

Annex A. Addendum to the Issue paper. Lessons from six aggregation case studies

Aggregation of water services has been a common endeavour in a number of jurisdictions. This Annex captures the main messages that derive from a review of 6 reforms in Europe (Austria, Croatia, France, Italy, Romania, Scotland). Lessons emerge that can inspire Estonia, in particular as regards the benefits and modalities of a voluntary process for aggregation.

This report proposes an international review of water and sanitation services (WSS) aggregation processes in selected countries. It presents a wide variety of situations and experiences encompassing voluntary (bottom-up) and mandated (top-down) processes incentivised or not; different levels of reform maturity ranging from preliminary phase, to ongoing and completed; different purposes, governance models, scope and scale. Each case study explains the key drivers for the aggregation, its main implementation practicalities, the achievement of the reform and the difficulties faced when implementing the reform.

The following section sets out the key learnings from the six case studies, and further builds upon observations on WSS aggregation trends at international level.

Key drivers for aggregation are investments needs and efficiency gains

Among the six aggregation case studies presented in this report (Austria, Croatia, Romania, France, Italy and Scotland), the key drivers triggering aggregation reforms are investment needs and efficiency gains. Technical and economic efficiency are sought through economies of scale or economies of scope to improve WSS services performance, to implement effective investment strategies, to ensure solidarity across territories and social groups for investment planning.

In Austria, the Wasserwirtschaftsfonds (Water Management Fund, WWF) was created in 1958 with the purpose to support the construction of water supply and sanitation infrastructure in cities and urban areas, and thus boost the urban connection rate to WSS services. Inter-municipal entities were eligible for higher financial support from the WWF than municipalities operating a utility that would only operate on their sole territory. The underlying argument behind this policy was the achievement of cost-efficient solutions and economies of scale through larger water infrastructure and pooled investment. Since 1993, the fund is targeted towards small communities and rural areas.

In France, as stated in the explanatory memorandum of the aggregation law, “the transfer of water and sanitation competences from municipal to inter-municipal authorities [...] make it possible to effectively pool together the necessary technical and financial resources in order to ensure an efficient management of water and sanitation networks.” Furthermore, this transfer of competence will also allow inter-municipal entities to have the financial and technical skills to undertake the significant and necessary investments to renew and upgrade WSS infrastructure while implementing a solidarity principle between urban and rural areas.

In Romania and Croatia, huge investment needs were necessary to reach EU water legislation compliance. Aggregation was seen as a cost-effective solution to meet those needs, and was supported by EU funds financial incentives. In addition, in Romania, aggregation helped improve WSS coverage in urban and rural areas.

A majority of mandatory aggregation processes, supported by financial incentives, following administrative boundaries and encompassing all services & functions

A vast majority of countries from the case studies opted for a mandatory process for aggregation, with a top-down approach led by the National level. Austria is the only country among the six case studies that relied on a voluntary process promoting a bottom-up logic driven by local governments. When looking at WSS aggregation trends worldwide, this finding is in line with the international situation. In countries where aggregations happened over the past decades, 60 percent of the aggregation followed a top-down mandated process (World Bank, 2017^[1]).

Except for France and Scotland, all other aggregation processes have been supported by financial incentives either through EU funds (Romania, Italy) or through national grants and soft loans (Austria).

In all case studies, aggregations have eventually followed administrative boundaries although in Italy and Romania they were initially deemed to follow river basin territories. Except for Austria, the aggregation process encompasses all services and functions¹ of both water and wastewater services. These findings correspond to the observed aggregation trends at international level, where 56 percent followed administrative boundaries, and only 11 percent sought to match watershed limits². The scope of almost all aggregation processes covers both services and functions (86 percent) (World Bank, 2017^[1]).

A complex and difficult process requiring strong stakeholder engagement

In many case studies, the aggregation process proved more difficult and complex than expected. Most difficulties encountered are linked with local governments' reluctance, if not resistance, to aggregate WSS services, and thus lose control and power over local public services. This reluctance can also be encountered when well-performing utilities resist merging with low performing utilities. To some extent, these difficulties can be overcome by providing incentives and financial support for aggregation. Nevertheless, these difficulties commonly led to delays in the reform implementation (France, Italy, Romania) or to a limited number of effective aggregation among utilities (Italy) thus demonstrating inertia strategies from local governments. As a result, most aggregation reform still appear in progress in several case studies (France, Romania, Italy). Both the design and implementation of aggregations take time; in particular, implementation is a continuous process that can spread over decades. Consequently, aggregation benefits also take time to materialize. A gradual strategy can be effective to spread the efforts and changes to be made over time, thus not burdening utilities with having to do too much too quickly.

In Croatia, although the aggregation design was completed, it was delayed and then lost political support following the change of the central government. The reform was largely driven by technocrats within the line ministry, who failed to acknowledge that they lacked the political champion and national government power to impose the reform process over the concerns of local stakeholders. When political leadership changes over time, aggregation can be jeopardized. Due to political cycles, national and local representatives may not be re-elected. As a result, leadership stemming from a single national party or local stakeholder may disappear over time, thus potentially jeopardizing the aggregation design and implementation.

As a result, building ownership and aligning the interests of stakeholders at all levels is essential. When aggregation is mandated and generally designed at the national level, systematic consultations with local stakeholders should be organized early in the process to ensure they can inform the process and to strengthen alignment of interests between the national and local levels. Such an early engagement helps build stakeholder ownership of the reform. It allows implementers to tackle potential problems or resistance, and diffuse their potential impacts, thus improving conditions for success.

Accompanying measures are necessary to promote a successful aggregation

Corporatisation of utilities is a requisite as aggregation involves the creation of a new, separate, organizational entity that is accountable to more than one stakeholder. Corporatization gives financial autonomy to water utilities, as they have their own budget, duly separated from municipal budgets. Moreover, water companies make their own economic and financial decisions thus aiming at financial sustainability and resisting political interference. Corporatization brings efficiency improvements as utility managers and staff behave in a more business-like fashion (Romania).

Setting clear exit and entry clauses that set out the technical and financial conditions under which a service can join or withdraw from the aggregation, encourages joining and ensures orderly withdrawal (Romania, France).

A balanced institutional arrangement in which reaching consensus is embedded as a practice is key to align local interests and ease decision making in aggregated utilities. This alignment is generally done through decision-making arrangements and voting rights allocation.

Thoroughly preparing staff transfer from former municipal structures into the newly aggregated utility is crucial as labour costs often represent the main operational expenditure of WSS utilities. Transaction costs (see Annex) associated with staff transfer can delay or jeopardise potential efficiency gains and expected benefits from economies of scale and scope (Romania, Scotland).

Liabilities for suppliers and financiers can represent important transaction costs for aggregating utilities. As such, they must be covered, either during the aggregation by the aggregated utility or separately from aggregation by the local government budgets (France, Romania).

Defining principles but allowing flexibility in implementation ensures local ownership. National, top-down, mandated aggregation reforms are more likely to be successful when they follow the principle of subsidiarity and allow flexibility for local stakeholders to own the aggregation process and adapt it to their local context. Furthermore, not acknowledging local context when designing an aggregation can lead to failure (Croatia).

Not all aggregations are successful and reforms sometimes show mixed results

While aggregation can enhance the performance of service provision, and the efficiency of expenditure programmes, slow diffusion and risk of sherry picking can affect or delay overall benefits at national level.

In Scotland, as part of the aggregation process, considerable efforts were made to enhance efficiency that successfully led to a reduction of almost 40% in operating costs over a decade. In Austria, the voluntary and incentivised aggregation process proved successful as it allowed boosting water and wastewater coverage in both urban and rural areas through cost-effective investment solutions.

In Romania, the aggregation reform also allowed increasing service coverage and performance in urban and rural areas. However, during the implementation of the process, a risk of cherry-picking practices arose. Service providers naturally prefer to extend services to wealthy populations for cost recovery reasons, and to easy-to-reach areas where infrastructure already exists. By doing so, they select solvent customers for good revenue collection and seek to avoid sunk investment costs and associated OPEX increases. In Italy, the overall outcome of the aggregation reform show very limited benefits in terms of efficiency gains and investments increases.

Voluntary Aggregation Process. Austria

Table A A.1. Key data on aggregation of water utilities in Austria

Number of municipalities	Average population by Municipality	Level responsible for WSS provision	Number of WSS utilities	Average population served by WSS utilities	Aggregation index ¹	Formal policy or legal reform supporting aggregation	Predominant scale of aggregation	Predominant scope of aggregation	Process of aggregation
2,095	4,237	Municipal	5,465	1,624	28%	No	Administrative boundaries	Stages	Voluntary

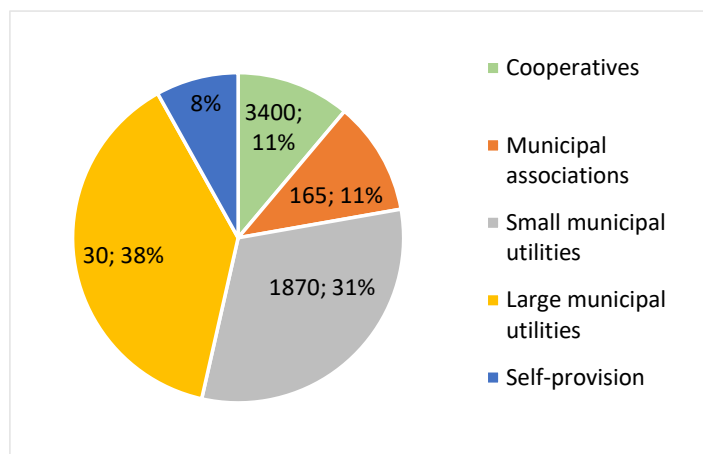
1. The Aggregation Index measures the degree of fragmentation of service provision of the water sector in a country, using a simple normalized index based on the number of local governments and the number of service providers.

Key drivers for the aggregation process

Overview of water and sanitation services provision

In Austria, the WSS sector is regulated at the national level, and the nine state governments are in charge of implementing and enforcing national regulations via their administrative districts. The responsibility for water supply and sanitation lies within the municipalities and the communities. Thirty large and 1,870 small municipal utilities serve nearly 70% of the population. One hundred and sixty five municipal associations (Box A A.1) and 3,400 cooperatives each provide water to 11% of inhabitants, and the remaining 8% rely on piped self-provision (Figure A A.1.). Twenty-four percent of Austrians are served by water utilities supplying less than 5,000 inhabitants, and 66% are connected to water utilities supplying more than 5,000 inhabitants (ÖVGW, 2015^[2]). With an average population of approximately 1,600 inhabitants per utility, the water sector appears quite fragmented.

Figure A A.1. Water services provider types and market shares, Austria



Source: (World Bank, 2017^[1])

Box A A.1. Upper Austria Water

Founded in 1946, Upper Austria Water is an autonomous non-profit association of more than 1,700 rural service providers located in the Federal State of Upper Austria (Figure A A.2.). Chaired by a board of seven directors, it is in charge of operations and maintenance of small-scale water supply and sewerage systems in rural areas through technical assistance (emergency supply, mobile technical equipment), pooling programs (for water meter purchase and water analyses, for example), and measurement services (such as leak detection, pipe and valve location, flow rates and pressure, and aquifer tests). It aims to supply sufficient high quality and cost-efficient drinking water through the construction and operation of autonomous installations. It also provides capacity building and staff training, and supports service providers on legal and financial issues. Similar models exist in other states of Austria.

Figure A A.2. Water cooperatives in Upper Austria



Source: (World Bank, 2017^[1])

WSS services are provided predominantly by public utilities (e.g. municipalities or associations of municipalities or public enterprises) or publicly owned companies. In addition, cooperatives play an important role in some parts of Austria, especially in rural areas. The number of private companies providing water or sanitation services is negligible.

Financial incentives to support voluntary aggregation and boost water and wastewater investments

In 1949, the Austrian *Wasserbautenförderungsgesetz* (Hydraulic Engineering Promotion Act, WBFG) replaced former laws and set up regulation for potential financial support from the national government for all kinds of waterworks. In 1958, the WBFG was amended to create the *Wasserwirtschaftsfonds* (Water Management Fund, WWF) within the Ministry of Trade. This fund was used to allocate national grants and soft loans in the water and sanitation sector, with low interest rate (1-3 percent) and long payback periods of up to 50 years. The purpose of this financial scheme was to support the construction of water supply and sanitation infrastructure in cities and urban areas, and thus boost the urban connection rate to WSS services. Inter-municipal entities such as municipal associations were eligible for higher financial support than municipalities operating a utility that would only deliver services on their sole territory. The underlying

argument behind this policy was the achievement of cost-efficient solutions and economies of scale through larger water infrastructure.

Revised financial incentive scheme to support rural areas and small communities aggregation and asset development

Following the success of the WBFG for water and wastewater works development in urban areas, it was revised in 1993, and the *Umweltförderungsgesetz* (Environmental Support Act) was passed. The funds were no longer granted in the form of soft loans but in the form of grants, and the main target of the new support scheme shifted towards rural areas and small communities. Furthermore, the 1993 reform transferred the management of the Fund from the Ministry of Trade to a bank specialising in the financial needs of municipalities, the *Kommunalkredit*.

