



THE EUROPEAN FILES

December 2018 - n°55

A New Ambition for **Water** Resources in Europe





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EDITORIAL

A NEW AMBITION FOR WATER RESOURCES IN EUROPE

Global pressure is mounting around water resources. The World Economic Forum continues to rank water crises as one of the greatest threats to developing and developed states' economies—let alone their population's security. The alarm has been raised and Europe has received the message; the European Union must do its part to turn a crisis into an opportunity. This is the underlying message of a Commission that is currently reviewing its directive on drinking water as well as proposing a new regulation on water reuse. It is a message of positive nature though, one that is set against a fragile timeline. The issues are interdisciplinary in a way that they involve experts from a variety of fields coming together to propose cost-effective and sustainable solutions to the use and valuing of water resources across Europe. Not necessarily under a strict hierarchy, the European Union is committed to tackling drinking water quality, water management and infrastructure, energy generation and the water nexus, among others. The situation is as such: urban infrastructure is outdated or deteriorating, the current management tools are inefficient or even wasteful and water consumption in the energy sector, to name a critical area, undermines efforts to move to renewables. To strengthen this image, the McKinsey Global Institute estimates €10,3 trillion is required to invest solely in infrastructure to meet global water demands by 2030. The burden on European states is

significant in light of ageing infrastructure and agricultural intensive economies—the solutions will require investment at a time when interest rates are low and consumption ever-growing.

This is not all bad news. The European Union can rely on successful projects in Denmark that are unraveling the water-energy nexus in a cost-effective manner. Furthermore, the European Commission is quick to set new standards against water usage, wastage and pollution because it feels confident in delivering smarter water systems monitoring, more robust recycling facilities and more sustainable usage policies and practices. This is a movement supported by private companies and citizens alike. Whether it's advocacy for European citizens' Right to Water or a water-intensive company's own investment in reducing water consumption, the European Union is moving along towards better water resource management. As a matter of policy, it is important that these individual movements are not fragmented and endangering collective progress. For example, the European Environmental Agency continues to report and maintain the interest of higher quality water across the continent. This cannot be achieved if energy, agricultural or mining sectors pursue independent plans to manage their impact on aquifers and the water ecosystem in general. Their interests must be guided with the perspective of water for Europe and all its citizens.

Consequently, let's continue to integrate better mapping of flows, detecting systems and artificial intelligence to optimize urban waterways. We must look to implement all potential technological advances to protect a common resource because Europe can and must play its part globally. Increased transparency and sharing information is just one of the foundations for a circular economy that leakage, water reuse. Economic growth will depend on capturing these inefficiencies and turning them into opportunities. The momentum is growing, and Europe's legal framework must encourage this progress. This issue of *The European Files* presents the coordinated effort of proactive legislation, increased investment and innovation deployment across Europe as an ambition to reverse a global crisis in the making. As contributors outline their subjects, we hope the reader will find that Europe is as responsive as any in providing a holistic approach to water resources.

Editor-in-Chief
LAURENT ULMANN

Editorial Staff
RAPHAËL BENROS

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After four decades of EU water policy, where are we now?



Karmenu VELLA

*European Commissioner for Environment,
Maritime Affairs and Fisheries*

Forty years of EU water policies have produced some excellent results. We have helped deliver sufficient quantities of clean water to 500 million citizens. More waste-water is now collected and cleaned than at any period in human history, and we have made good headway in reducing risks from flooding. We can swim safely in the vast majority of lakes and the sea, and we can drink water from the tap almost wherever we are in the European Union. EU policies and legislation have driven the development of a powerful EU water industry, and as a result, half of the top 15 worldwide water companies come from Europe.

So the glass is more than half-full. We have a better understanding than ever of the quality of EU waters, and of the measures we need to take to prevent deterioration. The management of water has become more integrated, and a far greater sum of knowledge is available. The management of risks to prevent floods has also advanced.

There is noteworthy progress in river continuity, with major improvements on rivers like the Rhine and the Danube for migrating fish. Efforts to save the sturgeon in the Danube and the salmon in the Rhine – flagship species and indicators of good water status – demonstrate how combining political, legal and financial means, including EU funds, at all levels and across borders can yield far-reaching

results in terms of restoring habitats and migration routes. Countries that once lagged behind are now collecting and treating their urban waste-water, thanks in large part to EU Cohesion Funds.

The challenges are still significant. Take an area like the Mediterranean. The basin is home to 60% of the world's 'water-poor' population, and 20 million people are deprived of sustainable access to improved sources of water.

Far too much of Europe's tap water is lost or wasted, with an average leakage rate of 23% in the EU. In some Member States, the leakage rate is up to 60%. Agriculture – the basis of life, one of the cornerstones of civilisation – continues to be a huge source of pollutants, with nitrates in particular being the predominant source of groundwater pollution, causing one fifth of the ground waters in Europe to fail good status. New pollutants such as pharmaceuticals and micro plastics should receive more attention in the coming years. In some places we have too little water to serve the needs of nature and the economy. In other places there is too much, and floods threaten properties or lives.

TO help, the European Commission is revisiting the EU legislative framework for water. We recently came forward with a proposal to revise the Drinking Water Directive with standards that are probably the most protective anywhere in the world today. The proposal also includes obligations to provide access to clean water for the most vulnerable sections of the population, which should improve the situation of some 2 million people in the EU, and is an important step towards achieving Sustainable Development Goal 6.

We are also acting on water scarcity. At least 11% of EU citizens live in hotspots of water scarcity, with a particular concentration on islands and in the Mediterranean. Southern EU countries already reuse between 5 to 12 % of their waste-water effluent, but the potential for further uptake is huge. Agriculture uses more than 50% of Europe's available freshwater throughout the year, and that needs to change. This is why, in May, we came forward with a proposal on water reuse

for agricultural purposes to address water scarcity.

No Member State can manage the resource on its own, and cooperation is a vital element on the road to long-term sustainability. The Commission is now working on an assessment of the latest of River Basin Management Plans, and I am confident that they will reveal Member States working together more effectively than ever before.

In that same spirit, in April 2017, the Union for the Mediterranean Ministers agreed to work together towards a common regional water policy in the form of the Union for the Mediterranean Water Agenda, and as a result, experts from all 43 Union for the Mediterranean countries are working on the Agenda.

Another example of cooperation, that helps to ensure water quality, is the shared efforts of implementing the Land-Based Sources of Pollution Protocol of the Barcelona Convention.

The investment costs look steep, but as the OECD reminds us, we can calculate the benefits in the billions. The funds can come from private sources as well as public ones, from national sources and from the EU. Support is already there in the EU budget for a huge variety of water projects. We can draw on the Common Agricultural Policy, on Horizon 2020, the LIFE programme, regional funds, and on the InvestEU fund. The European Investment Bank is also on board.

Achieving good ecological status for all of Europe's freshwater bodies – groundwater, lakes, rivers, coastal and transitional waters – is a mammoth task. But it's the goal that guides our efforts, and the goal that we are determined to pursue.

The future of water: establishing a fair equilibrium for our citizens



Ioan DENEȘ

Minister of Waters and Forest, Roumania

Water is the most important resource which allows life to exist on this planet and which determined the development of human society. Also, water plays an essential role in many aspects of life, from energy production and ensuring food to health and recreation. Our citizens wish, on one hand, for all these needs to be satisfied and on the other hand, to live in a safety, healthy and sustainable environment.

The major challenge which lies ahead of human society concerns the diminished accessibility to water supplies due to the population growth, water resources pollution and climate changes. This challenge has also effects over the water sustained ecosystems, especially seas and oceans.

We must be aware that the future of water will determine the future of human kind on this planet and, therefore, we must develop, sooner or later, models for an efficient use and conservation of water resources. In this regard, promoting water innovation is a must, including by establishing public-private partnerships, which will lead to further research in this field.

This should be done mainly by ensuring the right to water, materialised by an increased access to water supply and sewerage, with accessible costs. This is one of the main objectives, which should be placed in the

centre of water policy at global level, in order to reach the SDG (sustainable development goal) 6 established at United Nations level. We must admit that reaching this goal requires important costs, which are not always easy to bear, especially in the rural area, and therefore alternative and innovative solutions should be promoted.

On the other hand, considering the diminished accessibility to available water resources, we must find new solutions in order to reduce the water consumption in industrial processes. Recycling and reusing waste waters, including those discharged from households, is one of the main actions that should be considered in the future for a more efficient use of water. Therefore, we consider the initiative of the European Commission concerning the establishment of minimum quality requirements for water reuse in agriculture as a first step to that effect.

Also, all water users will have to implement measures in order to reduce the water footprint. Especially the agriculture will have to bring more efficiency in its technological processes in order to significantly reduce the water consumption by implementing modern technologies such as drip irrigation or sub-irrigation that allows "more crop per drop".

Is necessary to establish a correct value for water. Currently, we put more value on other resources, such as oil and gold and we do not value enough the resource which allows life to develop on Earth. The experience showed that where an economical mechanism which takes into consideration all water uses is implemented, there is a higher concern for the water resource, both at quantitative and qualitative level.

Last but not least, we must take into consideration the education and public awareness regarding the value and fragility of water resources and also climate changes adaptation. Without a change in attitude towards the way in which we use and protect water, the chances to successfully implement a coherent policy in order to face a future water crisis, are not very high. In order to increase the acceptability of these policies, becomes necessary to promote public participation in decision making in the field of water management.

This awareness and participation are even more important when we consider the increased resilience at the effects of climate changes. In the last decade, all of us noticed an amplification in extreme meteorological and hydrological events, manifested through prolonged droughts and catastrophic floods. The known approaches towards the protection against these events are becoming obsolete by their amplitude and length, which demands finding new solutions for a better use of the environment in order to mitigate and diminish their effects. These solutions have the advantage to protect against the negative effects of climate changes and lead to biodiversity protection and conservation. Therefore, we must apply the provisions of EU Water Framework Directive, which promotes a more balanced approach concerning the protection of the water resources, when works for ensuring uses or protecting the population are under way.

The future of water through establishing an adequate equilibrium for the citizens represents a real challenge for the Planet equilibrium itself. That is the reason why the efficient use of the water resources, the conservation and the water protection, all together with the protection of the aquatic ecosystems are still the most efficient measures for medium-term. All these, together with the support for water management innovation with strong funding for the research in this field, will lead to a real equilibrium.

Further delay in adapting to climate change threatens millions



Ban KI-MOON

UN Secretary-General from 2007 – 2016, Founder and Co-Chair The Ban Ki-moon Centre for Global Citizens is an independent nonprofit organization



Cora VAN NIEUWENHUIZEN

Dutch Ministry of Infrastructure and Water Management

A new international commission is sounding the alarm bell that countries need to act now and adapt to the harsh realities of climate change. This commission was launched on October 16 by the Dutch minister of Water Management Cora van Nieuwenhuizen.

The Global Commission on Adaptation, convened by The Netherlands, Bangladesh, China, the United Kingdom, Senegal and several others, is raising the visibility of climate

adaptation and focusing on developing solutions and accelerating actions for nations that are in the throes of grappling with climate change.

The need for a global commission that pushes countries to take immediate action is abundantly clear after a spate of weather and climate extremes.

This year alone, a heatwave wracked Europe, with The Netherlands hit by record-breaking

heat in July at the same time it recorded its lowest rainfall level since 1976. The country experienced 13 days in July with temperatures above 35 degrees Celsius.

Also this summer, California and Indonesia battled raging wildfires, extraordinary flooding hit Japan and India and massive hurricanes brought death and destruction. Millions of people in sub-Saharan Africa are facing food shortages after two years of drought.

It's not just lives that are being lost. Weather-related disasters are taking a toll on economies. In a report this year, the World Economic Forum ranked extreme weather events as the greatest risk for economic prosperity. In the United States, for example, the cumulative cost of annual disasters exceeded \$300 billion in 2017.

The new IPCC report that came out on October 8 this year, shows that the 1.5 degree Celsius ambition of the Paris Climate Agreement is still far away. Even if countries meet the Paris goal, the effects of global warming will continue to manifest and intensify. As the seas rise, the planet will face not just extreme weather, but the loss vast amounts of the world's coastline, changing crop patterns, disrupted ecosystems and the spread of tropical diseases into temperate climates.

The fact is, this is Earth's new normal and few nations are ready for it. Cities, suburbs and



farms lack the climate-resilient infrastructure needed to manage the magnitude of storms, heatwaves and flooding produced by global warming. Governments and industry have yet to secure vital inter-continental supply chains vulnerable to weather events. And the world's markets are unprepared for the vagaries of unpredictable crop yields, unprecedented insurance claims and the new risk assessments required by climate change.

Just as problematic, nations have not planned for the immense international aid that will be needed when drought and starvation overwhelm the world's hottest (and often poorest) countries. And few have acknowledged the likelihood of mass migration and environmental refugees forced to flee unendurable conditions.

It's a daunting picture. The world must – and without delay – adapt.

Some countries are taking the lead. Chief among them is The Netherlands. Sitting below sea-level in some areas, the Dutch have always, by necessity, managed encroaching. In addition to the phenomenal engineering of the Maeslantkering, a vast moveable sea wall, the country has built a system of pumping stations and sluices that can move flood water into parks and recreation zones designed to do double-duty as reservoirs.

The lowest lying city in the country, Rotterdam, has several of these so-called water plazas as well as a popular park incorporated into a massive dike. The city has plans for floating houses, a floating park, and one local entrepreneur hopes to build a floating dairy. Government leaders from around the globe are visiting these sites, hoping to learn how they, too, can avert the danger and disruption of rising rivers and seas.

The preparedness and ingenuity of the Dutch are the exception, not the rule and are worth learning from. Most of the world's governments, businesses and communities are still woefully under-prepared. Few realize that the decisions made today will affect the security of food, water and energy in the coming decades – especially for the world's poorest and most vulnerable.

The good news is that via the commission, experts are coming together to explain why accelerated action and a focus on solutions is essential and to identify exactly how governments, companies and citizens can implement solutions to ensure their communities are prepared for new climate patterns. As the chair and initiating commissioner, we will be joined by Gates Foundation co-chair

Bill Gates and World Bank CEO Kristalina Georgieva to prod world leaders to take immediate action.

This Commission will champion the idea that preparing for climate risks cannot be done by just one agency or ministry but rather requires transforming how societies invest and plan. It will demonstrate through rigorous analysis that the costs of adapting are less than the costs of business as usual -- and the benefits many times larger. It will show that helping the poorest and most vulnerable nations adapt is not only the right thing to do, it is the smart thing to do.

The time has passed for more talk. The world must heed the call to accelerate adaptation action. Further delay in adapting on a grand scale is a direct threat to the lives of millions, if not hundreds of millions.

Ban Ki-moon is the eighth Secretary-General of the United Nations and, with Bill Gates and Kristalina Georgieva, is overseeing the Global Commission on Adaptation. Cora Van Nieuwenhuizen is the Minister of Water and Infrastructure for the Government of the Netherlands and the initiating commissioner of the Global Commission on Adaptation.



Guaranteeing good quality drinking water, accessible and economic



Sergio COSTA

Italian Minister of the Environment

I come from Naples, a town with high reputation worldwide for the quality of the coffee served in our caf  s. Why? One of the ingredients, water, is of a very good quality. The same coffee grains used to prepare coffee in my office in Rome with the same coffemaker, doesn't taste the same.

Sometimes we take things for granted, we should never commit this mistake when we talk about water, water is life, we should protect it with our teeth.

UN General Assembly resolution dating 28 July 2010 (GA/ 10967) declares: «Un declares the right to water a human universal and fundamental right. Drinkable water and for sanitation, a part from being a right of every human being, concerns dignity of people, is integral to the realization of all human rights» and recommends States to take initiatives to secure everybody "good quality drinking water, accessible and economic". Common goods as water, land, energy and essential public services belong to communities and can't be in any way taken away.

In Italy there are hundreds of towns and therefore thousands of citizens that every summer – but nowadays not only in summer – are subject to water shortages. There are towns where water doesn't arrive for months, due to climate change and water leaks that in some cases amount to 60% of water running

into the pipes. We have terribly high scores in pipe leaks, this has to be addressed because water is precious.

Our vision is to build a new integrated water management system, developing the water pipes network, cleaning up the pipes from asbestos and lead, reducing the leaks, in order to guarantee safe and good water for all the municipalities, 365 days a year, 24 hours a day.

Privatising the sector has proved a bad idea: Italy has voted on a referendum in 2011 and the outcome is that water can't be a business, is a resource that has to be efficiently and publicly managed.

We have to be very careful on interventions on water resources that can reduce water on a quality or quantity level such as with dams, fracking, drilling or watergrabbing. We aim to involve citizens as much as possible in choices that are so relevant to them, because water is a universal human right. In a law that will go soon under Parliament discussion the amount of water that has to be guaranteed for every citizen is calculated in 50 liters per day.

I am particularly sensitive to water issue and one of my first UE Minister's Council in Bruxelles, at the end of June, we discussed this topic, following an initiative brought

forward by millions of European citizens called "Right2Water".

My personal commitment to eliminate single use plastic goes also in the direction of providing good water for human consumption eliminating the need to buy useless plastic bottles. Italy has a record, being the first country in Europe and the second worldwide for bottled water consumption, with an average of 206 litres per person.

This record has really any justification, People tend to consider bottled water safer but it's not. We generally have in our country good drinking water and there is any special concern to drive bottled water concern.

With "plastic free" initiative I banned plastic bottles (and other single use plastic items) from ministry of Environment office and many other ministers, municipalities, universities and companies are taking the same initiative.

Promoting tap water consumption is also a way to show the value of this common good, that is renewable but has to be managed wisely, especially in time of climate changes and droughts.



The new water policy: preparing for a better water future (the inevitable!)



Teresa RIBERA

Minister for the Ecological Transition, Spain

Climate change is one of the biggest challenges of the XXI century. Water is the main way through which climate change will impact human welfare: the changes in temperature drive severe modifications in rainfall, making water resources available for human needs, for food, energy, other socio economic activities and the environment, even more unpredictable and scarce.

In Spain the climate change scenarios for water show us that we are facing a historical turning point. Presuming that future rain and runoff will follow the same patterns observed in the past, and that the best option to face future shortages is to use what has worked well in the past, is another way of climate change denial that can lead us to a unprecedented water crisis.

But we can get prepared if we act responsibly and take the right measures. The new water policy in Spain means precisely a water policy of adaptation to climate change.

