Analyses and Action Plan towards Sustainable Water Services in Estonia

Output 3: Issue Paper

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Background and objectives

The Ministry of the Environment of Estonia jointly with other governmental authorities (the Ministry of Finance, the Minister of Public Administration), the European Commission – DG Reform, and the OECD are partnering to enhance the sustainability of water supply and sanitation services in Estonia. The Project will support the preparation of a roadmap for the consolidation of the water utility sector, a requisite for a sustainable and socially acceptable financing strategy and a broader water sector reform in Estonia. See the Detailed Project Description, for more information on background, scope and process.

The specific objectives of this Project are:
- to support the initiatives of national authorities to design their reforms according to their priorities, taking into account initial conditions and expected socio-economic impacts
- to support the efforts of national authorities to define and implement appropriate processes and methodologies by taking into account good practices of and lessons learned by other countries in addressing similar situations
- to assist the national authorities and water utilities in enhancing the efficiency and effectiveness of human-resource management, inter alia, by strengthening professional knowledge and skills and setting out clear responsibilities.

This issue paper presents a list of policy areas that requires further consideration to support reforms that effectively encourage consolidation of water utilities and put water supply and sanitation services in Estonia on a sustainable basis. The OECD developed the issue paper building on i) a background report compiled on the state of play, ii) discussions at the kick-off meeting, and iii) interviews with select stakeholders in Estonia. Some features of the international experience with similar reforms have been reflected as well (e.g. on tariff reform); a more detailed review is on-going, which covers a broader range of issues.

Some of the key issues to be listed include:
- Making the case for reform
- Scenarios for the aggregation of water utilities in Estonia
- Incentives to foster consolidation of utilities
- Technical – including legal - issues to be tackled
- Tariff policy and methodology
- Independent economic regulation for WSS.

Propositions unfold, on key issues that deserve further analysis in the context of this project. The analyses are meant to document possible courses of action and options to facilitate consolidation of water utilities in Estonia. They define the proposed programme of work in the context of this project (in line with the Detailed Project Description). The outcome of the discussions has been reflected in this Issue paper (Output 3).
In the course of developing an issue paper, the project team had consultations with different stakeholders on a range of aspects related to the WSS consolidation reform in Estonia. Interviews took place in the period of October 2020 – March 2021. All opinions are reflected in the findings of the Issue paper. The interviews will continue to take place in the course of the whole project implementation, to fine-tune the options sketched in the Issue paper.

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The next steps of the project analysis will include:

- A review of international experience, with a particular focus on incentives, and on economic regulation. While it was initially scheduled to be Part of Output 3, the review of international experience requires more time and will be released after the international workshop on the topic.
Detailed analysis of options to tackle legal issues, in particular at micro level (transfer of assets, accountability of local governments and water companies, etc.)

Considerations for financial and non-financial incentives

Modes of strengthening independent economic regulation (to set tariffs, benchmark performance of water companies, and assess expenditure programmes)

A roadmap to manage the transition.
Making the case for reform

Discussion on the reform of the water sector in Estonia has been going on for a couple of decades. A lot of research has supported policy discussions. Some experience has been gained, with several regional utilities already operating.

The long-term direction seems clear. Stakeholders agree that the state of play is not sustainable and business as usual is not an option:

- Estonia has achieved a remarkable rate of construction of infrastructures for water and sanitation services, since its accession to the European Union, with multiple benefits for the population. Financing these assets has essentially relied on EU funding\(^1\). These assets need to be properly operated and maintained. Failure to do so will lead to a rapid decay and a need to rebuild existing assets, putting human health and freshwater ecosystems at risk and adding costs to the community.

- The fragmented industry has neither the technical nor financial capacity to operate and maintain existing assets. In 2018, 177 water companies were operating in Estonia. Some operate several services (e.g. district heating) and the water service may be subsidised by revenues from other services. 44 local governments are serviced by more than one water company.

- The industry faces issues of compliance with the EU regulation. Five wastewater treatment plants (WWTP) of more than 2,000 population equivalent (pe) fail to comply with the Urban Wastewater Treatment Directive (UWWTD). Several WWTP of less than 2,000 pe – too small to fall within the scope of the UWWTD - release poorly treated wastewater, potentially affecting compliance with the Water Framework Directive (WFD)\(^2\).\(^3\)

- Demographic trends will further exacerbate financial challenges for water services in the country. While the national population is projected to decline by 2.7% by 2045, population in four counties is projected to decline by 1/3, with negative consequences on water demand and the revenues of water services. This is an issue as a vast majority of the costs of operating water services are fixed (do not adjust to demand).

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\(^1\) 50% of total expenditure for water supply and sanitation services in Estonia (and almost 100% of public finance) originate in EU funding, the highest share in EU 27 member states. For more information see OECD (2020), *Financing Water Supply, Sanitation and Flood Protection: Challenges in EU Member States and Policy Options*, OECD Studies on Water, OECD Publishing, Paris, [https://doi.org/10.1787/6893cdac-en](https://doi.org/10.1787/6893cdac-en)

\(^2\) The European Commission computes that untreated wastewater discharges affect 41% of water bodies in Estonia

\(^3\) Of note, compliance with the UWWTD would require actions in Estonia that go beyond the scope of this project: i) to update certain elements of industrial wastewater discharge standards; and ii) account for groundwater contamination in oil-shale mining areas and its impact on public water supply
In that context of high investment needs, projected decline of revenues and heavy reliance on EU funding for investment, the prevailing financing model for water and sanitation services in Estonia is obsolete. The European Commission has indicated that financial support to the sector – which represents 85% of capital expenditures - will gradually be phased out. and the Estonian Ministry of Finance confirmed that domestic public finance will not be a substitute.