To promote efficient investment solutions an additional lump-sum support scheme was introduced offering the applicant the possibility of getting higher support when aiming at the most economically efficient solution. Municipalities have to submit an economic analysis when requesting financial support from the national government for any investment in the water sector. This analysis, called *Varianteuntersuchung*, includes a cash value comparison of different investment options by taking into account the potential investment costs, operating expenses and re-investment costs for a 50-year period. The various options include the analysis of different technologies as well as the potential benefits of investing in association with other municipalities. The study then identifies the most economically efficient investment option, and the *Kommunalkredit* can force municipalities to join forces and work together. As such, the funding support scheme remains a powerful incentive to push for inter-municipal cooperation. However, despite the existing incentives, some municipalities favour carrying out infrastructure investments by themselves, without grouping with other municipalities. It can only be assumed that one of the reasons for this economically inefficient approach is the fact that local politicians favour having full discretion as the single operator of the water infrastructure.

Some practicalities of aggregation arrangement

The Water Act (*Wasserrechtsgesetz*, 1956, §87) regulates all associations of WSS municipal services.

Constituencies

There is a wide-range of inter-municipal cooperation, both formal and informal, in Austria. Cooperation arrangements include collaboration, mutual assistance, private law contracts, associations and companies under the Austrian Civil Law Code and company law, and inter-municipal associations under public law (as stipulated in the Austrian constitution, *Österreichische Bundesverfassung*).

Associations are special purpose entities based on public-public partnership. They deliver public services to several municipalities with the aim to overcome the challenges of fragmentation and diseconomy of scale. The management and operation tasks, related to the water and sanitation provision in the participating municipalities, are delegated to the association.

A 2011 federal constitutional amendment facilitates cooperation initiatives in Austria. It enables municipalities to participate in inter-municipal associations that go beyond *Länder* borders. However, a formal agreement of the concerned *Länder* for the establishment of a cross-border association is required.

Funding

In general, revenues generated from water tariffs contribute to between 74 and 85 per cent of the total annual revenues of water utilities in Austria (Kommunalkredit Public Consulting, 2009^[3]). Municipalities, even when they are part of an association, generally set their own water tariffs. Decision-making over tariff thus remains in the hands of each municipality. Hence, there is no uniform water tariff within an association, and water tariffs of municipalities belonging to the same association can diverge.

Nevertheless tariff setting should comply with the user/polluter pays principle and the cost-recovery principle. Tariffs are based on a revenue cap. Referring to the cost recovery principle, water utilities assess the cost for 1 m³ and set a tariff accordingly under the approval of local municipal governments. According to the law, the tariff can be up to twice the annual financial requirement of the water utility. Any additional demand to raise tariffs must be made with regard to a specific context affecting the water service. Many water utilities also link their tariff to the annual inflation rate (World Bank, 2015^[4]).

Achievements of the aggregation arrangement

After the Second World War, one of the objectives of the Austrian water policy was to extend water and sanitation systems, thereby increasing the number of inhabitants connected to the public water and sewer system. This was done through a financial support scheme at the national level that acted as the main driving force to pool municipal resources together, and turned out to be rather successful as showed by the development of inter-municipal cooperation in the water and sanitation sector.

According to a study from the *Kommunalkredit*, two thirds of municipalities carry out all stages of water service (water abstraction, production, transportation, and distribution) thus demonstrating a high degree of vertical integration. These municipalities are mainly located in the alpine and rather wet western area of the country. The remaining one third of municipalities outsource at least one of the above-mentioned water service stages to associations or other municipalities. Cooperation between municipalities can primarily be found in water extraction and transport stages. These municipalities are mainly located in the dry and flat east and southeast parts of Austria.

For wastewater services, the situation is quite different as more than half of the Austrian municipalities are part of an association throughout the country. In such cases, municipalities still operate sewer networks while associations are generally in charge of wastewater transport and treatment.

The current organisational structure of the Austria WSS sector has been largely shaped by the WBFG that acted as a powerful financial incentive to support voluntary aggregation through pooled investment for water and wastewater infrastructure. This incentivised WSS investment policy resulted in the creation of an important number of municipal associations from 1958 to 1993. Nevertheless, this scheme did not lead to a decrease in the number of WSS utilities but rather in the pooling of resources to jointly build and manage WSS asset among several municipalities. As such, municipalities were encouraged to cooperate rather than consolidate.

Mandatory Aggregation Reform at Preparatory Phase. Croatia

Table A A.2. Key data on aggregation of water utilities in Croatia

Number of municipalities	Average population by Municipality	Level responsible for WSS provision	Number of WSS utilities	Average population served by WSS utilities	Aggregation index ¹	Formal policy or legal reform supporting aggregation	Predominant scale of aggregation	Predominant scope of aggregation	Process of aggregation
556	7,316	Municipal	156	26,074	78%	Yes (still pending)	Administrative boundaries	Services & functions	Mandated

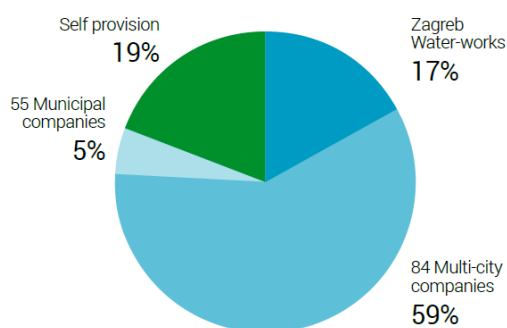
1. The Aggregation Index measures the degree of fragmentation of service provision of the water sector in a country, using a simple normalized index based on the number of local governments and the number of service providers.

Key drivers of the aggregation reform

Overview of water and sanitation services provision

In Croatia, local governments are responsible for water and sanitation services and provide them through 156 public utility companies (140 for water and sanitation service and only 16 for sanitation service). With an average population served of 24,962, the market is dominated by Zagreb Waterworks, servicing about 17% of the population, with a further 84 larger multicity companies servicing 59% of the population. The remaining 24% of the population is either served by 55 small municipal providers (5%) or uses self-provision (19%) or individual water resources (Figure A A.3.). Most utility companies provide both water and sewerage services, although in larger cities, separate utility companies exist (World Bank, 2015^[5]).

Figure A A.3. Water services provider types and market shares, Croatia



Source: (World Bank, 2015^[5])

Access to publicly provided services reaches 81% for public water supply and 44% for sewerage. Access to wastewater treatment is much lower but is expected to increase dramatically based on Croatia's commitment to implement the EU Urban Wastewater Treatment Directive.

Purpose of aggregation

Following the accession of Croatia to the European Union, huge investments are needed to comply with the requirements of the Water Framework Directive (2000/60/EC), the Drinking Water Directive (98/83/EC) and the Urban Waste Water Treatment Directive many (91/271/EEC). Approximately EUR 4.5 billion should be invested in the water sector from 2010 to 2023, (Revised implementation plan for water utility

directives, Zagreb, 2010), and water supply and mainly wastewater infrastructure (secondary and tertiary waste water treatment plants) needs to be vastly expanded (Table A A.3.).

Table A A.3. Strategic goals for water and wastewater services provision

Service	Strategic goal 2023	Increase compared to current situation
Water supply connections	85-90%	+15% to +20%
Sewerage connections	60%	+17%
Wastewater treatment	Depending on the size of the agglomeration	+0% to +100%

Source: Revised implementation plan for water utility directives, Zagreb, 2010

In order to facilitate the achievements of the 2023 Strategic Goals, the Ministry of Agriculture (which is in charge of water and wastewater policy) has contemplated a sectoral institutional reform aiming at aggregation of utilities. Such developments, which have been discussed for several years, were already mentioned in the 2009 Croatia Water Strategy:

“It is necessary to carry out a reform rationalization of the utility sector in the direction of institutional merging of utility systems at technically, technologically and economic sustainable level” (Croatian Water Strategy, *Hrvatske Vode*, 2009).

The 2010 Water Act (and a separate Water Financing Act) was passed as part of the country's harmonization with the European Water Framework Directive and daughter directives. It also created a legal basis for a significant aggregation process, which should turn the more than 150 local utility companies into around 20 regional providers, generally along county borders. Water services areas have been established within which the government will recognize only one service provider (Croatian Parliament 2009, 2013). The change was expected to allow more effective European Funds absorption, create cross-subsidies between smaller and larger cities, and further professionalize service providers. The process was also seen as an important opportunity for the sector to improve the efficiency of service providers.

From the optimal size to the aggregation model

About 70 % of Croatian water utilities distribute less than 1 million m³ per year and another 20 % between 1 and 5 million m³. Only 2 % of the water companies distribute more than 10 million m³ per year.

For more than 30 years, extensive international research was conducted on economies of scale in the water sector, and methods have been developed to assess the efficiency of the sector as a whole. “Studies from a significant set of countries show economies of scale [...] in populations of 100,000 to 1 million (or in some cases covering many millions), with population densities of up to 250 inhabitants per square kilometre, or with volumes up to 100 million to 200 million cubic meters per year.” (Ferro, Lentini and Mercadier, 2011^[6])

In an attempt to determine the optimal size for the aggregation process, a feasibility study has been conducted to characterise the efficiency of the Croatian WSS sector using a Data Envelopment Analysis (DEA). Results concluded that the efficiency of the sector could be partly improved through economies of scale. Moreover, the analysis demonstrated that the median volume of water production of the most efficient Croatian water companies is approximately 3.1 Mm³ per year and therefore this minimum value was considered the starting point for aggregation process.

Based on this result, which validated the rationale (made the case) for the aggregation reform, three different aggregation models were examined:

- a light aggregation approach through a strategic alliance between utilities,
- a medium approach through a partial integration between utilities, and

- a full horizontal and vertical integration

Each option was assessed against 17 criteria taking into account the service quality, the water price, the management and operation conditions of the service or the control over the service delivery and the utility. The full merger option emerged as the best ranked solution. Among the assumed benefits of the full merger were a better access to international funding and loan conditions, an improvement of operations due to more effective management and organisation. Important non-financial benefits would derive from the ability of large companies to establish increased service levels, hire better educated and skilled staff and effectively use management tools such as benchmarking in order to continuously improve efficiency and effectiveness.

The next analytical step consisted in the definition of the most appropriate scale of aggregation. To do so, a GIS-tool was developed, and three different aggregation scale strategies were studied:

- Gravitating cities: larger towns would merge with the surrounding municipalities also taking into account gravitational aspects of waterways, leading to an important and manageable economy of scale.
- Minimum of 3 million m³/year: a minimum water production of 3 million m³ per year is to be achieved, corresponding to the results of the DEA. This scale is considered the minimum from the point of view of economic benefits.
- River basin approach: this strategy would adopt river basins geographical boundaries for new utility companies, reflecting the Water Framework Directive approach. This would result in six very large companies, with important geographical distances within the future utility service delivery territory.
- The “gravitating cities” strategy was chosen as the best option as it would allow creating sufficiently large utilities through a manageable merger process.

Key foreseen practicalities for the aggregation reform

Asset

According to the Croatian legal provisions, WSS utilities are and should remain publicly owned by local governments, and the WSS asset is owned by WSS utilities that are to take the legal form of limited liability companies.

Shareholding allocation

Three options were considered in order to allocate shares among shareholders:

- according to the population of each municipality,
- according to the value of the current asset of each municipality, or
- according to the value of total asset (current and future infrastructure).

The allocation of shares based on the population was chosen as the most pragmatic and least complex option for Croatia.

Supervisory Board

Members of the supervisory board are appointed by the shareholder assembly, with one member of the supervisory board appointed by the workers of the new water utility company (according to article 163 of the Labor Act). The supervisory board should consist of specialists/practitioners of the water sector. The supervisory board is not intended to reflect the composition of the shareholders assembly. It is advised to appoint a small board of supervisors as to shorten the decision making process and to decrease bureaucracy. The supervisory board will appoint the Executive managers.

Possible options to overcome political resistance

In the preparatory phase of the reform, some measures were contemplated in order to overcome political resistance at local level, to resolve potential unwillingness to implement aggregation and to enforce compliance:

- withholding national funding and/or assess to EU funds, central government takes over;
- prescribing fines (penalties) to heads of local self-government units for non-compliance with the aggregation laws and dead-lines.

Difficulties and obstacles with the aggregation reform

The water utility aggregation process was initiated as a central government–driven, top-down reform, with the country divided into water service areas, mostly defined by county boundaries, using the principle of “one service area, one service provider, one tariff”. It was planned as a two-stage process, where in the first stage WSS services were corporatised, where necessary, while in the second stage they were to be aggregated into new WSS utilities.

After completion of the first phase, in early 2015, aggregation design was completed along with the required legislative framework. However, owing to the sensitivity of the political situation at that moment (2015 was an election year) and potential backlash from local authorities, it first was delayed and then lost political support following the change of the central government. The reform had been driven largely by technocrats within the line ministry, who failed to acknowledge that they lacked the political champion and national government power to impose the reform process over the concerns of local stakeholders.

