WATER REGULATORY TRENDS TO 2030

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The concluding remarks of the 1st European Forum on Regulation for Water Services (EFRWS[1]) shed light on the possible evolution of water regulation in the next decade. In fact, 2030 is the year targeted by the United Nations to achieve the sustainable development goals, which include clean water and sanitation, as well as affordable and clean energy[2].

Like the four Forum sessions[3] highlighted, some relevant external variables are likely to affect the work of economic regulators in the future, and specifically:

- the evolution of EU water legislation, in particular the new Drinking Water Directive[4] and the new Regulation on water reuse[5];
- the new strategic path pursued by water utilities, based on circular economy, innovation and stakeholder engagement.

The pillar of the EU water legislation framework is the Water Framework Directive (WFD)[6], which promotes efficient use of water resources, among other things, by requiring that adequate price signals are guaranteed. This document prompted additional EU legislation, such as:

1. the new Drinking Water Directive, which sets specific quality targets for drinking water;
2. the Directive for Urban Waste Water Treatment and Disposal;
3. the regulation on water reuse, which introduced a risk-based approach to encourage the use of treated wastewater for irrigation purposes, aiming not only at alleviating stress on water usage, but also to increase citizens' confidence in reused water;
4. the Directive 1787/2015 of 6 October 2015, which introduced a risk-based approach in water management.

[1] The 1st EFRWS was held in Rome, on 3 December 2019, co-hosted by the Italian Regulatory Authority for Energy, Networks and Environment (www.arera.it) and by WAREG the Association of European Water Regulators (www.wareg.org).

[2] The 17 Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address global challenges, including those related to poverty, inequality, climate change, environmental degradation, peace and justice: https://www.un.org/sustainabledevelopment/sustainable-development-goals/.

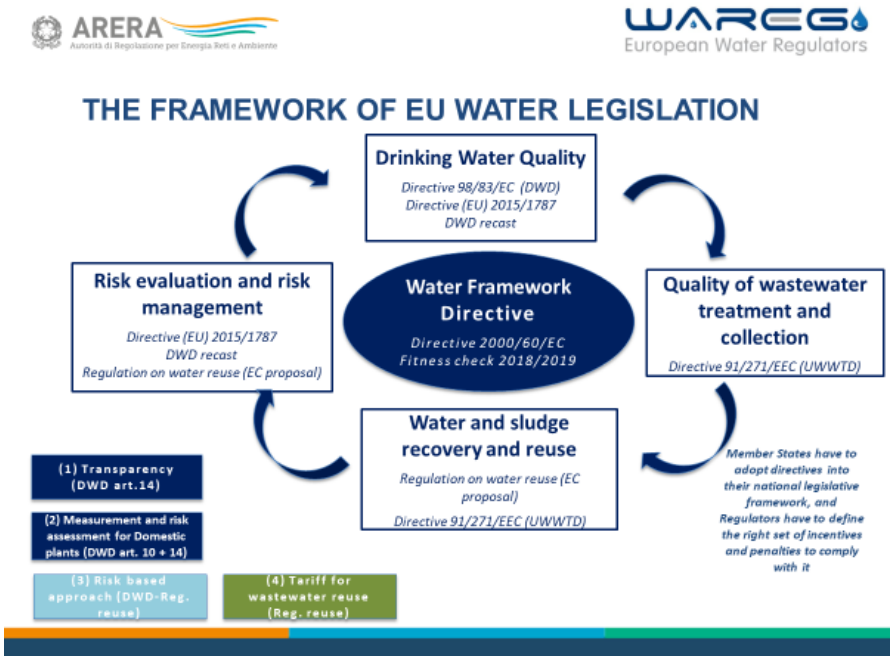
[3] The 1st EFRWS was built around the following four sessions:

1. Water governance;
2. Cost assessment modelling: promoting the efficiency of water utilities;
3. Water regulation for innovation and environmental sustainability;
4. Sustainable water tariffs.

[4] A political agreement on the EU Commission's proposal for a new EU Directive on the quality of water intended for human consumption (that will replace the former Directive 98/83/EC of 3 November 1998) was reached between the EU Parliament and the EU Council, in February 2020, and it should have been voted for final approval in spring, before the COVID-19 pandemic stopped the works of the EU Parliament, whose vote is expected by the end of this year.