While there seems to be a broad consensus on the state of play, opinions vary as regards the direction for change and the pace of the reform. While some call for a rapid change, others argue that the current situation can prevail for 4-5 years, before the financial dead-end becomes more apparent and the case for change more pressing. This eventual grace period is best used to agree on a vision for the water industry in Estonia, and ignite change on the ground.

This project ambitions to support both the development of the vision, and the agreement on the course of action. The roadmap for the consolidation of water companies in Estonia will entail:

- A scenario for consolidation. So far, discussions essentially considered one model of agglomeration, on a geographical basis, where well-functioning companies gradually absorb smaller, fragile ones. This model can be discussed, and some nuances could be added (see next section). For instance, not all functions may need to be operated at the same scale: water supply could be operated at a different scale than sanitation; investment planning and procurement could be managed at a different scale than consumer relations and billing. Some competences could be available in regional centers, to support smaller utilities. Specific trajectories could be considered for rural areas, which differ from urban ones. These options (and more) deserve some attention, as for their relevance and feasibility in the Estonian context.

- A course of action. It is generally agreed that reform in Estonia should be voluntary only. Still, some staging may be required. One option might be to strengthen the operation of larger utilities first, so that they become able to merge with smaller ones, when appropriate. Another option might be to consider a pilot region, to test a number of options and accompanying measures; lessons could be learned, that inspire other regions. A range of actions need to be taken in parallel, such as the adjustment of the tariff setting methodology (if required), setting up capacities to review and assess the opportunity of investments and expenditure programmes (going beyond the assessment of eligible costs), organising benchmarking capacities to set performance objectives and review performance of water companies. Some of these actions relate to strengthening economic regulation. The roadmap will need to sequence these measures to ensure a smooth and effective transition towards the agreed-upon vision for a sustainable water industry in Estonia.

Scenarios for agglomeration of water services

Many OECD countries have aggregated (or are considering aggregating) small utilities to generate economies of scale and make the best use of large infrastructures. Heavy investment costs and the phasing out of government subsidies have prompted local utilities to concentrate part or all of the tasks related to the provision and delivery of WSS services at upper levels of government (OECD, 2013a; see also Chapter 1 for selected illustrations).

In New Zealand, the amalgamation of several councils gave the Auckland Council the necessary scale to tackle issues that were previously beyond the capacity of individual councils. Since amalgamation, the Council has been able to accelerate the modernisation of the region’s antiquated wastewater treatment plants. The Estonian Ministry of Finance confirmed that domestic public finance will not be a substitute.
systems, substantially upgrade its two key wastewater treatment plants and progress the NZL 950 million (New Zealand dollar) “central interceptor” project that will reduce overflows from the combined waste and stormwater system of the Auckland isthmus. In Korea, cities in the Gyeongnam province achieved cost efficiency by amalgamating urban water services (see Appendix).

Because the size and cost of sewer pipes are usually higher than those of the water supply infrastructure, sewerage units are less concentrated (OECD, 2013a). However, amalgamation may occur in wastewater treatment, where economies of scale exist for some complex treatment processes.

Amalgamation eventually results in combining different services at different scales. France’s Ile-de-France region has a three-tier management system: street sewers are municipal, interceptors and storm sewers are run by the counties (four départements) and sewage treatment is operated by a joint-county (almost regional-level) board.

Several countries have separated water or treated wastewater production and the delivery of the service to customers:

- In Boston, a metropolitan authority consolidates water production and sewage treatment, leaving member municipalities in charge of system management.
- In Portugal, the government created a national water company in 1994. Municipalities in the same area were offered the opportunity to manage treatment plants jointly, while communes kept responsibility for operating water and sewer mains.
- In Australia, the 1994 reform planned by the Council of Australian Governments mandated the unbundling of former urban water monopolies, with bulk water production and sewage treatment organised at the regional level (by one public company) and retail water services at a more local level (by several water distribution companies). This choice paved the way for alternative water supply technologies (e.g., recycling and desalination).

Rural sanitation offers yet a range of options. For instance, localised wastewater management systems serve individual or small groups of properties. They can recover nutrients and energy, and can also be connected to local water supply and reuse technologies. They require less upfront investment than larger-scale, centrally piped infrastructures and are more effective at coping with the need to expand services. Various commentators suggest that they have a role to play in urban water management, even in major developed cities.

Localised WSS can be used to serve populations not connected to public systems. In Europe, the proportion of households not connected to sewers is higher in low-density or low-revenue countries or regions – e.g., Portugal and Spain, southern Italy and Greece, eastern European and Nordic countries, Ireland and even some German Länder. In these areas, populations are not yet fully connected to public water systems. Ireland has officially kept a large number of grouped water schemes, providing water to 8% of the population at small community scales. Localised sanitation systems are not merely a remedy to the limited number of centrally piped systems. They are increasingly used in countries such as the United States, where on-site sanitation now comprises some 40% of all new developments. Sustainable neighbourhoods in cities are partly – or fully – replacing traditional public systems with decentralised technologies. Paradoxically, these innovations take place in the richer and higher-density European Union (EU) Member States.

The performance of localised systems can compare with that of centrally piped infrastructures. For instance, an evaluation of localised systems in Ireland shows that despite difficulties in meeting the standards now imposed at the European level, such schemes sometimes operate better than public water systems, and the population they serve is largely committed to keeping them. Innovation can contribute to improved

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performance of localised systems. Research is ongoing to provide communities reliant on individual and community systems with robust and simplified treatment systems, equipped with real-time ICTs, to help set up community services operated from distant centres.

These developments explain the renewed interest for localised, on-site sanitation. The Australian Academy of Technological Sciences and Engineering (ATSE), for example, recommends that Australian governments encourage investment and uptake of such systems.