The reform stalled but was never fully abandoned. On 28th June 2019, the Croatian Parliament adopted three amendments to framework laws in the water sector:

- Amendment to the Water Services Act

This amendment stipulates the obligation to integrate existing public suppliers into a single public supplier in a given service area, around the largest existing public supplier. According to the text, all existing utilities will be merged into 35 to 40 regional utilities, each covering a service area with more than 2 million m³ of water sold annually. It also prescribes that a unique water price is adopted per service area; price that is regulated by the Water Services Council, to prevent monopoly and high tariffs, but also undervalued tariffs. Finally, the amendment states that water services shall remain public entities.

- Amendment to the Water Act

Following the amendment passed on the Water Services Act, subsequent amendments to the Water Act had to be adopted.

- Amendment to the Act on Water Management Financing

Following the amendments passed on the Water Services Act and to the Water Act, subsequent amendments had to be adopted for harmonization purposes.

These amendments are currently being challenged at Constitutional level.

On-going Mandatory Aggregation Reform. Romania

Table A A.4. Key data on aggregation of water utilities in Romania

Number of municipalities	Average population by Municipality	Level responsible for WSS provision	Number of WSS utilities	Average population served by WSS utilities	Aggregation index ¹	Formal policy or legal reform supporting aggregation	Predominant scale of aggregation	Predominant scope of aggregation	Process of aggregation
3,284	5,894	Regional	283	42,407	92%	Yes (2007)	Administrative boundaries	Services & functions	Mandated

1. The Aggregation Index measures the degree of fragmentation of service provision of the water sector in a country, using a simple normalized index based on the number of local governments and the number of service providers.

Key drivers of the aggregation reform

Historic perspective on aggregation

The water sector in Romania has followed a contrasting evolution over time, fluctuating between fragmentation and aggregation. Before the 1990s, Romanian water services were supplied at the county level by companies that also provided other public services such as solid waste collection, heating, and the like. Water infrastructure investments were entirely subsidized by the central government budget and operational costs were subsidized by local authorities or funded through cross-subsidies, with industries paying a higher tariff than institutions and domestic users. Immediately after the fall of the socialist system (1989), the operating areas of these services started to narrow down as each local authority wanted to have its own public service operators. As a result, hundreds of WSS utilities were then created.

In a reverse movement, a comprehensive water sector aggregation reform was designed in 2005–2007 and implemented during the five following years. This regionalization consisted of a top-down mandatory process incentivized by EU investment grants—Sectoral Operational Program Environmental (SOP E) funds—which were allocated only to projects led by a regional operator. These financial incentives shaped to some extent the aggregation implementation. As an illustration, the scale of aggregation of Raja Constanta Water Company was shaped by the SOP funds, as the utility chose to expand in municipalities that benefited from those funds, whether they belonged to Constanta county or not. As a result, Raja Constanta Water Company accessed an overall amount of €278 million in investment subsidies (World Bank, 2017^[1]).

Scale of aggregation

From an institutional perspective, the regionalization was generally performed through the reorganization of public services operated by the capital city of the county. The process had two stages. First, it concentrated the operation of services provided to a group of municipalities at the county level. Some flexibility was introduced in the aggregation process as utilities had the choice to aggregate following their own pace and according to their preferred scale (see examples given for two water utilities in Table A A.5. The second step, which has not been achieved yet, aims to concentrate these county utilities into river basin utilities.

Table A A.5. Trends in aggregation for Brasov and Raja Constanta Water Companies

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Number of Municipalities	Brasov	9	9	10	12	13	13	13	14	15
	Raja Constanta	47	52	61	83	102	108	114	133	134
Number of Connections (000')	Brasov	17	17	17	22	24	30	33	35	36
	Raja Constanta	75	82	109	117	122	126	127	136	137
Population Served (000')	Brasov	254	254	281	291	317	317	341	345	346
	Raja Constanta	498	502	608	626	691	695	706	739	731

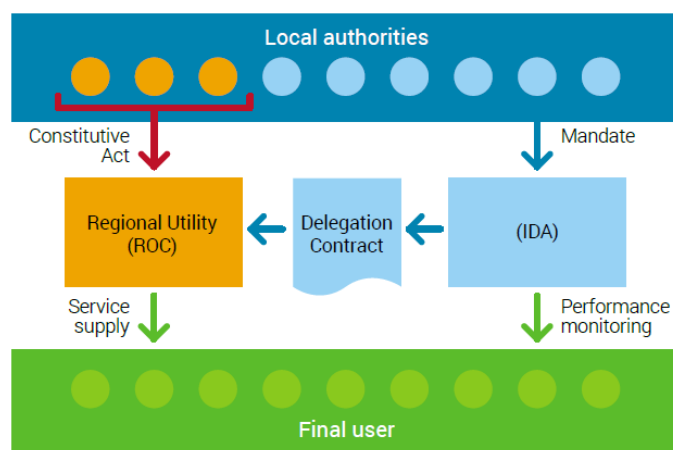
Source: (World Bank, 2017^[11])

Governance of aggregation

The overall aggregation reform is based on three key institutional elements (Figure A A.4.):

- an Intercommunity Development Association (IDA),
- a Regional Operating Company (ROC), and
- a contract of delegation of services.

The ROC is a commercial company, owned by the IDA member municipalities, to which the management of the water and wastewater service is delegated through a delegation contract. The ROC is thus appointed to manage, operate, maintain, upgrade, renew, and expand, where appropriate, all public assets designated in the contract. It collects the invoices paid by customers, in accordance with the contract provisions. The IDA acts as the sole interlocutor of the ROC, representing the common interests of its member municipalities regarding water and wastewater services, especially with regard to general strategy, investments, and tariff policy.

Figure A A.4. Aggregation institutional framework, Romania

Source: (National Regulation Agency for Public Services, 2015^[7])

Purposes of aggregation

Despite the compulsory requirement to aggregate in order to receive EU funds, the official Romanian Guide of Regionalisation states that the purpose of aggregation is the “improvement of sector performance by a better management and professionalism, as well as benefiting from scale economies.” However, in the

views of the European Commission and the Romanian government, the regionalisation process was also a means to promote integrated water resources management in order to comply with EU directives and generate environmental benefits, especially since the reform was finally intended to turn county utilities into river basin utilities. It was also a way to set up financial solidarity through cross-subsidies at the county level, and to offset decreases in water sales. Service quality and technical capacity enhancement were also targeted, especially as large investment projects were planned.

Key practicalities of the aggregation reform

Corporatisation of utilities

The aggregation process involves the creation of a new, separate, organizational entity that is accountable to more than one stakeholder. As such, the reform turned utilities into corporatized commercial companies that brings along many benefits. Corporatization gives financial autonomy to water utilities, as they have their own budget, duly separated from municipal budgets. Moreover, water companies make their own economic and financial decisions, especially regarding tariff policies, thus aiming at financial sustainability and resisting political interference.

Corporatization brings efficiency improvements as utility managers and staff behave in a more business-like fashion. Indeed corporatization is a way to modify the incentives of the WSS utility and make it act in a more customer-oriented way. In Romania, where water operators were turned into commercial companies, executive management staff must meet a number of objectives and performance indicators that are monitored continuously by the Board of Directors, the General Assembly of shareholders, and the inter-municipal body.

Share-holding and decision-making

A balanced institutional arrangement in which reaching consensus is embedded as a practice is key to align local interests and ease decision making in aggregated utilities. This alignment is generally done through decision-making arrangements and voting rights allocation.

In Romania, ROC share-holding arrangements among local authorities varies widely across IDAs and ROCs. In most cases, the power-sharing arrangement is done in such a way that it does not provide exclusive power to the largest city as a single shareholder, to ensure a balance of power and create incentives for consensus building.

For Brasov Water Company, shares were allocated between Brasov Municipality and Brasov County Council, each receiving 42 percent. The remaining 16 percent were divided among six other localities, in accordance with the proportion of their inhabitants. Allocating equal participation to Brasov County Council and Brasov Municipality was aimed at balancing powers and reaching consensus to avoid unilateral decisions. In addition, under Romanian law, strategic decisions must be adopted by a vote of two-thirds, which in Brasov made consensus compulsory. For Raja Constanta Water Company, the County Council holds 97 percent of the shares while the 33 municipalities served by Raja Constanta Water Company hold the remaining 3 percent, allocated in accordance with the water volume distributed in each settlement (World Bank, 2017^[1]).

Exit and entry rules

Exit and entry rules set out the technical and financial conditions under which a service can join or withdraw from the aggregation. Those conditions mainly refer to the value of the assets being transferred. In addition, these rules also include governance arrangements that apply to newcomers. In Romania, during the aggregation reform, little emphasis was put on the definition of entry and exit rules. The exit rule boils down to the reimbursement of all amounts invested by the operator minus the depreciation costs already paid.

Tariff

The oversight and coordination of tariffs is generally done by the shareholders of the public companies in charge of service provision (most often local government representatives), in general assemblies. In Romania, the economic regulator for the water sector (National Regulatory Agency for Public Services, ANRSC) reviews and approves the tariff proposed by the utility after shareholders' approval. Hence, tariffs are voted on by the IDA General Assembly representing all local governments.

Financing

Fundamentally, the cost- and revenue-sharing arrangements depend on the legal form of the aggregated entities. In Romania, where corporatized entities have been created that merge all of the previous operations, costs and revenues are being consolidated and decisions on budget and investments are made for the overall utility through the shareholder assembly.

Asset

In Romania, WSS assets remain the property of local jurisdictions and are handed over for operation to the aggregated utility under a concession contract. The aggregated operator pays a lease fee to the WSS asset owners that is set aside into an asset management fund.

Liabilities

Liabilities for staff, suppliers, and financiers can represent important transaction costs (see Annex) for aggregating utilities. As such, they must be covered, either during the aggregation by the aggregated utility or separately from aggregation by the local government budgets. In Romania, the newly aggregated operator taking over services did not take on any liability from the previous operators. No debts or claims were undertaken. However, in some cases, local authorities had to extinguish former debts using their own budgets before the aggregation was completed. Furthermore, in Romania, the delegation contract model for the regionalization reform prepared by the Environment Ministry advocates for transferring all staff to the incumbent.

Achievements and difficulties of the aggregation process

57% of municipalities have joined an IDA

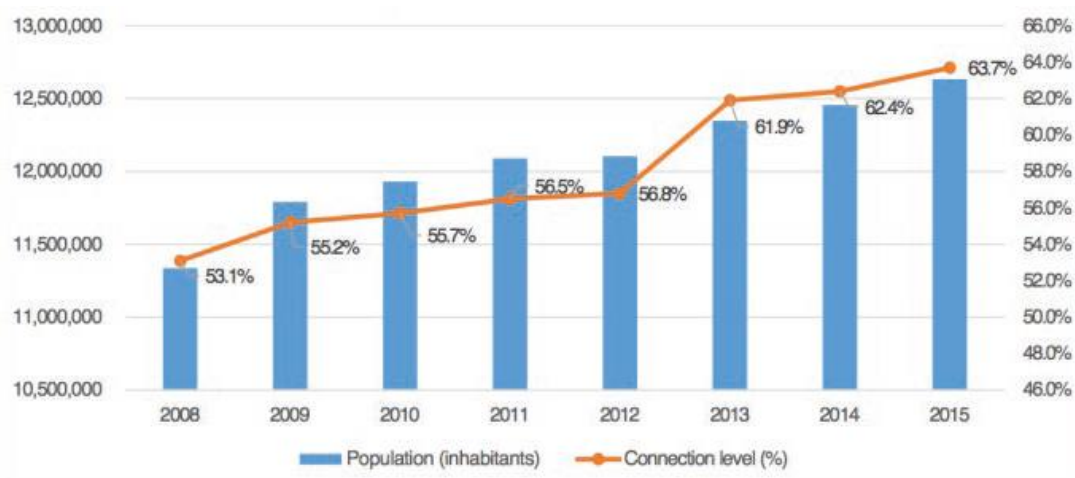
The regionalization process has progressed gradually over the past decade, and is not completed yet. Indeed the creation of a regional WSS operator does not imply the fulfilment of the reform. It should rather be considered as a preliminary step towards the achievement of the aggregation purposes, i.e. efficiency gains and effective investment strategy. The ANRSC has estimated that, by 2015, only 57 percent of municipalities had joined an IDA, but no data was reported on the proportion that effectively transferred WSS services to a ROC. According to a World Bank survey (2017) covering 85 percent of all Romanian municipalities, 65 percent of rural communes have joined IDAs but only 35 percent have effectively transferred their WSS services to ROC, while for another 6 percent the delegation was in process. As a result of this situation, only around half of the municipalities that joined an IDA are currently benefitting from the professionalized services that ROCs can deliver and from access to large-scale EU funds for investment. In addition to those municipalities that have still not joined an IDA or are in the process of doing so, there are many cases of rural municipalities that withdrew from an IDA due to either dissatisfaction with the lack of service improvements and investments, the tariffs which they perceived as excessive, or a change in mayors following local elections.