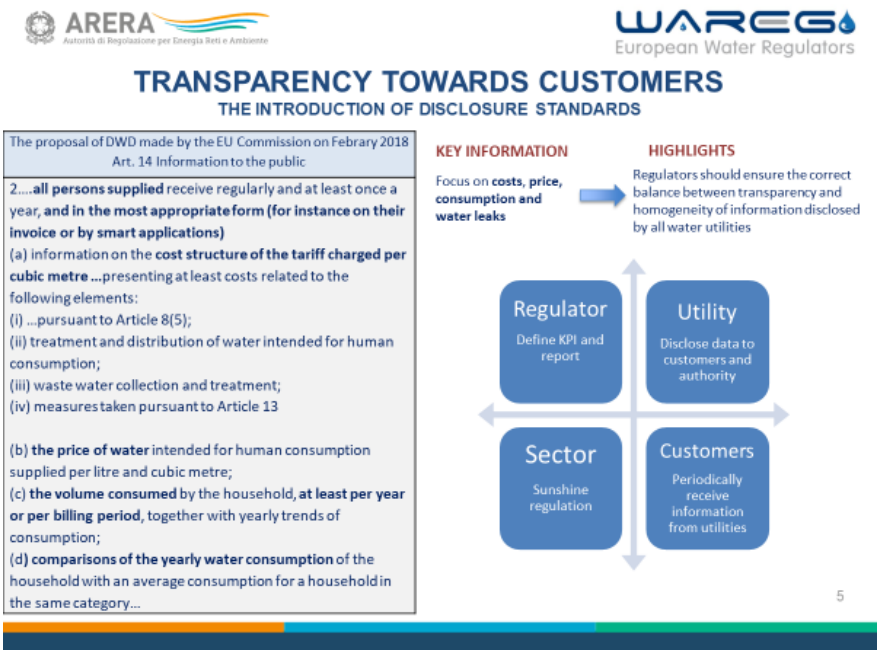
[5] The new Regulation (EU) 2020/741 of the European Parliament and of the Council of 25 May 2020 on minimum requirements for water reuse has entered into force. The new rules will apply from 26 June 2023.

[6] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.



The new Drinking Water Directive (DWD) and the new Regulation on water reuse (RWR), may bring about some important changes in the tools applied by water regulators.

Firstly, article 14 of the new DWD, which was still under negotiation between the EU Parliament and the EU Council of Ministers at the time of the Forum, required that water utilities provide transparent information to customers on the price of water per cubic meter, the cost of water and water leakages. This kind of provision, once approved, could provide an opportunity for water regulators to define a reporting scheme and to set clear computational rules on the required key performance indicators. Water utilities may have to comply with the provisions of the DWD by drafting a reporting scheme according to the specific rules set by the regulator; customers may receive clear and transparent information at least annually, and the sector may be monitored through a "name and shame approach", similarly to sunshine regulation models, where information on water services and usage is typically made public for benchmarking purposes.



Secondly, article 14 of the new DWD also requires that water utilities provide information to all households on their actual water consumption, at least once a year, as well as a comparison with their historical consumption. This provision, once approved, may have an impact on the metering process by prompting a widespread campaign to install metering devices for domestic customers. Hence, billing procedures in Europe may be no longer based on surface (by square meter), but rather on effective consumption (by cubic meter). Additionally, in perspective, metering procedures would allow water supplies to be shut off selectively in the event that customers fail to pay their bills.