A climate change aware water policy that anticipates the likely impacts of climate on water resources and on agriculture, fisheries, cities, and people and takes action to make these activities strong and robust so as to increase the resilience of society, people and ecosystems.

New problems need new responses; this is why we are moving towards a new water policy that prepares for the contingencies of progressive changes. Contingency plans have been used for extreme events in Spain (droughts and floods planning and management). But these contingencies are often defined as variations from “normality” and the assumption of what is normal may be increasingly untenable. We are moving into the realm of management under greater uncertainty.

It means a radical change in the criteria and objectives of water policy. It means a transition towards a strategic water policy aiming at reducing our exposition and vulnerability to climate change. Building such security requires getting prepared by avoiding new pressures over our water resources (both in terms of quantity and quality degradation).

It requires changing our water supply system making it better integrated and better connected with a robust combination of water sources including surface and ground water, desalination and waste water regeneration and reuse. Recognizing how each of these sources with their specific differential qualities may contribute to the overall goal of enhancing water security locally. Water efficiency gains in all water uses also acquire a new important dimension: the highest the output per drop and the lower the intensity of water use per unit of value added, allows maintaining the potential for protecting our welfare by “dewatering” our economy.

In the past few weeks we had several major flooding events in Spain with more than 15 people dying during a historical series of storms. We are now more likely to see the occurrence of this events that we were a few years ago. Lowering our exposition through land use planning, by investing in sustainable drainage and re-naturalization of cities and water courses need to be part of the hydrological transition if we are to be better prepared for higher occurrence of rapid and extreme floods.

The Water Framework Directive is a central piece in the adaptation to climate change in Spain. Addressing the reduction of the pressures on our environment and the improvement of the status of our water bodies

makes us more resilient and better prepared for adapting to the impacts of climate change.

We are well aware that leaving adaptation to climate change to individual and spontaneous responses leads to uncoordinated and disfunctional responses that may only mitigate current risks at the expense of aggravating future ones. The overexploitation of groundwater is just one convincing example along with the deterioration of the water environment, which increases risks and future vulnerability.

Addressing this new water policy does not mean that we do not need to implement drastic measures here and now. What we do need to do is to build flexibility and invest in enlarging the set of options that can be considered as the situation changes, getting ready for the future and preparing on the when and how to implement the different measures. This certainly needs to be done in the context of a “social agreement for water”.

This new policy needs also to build a new model of water governance, a new model of collaborative thinking, managing and planning for permanent change under uncertainty for which our institutions may be ill prepared. The steps in the right direction towards this new collaborative water governance are supported by the common implementation strategy of the Water Framework Directive, which aims to increase the coherence and coordination of sectoral departments and policies and engaging actors whose decisions have impact on water.

We have a new ambition for Water Resources in Europe!

Malta's New Water Programme – water reuse for sustainable water management



Joe MIZZI

Maltese Minister for Energy and Water

The Maltese islands are poorly endowed with natural water resources, an expected consequence of their semi-arid Mediterranean climate. Combined with the islands' population density which is by far the highest in the European Union, these conditions lead to a very low per capita availability of natural water resources – well below the volume considered by the United Nations as being the threshold for absolute water scarcity.

Water availability has therefore been a limiting factor for the islands' development throughout their history. However challenges, also create opportunities – and these prevailing water scarcity conditions have enabled the islands to increasingly explore the development of non-conventional water resources to meet the national water demand; starting with rainwater harvesting, sea-water desalination and more recently water reuse.

The Minister for Energy and Water Management, Joe Mizzi explained that Malta's 2nd River Basin Management Plan (2nd RBMP), adopted by the Government of Malta in 2016 establishes the implementation framework for water reuse in the Maltese islands. Water reuse is therefore considered within a comprehensive water management framework which seeks to address the national water demand through the conjunctive use of water demand management and water supply augmentation measures. Malta's water reuse programme is

central to the 2nd RBMP, and one of the key measures for ensuring the achievement of its main objective – that of good quantitative status in all groundwater bodies by 2021.

The implementation of Malta's water reuse programme – named New Water Project – has seen the recent commissioning of three new polishing plants developed in series to the islands' Urban Waste Water Treatment Plants which enable the production of 7 million m³ (production capacity) of high quality treated water for use by the agricultural (irrigation), landscaping and industrial sectors. A high-end treatment process involving three treatment barriers – ultrafiltration, reverse osmosis and advanced oxidation has been selected to ensure the production of a high-quality product which is safe to use under all the intended applications. The project is managed by the Water Services Corporation (WSC), Malta's national water utility which provides drinking water supply and wastewater treatment services.

The New Water Project has also seen the development by the WSC of a dedicated distribution network to enable the supply of treated waters close to the point of use. Further, extensions to the distribution network are currently being implemented which will see the network reach up to 13.5% of Malta's agricultural areas. Access to the distribution point is granted to approved users through the use of electronic key-cards which also enable the monitoring of the consumption of each and every user.

The development of the New Water polishing plants and dedicated distribution facilities has been supported by the European Union through the Cohesion Fund and the European Agricultural Fund for Rural Development.

A three-tiered rising block tariff mechanism has been adopted by Government for New Water, with the aim of ensuring its efficient use. The first band of consumption is charged at rates lower than the operational costs for groundwater abstraction, and hence introduces a positive discrimination to support the shift from groundwater to water reuse. The second and third tariff bands set higher volumetric rates with the aim of disincentivising wasteful

use, and ensuring that higher volumetric users contribute more to the achievement of cost-recovery levels. Initially, the first tariff band has been waived for users from the agricultural sector with the aim of further supporting the uptake of water reuse by this sector, and hence reducing its dependency on natural groundwater resources.

The introduction of New Water was also supported by a strong stakeholder engagement programme where the benefits of water reuse were explained to both primary and secondary users. The high-quality product produced by Malta's New Water plants ensures safety for both the direct users of the water (farmers and employees) as well as the indirect users (the consumers of the products developed through the use of New Water). The success of this stakeholder engagement programme can be measured by the continuously increasing uptake of New Water, and hence has contributed significantly to address stakeholder and apprehensions with regards to water reuse.

Further development to the New Water programme is its application for Managed Aquifer Recharge (MAR). MAR will enable the sub-surface storage of any treated waters produced in excess of demand, particularly during the winter season when demand for treated waters is lower due to the availability of rainfall. The application of MAR will support the reinstatement of the groundwater aquifer systems, and increase flexibility during peak demand periods by providing better quality groundwater which can supplement water demand.

Malta's water reuse programme has thus been developed within a comprehensive water management framework which addresses the achievement of the EU Water Framework Directive's environmental objectives. Water reuse will enable Malta's water resource base to be broadened, and thus ensure that the national water demand can be met with an increased variety of water resources, hence reducing the national dependency on natural groundwater resources. More so, water reuse will increase security of supply to key water use sectors such as agriculture, thus facilitating investments for the further sustainable development of the sector, and also support the sector in lowering its environmental footprint.

From Waste Water to Resource Water



Jakob ELLEMANN-JENSEN

Minister of Environment and Food, Denmark

When the EU Urban Waste Water Directive is up for revision as a result of the ongoing fitness check we must include insights from working with circular economy. We need to move away from solely thinking of waste water as a problem and instead seeing it as a resource.

Alongside the National Danish Water Action Plans, the Urban Waste Water Directive has been a success. Since the introduction of the directive, the Danish environment has been safeguarded from 685 million m³ of untreated waste water per year.

Consequently, we have substantially reduced our emissions of nitrogen, phosphorus and organic materials from cities since the Urban Waste Water Directive was adopted in 1991.

The technological development has resulted in waste water treatment plants (WWTP) able to treat waste water cost-efficiently and more effectively than currently demanded by the Urban Waste Water Directive.

Towards a resource-efficient waste water sector

Basic waste water treatment is already in place in Denmark as well as in many other EU member states. We, the EU member states, must therefore challenge ourselves to improve by developing a new and modern Urban Waste Water Directive.

We should not only focus on treatment efficiency but also seek to utilize the many

resources that can be found in waste water such as energy and phosphorus. We have to ensure that the Urban Waste Water Directive supports the UN Sustainable Development Goals, the Energy Union, and the circular economy – now and in the future.

4 percent of the consumption of electricity in the world is used on water and waste water supply. In the EU, that number is 3 percent according to the IEA. In municipalities, the energy consumption of the water sector is even more prolific. 25-50 percent of the municipal consumption of electricity is spent on the water sector (waste water and drinking water). The water sector is thus a huge energy consumer.

When it comes to energy production from treatment of waste water, Denmark is a leading country. In total, the Danish waste water sector use less than 2 percent of the total Danish electricity consumption. Today, the Danish waste water treatment plants produce 67 percent of their own energy consumption. Several plants produce more energy than they consume. The most innovative water companies produce so much energy that it could cover the energy consumption of the whole water sector if the technology were used on all facilities. The energy produced is even renewable and storable.

The Danish utilities are also at work regarding phosphorus. In Denmark, more than 70 percent of the phosphorus found in waste water is reused as fertilizer. Phosphorus is a scarce resource, and desperately needed for agriculture worldwide. An increasing world population creates a larger demand for phosphorus.

In Denmark, we aim for even higher phosphorus reuse. According to the National Resource Strategy, we expect 80 percent of the phosphorus in waste water to be reused.

In the area of energy, a national benchmarking of the energy performance of both drinking water companies and waste water companies has been introduced. In addition to this, the Danish Ministry of Environment and Food is collaborating with the whole sector – including utilities, advisors and producers of technology – in creating a Water Vision. In realizing a common water vision one of the goals is to develop a single plan for sector innovation that will lead to effective and cost-conscious solutions for Danish water companies to become producers of energy and

CO₂-neutral. All this in a way that positively contributes to a reduction in both the price of water and waste water and of the emission of greenhouse gasses.

Regarding CO₂, we have allocated funding in order for the utilities to experiment with measurement and control of greenhouse gasses. Emissions of nitrous oxide constitute a particular challenge. In addition, Denmark will focus on environmentally hazardous substances and storm water overflows.

Design of a new waste water directive

It might be slightly too ambitious to introduce actual demands for resource utilization in a new directive. In my opinion, a more appropriate first step would be to start learning from one another at EU level in order to ensure implementation of best practice across member states.

In order to enhance resource utilization through shared knowledge, Denmark suggests that the new Urban Waste Water Directive urges for European waste water treatment plants to calculate and benchmark energy consumption, energy production, and the reuse of phosphorus. In that way, the utilities will be able to learn from each other across borders. Subsequently, politicians will be able to put forth relevant demands on a national level.

At the next revision we consider taking another step and put forth specific demands regarding the level of reuse of waste water resources. We might even have to focus on new areas for utilization of the resources in waste water. In Denmark, utilities and producers of technology work towards even better resource utilization, for example utilizing the carbon found in waste water in the production of plastic and proteins.

Obviously we must be sure that every member state lives up to the current directive, but the member states that already fulfill the demands of the directive must also dare to take the next step.

As I see it, transforming waste water treatment plants into resource factories is a win-win situation. Thereby we enhance the economic prospects of waste water treatment in the member states that have a hard time living up to the demands in the current directive.

A call for stronger cooperation in order to protect European waters



Daniel CALLEJA CRESPO

Director-General, DG Environment,
European Commission

As the saying goes, “Water is Life”. Too little or too much water, or water of bad quality can not only imperil human lives and affect our health, it can also have negative effect nature and the services it provides and inflict significant damage on economic activity. The Special Report on Global Warming published by the International Panel on Climate Change (IPCC) in October 2018 alerts us to the grave implications of climate change and related impacts and risks. One of the key messages in the report is that we already are seeing the consequences of global warming through more extreme weather and acceleration in the rate of sea level rise, among other changes. Droughts and floods resulting from climate change compound existing challenges in Europe linked to unsustainable water management. For all these reasons, an integrated approach to water management in Europe is needed now more than ever.

This July, the European Environment Agency presented its latest health check of Europe’s waters. The report shows that essential investments are being made to protect water and that knowledge, management and quality of water across Europe has improved. The trend of continuous water quality decline in Europe has been reversed despite the fact that Europe is a densely populated continent and in spite of hundreds of years of intensive economic development, which has affected the vast majority of its water bodies. However, the report also shows that we cannot rest on

our laurels, since less than half of Europe’s waters have achieved the quality standards required under the European legislation. This is especially the case for surface waters: around 40% of our rivers and lakes are still not in ‘Good Ecological Status’ as required by the Water Framework Directive – a situation that is far from ideal.

In the coming months the European Commission will publish its assessment of the state of implementation of the Water Framework Directive and of the Floods Directive. It will allow Member States to make their next River Basin Management Plans and Flood Risk Management Plans (for the period 2021-2027) more effective and will allow the Commission to ensure that Member States stay focused on the achievement of the objectives of the legislation during this period.

The assessment is still ongoing, but some findings are already emerging from the analysis. It is clear that considerable efforts are required to overcome the remaining challenges – pollution from agriculture, the impact from hydromorphological changes, from chemicals and abstraction, to name some of the key areas. There are also new, emerging challenges to be addressed, including pollution from pharmaceuticals that are increasingly finding their way into our freshwater and seas, and longer periods of drought, as many parts of Europe experienced this summer.

As part of its efforts to keep EU Water law up-to-date, the Commission has tabled a proposal for a revised Drinking Water Directive and a new Regulation on the reuse of waste water. We are also committed to propose a strategic approach to pharmaceuticals in the environment.

We have also launched an evaluation of the Urban Waste Water Treatment Directive and a combined evaluation (“Fitness Check”) of the Water Framework Directive (WFD), the Environmental Quality Standards Directive, the Groundwater Directive and the Floods Directive. The overall purpose of this process is to assess whether the legislation is still fit for purpose and has delivered the desired changes to European business and citizens. The evaluation will help the Commission decide on next steps for water law in Europe.

The open consultation for the Fitness Check was launched the 17 September 2018. Contributions from stakeholders and Member States across Europe, along with specific expertise and the conclusions from the assessment of the River Basin Management Plans and the Flood Risk Management Plans, will all weigh into the conclusions of the Fitness Check, expected in late 2019.

Legislation cannot stand alone and we should acknowledge the big challenges Member States and many stakeholders face. The 5th European Water Conference, which was organised in cooperation with the Austrian Presidency of the Council of the European Union in Vienna in September 2018, generated some important messages for the debate on the current and future EU water policy. Notable among them is the message that we need to continue working together and step up our efforts to restore, maintain and improve the state of our waters, which is the main objective of EU water law. This requires reinforcing action across Member States to implement the legislation. It also requires increasing investments in water infrastructure and water-related measures by exploring all possible funding sources, including from public, private and EU sources.

The EU’s waters require continued attention at all levels, and the European Commission will continue to do its part to keep this issue high on the agenda.

Raising the standard for drinking water for all European citizens



Michel DANTIN

MEP (EPP Group), Rapporteur "Drinking Water Directive" (Recast)

"Access to quality drinking water remains an important issue for European citizens, as it affects their daily lives, health and activities. As Mayor of a city of more than 60,000 inhabitants and President of a river basin district within the meaning of the Water Framework Directive in France for 10 years, I have been involved in water policy at local and regional level for many years. This report provides an opportunity to build on this field experience as well as a practical perspective on the reform of the Drinking Water Directive."

The water sector in Europe

Supplying quality water to citizens throughout the continent has long been a priority of the European Union. The Drinking Water Directive is one of the first texts in Europe's body of legislation on the water sector. Introduced in the mid-1970s, this piece of legislation now ensures a supply of quality water in more than 98% of cases within the Union. At the international level, Europe is a leader. Our water companies are among the most efficient in the world.

The main challenges in European water policy

Climate change will have a dire impact on the availability and quality of water resources. We must anticipate it through improved water

management as far upstream as possible in the production chain. Furthermore, significant efforts have been made in recent decades to alleviate the pressure of our activities on water resources, particularly in the agricultural and industrial sectors. However, in view of the challenges posed by climate change and population growth, we can still reduce our water consumption and better prevent sources of pollution, especially emerging pollutants.

The stakes of revising the revision of the Drinking Water Directive

Although drinking water meets the quality criteria within the European Union, this piece of legislation has been in force for twenty years and has not undergone any major recast since then. The purpose of this revision is therefore to align drinking water quality standards with the most up-to-date scientific data and to adapt the legislative framework so that it can better respond to emerging challenges, such as climate change and the transition to a circular economy.

Taking stock of the negotiations in the European Parliament

The European Parliament, through its representatives elected by direct universal suffrage, ensures that the expectations of European citizens and the requests arising from the territories are heard. Numerous initiatives throughout Europe stress that drinking water remains a key issue for Europeans, as exemplified by the European Citizens' Initiative "Right 2 Water". The European Parliament, during the vote in plenary in October, voted in favour of a piece of legislation that ensures access to water within the European Union.

Inter-institutional negotiations

The European Commission identifies four areas for development: the list of parameters, the use of a risk-based approach, increased transparency and consumer access to information on the water they use, and materials in contact with water. These are key issues where there is some room for improving the quality of drinking water in the Union. I support the Commission's proposal to streamline the risk-based approach, upon recommendation of the World Health Organisation (WHO). This is an

important step towards adopting better water resource management in order to ward off the risk of pollution as early as possible, thereby avoiding or reducing the treatment of water intended for human consumption at the end of the chain. However, I believe that, in some respects, this proposal lacks practicality in its implementation. In addition, the sharing of responsibility between various stakeholders should be clarified, in particular between local and national authorities and water suppliers.

Prospects for inter-institutional negotiations

Access to quality and affordable water or the provision of understandable and relevant information to consumers are matters of particular significance in the context of this reform, which have generated much debate among parliamentarians. The future of the revision of the Drinking Water Directive is now in the hands of the Austrian Council Presidency, which is currently preparing the general position of the Member States.

Drinking water: ensuring the highest quality while reducing red tape



Müller ULRIKE

MEP (ALDE Group), Shadow Rapporteur
"Drinking Water Directive" (Recast)

The right to access essential services of good quality, including water, is one of the principles of the European Pillar of Social Rights, which was unanimously endorsed by Heads of State or Government at the Gothenburg Summit in 2017. Most people living in the EU enjoy good access to high quality drinking water. An assessment by the European Commission of data from 15 Member States in 2015 showed a compliance with microbiological and chemical parameters of more than 99 %. We often tend to consider this as a given. However, the opposite is true. Not everyone everywhere in Europe enjoys the same good access to drinking water. In addition, despite the overall high level of compliance in most member states there are still gaps in providing the same high quality of tap water all across Europe. Finally, as it faces new challenges, we cannot expect that this level of quality can be easily maintained or even improved without our commitment.