A positive evolution of water and sanitation services coverage

According to ANRSC data, the total population connected to potable water services in 2015 was of 12.6 million inhabitants, corresponding to an overall connection rate of 63.7 percent. Most of the unconnected population lives in rural areas: the connection rate to potable piped water in urban areas in 2015 was 93.8 percent while in rural areas the connection rate was 28.7 percent. Back in 2008, the total population connected to piped potable water services was estimated at 11.4 million (connection rate of 53.1 percent)

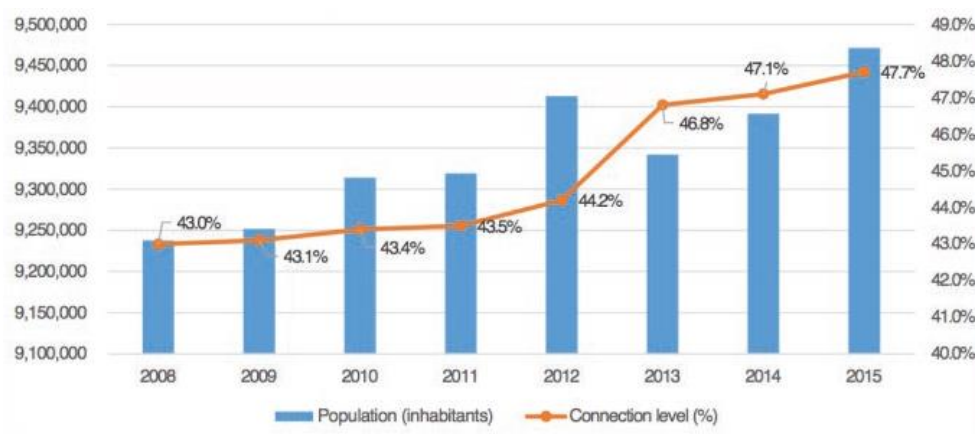
thus showing about 10 percentage points increase over the last 8 years (Figure A A.5.). A large part of this improvement growth is due to the construction of piped water and sewerage systems in rural municipalities previously unequipped thanks to the expansion carried out by regional operators. Between 2008 and 2015, the number of urban localities equipped with piped water system remained stable at 317, while the number of rural localities equipped went up from 1,806 to 2,157. For sewage collection systems, the number of urban localities equipped went up marginally, from 309 to 313, while the number of rural localities went up from 451 to 809 (World Bank, 2018^[8]). According to ANRSC data, the population connected to sewerage networks in 2015 stood at 9.5 million inhabitants, with an access rate of 47.7 percent (64.2 percent in urban areas). This represent less than five percentage points increase since 2008 (Figure A A.6.).

Figure A A.5. Water service coverage evolution, Romania



Source: (Romanian Water Association, 2016^[9])

Figure A A.6. Sanitation service coverage evolution, Romania



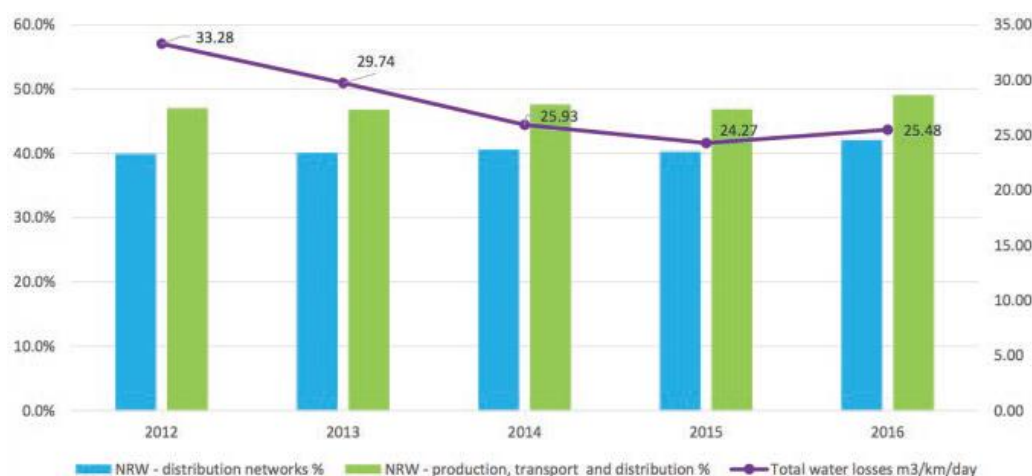
Source: (Romanian Water Association, 2016^[9])

Moderated efficiency gains

The efficiency and performance improvements are much more limited. For instance, there was little evolution in the average percentage of NRW of ROCs in the past 5 years (Figure A A.7.). This is due to the fact that regional utilities have gradually incorporated small rural systems that were in very poor

conditions. Still, the level of losses expressed with the m³/km/day shows some improvements, mainly because of the networks expansion and rehabilitation performed in the last years and financed through SOP Environment—the total length of newly expanded and rehabilitated water networks during that period was 3,100 km and 1,850 km respectively (World Bank, 2018^[8]).

Figure A A.7. Evolution of water losses in regional operators, Romania

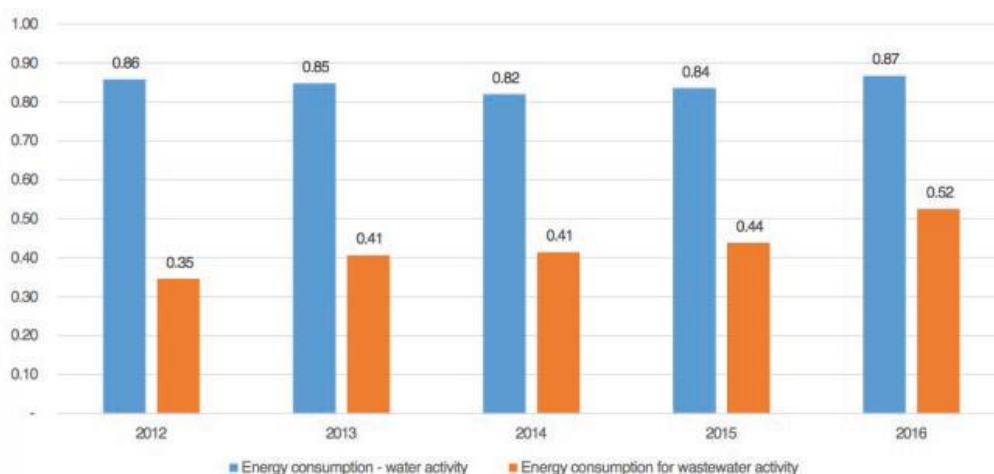


Source: (BDO Business Advisory, 2016^[10])

Although the staffing level of ROCs is relatively high, at 6.5 staff per 1,000 connections on average in 2016, it decreased from 7.6 in 2013. This high level is due to a combination of factors. First, Romanian ROCs are well behind Western EU countries, where subcontracting is widespread (and often accounts for up to half of total labour); the degree of outsourcing of operational activities is close to zero. Second, relatively low salary levels in the country make it less economical for utilities to push for more automation. Third, as part of the regionalization process, many ROCs have incorporated employees working previously in the municipal services. There are nonetheless large differences between utilities, with some achieving ratios of 3–4 staff per 1,000 connections, and others with ratios as high as 12 staff per 1,000 connections.

The energy efficiency of ROCs remained stable in recent years, at about 0.85 kWh/m³ for water supply (per m³ billed). Nonetheless, the energy efficiency for sewerage services has gone up significantly, reflecting the development of wastewater treatment plants (Figure A A.8.).

Figure A A.8. Energy efficiency evolution, Romania



Source: (BDO Business Advisory, 2016^[10])

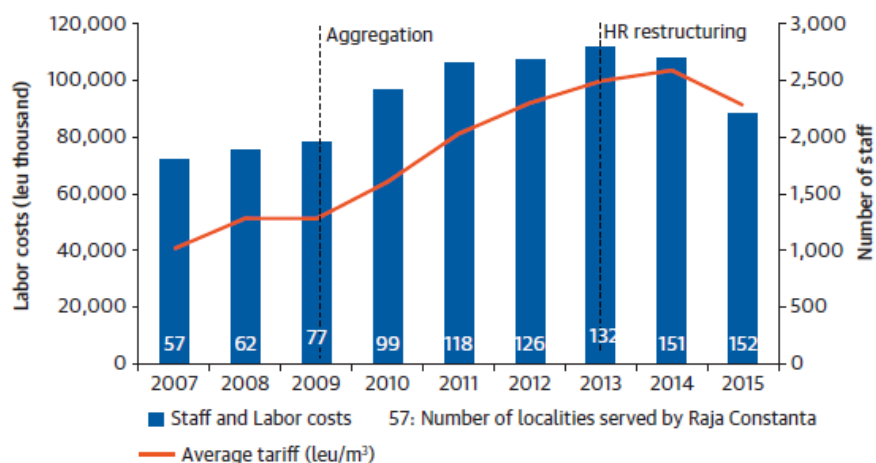
Despite a relatively high level of bills collection period amongst ROCs reported between 70 and 80 days, the financial situation of ROCs has significantly improved in the past 4 years, with many regional utilities now recording a profit and being cash-positive. In 2016, the national average for the operating cost coverage ratio stood at 1.15, and for the net profit at 8.3 percent. It is important to highlight though that this improvement is mostly due to gradual tariff increases together with delays in implementation of the investments financed from SOP Environment, rather than efficiency gains. Thus, the overall profitability of the sector is currently sufficient to assure the coverage of operating costs and the repayment of the co-financing loans for investments. Furthermore, the impact of regionalisation showed a particularly salient improvement in the operational profitability of utilities (as measured by earnings before interest, taxes, depreciation and amortization, EBITDA), and the reduction in per capita consumption as a result of the generalization of metering together with steep tariff increases (price elasticity effect). While water consumption decreased significantly from 119 to 91 litres/capita/day over the last decade, the EBITDA almost doubled from 13.5 to 25.7 percent (BDO Business Advisory, 2016^[10]).

Nevertheless, despite these positive impacts of the regionalisation process, several difficulties and impediments emerged.

Staff liabilities and transaction costs

Aggregation brings along the issue of staff transfer from former municipal structures into the newly aggregated utility. This generally creates large transaction costs (see Annex), which translate into labour cost increases and can hamper to some extent the financial sustainability of aggregated entities. In Romania, as stated in the previous section, the model of delegation contract for the regionalization reform prepared by the Environment Ministry advocates for transferring all staff to the incumbent. In the case of Raja Constanta Water Company aggregation process, all employees from the former operators were transferred into the new aggregated operator and no redundancy were made during the first two to three years of operation. However, as the services taken over were overstaffed, the number of employees in the aggregated utility increased by nearly 50 percent while salaries almost doubled (Figure A A.9.). The OPEX structure evolution for Raja Constanta Water Company shows the increasing share of labour costs throughout the aggregation process, rising from 30 percent to 36 percent. In 2013, the company launched a restructuring plan to adjust the number of employees, using a human resources consulting firm. Some 626 employees were dismissed (25 percent of total staff). Social protests were avoided, and only eight legal actions—all unsuccessful—were filed by former employees (World Bank, 2017^[11]).

Figure A A.9. Evolution of labour costs and number of staff in Raja Constanta Water Company, Romania



Source: (World Bank, 2017^[1])

Engaging stakeholders to align interests at all levels

When mandated, aggregation is generally designed at the national level. Nevertheless, systematic consultations with local stakeholders should still be organized early in the process to ensure information about the process and better align interests of national and local levels. Such an early engagement helps build stakeholder ownership of the reform. It allows implementers to tackle potential problems or resistance, and diffuse their potential impacts, thus improving conditions for success.

In Romania, the alignment of national and local interests was an important issue during the regionalization process. Since 2005, Romanian local authorities, whether at county or municipality levels, have been questioning the regionalization reform designed by the central government. Owing to the pressure to absorb EU funding, the reform was passed quickly, which did not allow for proper information and engagement with local authorities and citizens. The government prepared master plans for each county and did not have time to complete them with more comprehensive technical and economic data, informed by local governments. As a result, the whole process was perceived as a top-down takeover of water services, with hostility from local authorities and citizens escalating when tariff increases were applied (World Bank, 2017^[1]).

From cherry-picking to withdrawal practices

Over the regionalization process, IDAs have generally accepted all municipalities that wanted to join the existing ROC by signing the delegation contract. But some of them experienced difficulties in expanding their activity as quickly as needed to provide necessary and adequate services in the small settlements that they took over, often because of the lack of qualified personnel or financing. As such, IDAs were not “excluding” municipalities; however, they were to some extent cherry-picking³ (Franceys and Gerlach 2008) municipalities that would bring along a source of financing and extended their operating areas in towns where EU funds were granted (World Bank, 2017^[1]).

As a result, some municipalities now react by either rejecting or withdrawing from the aggregation, moves that may also derive from local political issues or other vested interests.

The municipalities that do not wish to join regional IDA and its ROC have applied for the renewal of their water operating licenses. Although these municipalities have hardly any access to funding for water supply improvements, they prefer to remain independent than join the ROC and see their tariffs go up without any perceived benefit. There are even cases where municipalities have joined the IDA and ROC, and are

presently withdrawing. For instance, in Neamt County, six communes left the IDA in 2015. The main reasons for withdrawal are much higher water fees for households and delayed extension or rehabilitation of water supply network/sewage systems. To prevent such issues, withdrawal procedures must be thoroughly justified and approved by the IDA General Assembly. In addition, withdrawing municipalities must repay investments made by the ROC in their territory and/or WSS systems (World Bank, 2017^[1]).

