

Croatia

Country report

This report captures the main messages of a review of the state of play in Croatia with regards to closing the finance gap and support compliance with the EU Directives on Drinking Water, Urban Wastewater Treatment and Floods, and to a lesser extent the Water Framework Directive. It reflects OECD analyses, and official and expert opinions expressed at a national workshop held in Zagreb, 22 February 2019. The workshop focused on financing compliance towards the EU water *acquis*. It was co-convened by the Croatian Ministry of Environment and Energy, the OECD and the European Commission (DG Environment). It gathered approximately 40 delegates from national and local authorities, water utilities, and financing institutions

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1. Financing compliance with the EU water acquis - Recommendations

Croatia's major water management challenge is financing the expansion of water supply, sewerage, and wastewater treatment infrastructure to meet the requirements of the EU water directives, in a context where tariff affordability is a concern.

Gaps in financing remain. It is difficult to thoroughly quantify future financing needs, in particular as i) monitoring of water quality is incomplete, especially as regards the good ecological and chemical status of water bodies, and ii) the level of ambition of the programme of measures to comply with the Water Framework Directive is low.

The situation is compounded by the combination of two factors. On the one hand, Croatia is highly dependent on EU funding. On the other hand, the disbursement of available finance (including EU funding) is relatively slow, and there is a risk that the government reallocates unspent finance to other policy domains. However, it should be noted that, in the past five years, Croatia has made large efforts with good results preparing a project pipeline for EU funds and selecting ready projects.

Complying with the EU water *acquis* delivers multiple benefits for society, the economy and the environment. While some measures can be costly, this report considers options to comply in cost-effective ways, taking account of distinctive capacities and challenges in Croatia. This report identifies a number of recommendations to assist Croatia with closing the finance gap and managing the transition towards sustainable water management.

A first set of recommendations aims at **improving efficiencies in the way the water sector is operated**. Three types of actions could be considered:

1. Challenges in ongoing reforms of water utilities will need to be addressed so the process can be completed. Agglomeration reform has the potential to improve operational efficiency. Delineations could consider opportunities to cross-subsidize poorer or rural settlements. There is high potential for peer learning, with countries who have recently gone through a similar process (e.g. Romania), or who are considering similar reforms (Lithuania).
2. Service providers would benefit from technical support. For example, in Austria, technical support is provided by a union of water utilities, with co-financing from the national government.
3. Benchmarking can help drive performance. It is already occurring in Croatia, but performance criteria could be better aligned with the EU *acquis*, to encourage performance that contributes to compliance with the Drinking Water and Urban Waste Water Treatment Directives and other pieces of the European regulation (particularly the Water Framework Directive).

A second set of recommendations relates to the quality of investment decisions. While Croatia enjoyed a marked increase in the volume of finance available for water-related investment in the last 5 years due to EU funding, **investment decisions in the WSS sector could be improved through better planning, prioritising, and focus on delivering results**. Several options can be combined:

- As mentioned above, finalise the consolidation of water utilities, so as to increase efficiency (streamlining staff, optimising maintenance of existing equipment).
- Minimise non-revenue water, through a risk-based approach to maintenance and repair; output-based financial support from government to operators would provide a strong incentive.
- Secure access to people who do not benefit from sewerage, where appropriate, prioritising the communities most affected by the impact of the absence of sewers on health and livelihood. A range of centralised and decentralised options can be considered, if performance is properly monitored and standards are enforced.

The body of the report includes more detailed and other suggestions for action.

2. Context

Croatia is characterised by natural beauty and an abundance of water. Split between the Danube basin and the Adriatic basin, Croatia is considered to be water-rich, with around 37.7 km³ of renewable water resources (FAO, 2019) for a population just above 4 million (declining compared to 2011). Groundwater provides approximately 90% of Croatia's drinking water, with the remainder drawn from rivers and reservoirs.

Croatia's economic output per inhabitant is among the lowest in the EU, although the economy is expected to grow at an above-average rate over the coming years. Croatia's economic development depends largely on the tourism sector, which both relies on Croatia's natural assets (such as pristine coastal areas) and puts pressure on them. Croatia is moderately urbanised, with around 60% of its current population living in urban areas. Urbanisation is forecast to grow to 70% over the next thirty years (UN, 2017). At the same time, its total population is expected to steadily decrease.