Therefore, it was an important sign that the first-ever successful European Citizens' Initiative, „Right2Water“ has raised awareness and put the Drinking Water Directive (DWD) back on the agenda. The European Commission took the first step into the right direction in reacting to this Initiative by starting a review of the current 20-years old Directive. After the Parliament's plenary vote in October, it is now up for interinstitutional negotiations.

The overall aim of the update of the Directive is not only to facilitate access to drinking water. With consumer protection being the very core of the Directive, the main target is to maintain and further improve water quality and consumer information in Europe in the long run. Therefore, one of the main elements of the proposal consists of updating the water quality standards. To this end, the new legislation seeks to update the 20 years old list of threshold values for microbiological and chemical parameters based on the most recent scientific recommendations by the World Health Organization (WHO).

Additionally, the European Parliament calls for the establishment of a "watch list" to monitor the presence of substances of emerging concern in water bodies, if there is not yet sufficient knowledge about health implications and the substances' actual presence in water in order to determine the need and the level of threshold values. This proposed watch list currently focusses on microplastics, which are together with drug residues those emerging concerns that the European public is most aware of. I believe that this approach is a huge step forward to collect more data, which will allow us to build future measures on a solid scientific foundation. Moreover, the recast aims at harmonising the standards for products in contact with drinking water, such as house piping, water taps and showerheads.

Furthermore, the updated rules aim at introducing a risk-based approach when it comes to the monitoring of water, since this approach will allow adapting the monitoring of hazardous substances in drinking water to the actual local situation. This will not only lead to cost efficiencies. More importantly, this will better anchor the "polluter pays" principle as it focusses on identifying and preventing sources of pollution of drinking water bodies, thereby reducing the need for drinking water treatment in the first place. Finally, the mandatory introduction of the risk-based approach will help to improve the compliance with quality requirements across Europe.

Another important part of the revision is improving and streamlining the information provided to consumers. Consumers should be better informed about the excellent quality of

tap water in Europe. Boosting confidence in our tap water will ultimately give consumers more choice in drinking water. Where consumers decide to consume more tap water, this will also lead to energy efficiency gains. Providing 3 litres of bottled drinking water consumes as much energy as for providing 50.000 litres of tap water.

While all these plans are good steps forward in order to maintain the good quality of our water, to strengthen consumers' trust, and to help the environment, it is important to remember that the Directive has to be practical as well. Given the different forms of organisation of water supply in European countries, legislators have to consider that carefully. That means we have to make sure that local public authorities and smaller water suppliers are not burdened with high additional costs and/or excessive administrative burdens, such as excessive sampling requirements or additional responsibilities outside their respective competencies. Ensuring the long-term good quality of our water in the regions will only be successful if we ensure that proven local approaches can be carried on.

Europe is in the forefront when it comes to the quality of drinking water. However, we have to make it futureproof by tackling new emerging challenges. European legislators now must push for achieving this goal. In the end, access to high-quality water means nothing less than quality of life. It has to be ensured throughout Europe – not only for us but also for the future generations to come.

Governing water resources for secure futures



Håkan TROPP (PHD)

Head of OECD Water Governance Programme, Cities, Urban Policies, and Sustainable Development Division, Centre for Entrepreneurship, SMEs, Regions and Cities

The improved governance of water is critical to sustainable development because of its crucial role for economic growth, social inclusion, and environmental sustainability. An increasing number of countries, basins and cities in developed, emerging and developing economies alike, are facing growing challenges to manage too little, too much and too polluted waters, and to reach or sustain universal coverage of drinking water and sanitation services.

The effects of mega-drivers, such as climate change, economic growth, urbanization and growing populations, among others, continue to drive water resources demand, availability, and quality, now and in the future. Accessible and high quality freshwater is a limited and highly variable resource in space and time. Organisation for Economic Development and Co-operation (OECD) projections suggest that 40% of the world's population currently lives in water-stressed river basins, and that water demand will rise by 55% by 2050. Most of this increased demand will take place in emerging and developing economies, particularly from manufacturing industry. Over-abstraction and contamination of aquifers worldwide is posing significant challenges to food security, the health of ecosystems, and safe drinking water supply. In 2050, 240 million people are expected to remain without access to clean water, and 1.4 billion without access to basic sanitation, despite global efforts to tackle these shortages.

Governance remain a key area for meeting such challenges as well as reaping potential social and economic benefits and their distribution within society. The role of water governance for improved water policy design and implementation is now undisputed and will be key in addressing water challenges. Water runs across all the Sustainable Development Goals (SDGs), and addressing water challenges of too much, too little, or too polluted water will be critical for achieving them. Consequently, governance of **allocation and reallocation** of water resources and related services and their social and economic benefits and **wastewater governance** will be even more critical to build socially and economically prosperous and sustainable futures. However, this will not be sufficient unless water governance integrates with other challenges of for example security of land, food and energy. A recent study by OECD (2018)¹ of South Korea suggests that by strengthening water management functions such as planning, financing and stakeholder participation at the basin level can lead to positive outcomes on improved coordination of water, land and energy and food production. It should also be acknowledged that to resolving water challenges decision-makers will increasingly have to go beyond the basin perspective to integrate water security in the dynamics of the political economy within and between countries.

It is apparent that both countries and cities will have to accelerate investments in appropriate water infrastructures and institutional development and capacities. In developed countries massive investments are required in for example ageing water infrastructure, water quality improvements and climate change adaptation, while investments in emerging and developing economies relate to improved water storage capacity, universal access to water and sanitation, water quality improvements as well as adapting to changing climates. Overall, there is also a dire need to fast track the use of demand side management measures and technical solutions to water-related problems already exist and are well known. A key for increased and innovative investments to happen on a bigger scale is to address multilevel governance

as a means to unlock financing, institutional development and strengthening and enable for example increased reuse of wastewater or water use savings technologies.

Action is required: Going from policy to practice

The [OECD Principles on Water Governance](#) emphasise that policy responses to water challenges will only be viable if they are coherent and integrated; if stakeholders are properly engaged; if well-designed regulatory frameworks are in place; if there is adequate and accessible information; and if there is sufficient capacity, integrity and transparency. While framing the key conditions for effective, efficient and inclusive water governance, the Principles provide a tool for dialogue among stakeholders to understand whether water governance systems are performing optimally and where change, reforms or actions are needed.

Assessing the state of play of governance is required to identify needs for change. With the target of supporting interested countries, regions, basins, and cities to improve their water governance, the [OECD Water Governance Indicator Framework](#) was developed in 2018 to assess the state of play of water governance policy frameworks (what), institutions (who) and instruments (how), and their needed improvements over time.² It is conceived as a voluntary self-assessment tool grounded on a bottom-up and multi-stakeholder approach, with an Action Plan as an outcome to address priorities. It aims to stimulate a transparent, neutral, open, inclusive and forward-looking dialogue across stakeholders on the current water governance systems in place and future priorities and actions.

Improved governance is crucial to make progress on the SDGs. Governments and other stakeholders are invited to make the most out of the OECD Principles and indicator framework to collectively identify water policies and strategies across sectors and scales that contribute to secure and prosperous futures. OECD is currently developing capacity development tools as part of promoting improved water governance.

¹ OECD (2018), Managing the Water-Energy-Land-Food Nexus in Korea: Policies and Governance Options, OECD Studies on Water, OECD Publishing, Paris. <https://doi.org/10.1787/9789264306523-en>

² OECD (2018), Implementing the OECD Principles on Water Governance: Indicator Framework and Evolving Practices, OECD Studies on Water, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264292659-en>

Who pays?

We need implementation of EU law to ensure that water consumers are not the ones paying for costly additional treatments to keep our water safe



Bruno TISSERAND
EurEau President

European water service providers ensure that our water is safe to be consumed or returned to the environment. In reality, this means that drinking water providers may carry out costly additional treatments to ensure that the water we drink is free from potentially harmful contaminants that can infiltrate our water supply from sources such as agriculture and industry, and even through domestic use.

Annually, European water operators spend millions of Euros on removing various contaminants from our water supply that shouldn't be there in the first place. These pollutants can enter the water cycle through many means, and once there, can pose a risk to human and environmental health. The cost of removing them is passed on to the consumer when it should be the polluters who pay.

And it's not just the water operators who believe this; the EU has already established this in its underlying treaties.

So why are polluters allowed to get away with this? The answer is simple: the EU and its Member States do not implement the legislation that is there to protect consumers.

The fundamental treaties of the EU lay down the Polluter Pays, Control at Source and the Precautionary Principles. If these were implemented we would be well on the way to preventing contaminants from entering the water cycle.

The 'Polluter Pays' Principle is the practice that those who pollute should bear the costs of preventing damage to human health or the environment.

Source control is the idea that contaminants should be prevented from entering the water system at all.

Under the Precautionary Principle, actions where it is uncertain whether the outcome is unknown or may cause harm, or if the scientific knowledge is lacking, then policy makers should err on the side of caution and protect the public from exposure to possible harm.

This is why we need adequate control at source practices that prevent water from being contaminated. Producers must assume responsibility for the products they design and place on the market. Fewer harmful substances released to the environment will also reduce the overall exposure of the population to chemicals and will be a strong driver for product innovation.

The Polluter Pays, Control at Source and Precautionary Principles constitute the underlying philosophy behind the Water Framework Directive (WFD) and European chemical legislation such as REACH, the Plant Protection Products Regulation, and the Biocides Regulation.

The water that drinking water operators extract should be clean and safe enough to be consumed with a minimum of intervention from water operators. The same goes for waste water operators; they should only have to remove pee, poo and paper and give it a minimum of treatment before returning it safely to the environment. Other substances should be prevented from entering the water system in the first place. If further action is necessary to clean water it is clear: the polluter should pay for additional cleaning, and not the consumer.

But these principles are haphazardly applied in EU law. The EU urgently needs to adopt a strategic approach to pollutants, taking their full life cycle into consideration. Legislation like the Single Use Plastics Directive shows that control at source and polluter pays can be regulated for.

The control at source approach is key to delivering the circular economy and a better quality of the residual products we can

recover from the treatment of waste water. An effective source control approach makes the reuse of water from waste water and nutrients, like nitrogen and phosphorus from sewage sludge, possible. In fact, sewage sludge and waste water are valuable in that they can be reused and recycled if they fulfil appropriate quality criteria. We can see that the EU needs to better coordinate its own regulations to achieve this.

We want the European institutions to:

- adopt a strategic approach to micropollutants, including microplastics, pesticides and pharmaceuticals, based on the source control principle, through labelling and product design.
- consider the life-cycle approach to substances when legislating including regarding the authorisation process for pesticides and medicinal products.
- use the REACH authorisation process more frequently, identifying additional substances of concern and using the authorisation and restriction processes in a strict way.
- make the producer pay for damage to the environment or any measures taken down the supply chain to avoid the release of pollutants into the environment
- use eco-design and ecolabel criteria more extensively to reduce harmful components from later leaching into the environment, and
- raise awareness amongst citizens and encourage them to make more environmentally-conscious decisions.

We work with the European Commission to protect consumers. Fewer harmful substances in our water cycle and the environment benefits everyone. We can make this happen by effectively using existing legislation. The EU needs to act. The legal basis needed to protect human and environmental health is largely there, although the three basic environmental principles may have to be made more explicit. Each revision of relevant EU legislation should be used to ensure that regulations and directives make our legislation more effective.

Citizen at the heart of future water policy: access, human rights, participation and full transparency



Benedek JÁVOR

MEP, (Greens/EFA Group), Member of the ENVI Committee

In recent years **thousands of families in Europe** have had their **water cut off** for **not being able to pay the bills** according to the European Water Movement.

A study¹ from the European Roma Rights Centre from 2017 finds that large segments of Europe's **Roma are systematically denied or disadvantaged in their access to safe drinking water and sanitation**.

- **How** can these happen **at times human right to water** and sanitation being **explicitly recognised** by the United Nations, its 2030 Agenda and Sustainable Development Goals (SDGs)? **Why** do we thrive for the **implementation** of universal right to safe water and sanitation (SDG6)²? **What do we gain?**
- Can we regard the follow-up of the **Right2Water**³, the **first ever successful citizens initiative** aiming at a shift of focus in European water policy as satisfactory?
- What could we, in **Europe improve further?** How can we work for a **citizens-focused** and SDG6-compatible water policy?

I group my main messages around these questions.

Sustainable management of water and sanitation has linkages to all other elements of the 2030 Agenda. It **underpins wider efforts to end poverty**, achieve **sustainable development** and maintain **stability** - as the UN **Synthesis Report 2018** on Water and Sanitation⁴ also underlines. The right to water, such a precious – and scarce – resource, is linked to the **fundamental right to life and dignity**.

Regard water as a **public good** that must be safeguarded, get implementation of **SDG6** on the European political **agenda** and provide **access to all** – these were the key demands of the **Right2Water** citizens initiative, a relatively new **tool for participatory democracy**, signed by **over 1,68 million people** in Europe.

Have EU institutions heard the voices of citizens? In general, European Commission responded positively. The proposal for the **recast of the Drinking Water Directive**⁵ presented February 2018 introduced an **updated watchlist** and quality standards applying a **risk-based approach**, potentially resulting in **savings** and less chemicals released into the environment. In general, efforts were made to make **tap water more attractive** - with the promise for European households to save more than €600 million per year.

At the same time, the **human rights angle remained weak**. Thus the European Parliament had the chance to **demonstrate that citizens do really matter**.

In my view this opportunity was missed. The **outcome of the EP work**, in which I was involved as shadow rapporteur for the Greens, is at least **controversial**. The fact that **274 MEPs abstained** at the plenary vote clearly indicates that the **level of ambition is not sufficient**. Although **universal access** to safe drinking water is **mentioned** in the text⁶, it hardly requires **real action** by Member States. **Vulnerable** and marginalised groups are to be identified - nevertheless their **access to safe water remains an issue**. **More** is desirable in terms of **free provision** of water and **better information to citizens** also considering a

background study⁷ for the recast which identified low consumer satisfaction with the information on the quality and supply of drinking water in their living area as one of the weaknesses of the directive.

I hope that common sense will guide further discussions on the file and, in more general terms, that SDG6 will be used to **change paradigm** in European water policy. **Good water governance and public participation are critical**.

Moreover, **circular economy principles** should guide future water legislation and management applying the waste hierarchy to water – **preservation first**, improved **efficiency wherever possible**. This approach also implies **acting firmly on chemicals** and any **emerging pollutants** – again an issue that have triggered vivid discussions for the drinking water file. For me, achieving a **non-toxic environment is indispensable to ensure a high level of confidence of citizens**.

Besides, **all consumers**, irrespective of their water supplier, have to be provided with better, **easy-to-use information** – including **on-line**. I argue for **full transparency** on the functioning and operating of water infrastructure including on **leakage rates** and **cost elements** for the sake of proper **maintainance**.

Leaving no one behind, effective support to the most vulnerable people is a core obligation. We need requirements on **banning disconnections from the water network** – the latter still a **daily problem for hundreds of thousands of people** in Europe as flagged by Right2Water.

As for the financial effects of the proposals for better access and **increased transparency requirements**: Commission calculates that these would result in a very **marginal cost increase to households** and only moderate changes for the operators, utilities – **many times outweighed by health and environment gains**.

As I see it, the **direction to take is set**. All we need is **join forces**.

⁴ http://www.unwater.org/publication_categories/sdg-6-synthesis-report-2018-on-water-and-sanitation/

⁵ COM(2017) 753 final, https://eur-lex.europa.eu/procedure/EN/2017_332

⁶ <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2015-0294+0+DOC+XML+V0//EN>

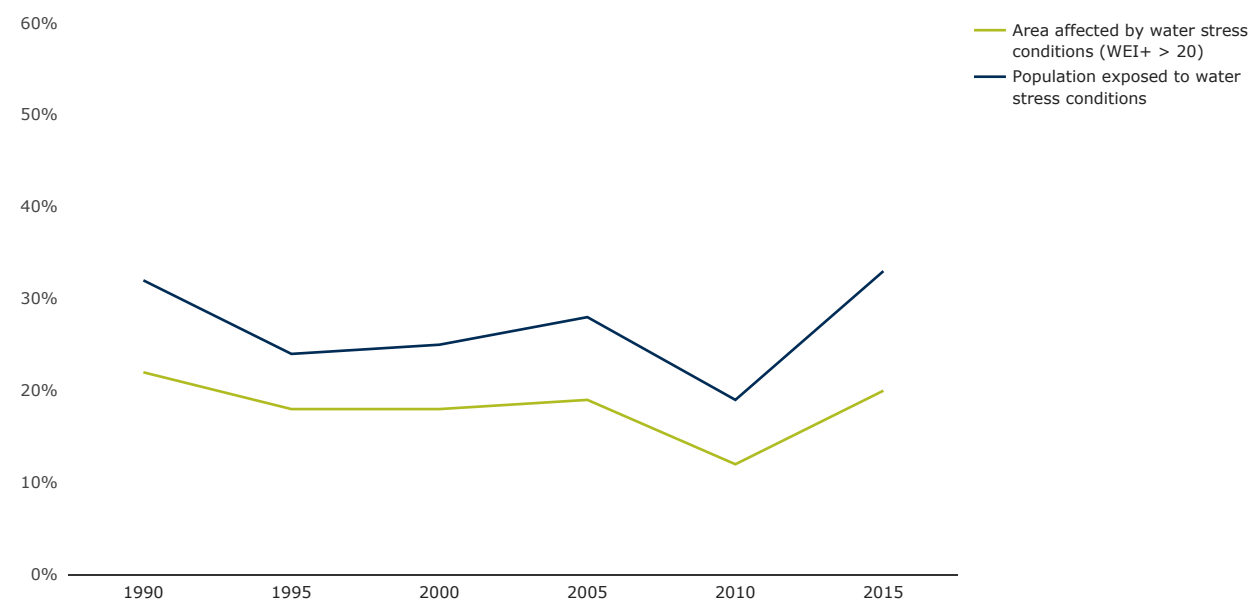
¹ Thirsting for Justice, March 2017, <http://www.errc.org/>

² <https://www.un.org/sustainabledevelopment/water-and-sanitation/>

³ <https://www.right2water.eu>

⁷ Ecorys, 2017 <https://publications.europa.eu/en/publication-detail/-/publication/74eb5932-4cbd-11e7-a5ca-01aa75ed71a1/language-en/format-PDF/source-search>

Population and area exposed to water scarcity conditions in Europe (summers 1990-2015)