On-going Mandatory Aggregation Reform. France

Table A A.6. Key data on aggregation of water utilities in France

Number of municipalities	Average population by Municipality	Level responsible for WSS provision	Number of WSS utilities	Average population served by WSS utilities	Aggregation index ¹	Formal policy or legal reform supporting aggregation	Predominant scale of aggregation	Predominant scope of aggregation	Process of aggregation
35,357	1,897	Municipal	29,374	2,283	55%	Yes (2015)	Administrative boundaries	Services & functions	Mandated

1. The Aggregation Index measures the degree of fragmentation of service provision of the water sector in a country, using a simple normalized index based on the number of local governments and the number of service providers.

Key drivers of the aggregation reform

Horizontal fragmentation of water and wastewater services

In 2018, there were 12,096 water services, 14,355 wastewater services and 2,919 non-collective sanitation services in France. Eighty-two percent of water services integrate all water stages while the same proportion of wastewater services encompass all sanitation stages. Hence, although the French water and wastewater sector appears fragmented horizontally, it is quite integrated vertically. Currently water services are under the responsibility of 7,739 municipalities and 4,357 inter-municipal authorities, respectively serving 18% and 82% of the population. Wastewater services are under the responsibility of 10,873 municipalities and 3,482 inter-municipal authorities, respectively serving 22% and 78% of the population. Non-collective sanitation services are under the responsibility of 1,363 municipalities and 1,556 inter-municipal authorities (Table A A.7.). These services ensure mandatory missions, such the zoning of existing installations, or the control of installations. Forty percent of these services also ensure additional non-compulsory missions such as installations maintenance, construction and rehabilitation works, or waste material treatment.

Table A A.7. Water and wastewater services, France

	Responsible bodies	Number	Population
Water services	Municipalities	7,739	12,400,000
	Inter-municipal bodies	4,357	54,841,262
Wastewater services	Municipalities	10,873	14,400,000
	Inter-municipal bodies	3,482	50,380,936
Non-collective sanitation service	Municipalities	1,363	3,816,563
	Inter-municipal bodies	1,556	NA

Source: (EauFrance, 2021^[11])

Purpose of aggregation

Taking stock of this important fragmentation, a law was passed in 2015, called NOTRe law (New Territorial Organisation of the Republic), to rationalise the French water and wastewater sector. Among the 136 provisions of the law, the articles 64 and 66 state the transfer of "water" and "sanitation" service provision from municipalities to inter-municipal authorities (*communauté de communes*, and *communauté d'agglomérations*) on a mandatory basis on January 2020. The objectives of the law are clearly set out in its explanatory memorandum: "The targeted evolution of water and wastewater services reflects the necessity to reduce the atomisation of competences while generating economies of scale. Public water and sanitation services suffer from extreme dispersion, which affects both their quality and their sustainability. The transfer of water and sanitation competences from municipal to inter-municipal authorities by 2020 make it possible to effectively pool together the necessary technical and financial resources in order to ensure an efficient management of water and sanitation networks. It will also allow improving water and sanitation services financial base, while paving the way for a comprehensive approach to water resource management, through enhanced performance and management, thus promoting the improvement of service quality provided to users."

Hence the objectives of the NOTRe law are threefold:

- It seeks to further pursue a movement of competence transfer from the municipal level to the inter-municipal level, which is deemed more relevant to manage public network services and achieve economies of scale.
- Furthermore, this transfer of competence will allow inter-municipal entities to have the financial and technical skills to undertake the significant and necessary investments to renew and upgrade WSS infrastructure in the coming years. The report of the General Auditor (French General Auditor, 2015^[12]) has highlighted the ageing nature of some networks and the need for future investments. According to cost recovery study, 45% of the total drinking water network and 28% of the total wastewater network are installed in rural areas. This represents an asset of about 80 billion € and a renewal need of about 1.2 billion €/year for rural networks. In addition, 60% of the water services in France serve on average less than 1,000 inhabitants. As such, these small rural services fail the means to ensure an effective asset management. In this context, the aggregation at inter-municipal level should make it possible, through urban-rural solidarity mechanisms, to improve services' performance and carry out, among other things, investments that cannot be scaled down.
- Finally, it seeks to rationalize the number and variety of inter-municipal authorities by integrating further water and wastewater competences. In its annual report dated 2015, the General Auditors underlines the dispersion, the heterogeneity and the complexity of the territorial organization of public water and sanitation services.

By pooling resources together, the reform aims at reaching economies of scale and achieving investment capacities which are crucial to meet the challenges of asset management, renewal and upgrading.

It should be noted that the French aggregation reform mandates the transfer of WSS competence from municipalities to *communauté de communes*, and *communauté d'agglomérations*. By law, the *communauté de communes* shall gather a minimum of 15,000 inhabitants on a territory of one piece and without enclave, while the *communauté d'agglomérations* shall gather at least 50,000 inhabitants with a large city of more than 15,000 inhabitants, on a territory of one piece and without enclave. Thus, the reform rationale is to promote inter-municipal forms of cooperation where the implementation of cross-subsidies among settlements can balance differences between urban and rural water systems, which do not have the same production costs. In such configurations, larger urban utilities act as the nuclei around which less populated, less profitable, and less well-performing service providers aggregate. The nuclei help surrounding service providers to improve.

Key practicalities of the aggregation reform

Scope

The NOTRe law of August 7, 2015 provides that water and sanitation competence transfer will be done in “block”:

- drinking water competence should be transferred as a whole (production, transport and storage);
- collective sanitation competence should be globalized together with non-collective sanitation competence.

Hence the scope of the aggregation process encompasses all stages and functions for both water and sanitation services. As such, the NOTRe law clearly seeks a full vertical integration of water and sanitation services. Nevertheless, it should be noted that the financing and accounting of the water service, the collective sanitation service and the non-collective sanitation service remain distinct; as each service having its own separated budget. Hence, cross-subsidies between water, collective sanitation and non-collective sanitation services are not possible.

Asset & investment planning

The transfer of a competence *de facto* entails, on the date of the transfer, the free hand over of the asset and equipment necessary to the service delivery and the substitution of the inter-municipal authority to the municipality for all rights and obligations associated with the infrastructure handed over (article L 1321-1 of the CGCT and following). Consequently, investment planning is thereafter done and decided by the inter-municipal authority on the basis of a yearly official deliberation jointly voted by the representatives of all municipalities. Investment programmes are not a consolidation of individual investment plans proposed by each municipality. As such, they require consensus among all municipal constituencies. They are funded through the water and sanitation invoices collected by the inter-municipal operator. Moreover, the inter-municipal authority becomes the sole contact point of the local River Basin Agency.

Budget consolidation

When proceeding to a competence transfer, the budget of the former water or sanitation service must be closed, and assets and liabilities are reintegrated into the municipality's main budget. Once this accounting operation is done, all assets necessary to deliver the water or sanitation service are then automatically handed over by the municipality to the inter-municipal authority through a specific accounting procedure. As such the asset of each municipality remains clearly identifiable, and the asset of aggregating entities is handed over (not merged) to the aggregated entity. The surpluses and / or deficits as stated in the budget of the former water or sanitation service can be transferred into the water or sanitation budget of the inter-municipal authority based on a common decision taken by the inter-municipal authority and the municipality.

Tariff

The final objective of the inter-municipal aggregation is to create a pooling of services and therefore harmonize the water price throughout the service delivery territory to ensure an equal treatment of public services users. This harmonization aims at creating a solidarity mechanism between urban and rural municipalities within the boundaries of the inter-municipal entity. Nevertheless, the French law allows for tariff differentiations between water users are possible as long as one of the following three conditions is met:

- a law authorizes it,
- differences in users situations are clearly appreciable,
- tariff differentiations corresponds to a need of general interest in relation to the purpose or the operating conditions of the service (EC, May 10, 1974, Denoyez and Chorques).

In the context of inter-municipal aggregation, it is possible for the inter-municipal authority to set differentiated tariffs across its territory, especially if there is a diversity of initial conditions between aggregating services in terms of service performance, for instance. In the longer term, however pricing must be unified in order to comply with the principle of equality of treatment. It should be noted that the deadline for water price harmonisation is not clearly defined in the law. It is therefore possible to achieve it over any given period although extending this delay increases the risk of litigation.

Management mode

The rationalisation of water and wastewater services targeted by the NOTRe law also foresees the harmonisation of management arrangements (in-house, delegated management) throughout the service delivery territory to ensure equal treatment of users. However, it is possible to have differentiated management arrangements for a transitional period: But, as indicated above, the eventual need to harmonize tariffs can also imply a harmonization of management arrangements.

Contracts

The French law establishes the principle of continuity of contracts. Thus, the inter-municipal authority replaces the municipality as the contracting party until the end of the existing and on-going contracts. This implies the substitution of the inter-municipal authority in all rights and obligations formerly born by the municipality. It also implies the substitution of the president of the inter-municipal authority in place of the mayor of the municipality without amending the contract. Nevertheless, the co-contractor must be informed of this substitution.

According to the principle of freedom of the parties to contract, the parties (inter-municipal authority and co-contracting party) may consider a revision of the contractual conditions before the expiry of the contract or even an early termination of the initial contract. In the latter case, the conclusion of a new contract must however be preceded by a lawful and compliant call for tender.

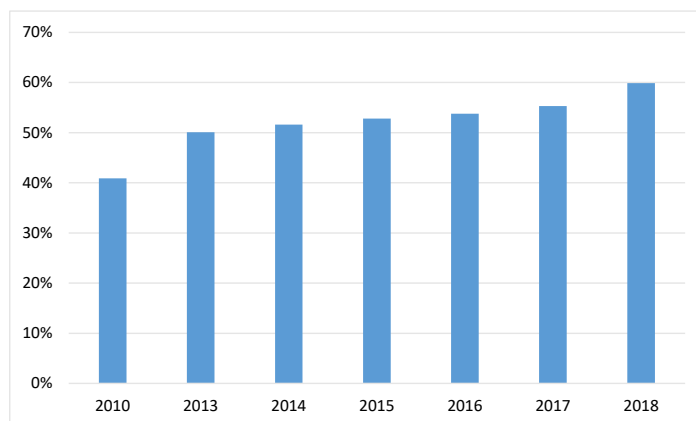
Achievements and difficulties of the aggregation process

Limited but steady decrease in the number of utilities

In order to monitor the progression of the aggregation process, an inter-municipal management rate is calculated and reported yearly by the French Biodiversity Agency. It is defined as the proportion of municipalities having transferred all their water and sanitation competence to an inter-municipal authority.

This rate amounted to 59.9% in 2018. Since 2013, its evolution shows a steady increase of 1 to 1.5 percentage point each year, and a sharper increase of 4.5 percentage point in 2017 and 2018 (Figure A A.10.), thus illustrating the transfer of competence from municipalities to inter-municipal authorities.

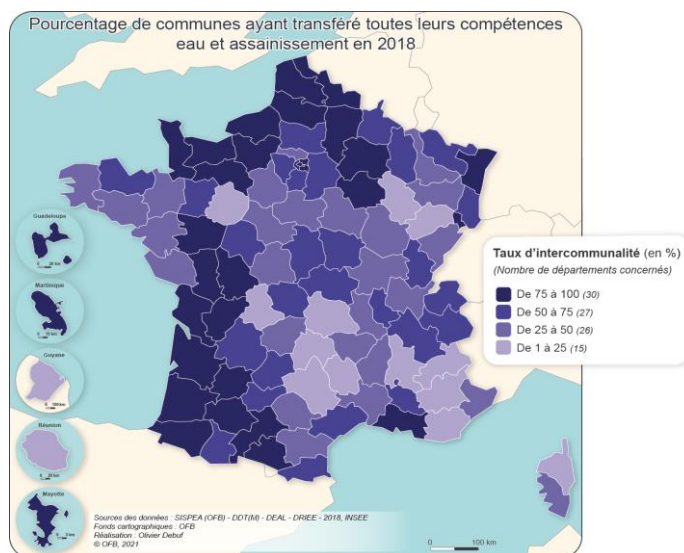
Figure A A.10. Inter-municipal management rate evolution, France



Source : (EauFrance, 2021^[11])

The rate is currently higher in the North and South-West of France, while it is relatively lower in the South east (Figure A A.11.).

Figure A A.11. Inter-municipal management rate, France



Source: (EauFrance, 2021^[11])

Postponement of the aggregation deadline

The 2015 version of the NOTRe law provided for a mandatory transfer of water and sanitation competences to inter-municipal authorities on January 1, 2020. However many mayors were reluctant to lose their power in the field of water and sanitation provision. Following the adoption of the law, they engaged into extensive discussions with the Central Government to postpone the mandatory competence transfer deadline, which was then rescheduled to 2026. This new deadline was chosen as it corresponds to two terms of municipal office. It is also posterior to the forth-coming presidential and parliamentary elections, which makes it all the most hypothetical.