An interesting development regards the scale at which localised, decentralised systems are best managed. The concept of a public service operating non-networked systems is a promising avenue. In France, the 5 million septic tanks currently in operation are now considered technologies that should be kept and upgraded. The implementation of the Urban Wastewater Directive led to a zoning of networked and non-networked areas, the latter being served (or at least controlled) by public services for decentralised sewerage (SPANC). Indeed, the collective management of decentralised technologies creates business opportunities for (public and private) utilities.

The scenarios above open a range of options for Estonia to consider agglomeration. They suggest that mere agglomeration at higher geographical scales is one option; others could be considered:

- Considering different scales for different functions of WSS services (water supply, wastewater collection and treatment; investment planning, operation and maintenance of services)
- Managing localised services (including individual sanitation) at a larger level. Several options could be considered, from merging, to coordinating local service provision through a public service; such a public service can cover a wide and diverse territory, focusing on localised sanitation only.

The different options can be assessed on multiple criteria, including:

- Opportunities to minimise cost (investment needs in infrastructure; operation and maintenance costs) and enhance financial sustainability of WSS
- Opportunities to mutualise skills (technical skills to operate and maintain assets; commercial skills to interact with users, including through billing)
- Opportunities to optimise performance (quality of service to users), now and in the future (sustainable service provision)
- Opportunities to strengthen monitoring and supervision (assessing development plans and expenditure programmes; monitoring performance of service providers).

Some of the options can work in combination, or in sequence, providing for a staged approach. Lessons learned at one stage can inform further developments on the road to agglomeration of WSS to the appropriate scale in Estonia.

**Mobilising local authorities to support the reform**

Mobilising local authorities requires a clear case for the costs and benefits of the consolidation process. It also requires that a set of technical issues be tackled in pragmatic ways. Intense consultation is a must, with multiple opportunities for local governments to voice their concern – and support – and comment on the roadmap, the incentives being considered and the responses to their queries.

In case the roadmap foresees the possibility of a pilot water company or region, support needs to be provided for its establishment and initial operation. It may include the following accompanying measures:

- Strengthening the role of county associations of municipalities, to support the creation of regional utilities
- Support to contractual arrangements between such associations and the regional utilities. Performance-based management contracts could be promoted
- Water Operators Partnerships (WOP) consisting of reputable operators. Partnerships with experienced operators is critical to develop and strengthen the newly formed organisations. Adequate incentives and sequencing can encourage consolidated utilities to support localities that are not yet part of the association (see the discussion below on financial and other types of incentives).

### Technical – including legal – issues to be tackled

Preliminary discussions have highlighted a series of issues, which can explain why the reform of water companies in Estonia falters. These issues can create concrete and tangible obstacles to reform, even where the direction for change is not questioned. Some of these issues are legal. For instance, it is not clear if and how assets owned by a municipality can be transferred to a larger entity, in case the service providers merge; in another domain, regulation forbids amortisation of assets financed through EU funds, hampering utilities’ capacity to finance the renewal of existing assets.

The project will endeavour to explore solutions in the context of the existing legal and institutional framework. More radical options may require changing the existing framework, making the feasibility more speculative or long-term.

### Legislative and institutional issues

Clarification of the legal and institutional frameworks is key for successful implementation of the consolidation reform.

Several issues derive from the absence of a relevant and replicable contractual and institutional model for regional companies. According to the national legislation, local authorities collectively remain the decision makers regarding the strategy and management of a common regional operator. Although the legislation stipulates the right for local authorities to associate with the objective of improving the quality of services of common interest, the regulatory framework is not as explicit about the legal forms and patterns of such co-operation.

A detailed review of the legal framework should therefore be conducted, to ensure its consistency with the considered institutional model. Output 5 of the project will cover that with a particular focus on three aspects:

- Governance arrangements: how are voting rights allocated among municipalities
- Conditions required for joining and withdrawing from the association
- Regime of assets: who owns the assets created under the association? In case of disbanding of the association, how are these assets returned to their original owner, and what happens with the assets built under the association?

Key features of the incorporation act of a regional service provider could be prepared to clarify the legal status and address some the pending issues listed above. Assuming the typical delegation contract would

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6 In 2006, the Ministry of Environment drafted models of agreements for water companies. These can provide a basis on which to build, although they need to be updated.
be a concession contract (the operator is responsible for both operation and investment), the topics below should be clarified:

- Who decides and finances investment?
- How are tariffs set and adjusted?
- How is the performance of the regional utility monitored?
- What happens in case of failure to meet its targets?

**Accountability of local governments for local infrastructure**

Decentralised ownership for local infrastructure creates issues with accountability for service provision. In Estonia, the allocation of tasks and responsibilities across institutions is blurred, on some issues. Water companies and local governments are responsible for the provision of water services in cities and settlements; the Ministry of the Environment is responsible for sustainable access to WSS services in the country as a whole.

The situation raises a few questions:

- Are these responsibilities equally clear and understandable to each party?
- Do all of the parties agree to the performance of the functions and obligations assigned to them?
- How are some obligations and functions financed?
- Is the allocation of responsibilities and resources fair from the viewpoint of all parties?

There may be disputes and misunderstandings between the Ministry of the Environment, the local governments and water companies about who should be responsible if a policy goal is not achieved. For example:

- Who should guarantee the WSS access in areas of over 2,000 p.e. to the sewerage system?
- Who should pay the fine for non-compliance with the EU directives, should it occur? Can the national government (which will be held accountable by the European Commission) ask non-compliant authorities to foot the bill? On which legal and financial basis?

Questions also arise when major disruptions and problems occur in the provision of the water service in a densely populated settlement. For example, if a major problem occurs, and drinking water no longer complies with requirements, so that an advanced water treatment is to be put in place; or if treated wastewater does not comply with norms, and a solution requires major investments, and minor operational improvements cannot solve the problem. Who bears responsibility to the citizens and/or the Ministry of Environment – the local government or the water company?