Data sources:

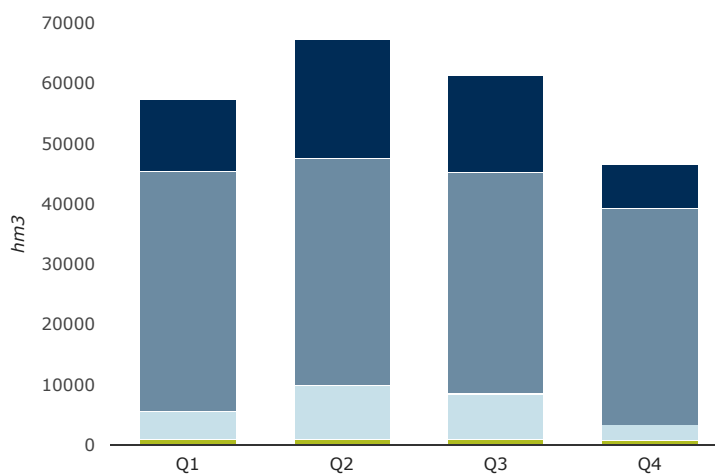
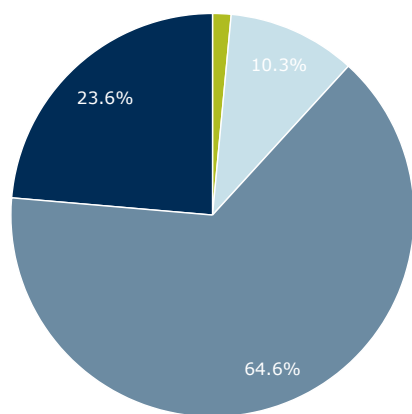
■ Population change (demo_gind) provided by Statistical Office of the European Union (Eurostat)

European Environment Agency



Water abstraction by source

Freshwater abstraction by source in 2015



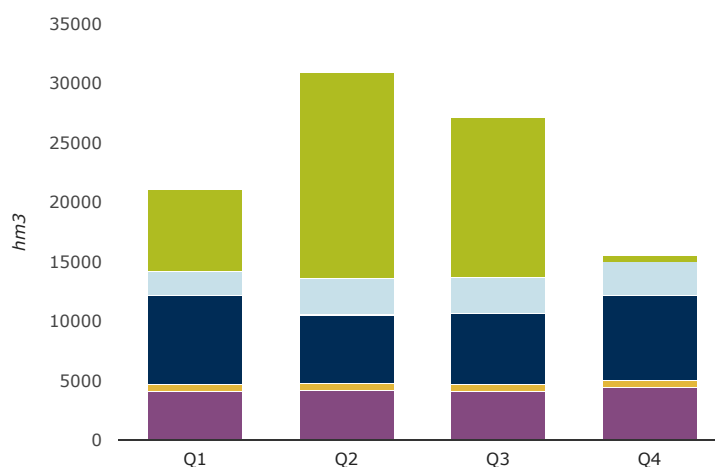
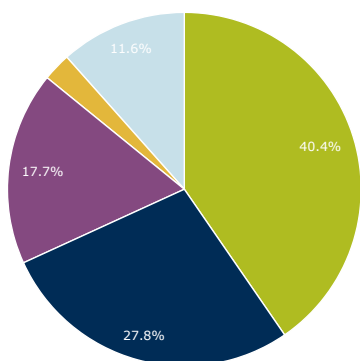
■ Groundwater
■ Rivers
■ Artificial reservoirs
■ Lakes

European Environment Agency



Water use by sectors

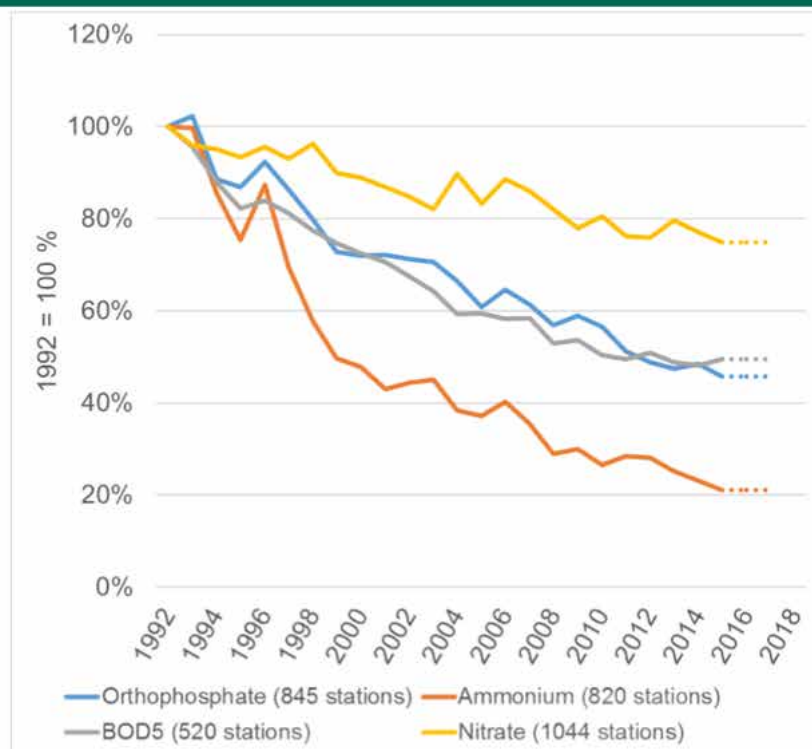
Water use by economic sectors in 2015



- Households
- Service industries
- Mining and quarrying, manufacturing and construction
- Electricity, gas, steam and air conditioning supply
- Agriculture, forestry and fishing

European Environment Agency

Trends in European river water quality



Nitrate
(from agriculture)
BOD5*
Orthophosphate
Ammonium
(from waste water)

*5-day biochemical oxygen demand

Source: EEA data reported by countries to WISE04 Water quality, 2016

European Environment Agency

Responsible Water Management for EU Citizens' Welfare



Antoine FREROT

Chairman & CEO, VEOLIA

Framing The Water Picture: The Dry Facts

Planet Earth is often referred as the “Blue Planet” because of the abundant water on its surface. Indeed, two thirds of our planet’s surface is made of water. Yet around 97% of it is salty and there is less than 1% of freshwater on earth to be shared by over 7 billion people - making water a scarce resource. According to the World Resources Institute, 33 countries (out of 167 countries ranked) will face extremely high water stress by 2040. Another study from the Massachusetts Institute of Technology confirms this trend: over half of the world’s population will live in water stressed areas by 2050.

The access to water and sanitation has been recognised as a basic human right by the United Nations in 2010. The 6th Sustainable Development Goal is to achieve “Clean Water and Sanitation” for all by 2030. And yet, water is taken for granted by most Europeans, as we benefit from an easy access to water in our daily life. Getting safe drinking water 24/7 from the tap seems normal today because we have enjoyed this service for decades. But this may no longer be that simple in the long term if we do not start acting now.

Water Is Under Pressure

Clean water cannot be taken for granted. Not only is it a scarce resource, it is also vulnerable and subject to many pressures.

Indeed, water is facing several global challenges: climate change, population growth, and economic development. The drought which occurred in Scandinavia last summer and the recent floods in Italy are concerning examples of a disrupted water cycle caused by climate change. Experts forecast an acceleration of the water cycle (evaporation, condensation, precipitation) due to global warming, which would lead to more inequality in water resource allocation amongst regions. **Droughts and deluges are likely to become the new norm.**

Policymakers, businesses, and the civil society need to collectively address water challenges in a smart, efficient, and responsible way. A number of measures could help solve this complex situation. Examples include enhancing water-use efficiency, recycling wastewater, modernising water infrastructure, imposing greater transparency in water governance, and tackling water pollution at the source.

Too Precious To Be Wasted: Closing The Loop

There is huge potential in reusing water. The agricultural and electricity sectors are using significant amounts of water. 70% of the world’s freshwater goes into farming alone (World Bank, 2017) and industry accounts for most of the rest. It is time to become smart with water and optimise water use whether agricultural, industrial, or domestic. It is time to shift towards a circular water management by reusing water. This represents a solution

for irrigation and would partly solve the problem of water availability, especially in coastal areas, where most population growth takes place.

The draft EU regulation on water reuse for irrigation put on the table by the Commission in May 2018 is an excellent basis. It could also beneficially be extended to water reuse in the urban environment, such as street cleaning or parks irrigation. Alternative sources of water such as rainwater and grey-water should also be used.

In general, Veolia supports **legislative actions for reuse with quality indicators, and an effective monitoring system.** Wastewater treatment also involves the sewage sludge that should be more systematically recovered into energy or fertilisers.

To encourage both the recycling and reuse of sludge (which is beneficially limiting the use of chemical fertilisers), European regulations should break down the existing barriers and facilitate their access to the internal market. The ongoing revision of the **Fertiliser regulation should therefore allow the reuse of sewage sludge provided there are safe of contaminants.**

Tackling Water Pollution At The Source

According to a Eurobarometer survey, 47% of Europeans are worried about water pollution. A study from the International Food Policy Research Institute estimates that by



2050 more people will be exposed to high risks of water pollution due to an increasing amount of harmful substances.

These harmful substances include chemicals or micro-organisms, especially antimicrobial resistant bacteria coming from industrial, agricultural, or municipal discharge that are deteriorating water quality levels and threatening the environment as well as human health.

Today, nutrient pollution (nitrates and phosphates) is the most common type of contamination of freshwater. Chemical fertilisers, and also pesticides, used by European farmers to grow crops make their way into our water. A better monitoring system and stronger standards of water quality should be enshrined in European law. Endocrine disruptors are now addressed in the recast of the Drinking Water Directive based on the precautionary principle.

The European Union should intervene to remove various pollutants before discharge into the environment. Moreover, the polluter pays principle should be implemented across all EU Member States: **polluting should cost more than removing the pollution** as to avoid its negative impacts on human health and the environment.

Modernising Water Infrastructure Across Europe

There is a clear need to modernise ageing water infrastructure in Europe. The World Economic Forum estimates that investing \$26 trillion in water infrastructure will be needed between 2010 and 2030. In France alone, the business as usual replacement rate of water supply networks results in 160 years being necessary to replace this asset, and 140 years for wastewater collection and treatment.

With the EU Multiannual Financial Framework being discussed, there is an

opportunity to dedicate more EU funds to renovating and building water infrastructure where necessary. To facilitate their absorption and the emergence of viable projects, the **blending of EU Structural funds with public-private partnerships should be facilitated.**

Water Operators As Solution Providers

At Veolia, we have always been committed to continuously provide the best quality services to almost 100 million consumers we serve every day with drinking water and the 60 million people with wastewater services across 40 countries worldwide. To achieve this, we have 80,000 staff in the water sector, operating nearly 10,000 urban water and wastewater systems under all climates.

Our services include abstraction, production and delivery of drinking water and industrial process water, collection, treatment and recycling of wastewater from all sources as well as by-products from its treatment (organic matter, salts, metals, complex molecules and energy), customer relationship management, as well as the design and construction of treatment and network infrastructure.

All this expertise allows Veolia to **support its customers in the implementation of integrated and sustainable water resource management.** The recent progress of our teams to reduce energy needs on the one hand, and to increase usable biogas volumes on the other hand, now allow us to design **energy-neutral wastewater treatment plants** - which produce as much energy as they consume.

Innovation: Ocean Of Opportunities

Innovation and technological breakthroughs can solve many of today's challenges, anticipating those of tomorrow. As it is becoming

cheaper and less energy consuming, water desalination has tremendous potential for coastal regions poor in freshwater.

The widespread use of smart meters and sensors throughout water networks to collect real-time data will enable predictive and preventive analytics in order to further improve water management by making informed decisions. It contributes for example to reducing the environmental impact (smart irrigation, leak detection, etc). Digitalisation enables evaluation and performance improvement, as well as smart solutions deployment. With 2EI, Veolia has also developed digital applications for cities and their citizens enabling them to access free and real-time information. In France, we have created NovaVeolia a dedicated subsidiary to the development of innovative services helping public or private customers to supervise, amongst other: simplified and digitalised mass invoicing and collection; smart payment; sharing knowledge about the water cycle in collaborative forum; mobile app to improve how they manage their water and energy consumption and eventually control their connected house!

A Watershed Moment For EU Water Policy

The "Right2Water" campaign which gathered strong support, with nearly 2 million signatures, shows that European citizens truly care about access to water, and want to be more involved in the decision-making process of water policy. The current revision of the EU Drinking Water Directive is a great opportunity to take stock of the progress made by the European Parliament on access, transparency, on the necessary links with Integrated Water Resource Management. The EU authorities should not miss this opportunity to conclude the trilogue on this legislation, notably to reinforce access to drinking water and transparency (on costs, investments, leakage rates, etc.) for its citizens.

European water policy should be future-proof and overall better protect water as a shared resource. Members of the European Parliament elected in the next legislative elections in May 2019, and the new European Commission that will take office should continue to play a key role in promoting a sustainable and circular water-smart society.

Along the regulation on Reuse of treated wastewater, the review of the Water Framework Directive, and of the Urban Waste Water Treatment one, will also be decisive to address the concerns mentioned above.

Let us ensure future generations enjoy the same access to affordable and quality water services!



Time to harmonise hygiene requirements on materials and products in contact with drinking water



Volker MEYER

Chairman of the European Drinking Water Industrial Alliance (EDW)

All EU citizens have the right to high quality drinking water. The same rules should also apply to all types of materials and products in contact with drinking water. The ongoing revision of the Drinking Water Directive (DWD) is a unique opportunity to set ambitious EU-wide harmonised hygiene requirements for them.

Every day we drink tap water, take a shower, and wash our hands without even wondering where the water comes from. Drinking water is extracted from groundwater or surface water sources and then continues its journey to consumers through a complex infrastructure of pipes, tanks, pumps, valves, water meters, water heaters, water filtration systems, gaskets, hoses, taps and so on. All the products and the materials they are made from - such as metal, cement, plastic, rubber, silicone - are essential to delivering high quality drinking water.

Currently there are no EU-wide rules on the hygiene and safety of materials and products in contact with drinking water. A handful of Member States have developed domestic rules whilst others have none. This regulatory fragmentation has resulted in different hygiene requirements leading to potentially different levels of human health protection. Not only does this impact consumers, but it leads to a fragmentation of the EU market with companies having to comply with different national rules if they want to export to different Member States. SMEs in particular often do not have sufficient resources to

deal with this and cannot afford to export their products to other markets. Due to the intricacies in scaling up innovations across the EU, companies also have fewer incentives to launch innovative products that have a longer lifetime or minimise water leakages. The European Commission itself acknowledges this by stating that the *'current provisions do not work well and represent a long term challenge to the provision of clean and healthy drinking water in the EU'*.¹ Failing to address this situation is no longer acceptable.

The time is right for the European Union to **establish harmonised hygiene requirements for all materials and products in contact with drinking water**. This is good for public health, competitiveness and innovation: all EU consumers would enjoy the same high level of human health protection and EU companies –especially SMEs - will be able to reap the advantages of the single market. **The revised DWD should enable the European Commission to adopt delegated or implementing acts setting EU-wide hygiene rules² for all materials and products in contact with drinking water.**

Other options fall short of this objective. The European Commission proposal to develop standards under the Construction Products Regulation (CPR) will not lead to harmonisation. A large share of products in contact with drinking water do not fall under the scope of the CPR: water heaters, water meters, pumps, taps, water filtration systems, hoses, gaskets would all be excluded from harmonisation. This would create a significant loophole and legal vacuum. In addition, CPR standards cannot harmonise hygiene requirements: standards generally define the test methods through which products need to be tested, but they do not set the hygiene requirements against which materials and products should

be tested.³ Having the same test methods with differing national requirements is not harmonisation.

The European Drinking Water Industrial Alliance calls on policy-makers to take full advantage of the Revision of the DWD to harmonise materials and products in contact with drinking water. **An ambitious solution is within reach and backed by a wide range of stakeholders.** The European Parliament⁴ and a large majority of Member States⁵ support harmonisation under the Drinking Water Directive, so do drinking water service operators⁶ and consumers' organisations⁷.

The time for harmonisation is now. Let's not waste this opportunity.

About us

The European Drinking Water (EDW) is an alliance of currently 30 European trade associations representing industries involved with the supply of products or materials that are used in drinking water applications and connected to municipal drinking water supplies within the European Union (EU). This ranges from raw materials suppliers to producers of pumps, water meters, pipes, valves, taps, fittings, water treatment, water heaters, catering equipment industry, seals, etc. and all types of materials, such as elastomers, metals, plastics, etc. The alliance is open to any industry association relevant to drinking water contact applications.

3 European Commission, Report on the implementation of Regulation (EU) No 305/2011, 7 July 2016, p. 6, Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0445&from=EN>

4 European Parliament amendments adopted by the European Parliament on 23 October 2018 on the proposal for a directive on the quality of water intended for human consumption, Available at <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+TA+P8-TA-2018-0397+0+DOC+PDF+V0//EN>

5 Outcome of the Council meeting of 25 June 2018, p.7, Available at <https://www.consilium.europa.eu/media/36260/st10450-en18.pdf>

6 Eureau (May 2018), Position Paper on the Revision of the Drinking Water Directive, pp. 2-3, available at <http://www.eureau.org/resources/position-papers/1399-eureau-position-on-the-drinking-water-directive-1/file>

7 European consumer voice in standardization (ANEC), August 2018, Comments on proposed amendments to the DWD, available at <http://www.anec.eu/images/Publications/position-papers/Chemicals/ANEC-PT-2018-CEG-0011.pdf>

1 European Commission, Staff Working Document "Refit Evaluation of the Drinking Water Directive 98/83/EC", 1 December 2016, p. 42, Available at http://ec.europa.eu/environment/water/water-drink/pdf/SWD_2016_428_F1.pdf

2 Hygiene requirements include: a list of substances allowed for the production of materials in contact with drinking water; other general hygienic requirements for materials and products (e.g. on microbiological growth, taste, odor, flavor, color and turbidity of the water); common European test methods.

Harnessing Data to Ensure the EU's Water Future



Christian BLANC

Senior Vice President and President, Europe Commercial Team, Xylem Inc.

This is a critical window of time for Europe, due to ongoing developments in EU water policies as well as powerful advances in water technology – a chapter in our history when we can fundamentally transform how we manage and protect one of our most vital resources, and build towards a more sustainable future. How can we seize the moment?