Presumably, this postponement should only concern 40% of all municipalities (ie, the ones that have not already carried out the transfer). “More than half of these municipalities will have to switch to the inter-municipal level anyway as they will not be able to meet efficiently water quality standards requirements nor and network and asset investment needs” (communication from the Association of French Mayors, 2017). Furthermore, municipalities that have already transferred their water and sanitation competences to an inter-municipal authority will not be able to reverse their decision.

This postponement was officialised as part of the Article 1 of the Ferrand law dated August 3rd 2018 which introduced a blocking minority mechanism vis-à-vis the competence transfer. With this Ferrand law, it is thus possible for municipalities that are members of an inter-municipal authority to oppose the competence transfer in 2020, if the following two conditions are met:

- the competence is not yet exercised by the inter-municipal authority,
- before June 30th 2019, at least 25% of the municipalities that are members of the inter-municipal authority representing 20% of the population pass such a “blockage” deliberation.

Under these conditions, the transfer will only take place on January 1st 2026.

Easing of the mandatory aggregation

The practicalities for the transfer of water and sanitation responsibilities were further loosened on December 27, 2019, under the law relating to engagement and proximity. This law introduced a mechanism allowing an inter-municipal authority to delegate all or part of the water and / or sanitation competence to one of its member municipality. The delegation takes place through an agreement between the inter-municipal authority (the delegating authority) and the municipality (the delegated authority). The agreement specifies the duration of the delegation, its scope and provisions. Following this new amendment of the original NOTRe law, the expected evolution of the rationalisation of water and sanitation services will probably be slower and less significant than initially expected.

On-going Mandatory Aggregation Reform. Italy

Table A A.8. Key data on aggregation of water utilities in Italy

Number of municipalities	Average population by Municipality	Level responsible for WSS provision	Number of WSS utilities	Average population served by WSS utilities	Aggregation index ¹	Formal policy or legal reform supporting aggregation	Predominant scale of aggregation	Predominant scope of aggregation	Process of aggregation
7,914	7,619	Regional	2,100	28,713	79%	Yes (1994)	Administrative boundaries	Services & functions	Mandated

1. The Aggregation Index measures the degree of fragmentation of service provision of the water sector in a country, using a simple normalized index based on the number of local governments and the number of service providers.

Key drivers of the aggregation reform

Fragmented and inefficient water and sanitation services

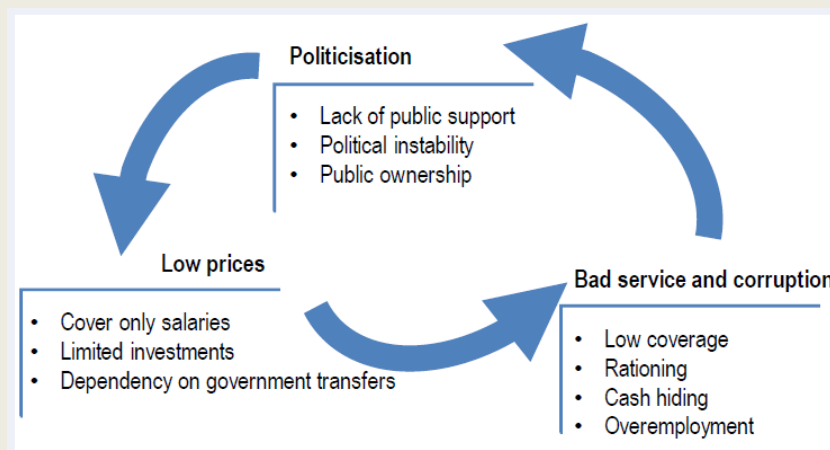
At the beginning of the 1980s, the Italian water sector was fragmented with almost 8,000 utilities operating mainly at municipal level. These utilities were also characterised by a low efficiency, low performance, low operating cost recovery, lack of investment and low coverage rate. This situation was typical of a low level equilibrium (Box A A.2).

Box A A.2. Low-level equilibrium concept

As described by Savedoff and Spiller (1999), the water and sanitation services sector in many developing countries is stuck in a so-called low-level equilibrium. In such situations, low tariffs are associated with low quality, low service expansion and general operational inefficiency. The term equilibrium indicates that without a reform of the sector's set up, there is no movement toward improved water services.

This phenomenon originates in incentives for governments to behave opportunistically. By lowering tariffs or resisting tariff increases, they can reap short-term political benefits such as electoral gains, so they will support the status quo over costly political actions that might involve increased water rates in the short run and yield diffuse benefits in the longer term. Moreover, consumers are relatively dispersed and too disorganised to assume an active role in holding the water authority accountable. They also are unwilling to spend more on poor quality services that are seen as wastefully managed. In turn, this creates incentives for water companies to operate inefficiently regardless of whether the services are provided by a public or a private company (Figure A A.12.).

Figure A A.12. Low level equilibrium



In order to get out of the low-level equilibrium, various strategies can be implemented, such as improving the regulatory environment or limiting government opportunism. Following the low-level equilibrium trap theory developed by Nelson (1956), large investment programmes can act as a “big push” that enables underdeveloped sectors to get out of the low-level equilibrium trap and embark on a development path.

Source: (World Bank, 2017^[1])

Investments were typically financed through government subsidies, while operating costs were covered by tariff revenues. Tariffs were much lower than in other European countries. Because of high debt levels, local governments were less and less able to provide the subsidies necessary to maintain the existing infrastructure and to improve service quality. The asset was in a particularly poor state in Southern Italy where water supply was often intermittent. Furthermore, wastewater was often being discharged without treatment or with insufficient treatment.

Purpose of aggregation

In order to comply with the EU Wastewater Directive dated 1991, considerable investments in wastewater treatment were necessary in addition to investments needed to maintain the ageing infrastructure. These investments were to be financed by the service providers using their own resources instead of government subsidies. In order to do so, on the one hand tariffs were to increase. On the other hand, service providers were to become more efficient, reducing recurrent costs and non-revenue water so that a higher share of their revenues would become available for investments to maintain and improve service quality. Investments in wastewater treatment and bulk water supply were to be planned in a more rational way within the boundaries of river basins. Furthermore, fragmented service provision was to be consolidated into regional utilities that were expected to be more efficient. Local governments were reluctant to give up their responsibility for water supply, and mayors were also reluctant to increase water tariffs. In such context, the national government prepared a law to make municipalities regroup and form regional utilities, as well as to achieve cost recovery from tariff revenues. Under the planned law, regional governments would have an important role in setting the geographic boundaries of the new regional utilities.

The first aggregation laws of 1989 and 1994: towards the implementation of the Optimal Territorial Areas

As early as the mid-80s, the issue of optimal scope (level of integration) and scale (i.e., number of consumers supplied) of WSS provision was extensively discussed. On 18 May 1989, the law n. 183 was passed allowing for the consolidation of water services on a voluntary basis. However, this law did not trigger much interest from municipalities and no real consolidation of WSS municipal services happened. Moving from a voluntary to a mandatory approach, a more prescriptive law was passed shortly after, in January 1994, that completely reshaped the Italian water sector. The so-called *Galli* Law n. 36 introduced key clear-cut changes in the institutional and regulatory framework of WSS provision:

- an integration of the WSS service encompassing all stages of the water and wastewater cycles;
- a geographical aggregation for the service provision called Optimal Territorial Areas (*Ambiti Territoriali Ottimali*, ATOs) managed by autonomous authorities with a legal status; each authority should designate a single operator for each ATO;
- a tariff covering all the costs of the service and, in so doing, overcoming the practice of cross-subsidies among utilities at municipal level. Following a 1996 Decree, a “Normalised Method” was thus elaborated which defined the cost components to be used to determine the reference tariff. It fixed a standard of 7% for capital remuneration, a level that may have been appropriate at that time before the introduction of the Euro and falling interest rates. However, that rate was never updated after the introduction of the Euro in 1999, and its high level contributed to make the capital remuneration clause of the law unpopular among those that were primarily concerned with keeping tariffs low and affordable.
- a national committee in charge of monitoring the sector (*Comitato per la Vigilanza sull'Uso delle Risorse Idriche*, abbreviated into *Conviri*) and of an observatory for data collection on the sector (*Osservatorio sui Servizi Idrici*).

To implement the law, the 20 Italian regional governments were required to define “Optimal Territorial Areas” that would be serviced by the new regional utilities. Each ATO would comprise a group of municipalities, and in each ATO, an authority called AATO was to be created to set tariffs, establish an investment plan as well as a business plan, and award a concession to a public or private service provider. The AATO would monitor and regulate the single service provider in its area.

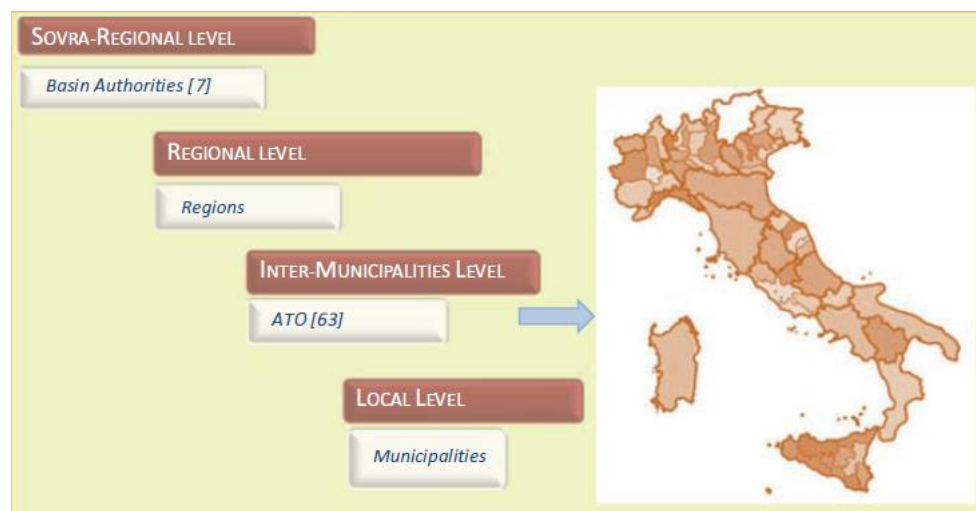
In August 2000, financial support from the EU was approved to support the implementation of the sector reform, and financial incentives were provided only to operational ATOs.

Heavy and complex technical provisions resulted in low enforcement of the Galli Law

Nevertheless, the implementation of the Galli Law proved difficult as it was based on a technocratic vision that was in many respects at odds with the Italian reality. According to the Law, once the AATO has been settled by the regional government, a survey on the existing WSS infrastructure should be conducted, and

a business plan established based on this information. On these grounds, the single operator supplying the ATO could be appointed. The necessity to go through these preliminary steps before appointing the service provider resulted in important delays and blockages of the reform. There was also an obligation to run an investigation every three years to verify whether any differences in projected values for tariffs were due to end users or operators (e.g., reduced consumption and cost inefficiency, respectively). In general, the implementation of this obligation was highly unsatisfactory, and it resulted in numerous disputes between consumers (unwilling to pay for investments planned, but not started) and service operators (asking for full recovery of actual costs). In 2004, ten years after the Law's adoption, only 38 of the 91 planned AATOs were effectively set up (Figure A A.13.). Among these 38 ATOs, 25 mixed joint-stock companies were appointed as operators, 12 fully public joint-stock companies, and only one concession contract (*Conviri* Report 2005). Furthermore, the implementation of the Galli Law diverged from the original plan as most ATO boundaries of utilities were drawn along administrative boundaries and not along river basins'.

Figure A A.13. Water sector institutional framework, Italy



Source: (Porcher and Saussier, 2019^[13])

Difficulties and obstacles in the aggregation process

Social and political resistance weakening the aggregation legal framework

In 2009, amendments to the Galli Law were passed including a safe rate of return on investments harmonised at national level. In 2009, the *Ronchi* Decree required municipalities and provinces that manage water through public companies to put the service out to tender, and it required mixed public-private companies to reduce the share of public capital to 30% by 2015. These changes launched a fierce social and political opposition, as they were perceived by opponents as an attempt to privatize WSS services. This opposition eventually led to a referendum, held in 2011, where the 2009 amendments were abolished. Furthermore, the referendum results stipulated that:

- a fair rate of return should not be included in the water tariff calculations and
- the obligation either to partially sell 100% publicly owned companies or to award concession contracts for the water service through auction procedures was to be abolished.

All these elements contributed to increase the uncertainty over the legal framework of the Italian sector, leading both private and public decision-makers to adopt an inertial strategy.

Second wave of reform: reinforcing mandatory aggregation through improved local regulation

In 2014, the so-called *Sblocca Italia* law was passed, and stated mandatory rules for establishing *Ente di Governo di Ambito* (EGA), which are local territorial governments acting as local Regulators, responsible for appointing one service operator per ATO. Hence, the *Sblocca Italia* law reaffirms the aim to reap off the benefits of economies of scale and scope that are seen as key to foster new investments in the sector. However, the same Law also defines a transitional period during which more than one operator could be active in the ATO. In addition, municipalities as participating authorities of EGAs retain a say in the decision to appoint operators. Because of these two factors, several operators are still found in some ATOs. The largest part of the EGAs in the North-East, the North-West (with the exception of the Valle d'Aosta Region), and in the Centre of Italy already appointed the operator(s). On the contrary, in the South of Italy and the Islands, a limited number of EGAs have chosen the water operator(s), thus underlining the long-lasting and well-known “Italian divide” phenomena between the North and the South.