**Operational issues**

A range of operational issues need to be tackled, to overcome fair objections to the reform. Based on preliminary discussions, these include:

- How to deal with existing loans taken by a local government or water company, after agglomeration?
- In the case of multi-purpose companies, how to address implicit subsidies across services? Agglomeration of water services may shatter the delivery of other services in the community.
- What is the role of companies’ Boards as regards investments and expenditure programmes?
- Should tariffs of the regional company be harmonised, or can different tariffs co-exist?
Incentives to foster consolidation of water companies

Addressing the issues listed above can go a long way to expedite agglomeration of water companies in Estonia. However, incentives will probably be required to ignite change.

Financial incentives are probably most effective. One of the key drivers for consolidation could be easier access to funds. In that spirit, parts of government funds might be reserved for utilities willing to join the process, or utilities reaching a certain size, or committing to a certain level of performance. From that perspective, the Estonian Investment Centre – under the Ministry of Environment – has a role to play: eligibility criteria and support on the ground may reflect alignment of project owners with the ambition of reform. On-going provisions are moving in this direction: starting from 2022, only a regional water companies can apply for financial support from Environmental Investment Centre. Of note: in Romania, only regionalised operators are eligible for public funding for capital expenditure.

Financial incentives might be supplemented by preferred treatment for investment projects or expenditure programmes from well-performing, consolidated water companies. Such preferred treatment could take the form of less cumbersome authorisation programmes, renewal of licence to operate or other administrative measures that can facilitate the operation of water companies.

Licencing for water operators is another tool that Estonian authorities may wish to mobilise to incentivise local governments and water companies to agglomerate. The renewal of licenses could be faster for efficient water companies. And utilities failing to meet performance targets could lose their licence. This would provide opportunities for more efficient operators to expand their service area. Transition to the incentive-based regulation of water tariffs can play a role of economic incentive to enhance efficiency of water operators.

Tariff policy and methodology

The methodology to set tariffs is a foundational driver for change and condition for reform. There are issues with the current methodology, in particular as regards its capacity to reflect investment needs and to drive the performance of water companies.

Tariff methodology and its application

The tariff methodology is a key part of economic regulation. In simple terms, independent economic regulation of WSS aims to ensure that customers receive the appropriate water service for the right price. Appropriate here refers to the combination of various objectives: economic (robust allocation of water and discouraging wastage), environmental (conservation of the resource), social (addressing affordability concerns) and financial (ensuring utilities’ capacity to finance the operation of the service, now and in the future). The figure below illustrates the potential tensions across these objectives.

Typically, economic sustainability requires that tariff levels reflect the opportunity cost of using water and discourage wastage; such a policy can raise social issues (affordability); it can also generate fluctuation in tariff levels (the opportunity cost is lower when water is abundant), potentially affecting the financial sustainability of service provision. Similarly, financial sustainability may benefit from higher tariffs, potentially triggering affordability issues for poor households. Better reflection of environmental costs in service provision can also drive tariffs up and have harmful social consequences on selected communities. These tensions can only be addressed through a policy process that balances the different objectives, and lead to tariff levels and tariff structured tailored to reflect the preferred balance. OECD work on the issue insists that affordability issues are best addressed outside of the water bill, through targeted social measures.
Figure 0.1. Tensions between policy objectives for water tariffs


The tariff methodology developed by Estonian Competition Agency (ECA) is based on its mandate under Public Water Supply and Sewerage Act (Water Law). According to the law, water tariffs must be cost based – including a reasonable rate of profit - and approved by the regulator. According to the legislation in Estonia, the WSS tariffs:

- cover justified operating expenses
- contribute to compliance with environmental requirements
- contribute to compliance with quality and safety requirements
- are in line with development plans for public water supply and sewerage approved by local governments; these plans specify investments (renewal and extension) needed to ensure the sustainability of the existing public water supply and sewerage systems
- ensure justified profitability (Weighted Average Cost of Capital - WACC) of the capital invested by the water company
- in line with the need to develop the public water supply and sewerage (including storm water) system in specific development areas.

Note that tariffs for services below 2,000 pe are set by local governments.

Areas where over 50% of residential buildings are connected to the system (in accordance with development plan), for which building permits were issued before 22 March 1999.
Box 0.1. Definitions in economic regulations of WSS

Affordability: Affordability is the capacity of a particular household group to cover all WSS-related expenses (including VAT, taxes and any additional charges). It is often expressed as a percentage of household income or expenditure.

Eligible costs: Those parts of overall costs incurred by an operator that the regulator deems needed to provide the regulated service.

RAB: The Regulatory Asset Base is set by those assets of the operator deemed necessary for providing the regulated service. A higher amount of RAB assets provides for a higher eligible depreciation expense, higher regulated return on assets and thus higher eligible costs.

RIA: The (ex ante) Regulatory Impact Assessment is a systematic process of identification and quantification of important benefits and costs likely to flow from the adoption of a proposed regulation under consideration.

WACC: The Weighted Average Cost of Capital is a calculation of the operator’s cost of capital in which each category of capital is proportionately weighted. All long-term capital associated with the regulated service is included. A higher regulated WACC implies a higher cost of capital (of the RAB) and therefore a higher tariff.


The regulation assumes a single volumetric tariff that is the same for households and legal entities. Generally, this is in agreement with the Polluter Pays and Beneficiary Pays principles, as set in the Recommendation of the OECD Council on Water (source: http://www.oecd.org/water/recommendation/#d.en.431326).

Other tariff formula could be considered, to better address the tensions between the various policy objectives, as sketched in the figure above. For instance, a two-part tariff structure is applied in Germany and the Netherlands. It would have a sizeable fixed component plus a single volumetric component. The two-part tariff structure does bring the revenue structure more in line with the cost structure of utilities, which have large fixed costs. However, in the absence of targeted social measures, this structure can have socially regressive effects. Some regulators allow limited fixed elements in the tariff structure, namely those related to customer services such as metering, billing and meter maintenance.