Our success will depend upon bold leadership from policymakers, the private sector and utility decision-makers. By fostering policies and technological innovation that enable and advance data gathering and sharing, governments and business leaders can help drive change in the water industry and accelerate the adoption of powerful new data-fueled approaches. These digital solutions, fueled by IoT, machine learning and artificial intelligence methodologies, are already delivering massive new efficiencies and have the potential to make water more accessible, affordable and safer for millions of people across Europe in the future.

On the policy side, many of the EU Directives on water have been in place for years, with the core purpose to protect human health and our environment by providing specific provisions that harmonise the legislative framework across the EU. However, today, there is a strong need to update the regulatory framework to address modern threats on our water resources and mitigate climate change impact.

The good news is that recent developments in the recast of the Drinking Water Directive (DWD) indicate important progress is being made. The European Commission's recast proposal, upon which the European Parliament adopted its own position, supports several critical measures, including:

- Implementing groundbreaking leakage targets by country to create a greater imperative for municipalities to solve the challenge of Non-Revenue Water, or clean water lost or unbilled due to leaking pipes, inaccurate meters or unauthorised use; and
- Requiring more transparency for key decision-makers in the quality and volumetric measurement of drinking water (though many stakeholders, including Xylem, continue to advocate for broader transparency on energy efficiency).

The Commission is now in the process of turning its focus to the potential revision of the overall Water Framework Directive and the Urban Wastewater Treatment Directive. Here, too, there is a critical opportunity to advance key changes, such as instituting new energy efficiency transparency standards and enhancing the management of combined sewage overflow (CSO) via appropriate targets.

As policymakers work to drive progress on the policy front, those in the private sector also have to do our part to build momentum. This means investing in data-fueled innovation, and showing utilities and other water users that the digital transformation of water is not a distant vision for the future – data-powered solutions are already producing significant reduction of carbon emissions and cost-savings that can be reinvested locally to create jobs and drive economic growth.

For example, Europe continues to struggle with the global challenge of Non-Revenue Water. According to the Commission's DWD impact assessment, 23 percent of treated water in the EU is lost. But new digital technologies are offering powerful ways to detect water losses and prevent major investment in repairs. For instance, the Evides Watercompany in the Netherlands has been able to deploy leading-edge pipeline condition assessment technology to deliver precise, actionable data, helping pinpoint the exact locations of anomalies in the

transmission steel pipe between Rotterdam and The Hague. This Smart Water solution produced an estimated capital savings of 1.1M Euros.

In London, the implementation of smart volumetric meters with real-time connectivity has allowed municipalities to reduce water losses in individual households, improving billing accuracy and helping consumers reduce their water usage by 13 percent by giving them full view of their consumption.

The wastewater sector is facing a considerable challenge to evolve existing collecting systems to meet the demands of urban development and climate change, in particular the pressing need to reduce CSO by investing significant capital in new infrastructure. However, by gathering real-time data across the network, utilities can reduce CSO while minimizing costs. The Metropolitan Sewer District of Greater Cincinnati (USA) has cut overflow volume by almost one million cubic meters and reduced investment to 350 thousand euros (versus initial forecast of 33 million euros).

In the Netherlands, a cooperation of the Waterboard Hollandse Delta and five municipalities needed greater control of the flow to its wastewater treatment plant to better manage inflows and quality. By leveraging a supervisory control and data acquisition system of software and hardware provided by Xylem with the help of the Technical University of Delft, the water operator gained critical insight into its operations and was able to optimise and automate control inflows, resulting in cost savings of 10 to 50 percent or approximately 1.2M euro a year. The plant also cut energy consumption on its pumping stations by 17 percent, and surface water quality increased significantly due to fewer overflows.

And these examples are just the beginning.

This is a historic moment for Europe and our vision for sustainability. If policymakers can drive change that fosters appropriate data gathering and sharing, technology providers can deliver digital innovation that shifts the paradigm, and utilities can move with determination to adopt these powerful solutions, we can and we will solve water.

A coherent approach for water and agriculture to ensure the long-term objective of a sustainable European agriculture



Jerzy PLEWA

Director-General for Agriculture and Rural Development, European Commission

Agriculture and water play a very important role in the 2030 Agenda for Sustainable Development, adopted in 2015 by all Member States of the United Nations. This is reflected in the Sustainable Development Goals (SDGs). Sustainable water management (SDG6) and sustainable agriculture (SDG2) are both primary goals, and neither one can be achieved independently of the other. Water is an essential resource for agricultural production, critical for feeding the growing world population. However, farming activities are at the same time one of the causes of pressure on water bodies. Striking the right balance between boosting agricultural productivity and ensuring that water and water-related ecosystems are managed sustainably is therefore of paramount importance.

In the EU, where agricultural activities occupy more than half of the territory, the delicate balance between agriculture and water-related objectives has been addressed by EU environmental and agricultural legislation. Key laws are the Water Framework Directive (2000) and the different EU regulations that make up Europe's Common Agricultural Policy, which increasingly do not only ensure income stability, but also remunerate farmers for environmentally friendly farming and delivering public goods not normally paid for by the markets, such as taking care of the countryside.

The European Commission has tabled a proposal to further reform the Common

Agricultural Policy (CAP) post-2020. These proposals aim to significantly simplify and modernise the way the policy works, to ensure significant added value for farmers and society is delivered more effectively. The proposals aim to shift the emphasis from compliance and rules towards results and performance, granting Member States more freedom to decide how best to meet common objectives while granting them responsibility to address the specific needs of their farmers and rural communities. In keeping with the commitment to increase the level of environmental and climate ambition, the proposals for the CAP post-2020 introduce several new elements addressing the three main agricultural pressures affecting water: nutrients, pesticides and abstraction.

The new system of "enhanced conditionality" combines and improves the current links between support to farmers and environmental rules and obligations, known as "cross-compliance" and "greening". This new system will include significant new obligations that farmers will have to observe for the protection of water resources. Among the so-called Statutory Management Requirements (SMRs), a new requirement is proposed on controlling abstraction and impoundments as well as diffuse pollution as laid down in the Water Framework Directive. Another new requirement that is part of our proposals is related to the Directive on the Sustainable Use of Pesticides, relevant to the certification of users and equipment of pesticides, as well as restrictions on the use of pesticides in protected areas and on their handling, storage and disposal.

Among the ten standards of good agricultural and environmental condition of land (GAECs), which also form part of the new "enhanced conditionality", a new standard is proposed to ensure appropriate protection of wetland and peatlands. Furthermore, the European Commission proposes a Farm Sustainability Tool for Nutrients (FaST) to address diffuse pollution. This tool aims to encourage farmers to use digital innovation to more sustainably manage the nutrient cycle.

Over abstraction of water for irrigation is a problem in some parts of Europe. To better tackle this issue, it is proposed that Member States will draw up and respect a list of ineligible investments, including irrigation methods that are not consistent with the

achievement of good status of water bodies and the expansion of irrigation in water bodies with less than good status.

The future CAP requires a much stronger link between CAP interventions and environmental legislation. It is the view of the Commission that this will not only ensure a more effective agricultural policy, but also encourage and help Member States to better implement and define their environmental planning instruments (e.g. River Basin Management Programmes).

An important element to successfully tackle the double-challenge of competitiveness and environmental sustainability in agriculture will be the greater use of modern technologies and innovation, in particular digitisation and smart farming solutions (use of sensors, drones, satellite technology, etc.). Technological development and digitisation enable big leaps in resource efficiency, enhancing an environment and climate smart agriculture. In terms of water management, this will allow determining more precisely the necessary inputs (water, nutrients, plant protection products) and their controlled application. This should minimize the environmental and climate impact of farming, increase resilience and decrease costs for farmers.

The uptake of new technologies in farming, however, remains below expectations and unevenly spread throughout the EU. While precision farming is developing at a rapid pace for large farms, there is a particular need to address small and medium-sized farms' access to technology, to also boost their ability to innovate sustainably.

In summary, we need agricultural practices enabling a sufficient level of water protection and we need sufficient, secure and safe water for agricultural production. The European Commission has proposed a package of legislative proposals to reform the Common Agricultural Policy that aims to address these overlapping challenges and ensures coherence between environmental and agricultural policy. I firmly believe our proposals will contribute more effectively to reach the long-term objective of a sustainable European agricultural sector.

A circular approach to water efficiency



Simona BONAFA

MEP (S&D Group), Rapporteur for water reuse for irrigation, Member of the ENVI Committee

Increasing global competition for the use of water poses a growing risk to the economy, communities and the ecosystems they rely on. For example, in 2017 global withdrawals amounted to approximately 6 000 cubic kilometres, and it is estimated that this may rise to approximately 8 700 cubic kilometres in 2050, and nearly 12 700 cubic kilometres in 2100.

This continuous increase in demand, together with the effects of climate change and the resulting increase in average temperatures, raises the alarm that there may be increasing numbers of areas subject to water scarcity.

The issue of sound and efficient management of water resources is therefore becoming increasingly pressing. Increasingly, and with just cause, water is seen more and more as a precious and scarce resource.

Europe is not an arid continent, but water supplies are now a concern for almost half of the EU population.

Europe's geography and climate implies that water distribution is uneven in the EU, a situation made worse by human activity. In southern Europe, for instance, tourist development has increased demand for water, resulting in desertification and salt-water intrusion into aquifers located in some coastal freshwater zones. According to studies carried out by the EEA, if we look at the water exploitation index, we find countries such as Cyprus, Bulgaria, Belgium, Spain, Italy and Malta where the ratio is currently 20% or higher. This

equates to serious stress on water reserves. Water scarcity is most acute in the south, but by no means limited to these areas: the Commission has pointed out that most Member States have suffered episodes of drought since 1976, and many now report frequent water scarcity problems and over-exploited aquifers.

Water scarcity is a phenomenon that affects at least 11% of the European population and 17% of EU territory. Since 1980, the number of droughts in Europe has increased, and they have become more severe, costing an estimated EUR 100 billion over the past 30 years.

The droughts of the summer of 2017 illustrated, once again, the extent of economic losses; the Italian farming sector alone predicted losses of EUR 2 billion. This trend is expected to continue: water scarcity is no longer confined to a few corners of Europe, but is already a concern across the EU.

Finding appropriate solutions at EU level to protect water has therefore become crucially important in maintaining a high level of wellbeing for citizens and in preserving the environment.

In its 2012 Communication entitled 'A Blueprint to Safeguard Europe's Water Resources' the Commission had already identified the reuse of urban waste water as one of the alternative water supply measures with a low environmental impact able to address the problem of water scarcity.

The EU legislation, and specifically the Water Framework Directive (2000/60/EC), mentioned the reuse of urban waste water as an additional measure for the efficient management of water resources.

However, the benefits deriving from this activity have not yet been fully realised, because of the lack of clear legislation and specific rules.

According to the data provided by the Commission, the total potential for reuse of water by 2025 is approximately 6.6 billion m³, compared to the current 1.1 billion m³ per year. That would require investment of at least EUR 700 million and would make it possible to reuse over 50% of the total volume of water coming from EU waste water treatment plants theoretically available for irrigation, avoiding more than 5% of direct extraction from bodies of wastes and groundwater.

In this context the European Parliament welcomes the European Commission initiative for a proposal for a regulation on minimum requirements for water reuse.

The Commission proposal wants to achieve the above-mentioned objectives by laying down harmonised rules at EU level, with a view to avoiding differing requirements in Member States having an adverse effect on a level playing field and causing obstacles to the smooth operation of the internal market.

As the EP rapporteur, I support the need for a regulation to lay down harmonised criteria at EU level for the reuse of urban waste water. For this reason, I consider the proposal to be a useful tool for ensuring safety and increased uptake of reclamation activities.

However, we have to be sure to provide a clear legislation, particularly in relation to the definitions, roles and responsibilities of the various entities involved and the main risk management activities. There needs to be a more precise definition of the difference between 'treated' water, i.e. water given appropriate treatment, as required by Directive 91/271/EEC, and reclaimed water included within the scope of this regulation.

It is important not to restrict possible uses solely to use for agricultural irrigation purposes but to expand them, as is already the case in some Member States, to include public purposes (irrigation of green areas or golf courses) and environmental purposes (combating salt-water intrusion or maintaining minimum ecological flow).

Reuse for industrial purposes can have huge potential but I consider that such reuse ought to be incentivised and regulated at national level on the basis of individual cases.

Minimum requirements for a risk management plan for the recovery of reclaimed water are an important tool to ensure high protection for human health and environment. I consider that this task should be coordinated by the competent authority, which can provide a more accurate and independent assessment of the entire water supply chain. Finally it is vital to focus on the need for awareness-raising measures highlighting the water resource savings resulting from the reuse of urban waste water and the control system that guarantees that the reclaimed water is healthy.

Water and Sustainability: Legislation for Protection and Preservation



Francesc GAMBÚS

MEP (EPP Group) Shadow Rapporteur for Water Reuse in Irrigation, Member of the ENVI Committee

Water supply will be one of the upcoming challenges for the European Union as it is globally. This past summer we definitively realized that we are already affected by climate change. The driest year in some regions in central Europe, forest wildfires in Sweden, and floods in the Mediterranean, with some severe meteorological events, are proof of that.

Also the increase of population -and not only because of climate change- will have a direct effect on the pressure on our hydric system. In one hand, because of the pressure on drinking water. In the other because more food quantities will be demanded. Nowadays, agriculture is the second point of pressure on water reserves in Europe, just after energy purposes. But this pressure may not be relieved by decreasing our level of ambition on preservation of our environment. Anticipating social, economic or environmental issues one before other has made no progress. Shifting these three aspects together is the only way to improve our environment.

On 2017, the Commission published a Staff Working Document regarding Agriculture and Sustainable Water Management in the EU¹,

where some agriculture-related problems with water pressure were described, and on the same document, it was announced that "To address these obstacles, the Commission is about to embark on an evaluation of several key pieces of water policy, such as the Water Framework Directive, Urban Waste Water Directive, and Floods Directive". This review was launched on the last quarter of 2017, in a form of an evaluation and fitness check roadmap.

Consequences of this review is the recast of the Drinking Water Directive, the Regulation on Water Reuse, and the public consultation on the Water Framework Directive launched on last September and expected to end by March 2019, and the review of the Framework Directive will be one of the key legislative procedures of the next mandate in Europe. A Challenge for the future Commission and the next Parliament.

These legislative measures, although might have the look of quite technical, have a huge impact in our daily lives.

Nowadays, one third of the river basins in Europe suffer from hydric stress and pressure, and it's expected to grow up to the 50% by 2030. Many cities and regions, mainly in southern Europe suffer from water shortages, especially in summer, and this fact is readjusting our personal behaviours. We lived that in Catalonia (Spain) between 2007 and 2009, when a severe draught impacted the region. Consciousness of how water is a limited resource aroused among the population, mainly in the metropolitan area of Barcelona, where 1.5 million people was directly impacted by water restrictions, and many of the adjustments made remained since then.

Higher hydric pressure made by human consumption in both, energy and fresh water, and agriculture has also a collateral damage on our natural environment, and mainly on the wetlands. In Spain, all wetlands are suffering of high or very high pressure, according to a report made by the Spanish Society of Ornithology², and that will be even more common around Europe in the upcoming years, as the climate

change will increase its impact, especially in the Mediterranean area.

We must have in mind that many of these wetlands have an important role in protecting biodiversity, some are considered as biosphere reserve, and have a very important role in the economy of some territories in the Union.

This is the case of the Ebro delta. This natural area is protected by regional, national and European legislation, but because of the higher pressure on hydric resources, this area has been threatened since 2002. This not only puts in risk around 50 different fish species, and more than 360 bird species, but also the rice plantations and aquaculture productions that are among the main activities in the economy of this territory.

The rising of the sea level caused by climate change, the lack of sediments caused by dams constructed in the river course, and the pressure of irrigation and fresh water consumption could lead to the end of this unique natural environment within this century.

For this reason, water policies, and especially the review of the Water Framework Directive, must have into account the protection and preservation of our environment. The review of this directive must not downgrade protection standards in any case, but solve the imperfections and problems detected during the almost 20 years that the legislation has been in force.

The solution comes by integrating water into the circular economy model for the European Union. With a broader scope for water reuse with irrigation and cleaning purposes in cities, also for industry, and for sure irrigation in agriculture, as the current regulation proposes. For sure, the needs of the circularity of water are different among member states, but the increasing pressure on this resource is growing and could endanger our environment even more.

Water legislation will face the challenge to balance environmental, social and economic needs of this resource, and the current review must have into account that doing it correctly, by protecting and preserving our environment, we will make it possible.

¹ https://circabc.europa.eu/sd/a/abff972e-203a-4b4e-b42e-a0f291d3fd9/SWD_2017_EN_V4_P1_885057.pdf

² https://www.seo.org/wp-content/uploads/2018/10/COP-Ramsar_OK.pdf

Filling the gap - water reuse



Marijana PETIR

MEP (EPP Group), *Rapporteur for advice,*
(AGRI Committee) *Water Reuse in Irrigation,*
Member of the AGRI Committee

The Commission's proposal - Draft Regulation on minimum requirements of Water reuse - is a legislative proposal aimed at filling the gap in the EU legislation on the Water Framework Directive and the Legislative Package on Water. Water is our most valuable resource, so it is important to link the wastewater treatment processes and agriculture in the framework of the circular economy policy implementation at all levels.

The lack of water, especially in the southern regions of the Union and during the summer, enhanced even more by the effects of climate change, forces us, as a developed society, to look for solutions that could help us solve the problem of water scarcity in agriculture in a sustainable and safe way.

The Commission's proposal is adequate and it is based on the best European and global experiences. Implementation of the Regulation is voluntary for Member States if they have such needs, setting minimum standards for water reuse that should apply throughout the Union, with the possibility for the Member States to include some additional requirements for the operators. These minimum standards should guarantee, both for farmers who need such water, and for consumers the safety and high quality of food and agricultural products on the market.

That is why, in the draft Opinion of the EP Committee on agriculture and rural development, I did not intervene in prescribed indicators and quality parameters. The implementation of the Regulation will show whether those should be reinforced or perhaps mitigated any further. Although, some of the provisions may seem to be too strict, but consumer confidence in European agriculture and its reputation on the global market should not be questioned at any time.