Key practicalities of the second aggregation reform

Governance of aggregation

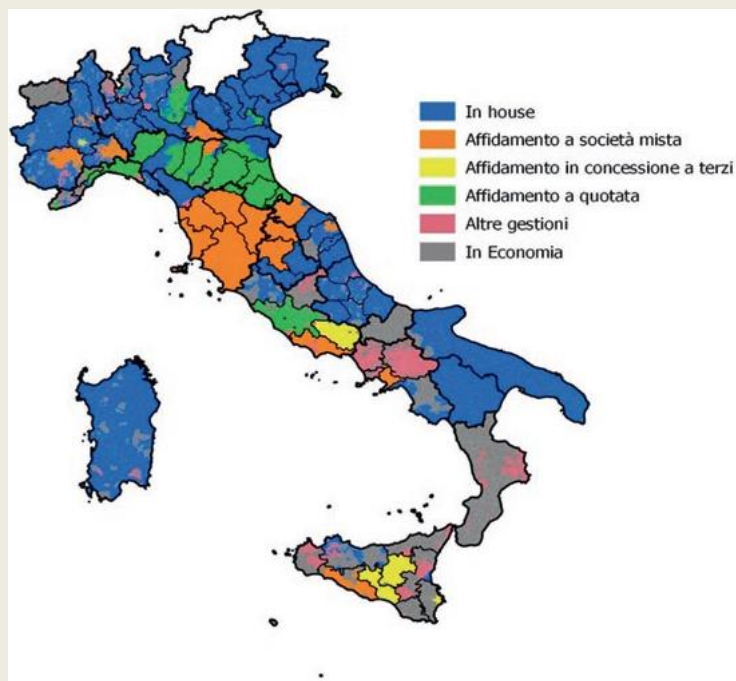
The EGA should also choose the governance arrangement of the water service among the three following options:

- a joint-stock company to which the service is awarded by a competitive tender,
- a mixed joint-stock company in which the private firm is chosen by a competitive tender, and
- a fully public company, that is, the so-called in-house option (Box A A.3).

Box A A.3. Management models of water services in Italy

The Italian water services are locally provided in 48% of cases by in-house operators; 29% of cases by joint-stock companies, of which 12% are in the stock exchange; in 2% of cases by concessionaires; and the remaining cases, which are largely located in the South and Centre Italy, are managed through simplified forms inherited from the past regulatory settings (Figure A A.14.).

Figure A A.14. Management models, Italy



Source: (Porcher and Saussier, 2019^[13])

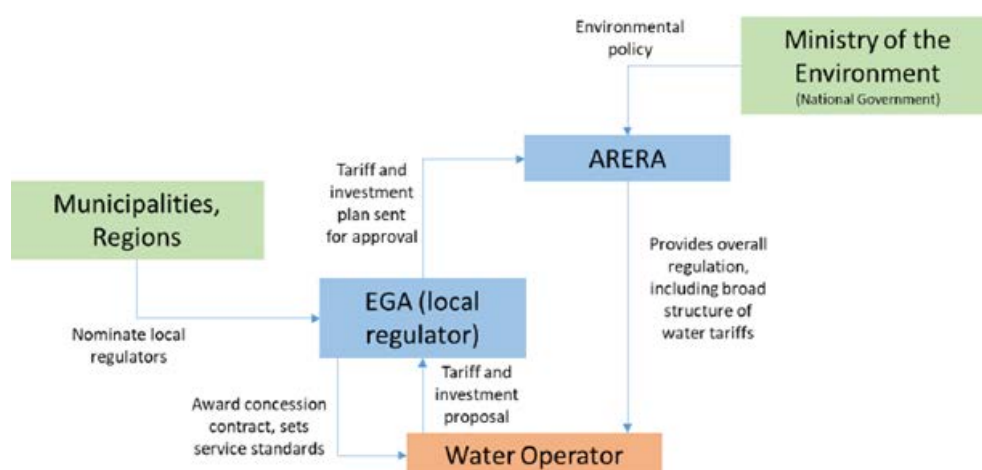
Tariff setting and regulatory framework

Finally, the EGA⁴ should present a water tariff proposal compliant with the new regulation to the National Regulator ARERA.

In November 2011, the Law n. 214 designed a new institutional framework reform (Figure A A.15.) and assigned the following regulatory functions for the water and wastewater sector to the already existing and independent Italian Regulator for electricity and gas (*Autorità per l'Energia Elettrica e il Gas*, AEEG—now ARERA):

- revenue and tariff calculation
- contractual quality discipline
- technical and infrastructural quality regulation
- unbundling and information feedback
- consumer protection
- enforcement, monitoring the conditions under which the services are provided, with powers to demand documentation and data, applying sanctions, and determining those cases in which operators should be required to provide refunds to consumers.

Figure A A.15. Water regulatory framework, Italy



Source: (Centre on Regulation in Europe, 2019^[14])

In this new regulatory framework, ARERA, EGAs and water operators are all involved in the price setting review and approval process (Figure A A.16).

Figure A A.16. Tariff decision-making process, Italy



Source: (Porcher and Saussier, 2019^[13])

Achievements and current status of the aggregation process

Reduced number of EGA and single operator model in place in half of them

EGAs have been substantially rationalised and improved, bringing about a reduction in their number (they have decreased from 91 in 2011 to 63 in 2017). In so doing, in many cases (i.e., in 12 out of 20 regions),

the model of one EGA per region has been adopted with the aim to reinforce its institutional functions and competences and to upgrade the quality of each EGA's technical staff.

Water operators have been restructured, with their numbers decreased from more than 2600 in 2011 to nearly 2100 in 2017 (most of them, about 1300, are still present in the South of the country), within a process of continuous rationalisation and acquisition of infrastructures and their direct management. Such restructuring process leads to the vertically integrated supply (i.e., only one operator supplying the water services); as for the remaining not-restructured provisions, according to the Law, mergers among local suppliers of the water services should be planned in the short run.

Overall limited improvement in technical and economic efficiency

A report by Global Water Intelligence (Global Water Intelligence Report, 2018^[15]) shows that the change in performance for Italy since 1990 appears relatively weak (Table A A.9.). Italy is the only country of the sample to see the proportion of non-revenue water increase (by 10.4%) and the percentage of households whose wastewater is treated fall (by 3%) since 1990.

Table A A.9. Evolution of selected performance indicators since 1990, Italy

	% change since 1990	Absolute value (2017)
Water quality	+0.06%	99.57%
Wastewater treatment connection	-3%	57.80%
Non-revenue water	+10.40%	34.71%
Average price/m3	+15.14%	€1.5

Source: (Global Water Intelligence Report, 2018^[15])

The Global Water Intelligence report also shows that capital expenditure per capita in Italian water and wastewater sector is generally the lowest among the six European countries with only Spain having similarly low capital investment. Indeed, the other four comparator nations have capital expenditures per person consistently more than double the level in Italy (Figure A A.17.). The Italian water association has estimated that in order to close the gap with the best performing OECD countries, investment levels would need to reach about €80 per capita, while planned investment is only at €54.6 per capita, leaving a gap of €25.4, suggesting a need to increase investment by 46%. Where water services are directly managed by municipalities, the investment gap is much higher.

Equally, operating expenditures per capita in Italy are also among the lowest for the six nations considered (Figure A A.18.).

Figure A A.17. Evolution of capital expenditure in selected European countries (per capita)

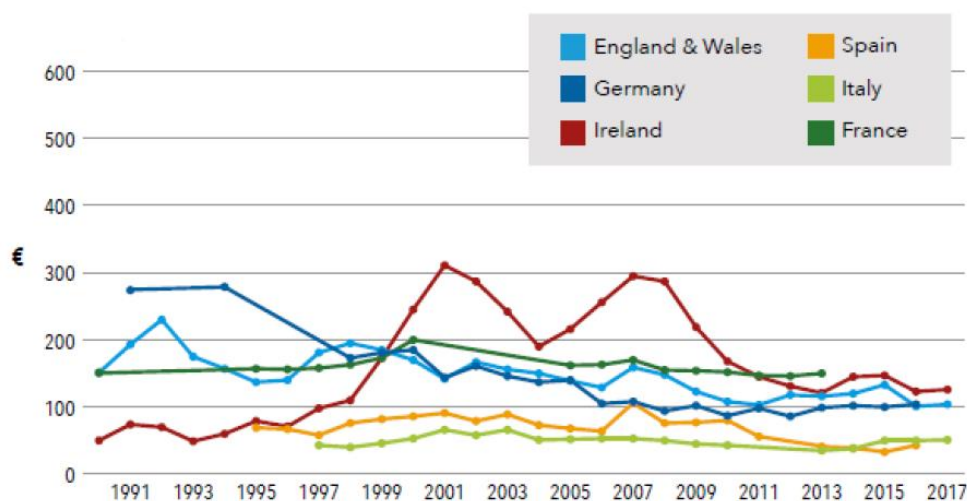
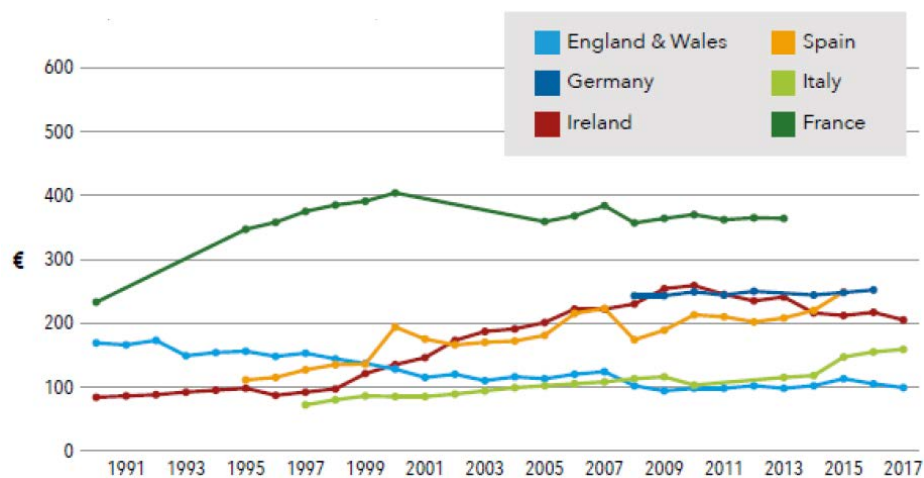
Source: (Global Water Intelligence Report, 2018_[15])

Figure A A.18. Evolution of operating expenditure in selected European countries (per capita)

Source: (Global Water Intelligence Report, 2018_[15])

Completed Mandatory Aggregation Reform. Scotland

Table A A.10. Key data on aggregation of water utilities in Scotland

Number of municipalities	Average population by Municipality	Level responsible for WSS provision	Number of WSS utilities	Average population served by WSS utilities	Aggregation index ¹	Formal policy or legal reform supporting aggregation	Predominant scale of aggregation	Predominant scope of aggregation	Process of aggregation
655	8,237	National	1	5,395,000	100%	Yes (2002)	Administrative boundaries	Services & functions	Mandated

1. The Aggregation Index measures the degree of fragmentation of service provision of the water sector in a country, using a simple normalized index based on the number of local governments and the number of service providers.

Key drivers of the aggregation reform

Historic perspective

The structure of the water sector in Scotland has undergone significant transformation over the past 40 years.

In 1967, the Water (Scotland) Act consolidated the Scottish 210 water authorities into 13 large Regional Water Boards, separate from local government, and responsible for the provision of water supply only. Whereas the 1967 Act brought a considerable concentration of water supply operations, it left aside sewerage, which remained fragmented.

Following a recommendation by a Royal Commission in 1973, the Local Government (Scotland) Act introduced a major reorganisation of local government in Scotland with a new two-tier structure (Edinburgh Council 2004). Implemented on May 1975, this reform established nine Regional Councils and three Island Councils whose functions included operating water supply and sewerage. The responsibilities of the nine Scottish Regional Councils were similar to those of the 10 English and Welsh Regional Water Authorities, with the significant difference that they did not hold responsibility over water resources management at local level, and that funding and tariff setting prerogatives remained in the hands of local governments. Capital expenditure was undertaken by the Regional and Island Councils and subject to the approval of the Secretary of State.

Purpose of aggregation

After the 1989 privatisation in England and Wales, the Conservative government intended to restructure the Scottish industry in similar patterns. In its 1992 consultation paper, the government explained the need for large investments in the WSS infrastructure in Scotland in order to bring it up to European standards. The cost to ensure compliance with the European Directives on Drinking Water (80/778/EEC) and Urban Waste Water Treatment (91/271/EEC) was estimated at 5 billion pounds (Sawkins and Dickie, 1999^[16]). Another reason for the government proposal to reform the sector was the position, put forward for many years by water professionals and especially academic water engineers, that the Scottish water industry was too fragmented and lacked principles such as integrated river basin management, which were in place in England and Wales (Sawkins and Dickie, 1999^[16]).

