Impact Assessment,[108] the project developer is required to prepare a new assessment or update the existing study where changes in environmental conditions warrant such an update.

Contemporary European Union water management policies increasingly promote Nature-based Solutions (NbS) as a sustainable alternative or complement to traditional hydro-technical measures. This approach includes restoring natural floodplains, rehabilitating river side-channels and wetlands, reconnecting rivers with their floodplains, removing or modifying obsolete barriers and other structures along watercourses, as well as conserving and restoring riparian vegetation. Unlike an approach based exclusively on gray infrastructure, these measures can also help attenuate flood peaks, increase water retention capacity during periods of drought, improve water quality and protect and restore biodiversity.

With regard to water supply, some experts argue that reliance on regional water supply systems based on large dams and reservoirs is outdated. This strategy was developed in the 1970s, when projections of population growth and water consumption were considerably more optimistic than subsequent trends have shown. Such systems require substantial investment and complex management and can have significant environmental impacts. By contrast, hydrogeological studies indicate that groundwater in large parts of Serbia represents a high-quality but underutilized resource for water supply. Experts therefore suggest that priority should be given to protecting existing water sources, managed aquifer recharge where conditions permit and reducing the substantial losses occurring in water distribution networks. Such an approach could address water supply challenges more rapidly, at lower cost and with fewer adverse environmental impacts than the construction of new large-scale reservoirs.

107 Law on Nature Protection

108 Law on Environmental Impact Assessment

According to data from the Statistical Office of the Republic of Serbia, 711 million m^3 of water were abstracted for drinking water supply in 2025.[109] Of this amount, a total of 445 million m^3 was delivered to users, while water losses in the distribution network amounted to 266 million m^3, or 37.4% of the total volume abstracted.

Additional concerns arise from the impacts of climate change. The reliability of reservoir systems depends on the volume of water flowing into them, and inflows are among the hydrological variables most directly affected by climate change. Examples from different parts of the world demonstrate that even large reservoirs are not immune to the effects of prolonged drought, changes in precipitation patterns and increased evaporation. Under conditions of more frequent and prolonged droughts and heat waves, this raises the question of whether systems that depend on stable inflows are the most resilient long-term solution for water supply.

Flood protection is another frequently cited justification for dam construction. However, technical analyses indicate that the benefits of dams are generally limited to the local level. Individual reservoirs may reduce the intensity of flood peaks in areas immediately downstream of dams, but the existing reservoir system cannot be expected to have a significant impact on protecting the most vulnerable lowland areas. Moreover, flood protection is generally not the primary purpose of reservoirs. To ensure water supply and electricity generation, reservoir operators seek to maintain relatively high water levels and minimize fluctuations in storage levels. This, in turn, reduces the available storage capacity that could otherwise be used to accommodate flood peaks.

Dams can reduce certain flood risks, but they are not a universal solution to flooding. In fact, they can also create new risks. This is precisely what concerns some residents of Arilje regarding the Svračkovo Dam.[110] According to the 2011 project documentation, in the event of dam failure, a flood wave approximately 12 meters high would reach Arilje within just two to three minutes, leaving

109 https://publikacije.stat.gov.rs/G2026/HtmlL/G20261142.html

110 The Great Rzav and Svračkovo Dam Explained, Rzavljani – Association for Protecting the Rzav River, https://www.youtube.com/watch?v=r1tZJ0uzZ2M

virtually no time to evacuate the residents. Although dam safety regulations require the preparation of studies assessing the consequences of a potential dam failure and identifying flood inundation zones, this information is not readily accessible to the public. As a result, residents often do not know whether they live in a potentially affected area or what actions they should take in the event of an emergency.

The argument that dams are necessary for electricity generation is also less clear-cut today than it was several decades ago. Hydropower is still considered a renewable energy source, but there is growing recognition that hydropower facilities can have significant adverse impacts on river ecosystems, biodiversity and the natural flow dynamics of watercourses. At the same time, the development of solar and wind power has created opportunities to generate electricity without damming rivers or causing permanent alterations to river ecosystems.