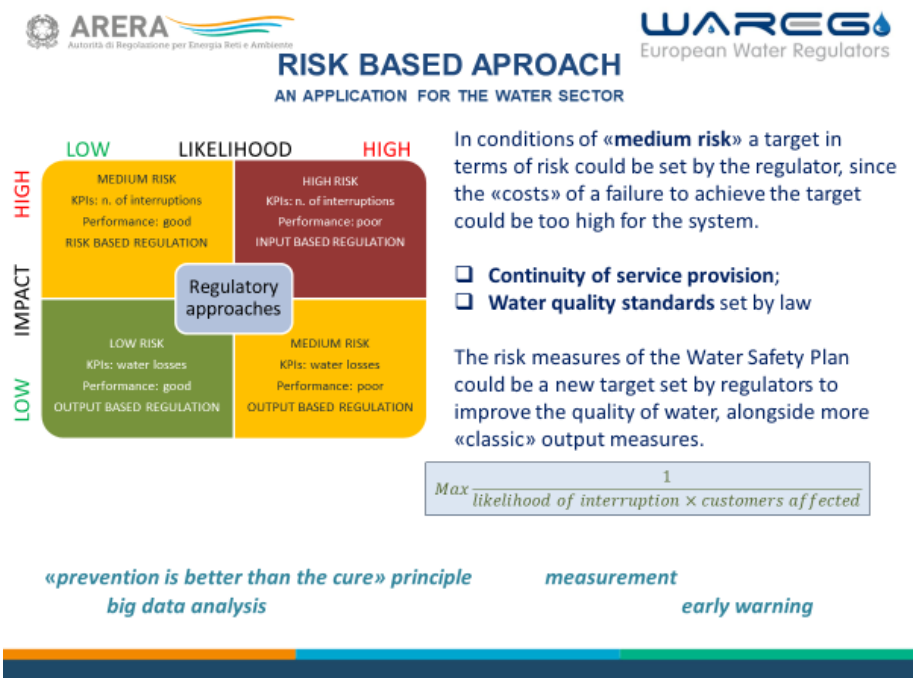
At the same time, article 10 of the new DWD introduced the task of carrying out a risk assessment of domestic plants and mains in order to mitigate the risk of contamination of water resources that flow into private plants. According to this provision, the risk assessment should be carried out in cooperation with water suppliers and, once approved, it could give water utilities the opportunity also to manage domestic plants. At the same time, there could be room for regulators to set incentives through water tariffs to renew private plants with high contamination risks, like the approach followed by the Italian Regulatory Authority for Energy, Networks and Environment to promote the renewal of private electricity grids. Finally, plant renewal could further encourage the installation of metering devices for households.

The approach followed by the DWD and by the Regulation on water reuse is based on risk mitigation, hence applying the principle "prevention is better than the cure". This type of approach, already introduced by the EU Directive 1787/2015, may change water management practices by giving more importance to prevention than to control. Consequently, the main performance measures are also likely to become focused also on risk assessment than only to output achievement.

Following this hypothesis, economic regulators may not only have to apply the "classical" input-based and output-based approaches, but also a new "risk-based" approach to create additional incentives for water utilities to reduce the risk of "negative events", such as water service interruptions and non-compliance with EU drinking water quality standards.

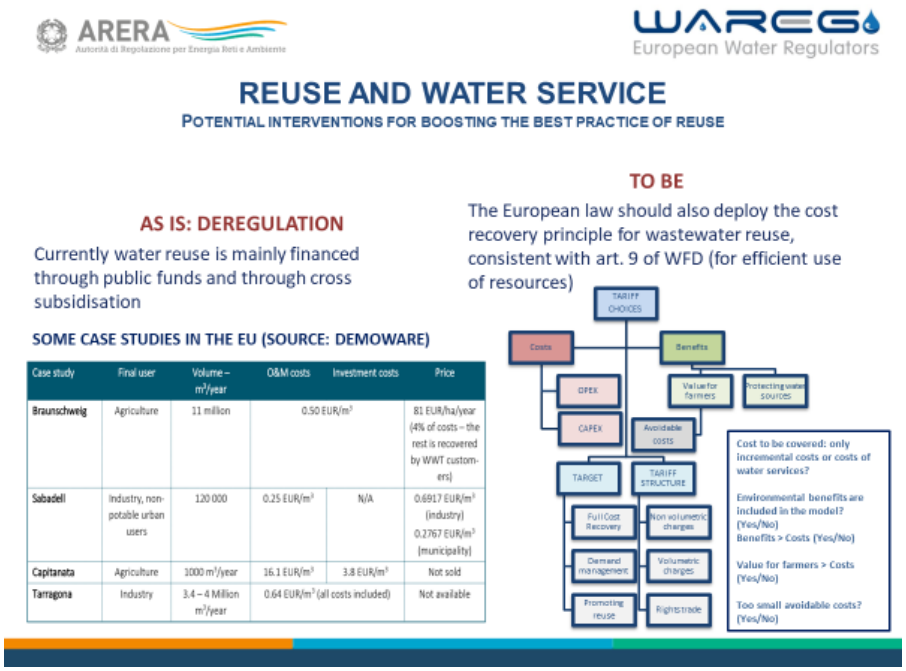
When water services are performed well, the risk of interruption could be considered "medium", with low likelihood and high negative impacts. Under these conditions a "risk-based approach" is more reliable than an output-based approach, since it is better to measure the level of risks *ex ante* than only to count the number of targets missed *ex post*.

This approach is already adopted by some regulators in Europe, such as the Italian ARERA[7], in order to improve the resilience of the electricity grid in of the event of particularly severe weather conditions, such as unforeseen heat waves or ice.