Social aspects

Tariffs need adjustment if the affordability of service for segments of the population is at stake. An affordability check is not a part of the tariff setting procedure in Estonia. Here, affordability of water tariffs is addressed by local governments through targeted social support (e.g. income support).

Expenditures for water supply and sanitation services account for less than 2% of the disposable income of the poorest 5% of the population in Estonia. Of course, situations vary across communities, but at national level, affordability is not considered as an issue yet. However, it may have to be considered in the future, when the proper operation, maintenance and upgrade of the infrastructure has to be properly financed: the

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OECD projects that the share of water supply and sanitation expenditures could amount to roughly 4% of the disposable income of the poorest 5% of the Estonian population, should all the projected expenditures needs be met\(^\text{10}\).

**Ownership and depreciation**

Regulatory issues related to tariff formula are most influential. The current tariff regulation system in Estonia is characterised by the following:

- Reinvestment component is not part of the tariff formula for most water companies. The cost of replacing decaying assets is reflected in the tariff-setting process, only for assets which were not financed through EU grants. This is an issue as, as mentioned above, a significant share of existing assets (and virtually all the assets built since EU accession) were financed by the European Commission. Therefore, most utilities are unable to generate the revenues to renew and upgrade (where appropriate) existing infrastructures. Failure to amortise existing assets affects the creditworthiness of utilities and hence their capacity to raise debt.

- Linear calculation of capital expenses according to the acquisition cost for fixed assets, over 30-40 or more years. The tariff setting method does not provide options to consider the indexed value of fixed assets at present (reflecting inflation rate) instead of the original replacement value.

The main issue with the exclusion of granted assets from the base over which the return on assets and eligible depreciation expenses is calculated is that the method does not properly reflect the cost of maintaining and renewing existing assets. As a consequence, water tariffs cannot generate the revenues water companies need to finance a sustainable provision of water services, now and in the future. In the absence of subsidies, this financing model cannot be sustained, after the rapid extension of water infrastructures in Estonia.

One solution to this dilemma may be set tariffs for a multi-year period (e.g. the duration of the contractual arrangement, with options for in-between revisions), as is the case in France. Another option might be to allow for *infrastructure renewal charges*, such as in England and Wales, Scotland or Kosovo: such charges consider as eligible expense the actual costs to maintain the asset base rather than the depreciation charge.

**Independent economic regulation for water companies**

Independent economic regulation covers a range of functions as regards water supply and sanitation services. The previous section discussed issues related to tariff setting. This section focuses on two related sets of issues:

- To drive the performance of water companies
- To review the opportunity of development plans and investment programmes. A related issue is to enhance the efficiency of expenditure programmes.

Note that independent economic regulation can be delivered via a range of institutional or organisational arrangements. The OECD has reviewed options in place in several countries. That review will support tailored discussion on appropriate options to deliver economic regulatory functions in Estonia.

\(^{10}\) Ibid.
Driving water companies’ performance

Incentives to enhance the performance of water companies can be a key driver for change. Clear performance targets, supported by robust monitoring, adequate rewards (or sanctions) can set a common ambition, signal deficiencies and urge water companies to take action.

The tariff regulation demonstrates insufficient consideration for the performance of water companies. Performance improvements takes several years (for instance to enhance staff capacity, or to reduce leakage). This is why in most countries, water companies’ business plans are set for multiple years (5 years in England and Wales) and tariffs are revised at the same pace. The fact that in Estonia, tariffs reflect development plans, which are typically set on a yearly basis makes it more difficult to embark on performance enhancement programmes consistently over several years.

Two sets of issues deserve attention. First, the regulator does not set targets for quality of service or performance of service delivery, which would drive development plans. This is missed opportunity to set common levels of ambition (beyond compliance with EU standards) and drive performance enhancement.

The second set of issue relates to setting, monitoring, and rewarding performance. Estonia has limited experience with benchmarking the performance of water companies. Several institutions monitor compliance: the ECA (on water resources management and waste); the Health Board (on standards for...
drinking water); the Water Works Association (the Association set up elements of a benchmarking programme, with limited results\(^{11}\)).

Addressing these deficiencies would require:

- Explicit and agreed-upon objectives as regards the quality of service and the performance of service providers;
- A tailored set of criteria, aligned with objectives;
- A systematic review of performance on a regular basis, with clear responsibilities from the economic regulator (with adequate resources and skills);
- An incentive regime (including reward to achievements and sanctions for non-performance) that can enhance value for money and potentially drive change towards more effective and cost-efficient water industry in Estonia.

**Investment planning**

In Estonia, economic regulation is based on costs, but it is not clear which institution – if any - assesses the opportunity of expenditure programmes and identifies eligible costs (eventually reflected in tariffs). Currently, ECA considers local development plans – often drafted by utilities and endorsed by municipalities - as reference documents. In Estonia, where development plans are drafted by individual utilities in a fragmented institutional context, this leaves no room to assess the potential benefits of considering development plans at an aggregate level, thereby generating economies of scale or scope. This is an issue, in particular as water and sanitation services are capital intensive: risks of duplication are costly, in particular in the long term, when the need to maintain and renew existing assets is factored in. The demographic trends mentioned can only increase such unnecessary costs.

Several options can be considered, to address this issue. A National Water Strategy, backed by a thorough and realistic financing strategy, could be envisaged, to set the overall level of ambition and provide a reference to draft development plans and assess the opportunity of projected investment, and possibly encourage local governments to join forces. The objective of the proposed strategy would be, for each municipality, to:

- Identify long-term needs (based on population and economic development forecast) and source of water supply; impacts of climate change (and risks of flooding or scarcity) could be factored in, as appropriate;
- Identify investment needs for rehabilitation, replacement or extension of the water and sewerage facilities (including granted assets, which will need to be renewed even though they were financed without domestic finance) and their costs;
- Explore options for mutual investment and joint action with neighbouring communities. The proposed options could be prioritised when they align with the national water strategy and financial strategy.