Although considered a water rich country, Croatia's water resources are unevenly distributed in time and space. There is high water demand in the summer, coming from the large influx of tourists. This puts a strain on available resources, and is felt the most acutely along the coastal area and small islands of the Adriatic Sea. Climate change is estimated to cause a decrease of 10-20% in water run-off in Western Croatia by 2050, exacerbating even further the availability of domestic water supply during the summer months (Climate Change Post, 2017). On the other hand, heavy seasonal rainfalls can produce severe flooding, mainly in the southern part of Slavonia. They cause power outages, landslides, and damage to the infrastructure, affecting water and wastewater services and resulting in possible drinking water shortages. Flash flooding from extreme rain events is also becoming increasingly problematic on the coast.

Key features relevant to future expenditures for water supply, sanitation and flood protection are presented in the table below.

The water sector in Croatia is managed at the national level. Croatian Waters (Hrvatske Vode), is the national water management agency, which grants and controls water extraction and discharge rights, collects corresponding fees, and reinvests the proceeds into sector investments (DWP, 2015a). It is also charged with flood protection policy. Strategic objectives for Croatian Waters are defined by their Water Management Strategy (2008-2038), commitments under EU Accession treaty negotiations, the water and wastewater infrastructure construction plans (currently set for 2014-2023), and the River Basin Management Plan (RBMP). The Ministry of Environmental Protection and Energy, through its Directorate for Water Management, is the body responsible for the implementation of water policies in Croatia, including those related to water supply and sanitation services, as well as for the administrative supervision of Croatian Waters.

Local governments, who operate through public utility companies, manage water supply and sanitation services. Croatia has 21 units of regional self-government (555 units of local self-government, 126 cities and 429 municipalities), and based on the 2011 census, a total of 6,756 settlements with 4,284,889 inhabitants. Past consolidation efforts among utilities resulted in one company, Zagreb Waterworks (DWP, 2015a), serving 17% of the population.

Croatian Waters also delivers support to public providers and units of local self-government in the preparation, implementation and procurement of projects of public water supply and wastewater collection and treatment.

Table 1. Key features relevant to future expenditures for WSS and flood protection

	Indicator	Value (rank if applicable)	Data Source	Year
Economy and Demographics	GDP per capita	EUR 11 100 (25/28)	Eurostat	2016
	Projected GDP growth	2.3% (13/28)	IMF	2016-2022
	Projected urban population variation	1.07x (20/28)	UN	2017-2050
Water Supply and Sanitation	Estimated annual average expenditure per capita	EUR 90	Authors based on EUROSTAT	2011-2015
	Population not connected to public water supply	14.5%	EC	2015
	Leakage rate for public water supply	44%	EC	2017
	Non-revenue water	n.a.	EurEau	2017
Flood Risk Management	Estimated annual average expenditure per capita	EUR 22	EC survey	2013-15
	Population potentially affected in flood risk areas	n.a.	EC report	2015
	Value of assets at risk (rise 2015-30):	0.3x (1/28)	WRI	2015-2030

Note: Rank 1 implies best in class among the EU member countries for which data is available.

3. Characterising the financing challenge

This section provides an overview of the challenges, current financing strategies and factors driving future investment needs related to drinking water and sanitation and flood protection.

3.1. Water supply and sanitation

Having joined the European Union in 2013, Croatia has committed to implement the EC's water directives by 2023, which will require substantial investments to extend and upgrade existing ageing water supply, sanitation infrastructure (DWP, 2015a).

Croatia was not accounted for in the latest reporting exercise of the DWD because of the recent Accession to the EU, thus no information on its compliance with EU drinking water standards are available. As of 2015, 90% of Croatia's population had access to safely managed drinking water and 85% had access to piped water supply.

The water network, which is 4 times as long as the wastewater network, is aging—most of it was installed more than 50 years ago—and its performance could be improved, as the leakage rate is a little more than 40% (DWP, 2015a). This level of water loss is considered high for the region - the Slovak Republic, Slovenia, Hungary and Czechia reported between 20 and 30 percent (DWP, 2015b).

Under the 2010 Water Act, public water suppliers are responsible entity for ensuring that the quality of the water source meets regulated standards, and microbiological and chemical parameters are in accordance with the Drinking Water Directive. A 2017 test found that 3.1% of samples from the public water supply system did not meet the standards. In contrast, 56.4 % samples from local water supplies (e.g. community-run) did not meet standards (Croatian Institute of Public Health, 2018). Croatia benefits from a transitional measure to comply with the DWD regarding microbiological and indicator parameters for a number of water supply zones (EC, 2017).