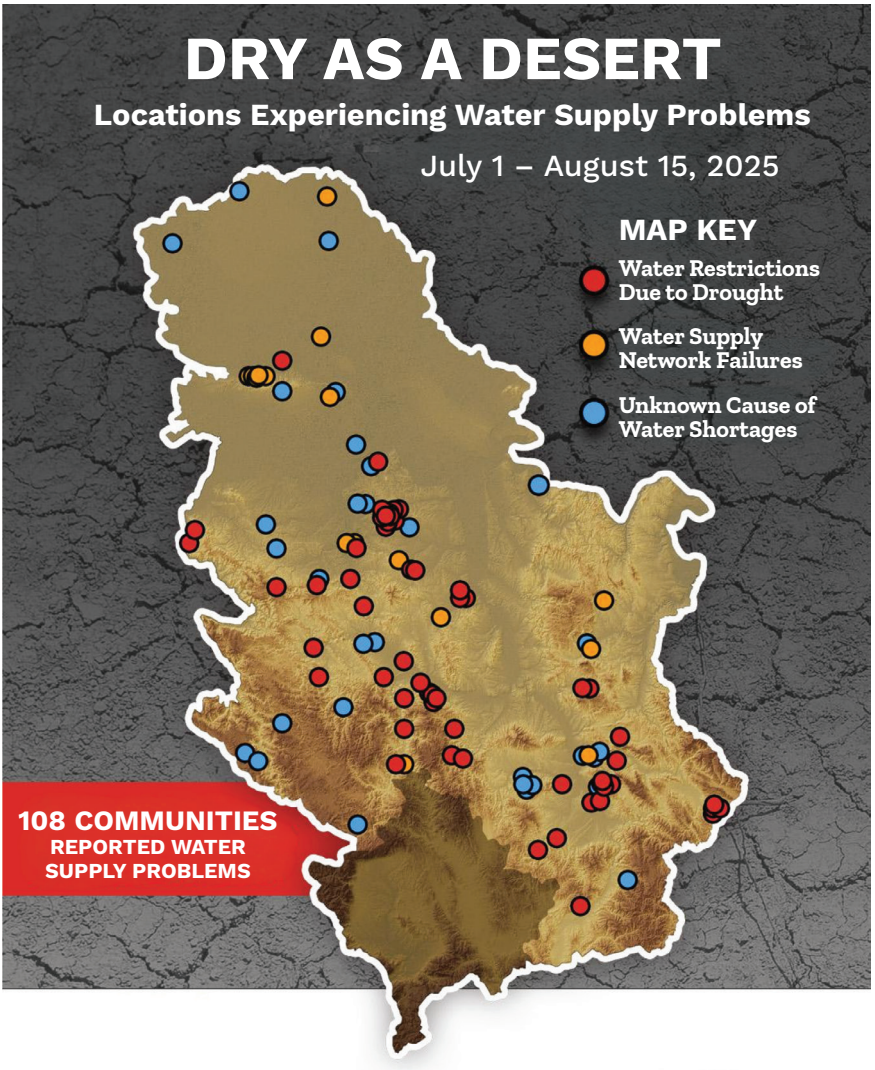
The claim that reservoirs will contribute to improved water quality is an additional cause for concern. Natural watercourses have a capacity for self-purification due to continuous flow, water mixing and aeration. When a river is dammed and a reservoir is created, these processes are altered: water moves more slowly, remains in the system for longer periods, and organic matter and nutrients accumulate in sediments. In general, a river ecosystem is transformed into a lake-like ecosystem, resulting in changes in biodiversity. Biological elements are among the indicators used to assess water quality, including ecological status or potential, which must comply with the legislation of the Republic of Serbia and EU requirements. Due to uncontrolled inflows of wastewater from surrounding areas and changes to natural processes within the newly formed ecosystem, reservoirs are often susceptible to eutrophication. This can lead to algal blooms, that is, the rapid and uncontrolled proliferation of phytoplankton and cyanobacteria at the water's surface, and, consequently, to reduced oxygen levels. This can in turn cause mass mortality of fish, crawdads and other aquatic organisms, while the water becomes turbid and develops an extremely unpleasant odor and taste, making it unsuitable for drinking, irrigation and recreation, particularly during warm and dry years. In Serbia, algal and cyanobacterial blooms in artificial reservoirs have become increasingly common, driven directly by climate change and pollution. The most serious