This work would help to update and review the needs defined in local development plans, and conduct a proper consolidation of investment needs at the national level in cooperation with the ECA and Ministry of Finance.

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\(^{11}\) The list of indicators could be improved; reporting is voluntary only.
<table>
<thead>
<tr>
<th>ISSUES</th>
<th>OPTIONS TO BE CONSIDERED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenarios for aggregation</td>
<td>geographical; functional; urban/rural</td>
</tr>
<tr>
<td>Technical – including legal – issues to be tackled</td>
<td></td>
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<tr>
<td>Legislative and institutional issues</td>
<td>A detailed review of the legal framework (Output 5), covering i) governance arrangements (e.g. voting rights); ii) conditions required for joining and withdrawing from associations; iii) regime of assets. In addition, key features of delegation contracts would be sketched.</td>
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<tr>
<td>Accountability of local governments for local infrastructure</td>
<td>An inventory of pending issues, with options to clarify responsibilities and accountability</td>
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<tr>
<td>Operational issues</td>
<td>Concrete options to i) deal with existing loans taken by a local government or water company; ii) address implicit subsidies across services; iii) clarify the role of companies’ boards as regards investments and expenditure programmes; iv) set tariffs of the regional company (e.g. separate, unified, or converging)</td>
</tr>
<tr>
<td>Incentives to foster consolidation of water companies</td>
<td>Options for financial incentives (privileged access to public funds, possibly through the Estonian Investment Center), preferred treatment (e.g. authorisation programmes, licencing)</td>
</tr>
<tr>
<td>Tariff policy and methodology</td>
<td>Options for tariff structure, targeted social measures (to address affordability issues), provision for renewal of granted assets</td>
</tr>
<tr>
<td>Independent economic regulation for water companies</td>
<td></td>
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<tr>
<td>Driving water companies’ performance</td>
<td>Options to set performance targets, indicators to monitor utilities’ performance, a benchmarking process, rewards/sanctions for performance achievements</td>
</tr>
<tr>
<td>Investment planning</td>
<td>Incentives to consider opportunities to draft development plans at an aggregate level, role of a national plan</td>
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</table>
One of the objectives of the Issues paper was to provide an assessment of the centralised WSS in Estonia. The assessment is focused on topics, which form a basis for the consolidation reform; namely, effective legal and regulatory framework, state’s role in policy formation and implementation.

The results of the SWOT-analysis are presented in the table below.
### Table 1. SWOT-analysis for the WSS sector of Estonia

<table>
<thead>
<tr>
<th>INTERNAL FACTORS</th>
<th>WEAKNESSES</th>
<th>EXTERNAL FACTORS</th>
<th>THREATS</th>
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<tbody>
<tr>
<td><strong>STRENGTHS</strong></td>
<td></td>
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<tr>
<td>- Implemented a massive investment programme over the past two decades, exploiting opportunities provided by EU funds</td>
<td>- Fragmented sector, driven by uncoordinated development plans drafted at local level, with no incentives for economies of scale or scope</td>
<td>- Opportunities to reap the benefits of economies of scale and scope</td>
<td>- Lack support of the reform among sector stakeholders</td>
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<tr>
<td>- High level of compliance with the Drinking Water Directive (DWD)</td>
<td>- No incentive for operational efficiency of service provision</td>
<td>- Further compliance with the EU water Directives, resulting in enhanced service performance and customer satisfaction</td>
<td>- Need for strengthening the strategic vision of sector’s development</td>
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<td>- Until now, only slight rise in financial pressure on consumers even in case of significant tariff increase</td>
<td>- Loss-making activity, unsatisfactory financial state of enterprises, poor liquidity</td>
<td>- Improvement of the legal and regulatory framework (including secondary legislation and regulation over the WSS companies’ operation; transition towards incentive-based tariff regulation</td>
<td>- Risk of inefficiency of sectoral development programmes, in the absence of robust and coherent national perspectives</td>
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<tr>
<td>- Experience of WSS companies to work with EC and IFIs funding requirements</td>
<td>- Lack of reinvestment component in tariff formula, for granted assets. Capital is not amortized adequately</td>
<td>- Available potential to increase the role of domestic finance and IFIs’ interest in financing WSS projects</td>
<td>- Lack of capacity of local authorities to draft development programmes that contribute to effective public expenditure (e.g. as a result, plans are developed by utilities)</td>
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<td>- Proper public engagement to decision-making; active sectoral Association</td>
<td>- Lack of domestic funds for retrofits</td>
<td>- Introduction of new water and waste water treatment technologies</td>
<td>- Efficiency of state regulation needs strengthening</td>
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<td></td>
<td>- Lack of qualified human resources (including brain drain due to low salaries and migration of population), high employee turnover, low motivation of staff (particularly in smaller municipalities)</td>
<td>- Insufficient deployment of energy efficiency equipment and technologies</td>
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<td></td>
<td>- Insufficient public information and outreach. This contributes to a negative image of the sectoral enterprises and the consolidation reform</td>
<td>- High rate of extra water used and lost in the networks</td>
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<td></td>
<td>- Issues with the accountability of municipalities and water companies</td>
<td>- Lack of capacity of local authorities to draft development programmes that contribute to effective public expenditure (e.g. as a result, plans are developed by utilities)</td>
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<tr>
<td><strong>EXTERNAL FACTORS</strong></td>
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Appendix 1. Lessons from regionalisation of WSS services: selected cases

The case studies are sketched here. Additional information and analyses on the objectives, process and accompanying measures will be available at the time of the international workshop. They can inspire reforms and action plans in Estonia.