The latest reporting by WHO and UNICEF (2017) indicates that substantial improvements will be needed for water sanitation. In 2015, a large proportion of the population (40%) did not have access to safely managed sanitation services (WHO and UNICEF, 2017).

Among the 141 wastewater treatment facilities in Croatia, 46% are equipped with preliminary and primary treatments, 51% with secondary treatment, and only 3% with more stringent treatment (Danube Water Program, 2015). Additional investment in wastewater treatment may be required in small communities (servicing <2000 people) if health and environmental risks related to wastewater pollution are identified (i.e. contamination of drinking water, bathing water and shellfish) (EC, 2017).

The estimated investment needs (reported by Croatia under Article 17 of the UWWTD Directive) to reach full compliance with the UWWTD are EUR 2880 million (EC, 2017). i.e. EUR 700 / capita.

The total estimated investments in water utility infrastructure projects from 2014 – 2023 amount to HRK 28 billion (EUR 3.8 billion), out of which 23% are investments in public water supply, and 77% in public sewer

system and waste water treatment. The investment programme will be implemented through EU structural instruments, IFI loans and national financing mechanisms (Grizelj Simic, 2017). General sources of funding for the period 2014- 2023 include 65% EU funds, 13% State Budget, 13% Croatian Waters, and 9% public providers of water services. In practice, higher subsidies are transferred to smaller providers due to their larger financial gap or lower cost recovery rate. The distribution of the total amount of national co-financing depends on the development index of local governments.

Water service costs are currently fully recovered through tariffs, however, this could become a challenge in the future with increasing costs. Households connected to water supply and sanitation infrastructure typically pay tariffs, in line with the principle of full-cost recovery, although subsidies exist when charges exceed a price cap relative to household income (DWP, 2015a). The water tariff range according to the 2013-2015 RBMP was from EUR 1,25 to EUR 3,76 per m³, which in theory covers both OPEX and CAPEX. Differences in price are due to: (i) technical characteristics of the systems and the associated operation and maintenance costs, as well as (ii) different scope of services provided to customers: only water supply, both water supply and wastewater collection, or water supply and wastewater collection and treatment. Tariffs are based on a “cost-plus model”, meaning the primary goal is to reach an affordable price that is not above 3% of the average household income.

Construction and operation of new infrastructure to comply with Environmental *acquis* will likely require substantial tariff increases; however, there is currently little room to manoeuvre in terms of tariff affordability. Despite best efforts, affordability remains an issue for poor households. According to WHO and UNICEF, 17% of Croatian households in the bottom quintile spend more than 3% of annual expenditure on water supply and sanitation services (2017).

An additional challenge is that some households do not want to connect, once public networks are built. Due to the higher (sometimes perceived) costs of public water supply service, households prefer individual water supply and sanitation options or an independent local water supply and sanitation system. This could be addressed in two ways: either mandating a connection when a network is built, or creating an incentive through subsidized connection fees.

In countries where a significant share of the population faces (or is projected to face) affordability issues, accompanying social measures may need to be supplemented by well-designed solidarity mechanisms at a larger scale. These may take the form of cross-subsidies across water users or territories (from urban to rural areas).

Cross-subsidisation occurs from industrial to residential users, with industrial tariffs as much as 50% larger in some instances (DWP, 2015a). Cross-subsidies can be legitimate, if they are explicit and transparent, time-bound and related to a specified objective or target. They are inefficient if they provide a blanket support, as they blur the message about incentives to use water wisely, the cost of the service and the fact that polluters or users should pay. They potentially affect the financial sustainability of the utility. An economic regulator can be valuable to address this issue in a way that will be shielded from political considerations. Affordability issues are best addressed through targeted social measures.

In 2010, a significant and ongoing sector consolidation process (from 156 to around 30) was initiated. The primary drivers of this effort were:

- to absorb EU funds more effectively
- to cross-subsidise the operation of water networks, and particularly wastewater systems in smaller settlements, which might find compliance with the EU standards prohibitively expensive.