In conclusion, some major benefits could be achieved by introducing the principles of economic regulation into EU legislation, including water reuse, in terms of a better identification of those who have to pay for reclaimed water and of cost transparency, although the current EU Regulation on water reuse does not incorporate any provisions on price charging policy. In fact, wastewater reuse is a widespread practice in Europe, including by means of pilot projects, but there is a wide variety of pricing policies, with different applications of the cost-recovery principle and with different tariff approaches ranging between wholly variable tariffs, fixed tariffs and public subsidies. Having a clearer set of rules on cost recovery for reused water would limit the risks of cross subsidisation between wastewater treatment activities (typically covered by water tariffs paid directly by citizens) and water reuse activities (typically covered by taxation policies). Alternatively, farmers would have to pay a fair tariff to promote efficient use of water resources for irrigation.

[7] The Italian Regulatory Authority for Energy, Networks and Environment (www.arera.it).



Another possible external impact on water regulation may come from future developments in the business strategies of water utilities.

In fact, following the circular economy paradigm, an increasing number of water utilities have been developing new services related to water treatment, resting on energy saving and recovery of residuals from treated water.

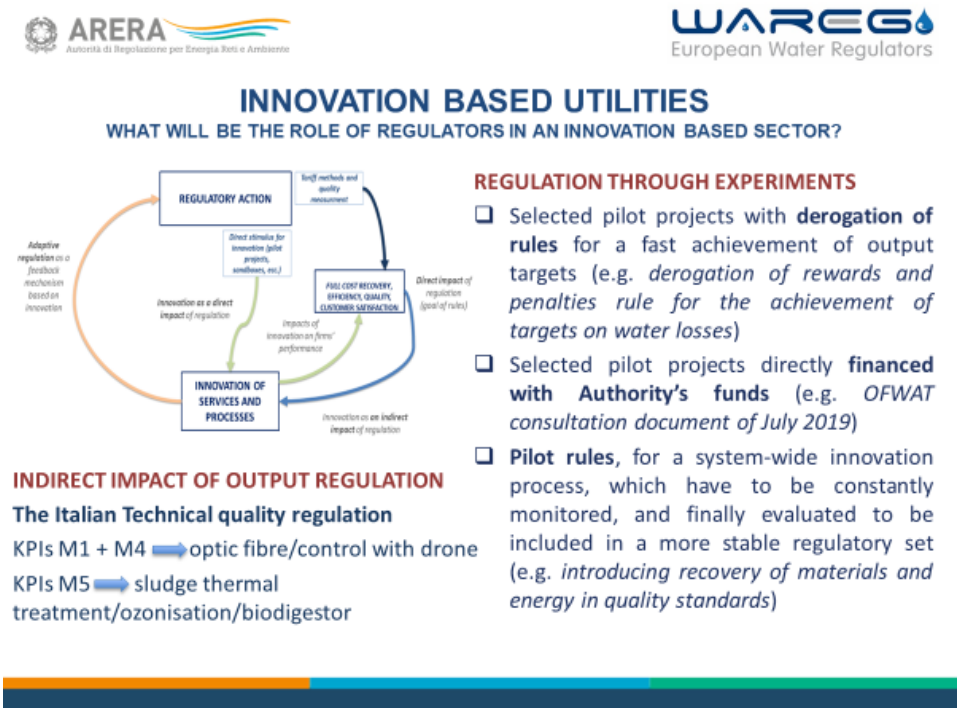
For instance, a growing number of water companies has been installing hydropower plants in water mains to produce energy; others have applied biodigestion processes to treat sludge, in order to produce biogas and biomethane or to obtain compost and fertilisers that can be used to increase efficiency in industrial processes or sold in the market. The circular economy paradigm seems to be pushing water utilities to expand their business area and to turn from a purely water-driven company to a multi-utility company, characterised by a certain degree of investment diversification. This change of "business" poses a series of challenges to water regulators:

1. the types of capital costs to be covered by tariffs: the water tariff covers not only investments directly related to water and wastewater services (the core business), but also "non-core" investments, like photovoltaic plants, hydropower plants, etc.;
2. revenue unbundling rules for different services: in order to incentivise activities related to circular economy, water utilities' regulated revenues cover all types of cost, while revenues from non-core activities are kept apart and contribute to companies' margin;
3. however, in a second stage, a progressive growth in revenues from businesses related to circular economy could induce water regulators to use such cash inflows to (at least partially) cover the costs of the regulated activity (hybrid till – single till);