**Austria - Successful voluntary aggregations in rural context**

In Austria, there are several examples of association of small rural service providers with similar characteristics that successfully grouped together. This section will provide concrete examples to explain why (purpose) and how (scale, scope, governance) these small utilities grouped together.

**Chile – Benchmarking the performance of water utilities**

Chile is well regarded both for its water sector performance and its well-designed social services. Water sector reform started in the 1970s, leading to regionalisation and gradual tariff increases.

A highlight of this process was establishment of an independent economic regulator *Superintendencia de Services Sanitarios* (SSIS). In addition, four principles of tariff setting were set: non-discrimination, cost recovery, economic efficiency and encouraging conservation. The small SSIS developed a model company against which the 14 utilities operating in Chile could be compared. When setting the tariffs, the future efficiency improvement measures of the utilities were factored in. Under SSIS, leakage levels and cost recovery improved. Still, investment remained too small. SSIS initially failed to have leverage on some of the larger inefficient utilities.

These issues were resolved by:

- granting SSIS more power and independence, including funding through a levy on water utilities
- attracting finance for infrastructure through equity sales, concession contracts and involving the private sector, raising USD 1 bln that was subsequently wholly invested in infrastructure.

Among its main activities, SSIS monitors performance of both the sector and concession contracts.

Chile has a lot to share as regards options to cope with lack of affordability of water tariffs. From a social perspective, having no access to water is more costly than access at cost recovery tariff levels. Social measures have concentrated on funding extension or financing the costs of increased access, half of which went to the poor.

All consumers are billed the same full rate for the metered amount of water consumed. Means-tested poor customers, however, can bring bills to the municipality. The municipality pays part of the bill, provided the beneficiary pays the other part. In this way, municipalities cover on average 6% of turnover of water utilities.

There can be little debate about the success of Chile in water sector reform. It is not clear, however, to what extent others can achieve the same results. Chile has a long tradition of effective administration and an acceptance of a contractual approach in public sector management. As a result, it has been able to provide targeted support to the poor and raise capital, mostly for wastewater treatment investment. The case of Chile illustrates that economic regulation needs periodic recalibration with policy targets, which is a task for the government at large.

**Croatia - Overlooking context and purpose is associated with higher risk of failure**

The context in which aggregation takes place is characterized by the enabling environment in the country and in the sector, as well as by the physical environment in which utilities operate. The purpose of the
aggregation can be manifold as the reform can target economic efficiency, performance improvement, professionalisation, environmental benefits and/or solidarity. The context should be taken into account and the purpose has to be clarified when designing aggregation. Disconnecting the former from the latter can lead to failure.

Moreover engaging with all stakeholders throughout the entire aggregation process is key to foster success. Whether mandated or not, systematic consultations between national and local stakeholders should be organized early in the process to ensure they can inform the process and to confirm 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.

In 2012, the Croatian government initiated a series of utility sector reforms that, in addition to establishing a proper water sector regulatory framework and benchmarking system, have included a proposed merger of utility service providers into about 20 regional utilities. The main drivers of this aggregation effort were the need to efficiently absorb EU funds and to cross-subsidise the operation of water and wastewater systems in smaller settlements, which would find compliance with the new EU standards prohibitively expensive and unaffordable.

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 in 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.

**Flanders – on social water tariffs**

The Flanders region of Belgium has a most advanced system of setting (social) water tariffs. First, there is only a small fixed fee for costs related to customers such as metering and billing. Overall, it is less than 10% of the bill. The volumetric part of the bill is charged either as “normal” or as “social”. The normal tariff structure is a straightforward Increasing Block Tariff (IBT), but based on the household size rather than on fixed brackets (blocks). In this way, larger households pay a similar price per cubic metre as small households, provided they are in the same tariff group and have a similar per capita consumption.

The social tariff is zero for the first 15 m³ per person per year or 41 liter per consumer per day (lcd). Above that threshold, the social tariff is lower than the normal tariff. Figures below illustrate the concept. The built-in cross subsidy between smaller and larger units of consumption ensures the marginal price of water is the most expensive for rich and poor alike. In this way, there is an incentive to reduce consumption.
The concept is appealing. It combines social, environmental and financial benefits. Flanders illustrates an advanced social system carried out through the tariff. The regulator exercises a strong influence on social policy, stipulating the thresholds for the IBT and the relative tariff differential. There are two blocs (below and above 30 m$^3$ per household member per year). The tariff in the first bloc shall be half that of the second one. The regulator also stipulates the size and conditions of the social tariffs, presently at one-fifth of the normal fixed and variable tariff elements.

The dual block tariff, however, puts an administrative burden on the utilities. To charge appropriately, utilities have to maintain records on inhabitants per household. Expenditure for WSS is in the order of 1-
2% of household income i.e. quite affordable by international standards. It is difficult to assess how well the system maintains affordability for the poor. The per capita delineation of the tariff blocs addresses the most pressing argument against IBTs. But little is known on how well the blocs and tariffs perform in maintaining affordability in relation to, for instance, single volumetric tariffs. Brackets are not adjusted in light of updated, more recent poverty statistics.

This type of redistribution can only take place within the service area. Small consumers and social cases are subsidised by other customers within the service area. Three factors are necessary for this type of social measure to function optimally:

- The average tariffs should be similar among the service areas in the region
- The distribution of income within the service areas should be similar.
- Per capita income across the service areas should be similar.

Deviations on these conditions bring regional distortions to distribution of benefits that are difficult to quantify. Assuming the conditions have been sufficiently met in Flanders, one can still ask whether the social benefit of increased affordability of services outweighs the costs of the increased administrative burden for utilities.