The farmers are obliged to apply strict rules laid down by Regulation (EC) 852/2004 on general rules for food business operators and Commission guidance documents. This Regulation should ensure farmers that renewable water from the water treatment system and water reuse facilities is obtained in accordance with the criteria that they are obliged to meet for their needs in agriculture. That is also a reason why I didn't propose a broader scope to multi-stakeholder liability through the chain, as well as I am against any additional obligations and expenses for farmers beyond Regulation 852/2004. Obligations are known and prescribed for each stakeholder in the chain, and they should be respected.

In my draft Opinion, I have outlined more details that should be amended in order to make the legislative proposal clearer and to align the regulation more to the possible conditions on the ground. There is a possibility that different operators run the water treatment plant and the facility for the preparation of renewable water, so this should be foreseen. I also think that it is necessary to clearly define key terms in the definitions paragraph, such as "point of compliance". The "point of compliance" is a key topic of the regulation because any liability of an operator ends here, and any liability of a farmer starts at this point.

The risk assessment, as well as the verification process, should guarantee the level of safety that we want. The preparation of the scientific basis and the implementation of the procedure seems also demanding. That is precisely why I believe that the preparation of the documentation requires the competent authorities to provide good and reliable information that they have and thus contribute

to the success of the implementation of such projects.

And this brings us to the next problem. The problem of reused water prices. The Water Systems Operators Association is concerned about the economic sustainability of such investment. They fear that the cost of the venture could outweigh the market justifiable price of reused water and rightly seek ways of cooperation with farmers and local communities in solving this problem. They also propose different ways to reduce their risks with the aim of making water reuse more economically viable. Water reuse projects are demanding, they should be supported, at least at the initial stage, but they should also be economically sustainable in a long run. There are many different means to finance such project within the circular economy framework. There are, for example, funds allocated for the sub-program "The Circular Economy and Quality of Life" (estimated at EUR 1 350 000 000 from 2021 to 2027) within the Environment and Climate Action Program (LIFE). Those projects could also use local, regional and national financial initiatives supporting national environmental and climate objectives.

Finally, the price of reused water will be crucial for the success. The number of water reuse projects in agriculture will be an indicator of the success of this Regulation and the circular economy policy implementation. In addition, operators should be given enough time to invest in alignment of their facilities with Regulation's demands at least two years instead of one.

I hope that will reach a good agreement soon, in both committees, and get the job done before the end of this Parliamentary legislature.

Driving the Adoption of Water Reuse



Jon FREEDMAN

*SVP of Global Government Affairs, SUEZ –
Water Technologies & Solutions*

As the world continues to experience population growth and increasing urbanization and industrialization, the gap between water supply and demand is likely to increase unless the world changes its view on water resources. In fact, according to reports, by 2050, the world will demand 55% more water¹; and by 2025, an estimated two-thirds of the global population will live under water stress conditions².

But these projections do not have to be our destiny. We can help ensure a sustainable water future by changing how we think about water.

When confronted with water scarcity, we have three main options. First, we can conserve water. Conservation is an important first step, but it is often not sufficient. Second, we can desalinate water, but this is not practical for all regions and it is very energy intensive. And third, we can treat wastewater so that it can be reused for things like growing crops, running power plants, and filling drinking water reservoirs. Often the most feasible approach is

the adoption of water reuse, and it can be the key to immediately and effectively mitigating the threat of water scarcity.

In many places around the world, countries are implementing policies to drive adoption of water reuse. For example, China is mandating reuse in its 13th 5-year plan, which calls for an increase in municipal reuse and mandates a decrease in industrial freshwater withdrawal. In India, there are new municipal wastewater discharge and reuse standards that are following the California Title 22 model. In Saudi Arabia, the government has set national reuse targets; and in Mexico, there is a national water program, whose goals include not only improving access to drinking water, but also increasing the reuse of treated wastewater for various purposes.

At the same time that governments are looking to drive greater reuse, many companies are also increasingly focusing on water reuse as a way to meet sustainability goals or simply to ensure adequate supplies of water for their operations.

Overall, even though water reuse is gaining momentum in many regions around the globe, there is still room for growth. It is estimated that globally only four percent of wastewater is currently reused. We see success in certain regions. In Israel for example, nearly 80 percent of wastewater is reused, and in Singapore, 40 percent of water demand is met with what is called NEWater, the brand name given to reclaimed water produced by Singapore's Public Utilities Board.

So how do we make a conceptual and operational shift to increase water reuse globally?

One of the most immediate opportunities for water reuse lies in the industrial sector, where globally and especially in European countries, there is a new focus on the Circular Economy. The goal is to move from today's linear approach of a 'take, make, dispose' economic model and move to one where we recycle and reuse as much as we can. For water reuse, this requires industry to capture, purify and reuse wastewater to reduce the amount of freshwater required.

To make increased water reuse a reality, it will take a combination of corporate sustainability programs, collaboration with NGOs and a commitment at the government level to unlock opportunities for water reuse programs.

Policy Changes to Promote Reuse

While there are many programs that can help spur adoption of water reuse, there are four main policy options that the government can use to help both the industrial and municipal segments move towards reuse.

Education and Outreach

Education and outreach is important to driving water recycling and reuse because it not only encourages its use, but it helps to overcome public concerns about the safety and quality of recycled water.

For this reason, many communities with a water-recycling program have active public education and community outreach programs. These programs are often supplemented by state and regional-level government campaigns. Common types of education and outreach programs include recognition awards and certification programs, and the positive promotion of water recycling and reuse programs.

Removing Barriers

Barriers can include regulatory, technical, and financial obstacles. Governments can help overcome these barriers by setting specific quality standards for recycled water and providing guidance on the use of reclaimed water.

While water recycling and reuse is often constrained by state or federal requirements, communities do have control over local building and development codes as well as local funding — all of which can play a significant role in encouraging or discouraging water recycling and reuse.

Incentives

Economic incentives can be a large influence in the creation of water reuse programs. Several options include:

1 OECD Environmental Outlook to 2050: <http://www.oecd.org/env/indicators-modelling-outlooks/oecdenvironmentaloutlookto2050theconsequencesofaaction-keyfactsandfigures.htm>

2 UN World Water Development Report: <http://www.unwater.org/water-facts/scarcity/>

- Pricing recycled water to be cheaper than potable water
- Linking water usage to conservation programs
- Exempting recycled water users from many of the community's conservation requirements
- Providing subsidies or grants for water recycling and reuse
- Creating government procurement programs for water recycling and reuse technologies and infrastructure.

Mandates, Regulations and Standards

Communities facing severe water restrictions due to natural water scarcity, population growth, or resource overuse frequently adopt laws requiring the use of recycled water.

There are two common approaches to mandating the use of recycled water: (1) requirements targeting the supply of recycled water by regional or local wastewater treatment or water supply districts; and (2) requirements affecting the use of recycled water by residents or businesses.

Technology Innovation

Technology does exist today to treat wastewater to quality levels suitable for both industrial purposes as well as potable reuse. However, it is important to take a fresh approach in how the technology is implemented.

For water reuse to make economic sense to many industrial facilities, there must be an understanding of the water quality needs based on intended use. For example, the level of water quality required for a cooling tower is different compared to a boiler or the various process washes.

Water recycling and reuse engineered with a fit-for-purpose approach looks at how a facility can use custom local clusters of treatment driven by distinct reuse objectives. With targeted endpoints in mind, technology providers and engineering consultants can create the most water-efficient and low-energy design for a specific need.

By using a fit for purpose approach, a facility or utility can avoid unnecessary costs associated with over treatment.

Technology trends

Creating a water reuse process isn't a one size fits all approach. It requires selecting a from a wide spectrum of technology to meet specific needs, which is why we are seeing technologies combined in different ways for specific water reuse flow sheets. Several trends we are seeing include:

MBR for retrofits

Membrane Bioreactor (MBR) technology is a gold standard for reuse. MBRs are great for plants that don't have a large footprint, making them suitable for retrofits or plant expansions within a specific space. There are ongoing efforts to integrate MBR into the regulatory framework

Monitoring will continue to grow

As water reuse programs increase, so will the level of monitoring that the government will require. This will be especially true in terms of potable reuse to account for public safety.

EDR for TDS removal

Brine solutions with Electrodialysis Removal (EDR) is gaining momentum. EDR is a great solution for any wastewater stream that needs Total Dissolved solids (TDS) removal prior to reuse. It has a high recovery and low fouling tendency. It is used after an MBR (or tertiary UF) where TDS removal is required and in lieu of a Reverse Osmosis system.

Tough to treat waters

For even tougher to treat waters, zero liquid discharge technology (ZLD) can achieve

around 98% reuse. Areas like china are mandating ZLD for specific new plant construction to protect environmental sources.

Improved economics

Water tariffs tend to be low in many parts of the world, which often leads to an economic barrier to getting business and communities to adopt reuse. In other words, it is often simply cheaper to keep taking water from the ground, a river, or even a potable municipal system, than it is to implement water reuse technologies. Thus, technology providers are constantly looking to bring down the operating costs of these technologies. R&D activities focus on innovative applications to achieve water reuse in more energy efficient ways and in ways that increase capacity within a smaller footprint.

As global population, water scarcity, and urban and industrial development continue to increase, there will be a need to create new water sources to address water needs. Conservation is important, but not enough on a global scale. Desalination is an option for coastal areas but can be energy intensive. Water reuse is the key to immediately and effectively reversing the threat of water scarcity and helping the water create a sustainable water future.

The Goldbar Facility in Alberta Canada uses SUEZ ZeeWeed MBR technology for water reuse



Anglian Water in the UK turns waste to energy with advanced anaerobic digestion technology



The role of water in the EU clean energy transition



Dominique RISTORI

Director-General for Energy, European Commission

Water ecosystems such as oceans, seas and rivers are rich spaces where a great diversity of human activities is concentrated. They represent a natural link between different sectors of the economy: maritime and fluvial transport, agriculture and food industries, tourism and, last but not least, energy.

Water and energy are a central part of our everyday life; be it for cooking, heating our homes, agriculture or running our industries. They are vital for our health and wellbeing.

Water and energy mutually need each other. They are closely interlinked in every possible way. Energy is needed for the whole water cycle from water treatment to water supply. At the same time, water is needed for energy production.

When it comes to water and conventional energy, the interlinkages are extremely strong. Fossil energy supplies, such as coal and LNG, are transported via the oceans or seas and through the rivers of Europe. In addition, thermal power stations, including nuclear power plants, rely on water for cooling. During the summer of 2015, rivers in Poland had not enough water to cool down power plants. Coal power plants had to reduce their electricity generation, raising concerns about energy security. This shows how important water is for energy access and energy security.

At the same time, water plays a key role in the clean energy transition. Water ecosystems support the development of low-carbon solutions and shelter more and more innovative energy solutions such as storage, offshore wind and marine energies.

Water is central for the development of renewable energy. In 2016, hydropower accounted for 11.7% of the overall electricity generation in Europe. In addition, pumped hydro storage contributes to the integration of renewable energy in the energy system by providing flexible back-up capacity and by playing an important role in balancing the grid. Sources of flexibility such as these, that can react quickly, will become increasingly important as variable renewable electricity production increases. Indeed, renewable energy represents already today over 30% of Europe electricity generation and by 2030, it is expected that more than half of the electricity in Europe will come from renewables.

As part of the Clean Energy for All Europeans Package, the Commission has put forward the most advanced regulatory framework to support the clean energy transition and deliver on its Paris Agreement commitments.

Interinstitutional negotiations are progressing well. Four of the eight proposals are already politically agreed covering in particular energy efficiency, renewable energies and the Energy Union Governance. Negotiations are still ongoing for the remaining proposals on electricity market design which aims to make the electricity system fit for the future and able to integrate in a secure and cost-competitive way the growing share of variable renewable energies.

The revised Renewable Energy Directive sets an ambitious binding target at EU-level of at least 32% by 2030 in the EU's final energy consumption. It also puts forward measures to accelerate the development of renewables in the electricity sector but also in other sectors, such as heating and cooling and transport.

Traditional hydropower is not the only way in which water can play a role in the clean energy transition and in reaching our 2030 renewable energy target. Oceans and seas can significantly contribute with strong and continuous generation. Indeed, they have a potential of

supplying at least 100GW by 2050 in Europe, which would be enough to cover 10% of EU's electricity demand.

Marine energy is a growth sector that can spur investment in new technologies such as offshore and floating wind, tidal streams, waves, algae and ocean thermal energy and thus provide EU companies with a competitive edge. Due to strong research capabilities and maritime engineering experience, Europe is the clear global leader: 84% of the market for offshore wind is European. 50 % of the world's tidal energy developers, 60 % of wave energy developers and 70 % of the ocean energy research and testing infrastructure are European.

As the EU is moving towards a low-carbon economy, water will play an increasing role and some clean technologies can have important water demand. This is the case for biofuel production, concentrating solar power, carbon capture and storage and nuclear power plants. It is therefore important to find the right balance between water demand and the clean energy transition.

Today, bioenergy represents half of renewable energies consumed in Europe and their use will increase particularly in the heating and transport sectors. In that context, the use of water but also the synergies with the agriculture sector should be carefully considered. Agriculture is currently the largest user of water at global level. The revised Renewable Energy Directive has consolidated the sustainability framework in order to ensure a sustainable development of the bio-energy sector.

Overall, it is key that the clean energy transition closely takes into account the impact on water consumption and ensure proper management of water resources. This is crucial at a time drinking water is becoming increasingly scarce. Synergies between water and energy policies but also with other sectors of the economy should be taken into account. The success of Europe's clean energy transition depends on it. In this context, the Commission will soon present its global vision for a long-term decarbonisation strategy in accordance with the Paris Agreement. This strategy will be presented in November this year, ahead of the COP24 taking place in Katowice, Poland in December 2018.

The energy neutrality of the water sector – a gold mine waiting to be exploited



Mads WARMING

Global Segment Director, Water & Wastewater, Danfoss

Few people know that the water cycle, from water production and distribution to wastewater pumping and treatment, is energy intensive. Yet it consumes almost as much energy as Australia¹. A figure that is expected to grow significantly in the coming decades.

According to the newly released World Energy Outlook 2018 of the IEA, the achievement of the sustainable development goals² could even triple the energy consumed for wastewater treatment by 2030.

The good news is that we can turn the water cycle energy neutral with measures that are typically paid back within five years. This is achieved by a combination of energy savings and energy recovery measures.

The benefits are huge: from energy savings, to the digitalization of the water sector which enables better services, better water quality, reduced water leakage by 40% on average, the modernization of often aged water infrastructures and a reduced energy bill for cities.

The latter can be significant: the energy consumption of the EU's water sector represents between 30 and 50% of the electricity consumption of local authorities.

Today, the city of Aarhus has succeeded to make the whole water cycle energy neutral³. This was achieved in the Marselisborg facility servicing 200,000 people. On top of that, this led in 2016 to a reduction of water losses by around 6% and of water price by 9% for consumers.

This has been achieved through digitalisation of water facilities, meaning a much higher use of sensors, variable speed drives and advanced process control offering both energy savings and increased energy production from the household wastewater.

This vision is replicable as underlined in the IEA World Energy Outlook 2018. It will be possible to change the highly energy consuming wastewater sector to a positive net energy provider.

The issue today is not anymore whether the technologies are there, or whether it is feasible to turn the water sector energy neutral. The issue is whether this gold mine is exploited fast enough, at the speed and scale that is

needed to keep the temperature of our planet far below 2°C. It is indeed clear that the only way to achieve the Paris Agreement is to streamline climate technologies and energy efficiency in every sector, including the energy intensive water cycle.

The good news is that there is a historic opportunity at EU level to adapt the legislation of the water sector and make it fit to unleash the energy neutrality potential of the water cycle. The entire water legislation at the EU level is being revised. Existing Directives (i.e. the Drinking Water Directive, the Waste Water Treatment Directive and the Water Framework Directive) so far do not take energy into account despite huge potential and sub-optimal investment levels which indicate a market failure, hence the need for policy action.

The EU's new Drinking Water Directive (DWD) is a first step towards an energy neutral water sector and a sustainable drinking water supply management. Indeed, in the new DWD, the European Commission proposed more transparency on energy performance and water leakage rates. This should be kept throughout the legislative procedure.

It is time to break the silos and change our mindsets to achieve the necessary transformation of the water sector.

³ <https://www.euractiv.com/section/energy/news/denmark-cracked-secret-code-in-water-energy-nexus-official-claims/>

¹ i.e. roughly 120 Mtoe per year. More than half of this is in the form of electricity (850 TWh), representing around 4% of global electricity consumption (IEA WEO 2018).

² SDG 6.2 and 6.3 aiming at reducing the volume of global untreated wastewater by 50 % before 2030



Low carbon does not always mean low-water: the importance of integrating the water-energy nexus into energy policy



Molly A. WALTON

Energy analyst with the World Energy Outlook (WEO) at the International Energy Agency (IEA)

The energy sector depends on water and it has become increasingly important to consider water needs when assessing the physical, economic and environmental

viability of energy projects. Almost all of the weaknesses in the global energy system, whether they are related to energy access, energy security or the response to climate change, can be exacerbated by changes in water availability.