concern is that many of these reservoirs are used for municipal water supplies, meaning that the emergence of toxic algae can directly threaten sources of drinking water. For example, at the Vrutci Reservoir near Užice, a massive bloom of the cyanobacterium Planktothrix rubescens occurred in late 2013, causing the water to turn bright red due to the organism's distinctive pigment. The Gruža Reservoir, also known as Gruža Lake, near Kragujevac, supplies drinking water to more than 70 percent of the residents of Kragujevac and the municipality of Knić. Water-bloom incidents were recorded there in 2014 and have occurred continuously every year since 2023. The Ćelije Reservoir near Kruševac, which supplies water to Kruševac and surrounding municipalities, has also experienced multiple occurrences of toxic cyanobacteria, including a major bloom in 2015 involving blue-green bacteria that produce microcystin.

Contemporary water management policies emphasize the importance of maintaining free-flowing rivers and preserving natural river processes. Dams disrupt river continuity, alter sediment transport, affect the migration of aquatic organisms and transform entire ecosystems. It is therefore particularly noteworthy that preventing sediment transport is sometimes cited as one of the benefits of reservoirs, even though sediment is a natural and essential component of functioning river systems. Its retention can cause downstream riverbed erosion, while sediment gradually accumulates within reservoirs, reducing their effective storage capacity over time.

Sediment management is one of the issues that has yet to receive attention commensurate with its importance in domestic water management practices. River sediment is often viewed solely as an obstacle to infrastructure operations or as a resource for extraction, while its role in maintaining the natural dynamics of watercourses is less frequently considered. At the same time, sediment transport is essential to maintaining the shape and stability of riverbeds, replenishing sandbars and riparian habitats and supporting the functioning of river ecosystems.

Construction of dams and other transverse structures, such as groins, levees and bank protection structures, can disrupt or, in some cases, accelerate sediment transport. In addition to the gradual filling of reservoirs and the



Infographic 1 – Locations Experiencing Water Supply Problems
(https://polekol.org/2025/08/16/rastuca-humanitarna-kriza-u-srbiji-vise-od-100-mesta-bez-vode/)

resulting reduction in their effective storage capacity, these impacts are also reflected in changes that typically occur downstream, where sediment deficits or surpluses along riverbanks can lead to riverbed incision, bank destabilization and habitat degradation. For this reason, the planning of new water infrastructure should include a long-term analysis of the sediment balance

and consideration of measures to preserve or restore the natural dynamics of sediment transport, rather than treating sediment management solely as the periodic removal of accumulated sediment. Another consequence of damming rivers is the disruption of fish migration routes. Although fish passages are constructed at some dams, experts warn that their construction does not necessarily guarantee actual functionality and may instead serve primarily to meet formal design or legal requirements, as fish often do not recognize these structures as viable migration corridors in practice. The issue of maintaining longitudinal connectivity in rivers has gained increasing importance in European water management policy in recent years. In addition to constructing functional fish passages at structures that remain in operation, there is growing consideration of removing or modifying obsolete transverse barriers that no longer serve their original purpose or for which suitable alternatives are available. Such measures have the potential to help restore natural sediment transport, improve the migration of aquatic organisms and enhance the ecological condition of watercourses.

Serbia currently lacks a comprehensive, publicly available assessment that systematically evaluates all transverse structures in terms of their functionality, safety and environmental impacts. Future efforts to identify hydromorphological pressures provide a good foundation for using a multidisciplinary approach to establish priorities for river system restoration and assess where adapting or removing individual structures could deliver the greatest benefits while posing the least risk to existing users and the water management system. There is also cause for concern in the fact that state authorities themselves have been pointing to serious problems in dam management in Serbia for years. Complete and consistent information is not available on who is responsible for managing all dams; property and legal issues remain unresolved for a large number of structures, and a significant number do not have the required permits. As a result, the 2024 Water Management Program was amended at the end of that year to provide funding for a study examining the legal, economic, technical and safety aspects of managing high dams. However, no publicly available information on the findings of that process is currently available.
Another concern is that local residents are generally not recognized as equal stakeholders in the planning of such projects. While state authorities emphasize