**France - A reform targeting economic efficiency and solidarity, facing long-lasting resistance**

The NOTRe Act has mandated the progressive transfer of water and sanitation services competence from municipalities to integrated intercommunalities. Some key features, which will be explored in more details:

- Context of aggregation: top-down, mandated with a progressive implementation schedule
- Purpose of aggregation: economic efficiency (through economies of scale and scope), solidarity (through economies of scope)
- Scale and scope of aggregation: vertical and horizontal consolidation of utilities embedded in the reform
- Example of governance arrangement for aggregated utilities: institutional elements (legal form and organization; shareholder rights and power distribution; oversight and coordination of tariff and performance; exit and entry clauses); financing, assets, and liabilities (cost- and revenue-sharing agreements; asset ownership, transfer, development, and management)
- Risk of failure: political resistance which has postponed initial reform deadlines from 2019 to 2026.

**Korea - Amalgamated water services – Gyeongnam Province**

Many Korean municipalities are having a hard time managing their own waterworks: the lack of revenue from low water tariffs leads to financial constraints on renewing existing water infrastructures. Ageing water infrastructures, particularly ageing water mains, are the predominant cause of water leakage, driving production costs and water tariffs up.

To solve these issues, the central government supports and encourages municipalities to amalgamate water supply services and assign amalgamated services to specialised water agencies. Four local governments in southwest Gyeongnam Province amalgamated their water supply systems and assigned their operation to K-water. Each local government retains ownership of its water supply system and remains responsible for providing the service and setting its tariffs, as well as for planning and extending

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water mains in order to increase access to tap water. The tasks devolved to K-water include water abstraction and treatment, distributing treated water to customers, and notifying and collecting water tariffs.

K-water has installed an integrated remote-control centre to monitor and control each municipality’s water sources, treatment plants and reservoirs. Most facilities, except those located far from city centres, have no staff. Operators of the integrated remote-control centre monitor water pressure and manage facilities 24 hours a day, 7 days a week. They are available at all times to respond immediately to calls from a facility. If the systems are out of order, engineers working for a local service centre are expected to be able to reach the facility within 30 minutes through a network of emergency contacts.

In order to enhance operational efficiency, K-water covers the upfront capital costs of renewing and upgrading ageing infrastructures. It charges each local government on a monthly basis for the operating expenses, including investment recovery. The contract specifies the amount to be paid by the municipalities, providing them with the ability to plan expenditures in advance.

The project has received positive reviews from the central government and municipalities involved. It is expected to cut costs by KRW 24 billion (Korean won) (EUR 19 million) over the contract duration (between 20 and 30 years), compared with business as usual. The volume of water accounted for has increased between 17.1% and 41.3% in the new system.

The Netherlands – achieving economies of scale and scope

In the mid-1970s, the Netherlands considered that its municipal water works lacked economies of scale and scope to deliver efficient services in the future. The 1975 Water Law kicked-started a regionalisation process that resulted in the ten current suppliers of drinking water. They are incorporated public entities that are 100% owned by municipalities and provinces.

Wastewater collection has remained a municipal responsibility. It is financed through a special municipal tax. Responsibility for wastewater treatment and water management rests with the democratically elected water boards. Water boards are legal entities, the first one of which was established in 1255. The 23 water boards operate on a regional scale.

Historically, the rationale behind regionalisation has been the need for efficient operations. Regionalisation, however, has supported affordability for the less densely populated areas.

If all agglomerations up to 1 000 population equivalent (PE) charged based on cost recovery, then tariff rates in rural areas would need to be three times higher than those in large urban conglomerations. Income of rural households is typically smaller. Regionalisation of operations and harmonisation of tariffs across each expanded service helped share this burden. High-income/low WSS unit cost consumers cross-subsidise the lower-income/high WSS costs rural population through the harmonised tariff.

Municipalities collect the following:

- The wastewater collection charge to cover municipal sewerage costs. The charge can be based on drinking water consumed, property value or the number of inhabitants.
- The wastewater treatment charges and pollution charges on behalf of the water boards. The charge is not based on metered water consumption, but on three categories: single person households, two person households and households with three or more persons.
- The water system charges on buildings and land, also on behalf of the water boards, for water resource management. It is charged on the main occupant of the house or apartment (or land), as a fraction of property value (or as fee per habitant).

These charges mostly provide a fixed component to the WSS-related expenditure and may be seen as regressive.
Municipalities in the Netherlands provide for a WSS-related social measure through a partial or full exemption of (exclusively) their poorer citizens. Exemption of only fixed elements of the WSS-related bills leaves intact the incentives to save drinking water.

The Dutch system of WSS provision is complex and appears fragmented. Because of the long tradition and a strong culture of co-ordination among authorities, it does provide for a high level of service and reliability. The regionalisation of services has enabled an automatic cross-subsidy mechanism that would otherwise have been impossible to set up. In addition, a decentralised targeted WSS-related social assistance is in place through the exemption of fixed charges on poor citizens.

**Romania - A top-down mandatory and financially incentivised aggregation process**

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.

Regionalization was based on three key institutional elements: the Intercommunity Development Association (IDA), the Regional Operating Company (ROC), and the Contract of Delegation of Services’ Management.

**Achievement/finding:**

- From low cost-low performance to high cost-high performance (aggregation path).
- Introduction of performance indicators (as such, aggregation introduced better knowledge about utilities’ operation with a view to improving it over time).
- Gradual implementation strategy allowed by the subsidiary principle of the aggregation reform (allowing flexibility in implementation ensures local stakeholders can own the aggregation process and adapt it to their local context).

**A few examples of lessons learned:**

- Service providers naturally prefer to extend services to wealthy populations for cost recovery reasons, and to easy-to-reach areas where infrastructure already existed. By doing so, they selected customers for good revenue collection, seemed to avoid sunk investment costs, and associated OPEX increases. Hence binding rules must be put in place while the reform is designed.
- Transaction costs can hamper aggregation success as staff transfer generally translates into labour cost increases that can jeopardize the financial sustainability of aggregated entities.
- Risk of withdrawal (importance of entry and exit clauses).