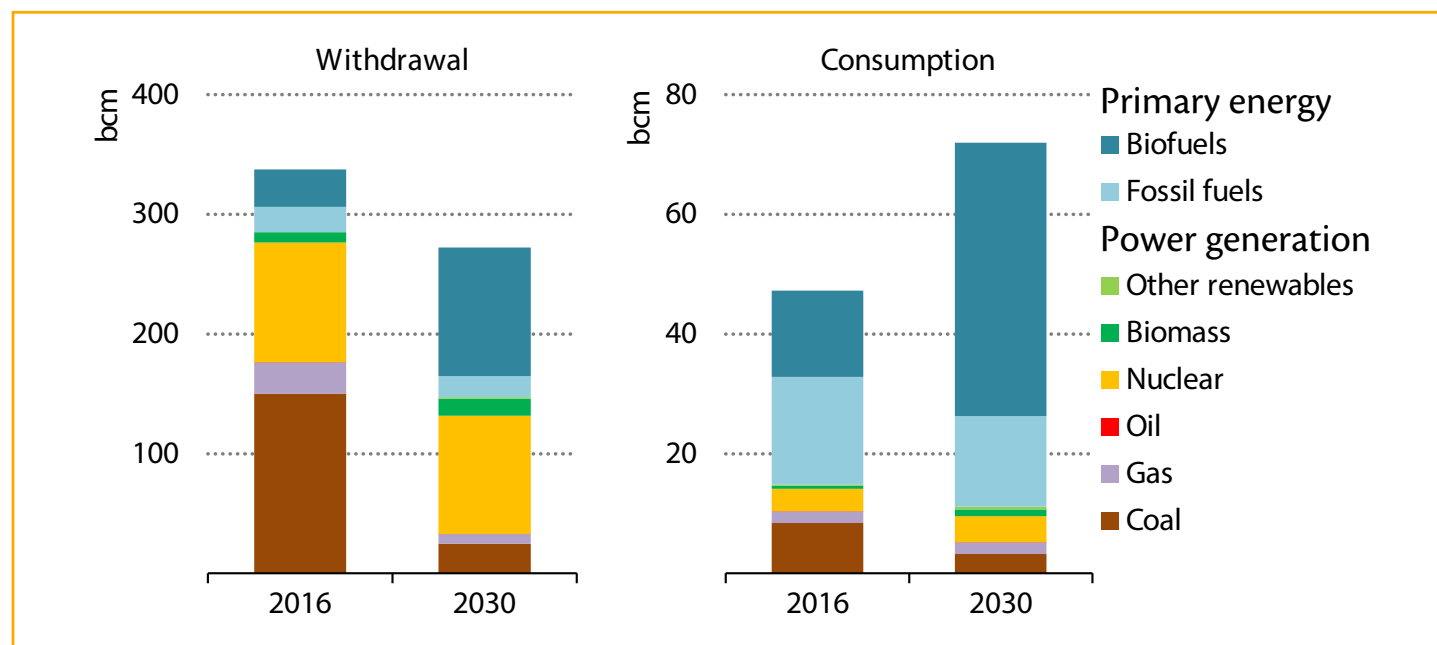
New analysis from the [World Energy Outlook 2018 \(WEO-2018\)](#), released 13 November, shows that in 2016 the energy sector withdrew around 340 billion cubic metres (bcm) of water—defined as the volume of water removed from a source—and consumed roughly 50 bcm—the volume that is withdrawn but not returned to the source. This amounts to roughly 10% of total global water withdrawals and 3% of consumption. While the energy sector's share is relatively low today, demands on water resources are expected to increase—by 2030 global water demand could exceed [total supply by 40%](#). As such, water could become a potential chokepoint for the energy sector making it increasingly important for policymakers to incorporate water into energy policy decisions.

Given this, WEO-2018 assessed the future water needs of various potential energy scenarios. It found that an integrated approach focused on delivering three energy-related Sustainable Development Goals-achieving energy for all, reducing the impacts of air pollution and tackling climate change (our Sustainable Development Scenario) - results in significantly lower water withdrawals by 2030 than a scenario focused only on climate goals or our main scenario based on the trends and policies we see today (New Policies Scenario).

In an integrated approach, global freshwater withdrawals in the energy sector decline to reach roughly 275 bcm in 2030, 20% lower than in our main scenario, thanks to increased energy efficiency, a shift away from coal-fired power generation and the greater deployment of solar PV and wind power which require little to no water (Figure 1).

The technology and policy choices in the Sustainable Development Scenario lower the energy sector's water withdrawals by 20% relative to 2016, but increase consumption by 50%

Figure 1 - Global water use in the energy sector by fuel and power generation type in the Sustainable Development Scenario



Notes: Other renewables include wind, solar PV, CSP and geothermal. Hydropower is excluded.

Of all three scenarios we assessed, a climate-only approach had the highest level of water withdrawals, which increase slightly to reach almost 350 bcm in 2030 (Figure 2). This is because some low-carbon fuels and technologies deployed to achieve decarbonisation efforts, such as nuclear, concentrating solar power (CSP), biofuels and carbon capture are relatively water-intensive.

The energy sector's water consumption rises in all three pathways by 2030. While consumption increases the most under a climate-only approach (+65% over 2016), it increases by 50% in an integrated approach, underpinned by a shift to more wet-tower cooling in the power sector, a rise in nuclear and a greater reliance on biofuels in transport. Moreover, consumption accounts for a higher share of the energy sector's water withdrawals in an integrated approach (26%) than in other scenarios. Though water withdrawals are the first limit for energy production when water availability is constrained, water consumption reduces the overall amount of water available to satisfy all users.

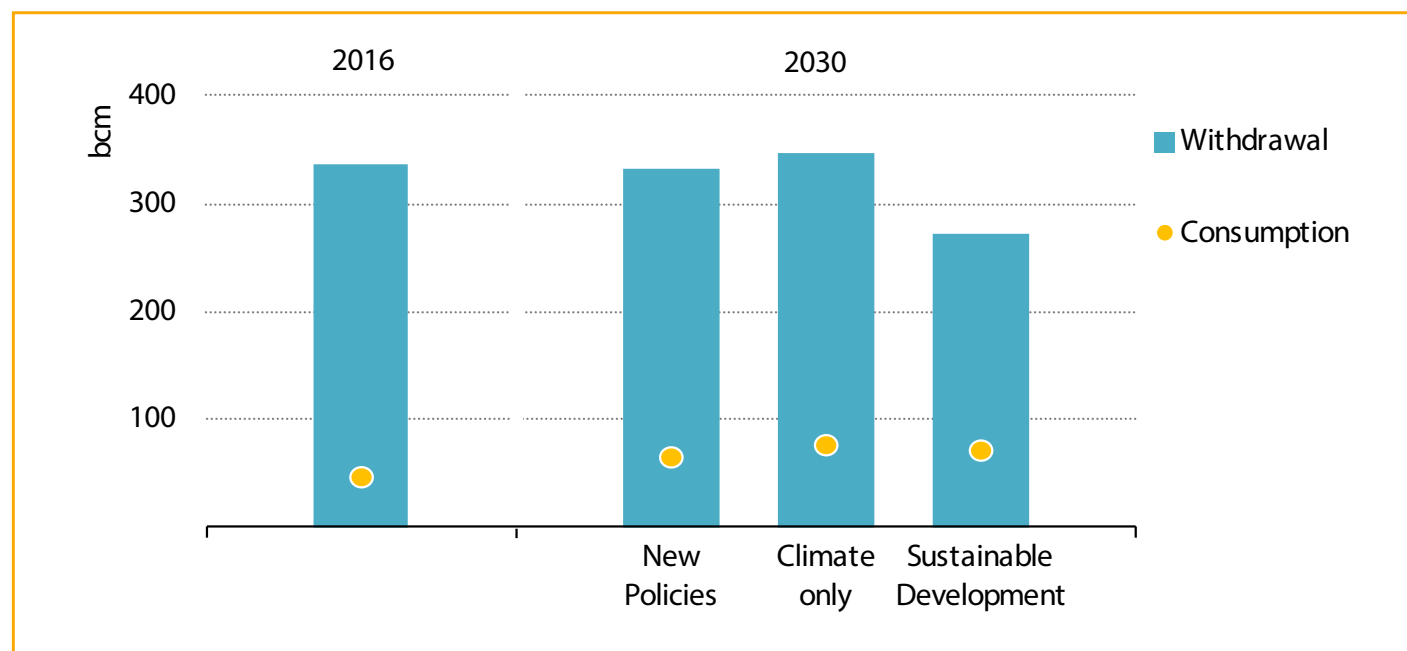
With both energy and water demand on the rise, it has become increasingly important to understand the water-energy nexus in order to anticipate stress points and to implement policies, technologies and practices that soundly address the associated risks. As our analysis has shown, the more an energy pathway relies on biofuels, CSP, carbon capture or nuclear power, the more water it

requires. As such, if not properly managed, the suite of technologies and fuels deployed to achieve key energy objectives of security, affordability and sustainability could exacerbate or introduce water stress depending on the location, the availability of water and the range of competing users. In some instances, a lack of water could act as a constraint on the technology suite available to pursue these objectives. While the potential stress does not apply across the board, it does underscore the importance of taking current and future water availability into consideration to ensure the viability of energy projects and avoid unintended consequences.

For more, visit [iea.org/weo/water](https://www.iea.org/weo/water).

A focus on an integrated approach rather than just a decarbonisation approach results in the lowest level of water withdrawals in 2030

Figure 2 - Global water use by the energy sector by scenario



Notes: New Policies = New Policies Scenario; Sustainable Development = Sustainable Development Scenario. Results for 2030 for the climate only scenario are from the WEO water-energy work in 2016, which was the last year that the WEO produced the 450 Scenario, a scenario meeting global climate goals.

Encourage innovation in water use to consume less



Sirpa PIETIKANEN

MEP (EPP Group) Member of the ECON Committee

Water is a scarce resource. Its scarcity can result from physical shortage or lack of good governance, resulting in bad infrastructure and unsatisfactory management of the water resources.

Water covers 70 % of our planet, but only 3 % of the water in the world is fresh water, a big part of which is in glaciers or otherwise outside of our use. Over 1 billion people lack access to water and over 2.5 billion find water scarce some parts of the year. Almost 2.5 billion do not have adequate sanitation, which risks them diseases and illnesses.

Water is the source of life. It is complex and connected to almost everything in the world. We need water for our survival. Clean water improves health. Our food production is dependent on water. Without water, there would be nothing.

Groundwater sources are declining and the quality of the groundwater is deteriorating due to contaminations. The decline of groundwater is accelerating, and this is because of the climate change. Groundwater has been considered a reliable and flexible source of water, in areas where it is still available. And it is available almost everywhere. Its quality in general is good since it is found deep underground far from contaminations. However, it is extremely important to make sure that groundwater is used in a sustainable way. If too

much water is withdrawn, the aquifers will not be able to recover.

Today we have more people; we have more financial resources, and more technology, more goods to be consumed in a shorter period of time. With the current consumption rate, we would need 4 planets in 2040. Almost all human and economic activity requires water. This is why, water is not only a scarce resource, but it is becoming scarcer every day.

Irrigation and agriculture are one of the biggest water uses. Globally, irrigation accounts for more than 70% of total water withdrawals. Agriculture not only uses water, but also affects its quality. We need to pay attention to what is cultivated and where, but also what kind of water is used for irrigation. Drinking water should not be used for irrigation. Lakes should not be used to irrigate rice fields where pesticides are used. Secondary waters should be the choice in the agricultural sector. Unfortunately, in many cases, the secondary water does not have high enough quality. As an example, salmonella has been found in polish raspberries that have been irrigated with wastewater. Too often, the wastewater has traces of pharmaceuticals, other chemicals and organic matter.

Climate change affects water availability. It becomes less predictable. Extreme rainfalls, flooding and droughts become more common and are increasingly severe. Climate change has an effect on both the availability and quality of water. This has an effect on food security and health, but it can also have an indirect effect on the political environment.

One solution to this problem is increase the innovation in water use and consumption. According to the European Commission, an average of 23% of treated water is leaked in Europe. This is due to bad water pipes, infrastructure and bad management of the whole water systems.

This spill needs to be stopped. The problems with water management systems are vast and they need to be tackled fast. Targets need to be set for the maximum water leakages and the amounts of the water leakage need to be public and communicated to the customer. Whether the leakage is in connection to

private or industrial use, the customer will be the one bearing the cost of the leaked water. EU regulation should make it compulsory to repair the unfit infrastructure to stop the leaking, to keep the leakage percentage under 10%.

A big step to improve water use efficiency is to tackle the problems with the water management systems and leakages. The technology to reduce water leakage significantly already exists, but the companies have not acted fast enough. One important way to improve the situation is to make it transparent how much water the water companies waste because of the leaking pipes as well as other reasons. EU-level targets should be set for the maximum water leakage, to force the companies to improve the infrastructure and minimize the water lost in the process.

Furthermore, there are different ways to organise water collection and the reuse of the collected water. Sometimes the wastewater can be reused, but in some cases, it is not good enough quality. Good water management systems can answer all these questions and make the overall system more effective. Closed water circulation and greywater circulation have also potential to minimise the water use and reduce the environmental impacts, including chemical contaminations. This needs to happen both in public, residential and industrial properties.

Besides this, we have to remember that water is one of the basic human rights; we all need water to survive. We have to secure a system where everybody has an access to affordable, clean and safe water.

A change of approach to lowering everyday water and energy use



Mehrdad MAHDJOUBI

Founder and CEO of Orbital Systems and
Finalist for the European Inventor Award
2018 (European Patent Office)

Fresh water scarcity is a growing crisis that already affects 4 billion people worldwide. Far from being confined to the most arid regions of the globe, the demand for fresh water is outstripping supply in many parts of Europe as well. This past summer is a prime example, where countries such as Sweden and Denmark were forced to implement personal water use restrictions. According to the European Environment Agency (EEA), about 60% of European cities of 100,000 citizens or more are in or near areas where groundwater is over-exploited. The crisis is further exemplified in the European Commission's "EU Action on Water Scarcity and Drought."

In the latter documents, the crisis is addressed through seven policy options, including "Fostering water efficient technologies and practices," and

"Fostering the emergence of a water-saving culture in Europe." It is clear that there is a need for modern, user-friendly domestic solutions that work symbiotically with corresponding water and energy saving initiatives for industry and agriculture, throughout Europe and around the world.

The right solution requires addressing the right problem

At Orbital Systems, we believe that solutions addressing water and energy savings at home often fall short because of a critical flaw in approach: Instead of considering how much of

the water we use is under-exploited, we look to increase how much is available.

As a comparable, we need only look at the energy sector, where the answer to increased demand is strongly weighed to increasing supply. Far more resources are dedicated to finding and creating more energy than to exploiting existing energy sources to their full potential

As populations continue to grow, especially in urban areas, and as inadequate resource renewal combined with pollution and natural disasters continues to press our reserves, the answer to a rational approach to domestic water use isn't to find more of it--but to use it smarter.

Using less water better

Our technology is intended to disrupt that approach, concretely as it relates to daily water use, and inspirationally as a wider model for global sustainability practices.

The OAS closed-loop shower sources a few initial litres of water from the traditional plumbing infrastructure, and re-purifies and recirculates them for as long as the user showers. Water that is too contaminated for efficient purification is released in the drain, and an equivalent amount is sourced back into the system from the traditional water supply. The looping water is continually monitored and cleaned, as well as temperature-corrected. The result is a shower that only uses 5-10 litres of fresh water, instead of the typical 50-100 litres.

Because it is heating only the original 5-10 litres, the energy use is also much lower--a significant cost saving at a private level, and another positive contribution to complementary resource management and environmental policy. Up to 80% of the energy usually used to heat the water can be saved. Those are energy savings that will become even more crucial in a nearly zero energy building stock¹ where the relative share of energy

consumption related to hot water use will increase significantly on the total energy bill of households. Users are also able to track their usage and savings of water and energy digitally, engaging them in a wider understanding and appreciation for resource conservation and sustainable living.

An intuitive way to support change without jeopardizing comfort

Perhaps most importantly, the OAS closed-loop shower requires no special effort or change of behaviour to benefit from it. Users are part of a much more rational approach to fresh water and energy use just by doing what they already do anyway. EEA research into pricing and non-pricing mechanisms for lowering water demand show the importance of psychological considerations in gaining public support and participation in fresh water conservation.

If daily water use per person could be cut from 150 litres to 20 litres, -it would be the equivalent of finding 130 litres per person per day in the European Union alone. That's a lot of found value from a threatened resource--arguably the most important one to our continued survival and prosperity.

Best of all, it is an achievable goal, as long as we continue to support and invest in the technologies that approach our challenges innovatively--starting with a shift in prioritisation from increasing supply to maximising efficiency. And appreciating that when it comes to fresh water, less has much more to give.

Technologies are there. What is needed now is the right regulatory framework to accelerate the speed and scale of their deployment.

¹ The newly adopted revision of the Energy Performance of Buildings Directive (2018/843/EU) sets out a European goal to reach a nearly zero energy building stock by 2050.

Sustainable water use – the EU can write the future



Folker FRANZ

Head of Government Relations EU, ABB

The droughts that plagued Europe and most of the Northern hemisphere during the summer 2018 are a new reminder that water supply, which we usually take for granted, is vulnerable to extreme weather and to climate change. ABB, a firm supporter of the United Nations' Sustainable Development Goal n°6 "water and sanitation", believes that faster deployment of advanced water management technologies, supported by predictable water policies could alleviate water scarcity and deliver health and economic benefits to citizens in Europe and worldwide.

European Union's water challenges

Since the 1990s, the European Union has developed an extensive regulatory framework to protect Europe's water resources, yet many challenges remain. First and foremost water stress is still an issue for many regions¹, and water resources available to European citizens are slowly declining. According to the European Environmental Agency, between 1960 and 2010, the renewable water resources per capita dropped by 24%.

The global situation is even more challenging: according to the World Bank, by

2030 – only 12 years from now – there will be 1 billion more people on the planet and the world will face a 40 percent gap between supply and demand if the current growth of water usage continues. It is urgent to make every drop count.

In addition to water availability, water quality is also key. In its "2018 water assessment" the European Environment Agency noted that after decades of decline, water quality has stabilised or started to improve again across the EU. Nevertheless, only 40 % of the surface water bodies are considered to have a "good" or "high ecological" status, the rest being subject to various contamination, especially from nitrate or mercury.

European policy-makers can tackle these environmental challenges by supporting the adoption of best water management practices and the deployment of best available technologies across the European Union. The EU can thus be the vanguard in tackling one of the biggest challenges of this century.

Water re-use and leaks reduction are needed to address water scarcity

On average 24% of European utilities' water is lost before reaching the consumer, which represents a yearly financial loss of EUR 8bn according to the UNECE. However, water losses vary starkly from a country to another, and can be as low as 5.5% in the Netherlands² while exceeding 60% in Bulgaria³. This demonstrates the significant potential of water network modernisation and upgrade for conserving water. Simple steps such as mapping networks accurately, or installing leakage and pressure detection systems can help reducing losses along the water value chain: abstraction, distribution, consumption and treatment.

Unfortunately, consumers and policy-makers are rarely aware of, and concerned by, water losses except when droughts strike. Against that background, ABB would support the definition of a harmonised European approach to assess water distribution performance. In addition, **water leakage reduction objectives should be defined, and**

water utilities should be provided with the means to reach them. The "drinking water directive" currently discussed at European level would be the perfect vehicle to introduce such objectives.

Complementary to technical upgrades, **creating an EU-wide framework for water re-use could also alleviate water stress.** Apart from Malta, Spain and Cyprus where this is already common practice, water re-use is not encouraged, or even allowed, in every other Member States. Today, 1bn cubic meters of treated urban wastewater are re-used across the EU, while the **total re-use potential is close to 6bn cubic meters**⁴. The European Commission made a step in the right direction by proposing a "water re-use regulation", unfortunately its scope appears too restrictive. ABB would support a broader regulation, covering **not only the agricultural sector but also the industry** (i.e. cooling of power plants, dust control, mill processing, etc.).