Box 3.1. Water tariffs and measures to address affordability issues in Croatia

Linear tariffs have been universally used, although the Regulator recommended some introduction of block tariff for some water projects complying with UWWTD and DWD. The block tariff shall be prescribed in the governmental Decree on Water Tariff Methodology, and utilities will be encouraged to use it, to avoid different linear tariffs for domestic and non-domestic users in the country.

Water tariffs in Croatia consist of 5 components:

- water tariff (covering OPEX and depreciation costs)
- VAT on water tariff (13%)
- development charge (local levy covering part of CAPEX)
- water abstraction charge (national levy, covering part of CAPEX, inter alia)
- water pollution charge (national levy, covering part of CAPEX, inter alia).

Water tariffs and development charges are monitored by an independent water regulator in Croatia, the Council for Water Services (VVU); other features are not.

The Regulator monitors affordability of overall water price (as a share of Net Available Income, which should remain below 3%). It reports annually to the Croatian Parliament. According to the latest report, water tariffs represented on average 1.39% of Net Available Income in Croatia in 2017.

The forthcoming government Decree on Water Tariff Methodology will prescribe future actions by the Regulator to address affordability issues.

Social tariffs were introduced by the Water Act in 2009. They are applied in Croatia. They initially applied to water supply only.

A new Water Services Act in 2019 states that the social tariff shall be applied for water supply, for wastewater collection and for wastewater treatment. Social tariff should not exceed 60% of the full tariff for a minimum quantity of water for basic consumption. The minimum quantity shall be prescribed by the governmental Decree on Water Tariff Methodology. The remaining 40% will be subsidised by local budgets. Nevertheless, water utilities may decide to cross-subsidise a part of the tariff (not exceeding 20% of the 40%).

The Social Welfare Act of 2013 provides for a compensation for housing costs to help poor households cover the remaining 60% (or less). A socially disadvantaged resident is entitled to reimbursement for housing costs (for rent, utilities, electricity, gas, heating, water, drainage and other housing costs). The compensation amount is HRK 400 (EUR 53.77) for a single parent, HRK 240 (EUR 32.26) for each adult household member, HRK 160 (EUR 21.50) for each child, HRK 220 (EUR 29.57) for each child of a single parent or for a child in a single parent family. These amounts may be increased under specific circumstances (avoiding separation of families).

Source: personal communication at the country workshop.

While the consolidation process was imposed at national level in 2010 (and put on hold in 2013), it has had very limited real force. In theory, economies of scale should be gained through streamlined administrative processes such as construction permits, impact assessment, land acquisition, procurement, etc. However, implementation of the reform has been complex and slow, as it interferes with local rights in the organization of water services. While 10 years have passed since the reform process was initiated, results have not yet materialized and very little reform has actually taken place. A key challenge in this process will be addressing the burden placed on public water suppliers to take over low-performing local systems and the potential tariff increase that could create resistance from the local population.

A major issue that persists in Croatia is the low percentage of disbursement of available funds. While there is a large amount of investment available, there is a bottleneck around the technical capacity to sustain and implement these investments. While in theory capacity is in place, in practice gaps remain in administration, project preparation and implementation. Challenges in project preparation are in part due to EU requirements, which have rendered the process more demanding, given Croatia is a relatively new member. These include emphasis on the requirements of the Water Framework Directive and the Birds and Habitats Directive (Natura 2000).

Another challenge is the discrepancy between estimated project costs and actual costs, due to constraints in the construction industry. For example, the sewer system in the Adriatic River Basic was 46% above the estimated tender budget, due to increases in labour costs. Project costs have been increasing due to the recession in Croatia and bankruptcy of construction firms at mid-implementation. Progress on the consolidation process could help in this regard, as the consolidation of expertise in construction permits, impact assessment, land acquisition, procurement should support reducing this risk either in terms of delivering more realistic project cost estimates at the outset or stronger procurement and project management to better manage the construction stage.

A key challenge in Croatia is using existing sources of finance more effectively, and in particular, accelerating disbursement capacities. Croatia could benefit from additional institutional mechanisms for speeding up project implementation. This could be through a more formalised consolidation process, but also through increased capacity support at the local level. In addition, issues broader than water will need to be examined, such as public procurement and construction permitting. Finally penalties for implementation delays could be strengthened.