In November 1992, the Scottish Office launched a consultation exercise on the future of Scottish water services, encompassing eight options, which was concluded in March 1993. As part of the exercise, a consultation paper “Investing in our future” was issued with the background of government proposals to reorganise local government in Scotland. The drivers for the reform process as proposed in the document were related to the rising requirements to improve water quality and pollution control in Scotland. Under the new Water Supply Regulations dated 1990 (which translated the EC Drinking Water Directive standards into domestic legislation), about half of the water supply zones in Scotland did not achieve the required standards for parameters such as aluminium, microbiological quality, lead, trihalomethanes and iron (Scottish Office, 1992).

Water pollution control was the second driver for reform. The requirements of the EC Bathing Water Directive and the EC Urban Waste Water Treatment Directive had significant implications for local authorities, with an estimated capital expenditure needs in the water and sewerage industry to £5 billion (€5.8 billion) over 15 years, with half of that assigned to maintenance and replacement and the other half to quality improvement.

The report also argued in favour of larger units in order to meet greater efficiencies and economies of scale and to meet the growing complexities of the industry in the future. In addition, the report looked at the separation of the role of service supplier and the role of inspector and regulator.

In April 1996, a second major reorganisation of local government took place where 29 single-tier councils replaced the 53 district and 9 regional councils while the three island councils remain unchanged. The 32

councils were responsible for all local government services which were carried out by the old councils with the exception of water and sewerage that became the responsibility of three public water authorities - North of Scotland, West of Scotland and East of Scotland Water Authorities (Edinburgh Council, 2004) (Figure A A.19.).

Figure A A.19. North of Scotland, West of Scotland and East of Scotland Water Authorities, Scotland



Source: Water Industry Commission of Scotland, 2015

The three authorities were created mainly along the line of existing supply and disposal networks, and the boundaries of previous local authorities of Scotland. The three new Public Water Authorities (PWAs) were created as public corporations under the Secretary of State for Scotland (before devolution of powers to a Scottish Parliament in 1997), who was responsible for the efficiency of the industry. The PWAs operated on a commercial basis. At the same time a Scottish Water and Sewerage Customers Council (known as the Customers Council) was created. This was a national body with three area committees corresponding to the water authorities, financed by a levy on the three water authorities, with the role of representing consumer interests and handling complaints. It was also given the role of approving the tariff proposals of the water authorities.

Key practicalities of the aggregation reform

Full aggregation into a single operator

By 2002, water operating costs of the PWAs were double those of the best performing private companies in England; service levels lagged 67% behind leading companies south of the border (Water Industry Commission of Scotland, 2020^[17]). Prices were higher than the rest of the United Kingdom, despite the presence of natural, rich, water resources.

Taking stock of this situation, the Water Industry (Scotland) Act was passed in 2002, and the three former Public Water Authorities in Scotland were merged into one body, Scottish Water. A single authority was thought to be better placed to avoid regional price disparities, finance capital investment, and maximise economies of scale. The Water Industry (Scotland) Act 2002 also addressed the issue of consumer representation, by creating five regional Water Customer Consultation Panels.

Tariff setting and regulatory framework

In order to regulate this drastically revamped environment, the Water Industry Commission of Scotland (WICS) was created in 2005, taking over from the Water Industry Commissioner for Scotland. This slight change in name was meant to reflect a fundamental shift in the attributions of the regulator. Indeed, the new WICS is now in charge of:

- Setting prices on a 6 year period,
- Facilitating the newly-established competition for the business sector, and
- Monitoring performance of Scottish Water in the areas of customer service, investment costs and leakage.

Prices are set for a 6 year period, with the third cycle (2015-2021) concluding this year. The determination of charges process is highly iterative, involving a yearlong back and forth between the Scottish Ministers, WICS, Scottish Water, but also other agencies such as the Scottish Environment Protection Agency, the Drinking Water Quality Regulator, and Citizens Advice Scotland. The process is started by the Ministers, who establish guidelines and principles; a basis upon which WICS proposes its methodology for prices setting for the period. The different stakeholders are then consulted, which results in a draft determination by WICS. Following another round of consultation with the Scottish Ministers, WICS publishes its final determination that sets out the maximum charges Scottish Water can levy on consumers during the regulatory period. Since 2002, household water charges in Scotland have fallen by 10 %, while it increased by 19 % on average in England and Wales. In 2019, charges are 16 % lower than in the rest of the United Kingdom, relative to 2002.

Charges are based on five “High-level principles” encompassing values of sustainability and equity while ensuring that the utility is effective, economic and efficient:

- Stable - stable and certainty in charging.
- Level of Charges - do not rise by more than inflation, as measured by the Consumer Price Index, across the period.
- Full Cost Recovery - cover the full costs of providing services to customers.
- Harmonised Charges - charges should, for similar services provided to customers of a similar category, be the same for each customer in that category regardless of location in Scotland.
- Cost Reflective Charges - charges for given services to particular customer groups should beset to recover the cost to Scottish Water nationally of providing that service to that group as a whole.

WICS adapted price cap regulation (RPI-X) to the situation of Scottish Water via a process called a ‘Strategic Review of Charges (SRC) (WAREG, 2019^[18]). Each price review includes a review of Scottish Waters objectives, which are Scottish Ministerial industry objectives, on water quality, environmental performance and customer service. WICS price limit determination for the utility is based on Ministers objectives and set at the lowest reasonable overall cost for the customer and capped. At the start of each price setting period, a written regulatory contract is signed by Scottish Water which ties managerial incentives to performance against the contract. An improvement target framework is also set with progress monitored and reported (WAREG, 2015^[19]).

Traditionally, Scottish Water provided a detailed Business Plan to WICS outlining how much public borrowing is needed to fund confirmed investment outputs. The regulator comments on the draft plan, and approves tariffs if the plan is agreed to by the stakeholders (WICS, 2020). The plan includes the utility's view of the price cap which WICS reviews and comments on (WAREG, 2015).

Households are generally unmetered with no volumetric component. Charges are collected together by local authority (municipality) billing. Tariffs are uniform across the whole country, but depends on the Council Tax band of the property's location (WAREG, 2015^[19]); the higher the band, the more the resident pays for water services. Reductions are available for vulnerable groups, generally those in receipt of welfare benefits, and reflect discounts available in council tax charges. Over 50% of customer charges

cover the utility's operational costs, service provision, and improvement. Scottish water charges include water supply and treatment in public and private settings (Scottish Water, n.d.^[20]).

In comparison, non-households are metered and their charges are made up of six elements:

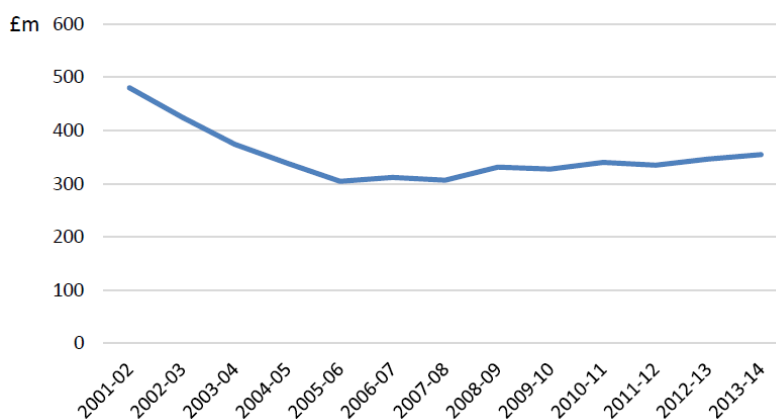
- a fixed charge for water
- a volumetric charge for water
- a fixed charge for wastewater
- a volumetric charge for wastewater
- property drainage
- roads drainage

Following the outbreak of COVID, WICS introduced two schemes to support non-household customers adversely affected by the virus. These schemes give customers the option to prepaid bills refunds, or request a temporary deferral of wholesale charges depending on circumstances (House of Commons, 2020).

Achievements of the aggregation reform

The costs of the restructuring leading to the creation of Scottish Water were important. “Our first task was to carry out probably the most complex merger which has ever taken place in Scotland as we joined together the former regional authorities – East of Scotland Water, West of Scotland Water and North of Scotland Water. We inherited 300 IT systems, which we reduced to 80. We inherited terms and conditions that varied massively across the country and within 18 months brought them together. We inherited three different charging systems, three different billing systems, three widely different cultures and three entirely different sets of standards and procedures.” (Scottish Water, n.d.^[20]). Considerable efforts were made to enhance efficiency. Between 2001-02 and 2009-10, operating costs were reduced by almost 40% (Figure A A.20.). Around 1500 staff left the merged business.

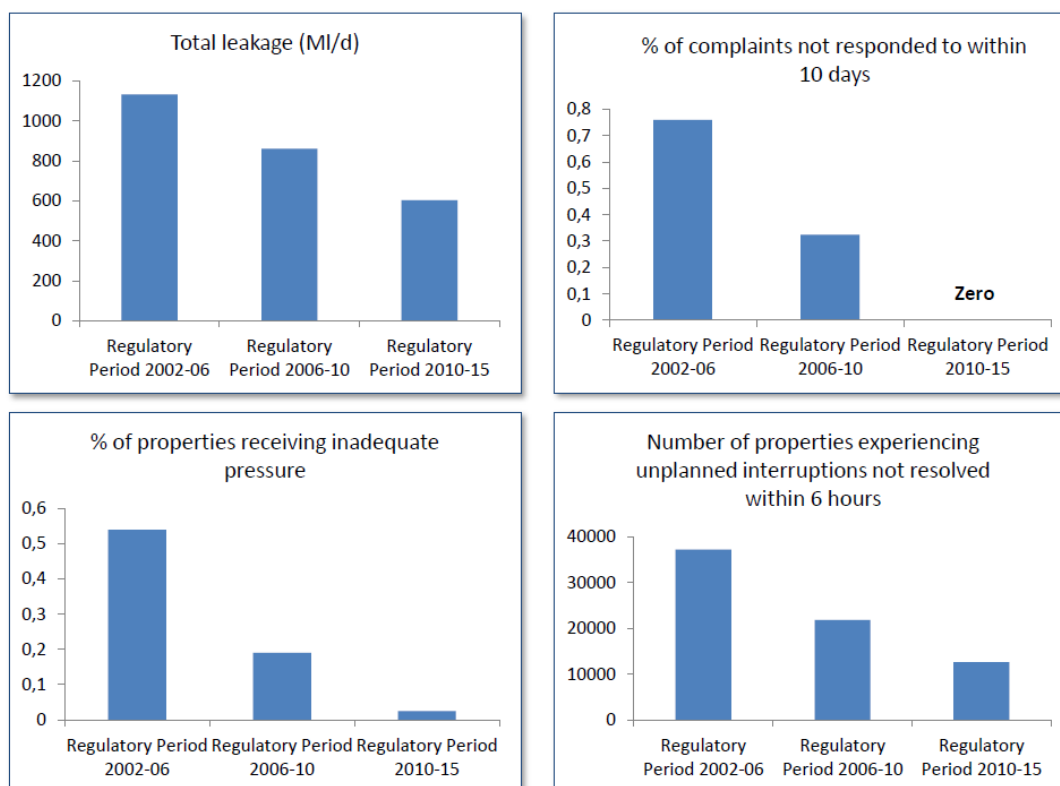
Figure A A.20. Operating expenditure evolution (2012-2013 prices), Scotland



Source: (Water Industry Commission for Scotland, 2015^[21])

The level of leakage at Scottish Water has declined from 1104 megaliters per day in 2005–2006 to 544 megaliters per day in 2014–15 (Figure A A.21.).

Figure A A.21. Evolution of selected water performance indicators, Scotland



Source: (Water Industry Commission for Scotland, 2015^[21])

The entire Scottish Water budget supports the programme of investment by Scottish Water. This budget is around £3.6 billion for the current regulatory period 2015-2021 (Scottish Government, 2019).

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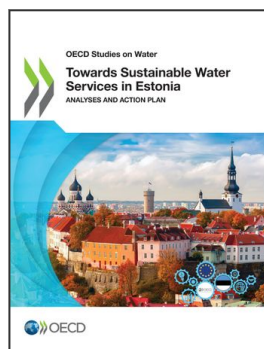
Notes

¹ The definition of “services and functions” is given in Annex, under the sub-section “Scope”.

² The remaining 33 percent of aggregation had no predominant scale.

³ Service providers naturally prefer to extend services to wealthy populations for cost recovery reasons, and to easy-to-reach areas where infrastructure already exists. By doing so, they select (or “cherry-pick”) solvent customers for good revenue collection and seek to avoid sunk investment costs and associated OPEX increases.

⁴ The local operator(s) can directly communicate decision about tariff proposal to the Regulator if the EGA does not act, i.e. if it does not proceed with the tariff proposal and the related investment/ financial plan. In addition, if even the local operator(s) does (do) not act, the Regulator can move on the decision-making process and also apply a 10% penalty on the tariff.



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