Saving water and energy to keep consumers bills, and emissions, under control

Water management and energy generation are intertwined: on the one hand, water is used to generate energy, either directly (hydropower) or indirectly (to cool power plants), on the other hand energy is needed to pump water, move it across long distances and treat it. Overall, electricity use accounts for 25–40 percent of the operating budgets for wastewater utilities and approximately 80 percent of drinking water processing and distribution costs.

Technical solutions exist to reduce energy consumption, such as equipping pumps with high efficiency motors and variable speed drives which can reduce the annual energy consumption of a medium-sized pumping station by around 25 percent, compared to running it with lower efficiency motors at constant speed.

European policy-makers can make a difference by encouraging utilities to publish more information on their energy consumption. This could be achieved through **new transparency requirements or energy**

¹ <https://www.eea.europa.eu/data-and-maps/indicators/use-of-freshwater-resources-2/assessment-2>

² <http://www.vewin.nl/SiteCollectionDocuments/Publicaties/Cijfers/Drinkwaterstatistieken-2017-EN.pdf>

³ World Bank database

⁴ <http://ec.europa.eu/environment/water/reuse.htm>

efficiency targets, both in the drinking water directive and in the upcoming revision of the urban wastewater treatment directive.

Digital technologies can help to preserve water quality

Water networks can be contaminated due to cracked water pipes, inappropriate water treatment or floods. In the past, water quality monitoring involved taking water samples and analysing them in a lab. This method proved efficient, but only provided a snapshot of water quality at a certain time, in a certain place.

Today, sensors and data collection system can provide utilities with minimum, maximum and average values across a broad range of intervals – hourly, shift, weekly, etc. – to meet

their analytical and regulatory needs. It also enables utilities to monitor a larger number of critical spots in their network and guarantee that water quality is high not only where abstracted or where injected in the network, but also in the last mile, close to the consumer. As benefits of digitalisation are clear, the digital single market for water services action plan developed by the “ICT4water” platform should be implemented as soon as possible.

In light of this technological progress, ABB invites policy-makers not to view **online monitoring** of substances as a luxury for large utilities, but as **a default option for all companies responsible for maintaining a high water quality**. This should be reflected in the drinking water directive and in the urban wastewater treatment directive.



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Water resources in Europe — Quantity and quality face big challenges



Ronan UHEL

*Head, Natural Capital and Ecosystems
European Environment Agency*

The European Union's surface waters and groundwaters have been monitored at more than 130 000 monitoring sites over the past six years. Ecological and chemical monitoring programmes have developed over time and their results are clear: the overall environmental health of Europe's many water bodies remains precarious.

European waters remain under pressure from a range of human activities, which often act at the same time and threaten the valuable benefits that water brings to society and the economy. The main pressures on surface water bodies come from physical alterations; pollution from diffuse sources, particularly agriculture and atmospheric deposition; pollution from point sources, such as industrial facilities, and water abstraction.

Around 40 % of the surface water bodies are in good or high ecological status or potential, with lakes and coastal waters having better status than rivers and transitional waters. The change for the better has been limited since the first River Basin Management Plans (RBMP).

The status of many individual quality elements that make up ecological status is generally better than the ecological status as a whole. In the second RBMPs, 38 % of surface water bodies are in good chemical status, while 46 % have not achieved good chemical

status and for 16 % their status is unknown. In many Member States, relatively few substances, such as mercury, are responsible for failure to achieve good chemical status. Member States have mainly made progress in gradually tackling priority substances, such as priority metals (cadmium, lead and nickel) and pesticides.

In the EU, 74 % and 89 % of the area of groundwater bodies, respectively, are in good chemical and quantitative status. This is a small improvement from the first RBMPs. Nitrates are the main pollutant, affecting more than 18 % of the area of groundwater bodies. Other significant sources are discharges that are not connected to a sewerage system and contaminated sites or abandoned industrial sites. In total, 160 pollutants resulted in failure to achieve good chemical status. Most of the single pollutants were reported in only a few Member States and only 15 pollutants were reported by five or more Member States.

Water abstraction for public water supply, agriculture and industry are the main cause for not achieving good quantitative status. Despite an estimated decrease of total water abstraction by 19 % since 1990, the milestone set in the EU resource efficiency roadmap — that water abstraction should stay below 20 % of available renewable water resources — has not been achieved in 36 river basins corresponding to 19 % of Europe's territory. Agriculture accounts for around 40 % of total water use in Europe, followed by cooling (28 %) and manufacturing and mining (18 %). The use for public water supplies is only 14 % of the total water use. Water use for cooling in electricity generation is the main pressure in western and eastern Europe, whereas agriculture is the most water-demanding sector in southern Europe. Manufacturing industry is most water-demanding in northern Europe.

Improvements in water conveyance systems have resulted in an estimated decrease of water use for households by 18 %. However, European metropolises and dry regions are still the most vulnerable to water stress. During the last decade, significant improvements have been made in connecting populations in southern and eastern Europe to waste water treatment facilities. However, around 30

million inhabitants are still not connected to waste water treatment plants in Europe.

For decades, European surface waters have been modified by straightening, channels, dams, bank reinforcements and other structures to facilitate agriculture, produce energy and protect against flooding. EU water legislation requires restoration action in those cases where these hydromorphological pressures affect ecological status waters. These actions include restoring aquatic habitats; managing sediment in a way that ensures that it is transported along the length of rivers, reconnecting backwaters and wetlands; natural water retention to restore natural water storage, for example inundating flood plains and constructing retention basins; restoring natural water flows; and restoring the population of threatened fish species.

Sustainable water management aims to restore and enhance healthy and resilient ecosystems, which provide the services needed to sustain human well-being. For this reason, we need to ensure that not only industry but also other economic sectors, such as agriculture, energy and transport, adopt management practices that keep water ecosystems healthy and resilient.

For detailed information:

<https://www.eea.europa.eu/highlights/water-in-europe-means-life>

<https://www.eea.europa.eu/highlights/european-waters-getting-cleaner-but>

Plastic in European waters: a better water framework for EU sustainable development



Michela GIUFFRIDA

MEP (S&D Group) Vice-Chair of Intergroup on Social Issues

Water resources management is a key factor for the sustainable development of European society. When asked to list the five main environmental issues that Europeans are worried about, averaged results for the EU25 show that nearly half of the respondents are worried about water pollution (47%). The European Union is showing his ambition to make the transition towards a circular economy that could be able to deal with this issue. A crucial part of this fight consist of the societal and environmental challenges and practical issues relating to plastics.

Over 80% of marine pollution comes from land-based activities. From plastic bags to pesticides - most of the waste we produce on land eventually reaches the oceans, either through deliberate dumping or from run-off through drains and rivers. Every year 6.4 million tonnes of plastic, with all the toxins they contain, pose a threat to sea life and ecosystems. At the same time, the fishing industry accounts for 10% of marine debris. This has an economic and environmental cost. On a European scale, according to a study commissioned to Arcadis from the EU, the marine field costs 476.8 million euros a year (the total estimated cost for cleaning all EU beaches is €411.75 million).

In many parts of the world, sewage flows untreated, or under-treated, into the ocean - 80% of urban sewage discharged into the Mediterranean Sea is untreated. Coming from and

representing citizens of an island in the middle of the Mediterranean where economies relies upon marine resources, Sicily, I pay as much attention as possible to the outcome of this misconducts and bad practices. And current practices to tackle this challenge are focusing too much on end-of-pipe solutions (collection, sorting, processing).

Recently plastic litter has been reported not only in maritime environments, but also in fresh water including rivers and lakes. This is a clear indication that plastic waste is distributed in nature through many different mechanisms, many of which are not thoroughly understood.

Then it is clear that, while the SUP Directive is most welcomed, a more holistic approach as envisaged in the EU Plastic Strategy and in the EU Circular Economy Strategy is necessary in the long term to promote the needed fundamental changes. That is the reason why I wanted to add in the Committee on Agriculture's opinion, as shadow rapporteur, that certain single-use plastic products end up in the environment as a result of inappropriate disposal through sewers or other inappropriate release into the environment.

Following this perspective while tackling the issue, it is easily understandable that the problem should be addressed at source and should be solved by reducing non-degradable plastic waste entering the economy.

The starting point of this process lies in the information campaigns, voluntary actions and labelling for consumers that could increase general awareness and thus influence consumer behaviour.

Then there should be changes in product design and a switch to more sustainable plastics and substitutes for plastics. We should think of supporting measures for more than 50 000 SMEs in the plastics sector to develop alternative products to non-degradable disposable plastics, while facilitating the market entry of new alternative materials and alternative product designs through innovation programmes and investment support for process modification.

At the same time we should support the implementation of the polluter-pays principle, including for fishing gear. This goes hand-in-hand with the need to work on new solutions for environmentally safe plastic and fishing gear, including affordable biodegradable alternatives. Given the differences between Member States and organisation of their waste management, we need more flexibility on the most suitable methods for handling all non-recyclable plastics, while developing waste collection system that accepts any plastic waste produced during commercial activities at sea or collected in the maritime environment in order to prevent waste dumping offshore.

I wanted to focus on this peculiar feature of water resources sustainability because it is having a strong impact on the public debate, but we could easily mention other similar ongoing debates in the EU. For instance the Commission's proposals in response to the European Citizens' Initiative 'Right to Water' which aim at ensuring universal access to clean and healthy drinking water as an essential public service; or the Water Framework Directive, where it is essential the cooperation between local and regional authorities and water supply companies; or again the effective protection and restoration of carbon-rich soils as a key contribution to meeting the Paris goals through wetland restoration and wet agriculture, which should be systematically supported and promoted under CAP.

As legislators and key players in this water management, we need to act now with an holistic and consistent approach on a European scale.

Water as a Human Right



Boylan LYNN

MEP (GUE/NGL Group), Member of the ENVI Committee

Water is a human right. It's quite a straightforward concept really, meaning everyone can agree with it, at least *in theory*.

In 2010, the UN General Assembly recognised the human right to water and sanitation, and acknowledged that clean drinking water, as well as sanitation, are essential to the realisation of all human rights. This UN resolution called on States to provide safe, clean, accessible and affordable drinking water for all.

An obvious finding, but still nice words that everyone could welcome. In theory.

However, the context of this right is that water is an *unequal* resource to start with. Fresh water is only 3 per cent of the world's water, and yet manages to sustain human existence on this planet.

Even still, 2.5 per cent of that water is locked up in glaciers or otherwise too difficult to access. Seventy per cent of the remainder is then used in agriculture, and then there's industrial production, all of which requires water, from plastic production to apparel sweatshops. So what about our drinking water?

While all angles of politics can join the chorus on "water is a human right", it's easy to agree with it principle. But a positive human right *in theory* alone is not a human right at all.

Without structures and determined attempts to realise this right, the words remain on paper.

The *realisation* of this basic human right, as agreed on at the UN, is what the Right2Water movement is grounded in. What this movement struggles for, is making the human right to water a tangible and actionable human right. This mass movement acknowledges the disproportionate access to safe, clean drinking water and believes it is an injustice that must be actively tackled.

Three and half million people die around the world due to water-borne illnesses every year. The stark reality of water inequality proves that nodding heads around the human right to water *in theory* or *in principle* achieves nothing.

However, in Europe, the inequality of the geographical distribution of water is not the key issue. The real obstacle comes with the ownership of water infrastructure and management of water resources. It's a different question of distribution, one centred on ownership, and therefore, a story of controlling resources.

In the EU, 1 million people lack access to clean drinking water. Deliberately denying ethnic groups, such as the Roma community, access to water is a policy of certain Member States. Moreover, water poverty is a serious issue across Europe, with households unable to afford to pay their water bills. Regressive taxation, worsened by the privatisation of water infrastructure, has brought working class people across Europe to their knees.

With this context, the Right2Water movement made three straightforward demands: no liberalisation of water services, guaranteed water and sanitation for all in Europe; and universal access to water and sanitation. This amounted to the first European Citizen's Initiative, or ECI, with nearly 2 million people signing this petition, forcing the EU to take account of these demands.

I was the rapporteur for the European Parliament report in 2015 on the follow up to the ECI Right2Water. This report, which was adopted by the Parliament, called on the Commission to recognise the right to water, that

water is a public good and not a commodity. It called for the Commission to conduct a study on water poverty and review the governance of water policy.

The European Parliament was resolute in affirming this right, and expected a decent response from the Commission, to give life to this right locked in ink on paper.

In the much-awaited response, the European Commission came up with its solution - an article on access to water in the recast of the Drinking Water Directive. The European Commission could take a sigh of relief, dust off its hands and finally put the Right2Water movement to sleep.

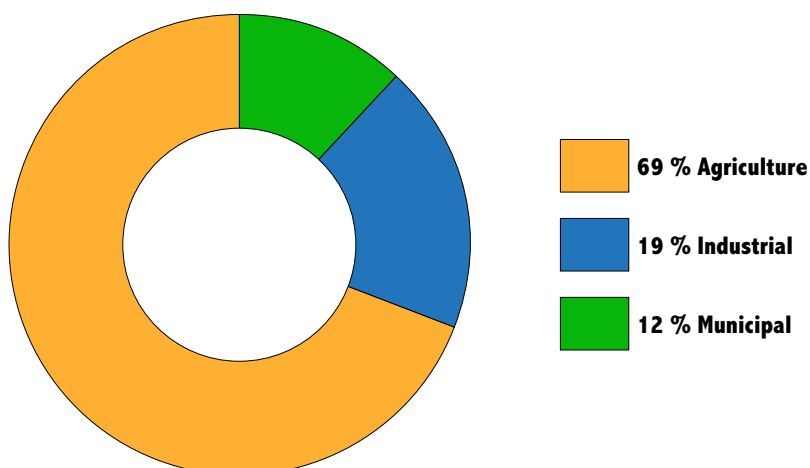
This woefully insufficient response made a mockery of the Right2Water ECI, as well as the petition system itself, which was introduced in an attempt to democratise the EU and give people a say in the EU's agenda.

The new Article 13 lays out a list of some necessary measures for Member States to take to improve access for all to water intended for human consumption. These include identifying people without access, setting up outdoor and indoor water infrastructure, and promoting tap water. It's quite hard to conceptualise this as enshrining the human right to water in EU law.

Through a shambolic process of negotiations within the Parliament, the Parliament's report did an even further injustice to the Right2Water movement. Thanks to a rapporteur who did not want Article 13 in the first place, the three obligations on Member States on access were reduced to options. Yes, you're right in questioning how a human right can be upheld *à la carte*.

The right to water has been battered and bruised by the EU institutions, and it still hasn't even been through Council. The interests are strong in keeping the right to water just a right *in theory*. Positive rights in practice cost, and the EU is proving itself to have the vested interests at heart, rather than the interests of the most vulnerable and marginalised in our society.

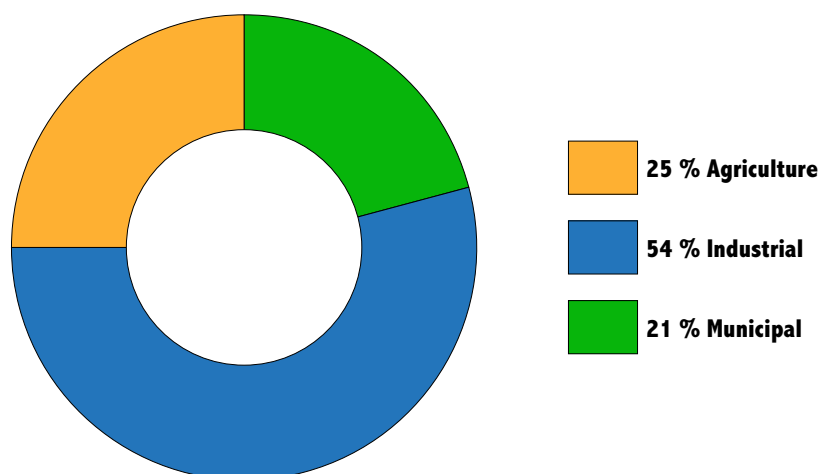
Global Water Withdrawal By Sector



*Note: "Europe" here refers to the whole continent and not exclusively to the European Union, so it also includes countries such as Switzerland, Norway, or Russia.

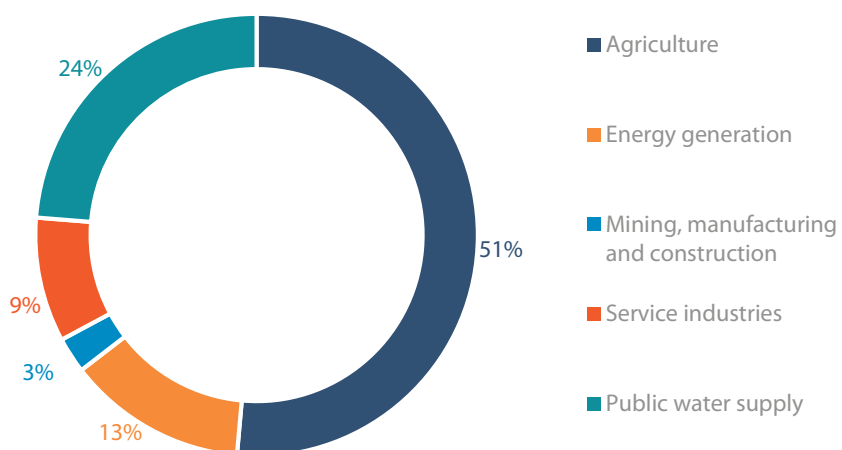
Source: Food and Agriculture Organization of the United Nations, AQUASTAT database, November 2016 .

Water Withdrawal By Sector in Europe

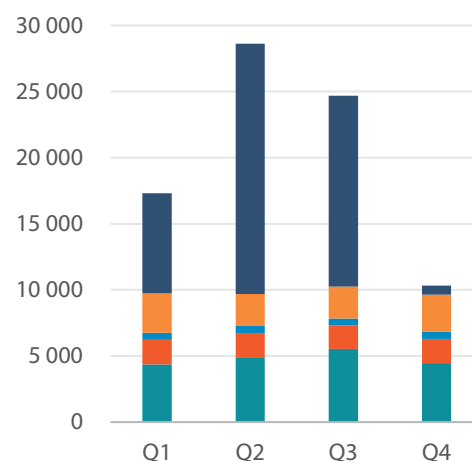


Water use by sector in the EU (2014, hm³)

Annual



Seasonal



Data source: [European Environment Agency](https://www.eea.europa.eu/).



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