Water utilities in Europe are growing fast, not only by investing in new businesses related to circular economy, but also by developing research activities and by focusing on innovation-based solutions. The EU has financed many research projects on water management and involved water utilities as research partners. Currently, water utilities are key players in many research projects, acting as innovation hubs by engaging their partners, such as consultants, researchers, suppliers, investors, and regulators. One of the most evident effects of this type of innovation strategy is a deep change in operations, which requires a continuous evolution of skills and capabilities to work in a water utility company. For instance, the need of plumbers has become need for drone pilots or high-tech experts, to search for leakages in water mains. What will be the role of regulators amidst such innovative strategies?

An economic regulator can indirectly stimulate innovation, through input-based and output-based tools. In Italy, for instance, the national independent regulator sets specific service quality targets by means of performance indicators that measure water leakages, number of interruptions of water and sanitation services, quality of water, floods caused by wastewater pipes, sludge disposed in landfill and quality of treated wastewater. Following the introduction of these performance targets, many water utilities started to improve their operations by adopting more innovative solutions.

In addition to this indirect stimulus, regulators can use direct levers to promote innovation, such as allowing companies to derogate from rules if they wish to achieve certain specific targets (i.e. allowing pilot projects and regulatory experiments), or using funds generated through tariffs and available to finance eligible projects presented by water utilities to regulators. Similar regulatory incentives are also adopted in the energy sector and were also launched by water regulators in 2019 (ex. OFWAT, consultation document for innovation, July 2019; ARERA strategic plan 2019-2022).



The strategy of water utilities is, finally, more oriented towards stakeholders, with a particular attention on customers.

Some of the possible challenges for the water sector in the near future may be:

- increasing tariffs to support investments (including those in circular economy and innovation);
- a low level of infrastructures acceptance by local communities (NIMBY syndrome);
- a growing attention to the poorest household customers;
- growing needs to balance investments with different aims and in different geographical areas;
- information asymmetries.

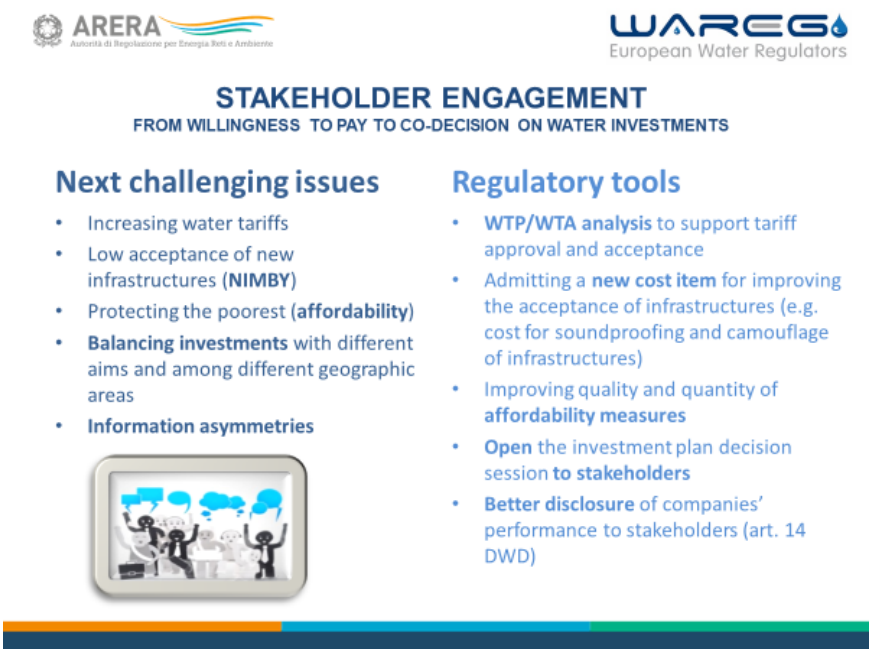
In order to support water companies in tackling these challenges, regulators should introduce some techniques to facilitate the engagement of customers in the decisions taken by water utilities.

For instance, an analysis of the "Willingness of customers to pay or to accept" may be required by water utilities before they draft their investment plans or before tariff plans are approved by regulators. In fact, while customer acceptance may lead water companies and local authorities to approve their plans, negative customer opinions may jeopardise the effective realisation of infrastructures and require the review of investment plans.