that reservoirs will address water supply, flood protection and economic development needs, some local communities argue that they do not view these issues as priorities, that the benefits of the projects have not been adequately substantiated and that the projects even expose them to new risks. It is therefore important that decisions involving permanent changes to the natural and social characteristics of entire areas be preceded by open, transparent and evidence-based consultation with local residents and the expert community. While the Zapadna Morava River, which we covered in the previous Shadow Report, continues to adjust to its new, straightened riverbed, new projects are being planned that could subject other rivers to a similar fate. The construction of the Kraljevo–Raška–Novi Pazar expressway raises questions about its potential impact on the Raška River.

Reports on the implementation of the National Program for the Adoption of the EU Acquis (NPAA) indicate very limited progress in this area during the final two quarters of 2025. The Ministry of Environmental Protection and the Ministry of Agriculture, Forestry and Water Management report progress only in strengthening administrative capacities for alignment with EU regulations, primarily through the implementation of training programs.

In addition to clearer planning of future activities, it is necessary to assess the effectiveness of completed works. In domestic practice, systematic monitoring of changes to watercourses following the completion of channel regulation projects, construction of water infrastructure or other publicly funded works is rarely carried out. This means missing an opportunity to determine, based on conditions in the field, whether the intended objectives have been achieved and whether any unintended consequences have occurred for hydrological regimes, sediment transport or the condition of aquatic and riparian ecosystems. Introducing mandatory post-project monitoring following the completion of significant works would allow future decisions to be based on evidence and lessons learned from actual field conditions rather than on design assumptions. This approach is particularly important in the context of climate change and the increasing use of river restoration measures, where monitoring outcomes can provide the basis for timely adjustments to future project designs.

Financing

Financing in the field of Water Quality is covered in more detail in the chapter Financing in the Field of Environmental Protection and Climate Change.

Recommendations

Strategic and Legislative Framework

1. Integrate nature directives (Birds Directive and Habitats Directive) into the field of water management. Better coordination is needed between the water management sector and the environmental sector regarding the implementation of EU directives.
2. Develop specific strategies to improve investment in wastewater treatment plants. Initiate the development of models and strategies for knowledge transfer in the field of wastewater treatment in order to reduce costs and mobilize domestic capacities.
3. Adopt and amend strategic and planning documents in accordance with the obligations arising from relevant EU policies.
4. Adopt the new Water Law without further delay, along with the necessary by-laws, to ensure a coherent and effective legal framework for water management policy planning and implementation.

Implementation of Regulations and Institutional Capacity

5. Develop capacities and improve the organization of public institutions responsible for water management, especially at the local level.
6. Develop a more solid cooperation with environmental protection, energy, agriculture and spatial planning sectors.
7. Introduce mandatory public participation in the early stages of developing strategic, planning and investment documents in the water sector, including the public disclosure of comments received and explanations of how those comments were considered.

8. Integrate nature-based solutions into water management practices and consider ecosystem services more seriously.
9. Improve control and prevent or mitigate actions that threaten water resources, such as poorly planned small hydroelectric power plants, gravel extraction, pollution, uncontrolled use of groundwater and illegal construction on riverbanks.
10. Develop an integrated database on planning and constructing wastewater treatment plants WWTPs that is available to competent institutions and the public.
11. Enhance the capacities of the Water Inspectorate and increase the number of water inspectors.
12. Establish water quality monitoring in full accordance with the requirements of the Water Framework Directive.
13. Establish the water land boundaries in the cadaster.
14. Establish a Water Council as a professional and advisory body prescribed by the Water Law, and ensure continuity in the work of the National Water Conference in order to improve inter-sectoral cooperation, professional support and transparency in the decision-making process.

Financing

15. Gradually increase water prices and fees for wastewater collection and treatment services in order to provide sustainable financing of water infrastructure.
16. Permanently increase budget funds for financing water management activities and water protection.
17. When planning new investments in the water sector, establish long-term mechanisms for financing the operation, maintenance and rehabilitation of constructed infrastructure, particularly wastewater treatment plants.

WATER QUALITY

