



Avignon declaration:

The role of European public water management in the Water and Energy nexus.

1. EUWMA members:

- Are authorized by national law to perform water management tasks, including water supply, waste water treatment and discharge, flood and coastal protection, water quality management, drainage regulation and irrigation, including the protection of the environment, biodiversity and wetlands;
- Represent public local and regional water management organizations from, currently, nine EU member states, covering a surface of more than 50 million hectares of cultivated land in the interest of their customers and/or members i.e. diverse private and public entities;
- Are in many regions of the EU essential for the development and the economy of rural areas; in some areas since hundreds of years.

2. EUWMA members identify the following challenges for water management in the Water - Energy - Nexus, (WEN):

WEN refers to both the relationship between the water used for energy production and the energy consumed to extract, purify, deliver, heat/cool, treat and dispose of water and wastewater.

- *Climate change causes increase of energy needs by water boards:*

With this declaration EUWMA underlines the particular relationship between pumping water and the energy needed. Climate change effects are causing, and will continue to, cause increased need to pump water for irrigation and drainage. More energy and more efficient use of energy will be required to meet this pumping need in addition to water saving, storage and reuse. Water boards across Europe are confronted with constantly increasing energy costs and so the WEN is a common challenge for all EUWMA members: In southern EU areas water has to be stored for public supply and irrigation purposes due to increasing drought. In northern coastal areas water has to be drained against increasing tidal and storm weather effects. In both north and south, water management is a basic element of rural development – i.e. a regional water demand and supply management at the right time and place and means that water boards have to adapt to changing conditions due to climate changing effects.

- *Paradigm shift towards Water and Energy Advanced Management (WEAM) is needed:*

The above mentioned trend shows that rural development and water management correspond with the use of energy. However, it also shows that changing weather conditions in the EU play a role. Climate change is causing increased energy costs and investment for water boards with regards to more frequent use of pumps for water supply, flood protection, drainage and irrigation. In order to overcome these challenges, water boards need to focus on changing their role and behaviour in the WEN and should most importantly invest in Water and Energy Advanced Management (WEAM) practices and strategies. Water boards need to opt for affordable technical innovation solutions, enhance their practices, and improve financing models. This requires a paradigm shift by the water



boards. Especially with regards to the importance of the WEN and their daily work in water management. A change of mind set by the water boards will however not be enough. Also politics and the public society need to become more aware of the crucial importance and impact of the WEN and the important role water boards can play. Naturally, this is very challenging for water boards. Although water is a common good and an essential resource for life quality of our citizens and the economy, it does not always receive the necessary attention in the political and public debate. As a consequence, it is still difficult for water boards to collect and receive sufficient funding in order to tackle and invest in challenges such as those related to the WEN.

- *The uptake of renewable energy by water boards is hampered:*

To change their practices while focusing on developing a strategy of WEAM, water boards could make more use of the possibility to create their own renewable energy, for example with wind, solar and thermal energy. At the moment, the production of renewable energy by water boards in the EU is still in its early stages of development and not yet reaching its full potential. Furthermore, there is a lack of (fiscal) incentives for the optimal production of renewable energy to overcome long pay-back times for the investments. Moreover, in many cases water boards are not considered as energy producers who should play their part in the energy market. Producing energy for third parties is even not always allowed. This is a missed opportunity. Water boards could potentially play an important role in producing sustainable and affordable energy, especially in rural areas. The uptake of renewable energy production by water boards is also hampered by the lack of experience and knowledge in this domain. All the more reason why it is of crucial importance that water boards share best practices amongst each other in EUWMA to foster knowledge and expertise.

- *More smart and affordable solutions needed for Energy efficiency:*

Another element linked to WEAM is energy efficiency. Ideally, pumps for water management are updated or replaced by more efficient pumps in order to lower the energy consumption and thus tackle the problem of increasing energy costs. Unfortunately, benefits always come after the costs and require long term investment plans. Improving the energy efficiency of existing pumps is often even more complicated. This is why more research is needed to develop affordable and more energy efficient pumping installations. Some EUWMA members focus on the flexibility of the renewable energy supply. These water boards use their pumping installations as much as possible at times when there is an abundance of (renewable) electric power available, when the contrary is the case they are buffering the water instead. These practices are not yet widely spread and more exchange of experiences in this regard could be very beneficial.

3. Dealing with water and energy management challenges, EUWMA members recognise:

- *Water boards contribute to climate mitigation:*

To limit climate change effects EUWMA members fully support the Paris climate agreement on climate change mitigation, adaptation and financing. Cost recovery in this aspect is the challenge for water boards serving the interest of their customers and/or members. EUWMA membership serves as an exchange and transfer of mitigation outcomes that will better enable water boards across Europe to adapt to the changing conditions due to climate change. Therefore, EUWMA provides an international platform for knowledge exchange within all EU states and other associated countries. Enforced renewable energy production and consumption systems are one of the Paris mitigation



efforts. Renewable energy market conditions will be followed by regional decentralized supply and demand systems. Energy producers and consumers cooperate in a “Prosumer market” i.e. a consumer-producer-cooperation.

- *Water boards manage the common good and contribute to rural development by producing renewable energy:*

Renewable energy is often produced decentralized in rural areas and is consumed most efficiently in regional energy management clusters – in the same way that water is managed in rivers basins and corresponding water board districts – a comparable cluster structure. “Water is not a commercial product” as the Water Framework Directive (WFD) clearly states and can be seen as a common good crucial for life in general and rural development in particular. Energy and water could be managed in innovative vice versa fostering cluster structures helping to balance the supply and demand of both energy and water. EUWMA Members are managing water as a common good based on historical structures being developed close to regional customers demand and local conditions. It is worthwhile to explore whether renewable energy can be managed in the same way.

- *Water boards need to focus on WEAM:*

During a recent Midterm Technical Meeting of EUWMA, held in Dithmarschen, Germany, it was elaborated that it would be beneficial if water boards would focus more on issues related to WEAM. EUWMA member experts identified that water boards producing their own renewable energy, and using flexible pumping during low tariff periods could enable them to act as load partners in the volatile renewable energy market. This would not only serve as an important contribution towards the Paris mitigation obligation but would also reduce the energy costs of local water boards. Moreover, the potential of energy efficiency could also be optimised by water boards.

- *Cooperation within EUWMA to foster innovation and solutions for WEAM is key:*

It is important to stress that EUWMA members were last years already substantially involved in the EU funded project called “water and energy advanced management in managing irrigation”, WEAM4i (<http://weam4i.eu/>). The aim of this project was to improve the efficiency of water use and reduce the costs of power irrigation systems. Although the cooperation between EUWMA members in the project led to successful results it also showed that more cooperation and research related to WEAM is necessary. Fulfilling the efforts towards both the Paris requirements and the enhancement of economic conditions of operational water management in rural areas, EUWMA identifies various domains of WEAM to elaborate on and which are suitable for an international transfer of mitigation outcomes: *drainage, flexible pumping, rural development, resource protection and management, precision farming, waste water treatment, smart polder development, environment heat storage, flexible demand side management, supply guarantees, virtual power plants, cluster building, as - agrifood solutions, water reuse practices.*

To conclude, the relationship between water and energy, the so-called Water-Energy-Nexus (WEN), is very clear for the daily work of water boards dealing with water management, in mostly, rural areas. Since there are many challenges related to the WEN, it is necessary that water boards develop strategies aiming to reach the full potential of WEAM. Adequate finances to achieve this goal and to increase of knowledge and experience in this field is crucial. Improving the cooperation between EUWMA members on this topic would therefore be very much welcomed.