EurEau

Resilience of the water sector to climate change: recommendations for water services and policy makers

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The voice of Europe's water sector

Introduction

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The 22nd session of the Conference of the Parties (COP22) to the UNFCCC will take place from 7-18 November 2016 in Marrakesh, Morocco. Signatory parties will begin preparations for the entry into force of the Paris Agreement.

It is widely recognised that the water sector will be heavily impacted by climate change. The sector needs to develop a long term vision as to how water services can become truly resilient to climate change, while safeguarding water resources. This includes further strengthening the role the sector is playing in mitigating climate change.

In light of this double-challenge, EurEau participates in COP22 through the conference on 'Resilience and the water sector: how we can prepare our drinking and waste water infrastructure for climate change and the economic and legal dimensions of these'. This conference was held under the auspices of COP22 in September 2016.

For this report we define resilience as "the capacity of individuals, communities and systems to survive, adapt, and grow in the face of stress and shocks, and even transform when conditions require it"[1].

The impacts of climate change will be channelled primarily through the water cycle[2]. Climate change is expected to increase the frequency and severity of droughts, water scarcity, flooding, and extreme temperatures. Different issues are and will affect different geographic regions. We have to work together: water operators, government, industry, the agricultural and tourist sectors and citizens.

We need consistent policies on climate change. We also need local and global awareness for improved resilience to adapt to a fluctuating water resource availability. This requires a global approach.

The water-related risks posed by climate change have severe consequences for all sectors. They can lead to social tensions. Therefore, resilience to climate change is crucial for all sectors.

The water sector assumes its responsibility and uses its knowledge to find solutions for the challenges ahead. **Decision makers should be made aware of the consequences of climate change, the cost of inaction and the priority issues.** EurEau believes that extreme weather events and facts have not been enough to change approaches and politicians do not yet feel a sense of urgency to act. We, the water services operators, are therefore bringing the discussion to them.

[1] Resilience, Development and Global Change: K.Brown. Routledge 2016.
[2] IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

The water sector is already engaging in developing resilient water services. This includes applying solutions for climate change adaptation, mitigation and the reduction of energy consumption and greenhouse gas emissions. We present our recommendations to COP22 on how to prepare the water sector for the future, ensuring a continuous water supply for citizens and other water users. These are divided into two sections: for water operators and for policy makers.

Recommendations for the water sector

Long-term vision

- We all need to adopt a new way of thinking to deal with the consequences of climate change. Water services are playing a big role both in adaptation and mitigation. **We need to be clear on what our role is and what other actors have to do.**
- Therefore we need a **long-term plan** to understand how and how quickly water operators have to adapt in order to be able to provide their services in the future.
- The costs of these measures should be borne by the actors in place. **Our services should remain affordable** and the principle of cost recovery implemented.
- **Education** programmes should tackle climate change issues related to the water sector. More people should be encouraged into R&D and engineering careers.

Stakeholder engagement

- We need to **share knowledge** and information between ourselves and with stakeholders. We should engage with decision makers and customers to raise awareness as to the consequences of doing nothing. We should educate consumers of all ages and types on how to deal with climate change.
- The water sector must involve the public in the **risk assessment** and management of the climate adaptation measures and the challenges ahead.

Adaptive measures to ensure resilience

- Adaptation measures are required to **increase the security of supply** by increasing the efficiency of all processes and parts in water services, both in terms of infrastructures (structural measures) and of their operation and management (operational measures).

~ Information coming from R&D should be shared to **create a knowledge base**.

~ Cities should work with water operators to **establish action plans** on how they will react in the event of severe weather events. Natural retention measures need to be integrated in urban planning to control the quantity of rainwater at source. The Copenhagen Climate Adaptation Plan is an example of this. Costs should be distributed between stakeholders.

~ **Sewer systems** need to be able to cope with varying flows.

Recommendations for policy makers

Long-term vision and holistic approach

~ Climate adaptation measures are needed to **safeguard the quality and quantity of water**. At the same time, water services should remain affordable for all customers.

~ We all need to promote water reuse as a way to **conserve** water resources.

Governance together with co-operation

~ **Good governance** is essential to grasp the complexity of adaptation to climate change. Public and private stakeholders, as well as the general public must be involved. The adaptation strategy requires clear communication from the beginning. All sectors and users of water resources should contribute to mitigation and adaptation measures.

~ Governance must rely on a standardised system of climate change indicators to **measure, monitor and evaluate impacts.** These metrics should reflect local and national circumstances to guide developments.

~ **Cooperation with all levels – local, regional, national and EU - is essential.** The EU plays a key role in providing legislation and funds to overcome investment barriers (top-down approach), while lower levels can advise on the implementation strategy (bottom-up approach). Adaptation measures should be implemented on small (local), medium (regional, national) and large (EU) scale. Local actions should involve communities to encourage participation and ownership.

Adaptive measures based on long-term vision

~ Adaptation investments in the water sector must be given priority, with **funding for research and development ringfenced**. More

innovation is needed to meet the long-term challenges and investments should come from public financing.

~ Future changes to infrastructure, such as the management of high flows, should be adaptable to changes in the climate and based on predicting systems.

~ The economic dimension of adaptation must be included in plans. **Cost analysis methodologies that address the benefits of adaptation measures on the use of water should be developed and applied.** The costs of the set-up, implementation, pilot actions, adaptations and inaction need to be assessed. All stakeholders should contribute to the costs taken in adaptation measures. Water services should remain affordable for all citizens.

Climate-adaptive cities

~ Municipalities should evaluate their level of resilience to climate change. **Cities and villages must become 'climate-adaptive' to manage more and heavier rainfall and a rising sea level, and to secure water resources. Climate adaptation requires, therefore, cross-service and cross-sectoral co-operation between water services and municipalities, agriculture, industry etc.**

~ Waste water treatment plants need to be **better located** to fully benefit from the energy and heat produced by them. This means that 'NIMBY' ('not in my backyard') is no longer an option. Technologies should be adjusted and measures taken to reduce nuisances such as noise and odours.

Water services and climate change mitigation

Across the water sector, we contribute to climate change mitigation by increasing the energy efficiency of our processes, generating energy from renewable sources and reducing our carbon footprint.

Waste water treatment plants, once seen as energy-intensive businesses, are more and more considered as plants for renewable sources of reclaimed water, energy, heat and nutrients. The production of renewable energy through sludge digestion could be improved by promoting local partnerships (solid waste, energy companies, farmers, restauration, households), and removing barriers to innovation.

Conclusions

Ensuring the water supply is vital for us and future generations. This is a complex challenge. Water managers should develop adaptation measures to improve the resilience of water supply systems.

The water sector is ready to be more ambitious, set targets and apply innovative solutions for climate change adaptation. We need to work together, developing a holistic, cross-societal approach to deal with climate change. Key is financing the required investments to deliver and implement these solutions. These costs cannot be addressed to water customers alone, as water services should remain affordable and the principle of cost recovery must be implemented.