The capacity of local utilities to access finance, co-finance, and implement projects is another key constraint. In many cases, utilities are afraid to procure due to uncertainties about labour costs and fiscal corrections. Increasing local capacity is a must, and institutional reforms are needed to improve dispersal capacity and speed up implementation. Some go beyond the water domain as such (e.g. public procurement).¹

Croatia could gain efficiency in the way the water sector is operated. While the planned reform should improve operational efficiency, challenges in ongoing reforms will need to be addressed. Observers note that the sector is currently overstaffed for its performance. In addition, while there is a reward for spending, it is not clear how well priorities reflect the need to comply with the European water *acquis*. A potential area Croatia could explore is a move towards output-based funding – that is, utilities can have access to public funding if they can demonstrate they will achieve results. However, this would be a large change for the water sector in Croatia, which has focused on affordable water for all instead of the efficiency of the sector. While water should be affordable for all segments of the population, tariffs that are below cost-recovery levels impinge on the financial sustainability of utilities, preventing them from maintaining the service quality, or from extending service to those who do not yet benefit from it. As discussed in various

¹ Based on expert opinion

occasions, affordability is best achieved through targeted social measures than through cheap water (as a vast majority of water users could afford to pay more).

Affordability concerns leave very little room for manoeuvre in terms of tariff increases. However, additional sources of finance will need to be mobilized to match increased spending to achieve compliance. Any increase in tariffs will need to be well-thought out and carefully designed. Options include cross-subsidies between rural and urban areas, which is currently being considered by national authorities. Another option could be seasonal tariffs in touristic areas, matching peak demand.

While Croatia has one of the largest freshwater reserves in Europe, they also suffer from high rates of non-revenue water (NRW) due to water leakage. This reflects the fact that the physical conditions of the water distribution networks are poor and require significant investments in rehabilitation.

3.2. Flooding

Croatia is hit regularly by flooding incidents with high economic costs. Between 2010 and 2018, EUR 298 million of damage due to the flooding has been reported to the EU Solidarity Fund (EUSF).

While flood management investment needs are high, the financing challenge can be considered less pressing than for water supply and sanitation, given there is no implementation deadline set in the Accession agreement. The current investment plan for flood management calls for EUR 1.5 billion through 2038. Flood infrastructure is financed through water fees collected by Croatian Waters, based on the solidarity principle (fees remain the same no matter the level of flood protection). There is a water contribution fee for construction, and a water regulation fee for maintenance.

Similar to WSS, the flood sector has experienced delays in disbursement. Delays in design and execution of investments have resulted in bottlenecks in the capacity to implement projects and deliver tangible benefits on the ground, despite the availability of financial resources (essentially through Cohesion funds).

Croatia has a long history of structural flood protection investments, such as dams and dikes. There is a cultural understanding that flood risks will be reduced through government investments in protective infrastructure. With that said, the flood risk management plan makes use of natural water retention measures, both by identifying areas such as alluvial forests and by focusing on awareness-raising on the benefits of natural water retention / nature-based solutions. One good example of natural water retention is the Central Sava Basin, located in the Lonjsko Polje Nature Park. This area combines the ecological and landscape diversity values of natural floodplains and wetlands with the storage of floodwaters of the Sava River.

Investment needs for flood management can additionally be minimised through reducing the reliance on structural protection measures if possible. This can be done by putting more emphasis on non-structural measures; and specifically encouraged household-level risk-reduction measures, can lessen overall damage costs. Measures such as flood proofing, elevating properties and keeping protective items like sandbags on hand can significantly reduce flood risk. The use of household measures spreads awareness and responsibility for flood risk management beyond the public sector, reducing public costs. Non-structural measures can reduce residual risks of flooding when other measures are in place, and thus are important complements to investments in structural protection.

Croatia could improve the prioritization of its flood management investments ensuring they are linked to a realistic budget. In current plans, Croatia has reported moderate priority for almost all its measures, and measures are only linked to very general high-level objectives. A strategic approach to investment planning can support the development of sequenced packages of investments or investment “pathways” (OECD, 2018_[27]). These pathways should be (re-)aligned with policy objectives over time and adjusted to changing external conditions. Investments that avoid expensive path dependency or lock-in to a given trajectory can provide more flexibility to adjust to changing conditions. For example, the Delta Programme in the

Netherlands combines a long-term perspective including 'room-for-the-river' solutions, an iterative decision-making cycle, and a dedicated fund to guide and implement investments for flood protection (<https://www.government.nl/topics/delta-programme>).

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