NIMBY syndrome can mostly be solved by building high quality infrastructures. Regulators need to allow the recovery of specific costs programmed by companies to improve social acceptance of water infrastructure by local communities, such as soundproofing and camouflage costs.

Additionally, regulators may promote further measures to address economic affordability of water bills through specific regulatory tools to support the poorest customers.

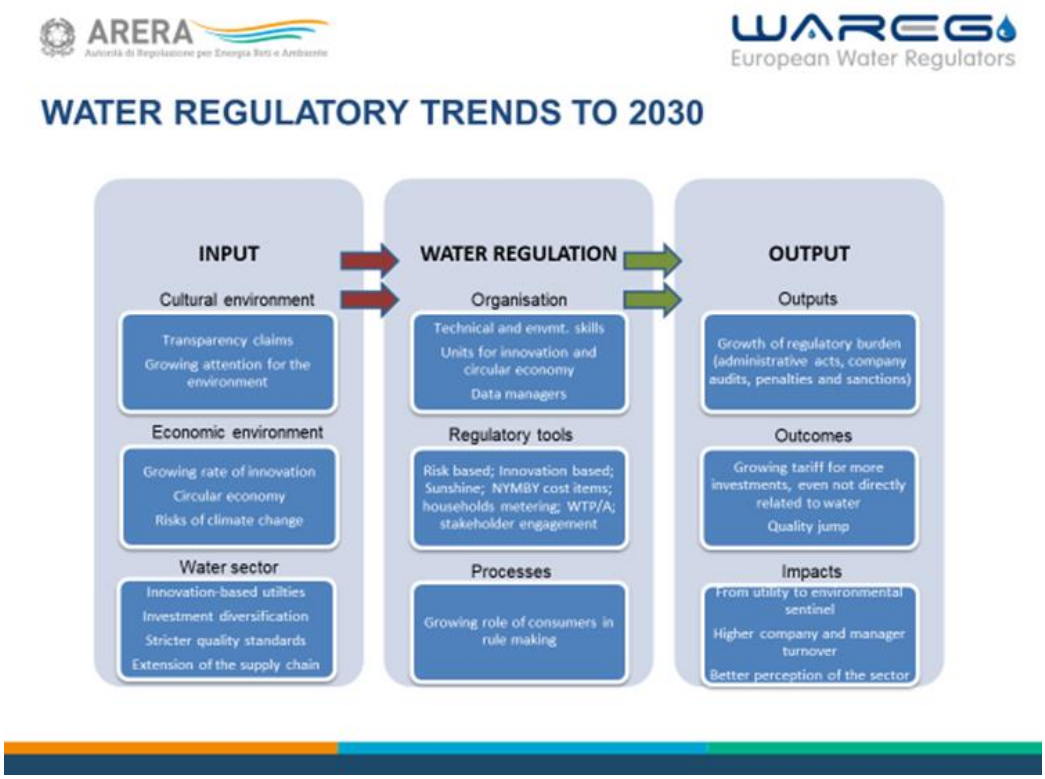
Finally, transparency can be better achieved by asking water companies to disclose more information on prices, cost per cubic meter, leakages, and investments, and to open their decision-making process to stakeholders' delegations.



In conclusion, water regulation in the next decade may be driven by some of the following input factors:

- growing transparency claims and attention for the environment from citizens;
- increasing innovation by water utilities, with a higher orientation of business strategies towards circular economy and to the risks related to climate change, which require diversification of investments;
- increasing skills and competencies of water utility managers to understand and comply with stricter quality standards required by the EU.

Through such inputs, regulators will have to change their way of working. For instance, their internal organisation will also have to include technical and environmental skills, with specific organisational units dedicated to circular economy, high tech solutions and data management. New regulatory tools will also have to be developed, such as: risk-based approach, innovation-based approach, sunshine regulation, recovery of NIMBY cost items, household metering, willingness to pay/accept, stakeholder engagement. Consultation of stakeholders in Regulators' decision-making processes will have to be more open, particularly to customers.



The outputs will change according to "water regulation", increasing administrative burdens for water regulators (i.e. more administrative acts, company audits, rewards, penalties and sanctions, etc.). In terms of outcomes, one of the main consequences in the short term could be an increase in tariffs to finance the growing rate of investments, accompanied by a boost in service quality for citizens. This new model of regulation may transform water utilities into a sort of "environmental sentinel"; therefore, the challenging standards set by regulators could increase the turnover of companies and managers in the water sector.

All in all, these changes could lead to a better perception of quality improvements in the water sector among customers and citizens.