

# IWA World Water Congress and Exhibition 2020

## Water for smart liveable cities

### Congress ambitions, summits and outcome

The current document outlines our ambition for IWA 2020 in Copenhagen. It is based on discussions in the water sector, the Danish steering group for IWA 2020 and it outlines our ambition for the congress as well as suggestions for legacy topics and the outcome we would like to see from the congress. This paper outlines topics and elements to be further discussed and developed in close cooperation between the Danish host organisation and IWA.

The document outlines the building blocks as a background for the conference, the Danish crosscutting water experiences to bring into the conference, and presents a core narrative of specific and technical Danish lessons learned that we aim to discuss with the global water sector in 2020.

#### Our ambition for the congress

A congress with a strong focus on the sustainable development goals and with the option to assess status for working with the goals 5 years after adoption of them and emphasizing implementation and financing the goals. We aim to highlight not only goal 6, but also all water related goals with high-level summits, presentation of cases and good examples of implementation and cooperation towards the SDG's.

A congress with focus on cooperation, networks and multidisciplinary partnerships where we share Danish experiences and work towards new partnerships nationally and globally for instance based on cooperation between cities.

A congress that presents a strong holistic perspective with solutions for the whole water cycle and includes joint management of resources and services. Efficient management of water means less transport of water and lower energy consumption. The water sector must look into providing services in a holistic perspective. This is in high demand and is economically feasible.

A congress focusing on technology development, a forum for promotion of new technologies in the water sector. Technologies for the future includes start-ups and smaller companies. A series of urban labs and water-tech disruption events may be carried out beforehand and presented at the congress.

A congress that includes new target groups and new stakeholders outside the conventional water sector: The water-consuming industry, agriculture, architects and urban planners, hydrologists and soil and groundwater experts, social sciences, ICT-sector, the financial sector and others.

A congress with a strong representation and contribution from Nordic and Baltic Sea countries and presentation of Nordic challenges and solutions, including at site visits where relevant.

A congress with a strong public outreach in Denmark. We wish 2020 to be a Water year in Denmark, and as an element, we include events, and solutions presented all over the city and country for the benefit of the public and the congress participants. There must be high water visibility in Denmark in media before and during the congress.

A strong platform for social media at the conference and subsequently, so that material is easily accessible and shared in order to promote knowledge sharing before and after the conference.

## SUMMITS, OUTCOME AND LEGACY ELEMENTS IWA 202

The Danish Host organisation for IWA-2020 would like to present four key outcome elements.

The first is the overarching topic for IWA-2020: Water for smart liveable cities – emphasizing the cities' need to be smart in the sense of intelligent solutions and digitalization, and liveable in the sense of blue and green, clean drinking water, efficient sanitation, health and well-being, bathing water and controlled flooding. This was already presented in the Danish bid in 2015. The second element is the Sustainable Development Goals that we propose as crosscutting for all key activities and an area for a high-level summit. Finally, we propose two more specific, technical legacy elements based on the core narrative and Danish key competencies to discuss with participants in the congress: Water as a resource and Water and Energy.

### Outcome elements

Water for smart liveable cities

SDG's as crosscutting element

Water as a resource

Water and Energy

### WATER FOR SMART LIVEABLE CITIES – OUTCOMES

- We see IWA 2020 a major stepping stone for creation of smart liveable cities and a continuation of discussions from World Water Forum in 2015, IWA-2016 in Brisbane, Embrace the Water in Gothenburg in 2017, World Water Forum in 2018 in Brasilia and IWA-2018 in Tokyo
- We have experienced that cities and utilities - and not countries - often drive environmental development and wish to promote discussions and partnerships at this level such as City – Utility – Business – Academia Leaders Fora unfolding the topic and discussing recommendations for joint activities i.e. peer-to-peer learning and knowledge sharing platforms
- We wish to present experiences with existing partnerships and examples of local actions driving global development – city to city, utility to utility i.e. launch new partnerships based on lessons learned. Partners in this activity include: P4G and C40, and cities and utilities

### THE WATER SECTOR'S CONTRIBUTION TO MEETING THE SDG'S

It is our ambition that meeting the SDG's will be a cross-cutting topic for IWA 2020 and a venue for taking stock of working 5 years on SDG implementation. In doing so it will be a contribution to the UN water decade. We suggest carrying out a high-level summit on SDG's - Status after 5 years and a joint statement including:

- Recommendations on how to speed up implementation of water-related SDG's
- Recommendations for innovative funding
- Overcoming underinvestment in the sector
- Secure funding for research and innovation
- Promoting global partnerships for SDG implementation

### WATER AS A RESOURCE - OUTCOMES

- Build on Danish experiences with multilevel and cross-sectorial partnerships
- Develop recommendations on how to secure a zero footprint in all types of production and water in a circular economy
- Copenhagen Utility of the Future Principles, linking to Utility Leaders Forum and Pathways towards a circular economy

- Cases, new partners, also outside the traditional water sector, water tech challenges and boosting the innovation potential

### **WATER AND ENERGY - OUTCOMES**

Present cases all over the world that demonstrates the possibility to

- Measure, monitor and report energy consumption in utilities
- Reduce greenhouse gas emissions to a minimum
- Be highly energy efficient throughout the water cycle and utilise synergy with sustainable energy sources like solar and wind
- Recover energy from wastewater treatment plants

Share knowledge and develop recommendations for a joint statement: Towards a carbon neutral water sector in the whole water cycle.

## **Building blocks for IWA 2020 in Copenhagen**

### **Vision**

- With IWA 2020, the Danish water sector aims for a global dialogue on challenges and solutions, where we share knowledge and experiences on sustainable management of water resources as well as technologies and infrastructure.
- With the topic, Water for smart liveable cities, we intend to discuss solutions and methods to implement them.
- The contribution of the water sector to reach the UN Sustainable Development Goals is the starting point for IWA-2020.
- We are curious in wanting to learn about challenges, needs and lessons learned in other countries. Only by sharing knowledge it will be possible to meet the SDG's.
- In Denmark, we wish to act responsibly for the future, support sustainable growth and development and protect global water resources for future generation. For this reason, we have developed the Danish Water Vision 2025 that supports global knowledge sharing alongside our international engagement, development assistance and export of technologies.
- We see Denmark as a living lab for sustainable water management and water technology developed by a united water sector and strong research consortia and partnerships. We have developed our knowledge in innovative and cross-sectorial partnerships and we wish to bring forward this experience in global partnerships to ensure that we work together to find joint solutions to common challenges.
- With IWA-2020, we wish an outreach beyond the traditional water sector and we aim for activities and promotion of discussions that are relevant for all sectors being vital to promote sustainable water management in and outside cities – and to meet the SDG's.

### **Governance**

- The Danish governance model is based on historic lessons learned. Since the large cholera-outbreaks in the mid-1800'ies we have developed our governance model.
- We opened the first ministry of the environment in 1973, have implemented plans for protection of marine environments since the mid- 1980'ies and household metering and fees for water losses in 1993, and since 2013 municipal climate change adaptation plans have been mandatory.
- The Danish governance model rests on European water directives being implemented in Danish legislation and by-laws.
- Holistic management and regulation are central elements in the entire cycle from groundwater protection to efficient supply and efficient treatment, and aims to provide water security for all sectors.
- The water and wastewater utilities have since 2010 been organised as limited, non-profit companies, based on a break-even principle.

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- Most utilities are owned by the municipalities. The division of responsibilities between authority and operator is an important element of water governance.
  - Denmark is a small country with many stakeholders on a limited area. This generates a demand for cooperation to share water and other resources and find joint solutions.
  - We aim for smart and sustainable solutions and economic growth based on links between water consumption and needs across sectors.
  - The Danish water sector is characterized by cross-sectorial partnerships between utilities, authorities at all levels, companies, and universities and research institutions.
  - These partnerships promote innovation in the sector and government supports them.

Cross-sectorial partnerships include most areas of activity in the sector such as:

- Development of smart solutions and technologies
- Blue-green solutions for water in urban areas
- Climate change adaptation
- Protection, planning and abstraction of water resources
- Reduction of water losses in the distribution networks
- Water and energy efficiency
- Efficient management of industrial water use

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### **Knowledge and Capacities**

- Denmark is among global frontrunners within digitalization, and smart solutions and technologies.
- A strong environment that promotes innovations is important to promote smart solutions. In Denmark, innovation is driven in partnerships that include all stakeholders in the sector.
- To create smart and liveable cities demands advanced technological solutions. We have solutions and technologies to improve management of water and increased energy efficiency.
- We seek to work towards digital water/water 4.0 in cooperation with the global water sector.
- To promote smart solutions we need to share knowledge and data. In Denmark, we have environmental data that is public.

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### **Planning tools**

- We have a unique benchmarking system sharing data and knowledge, which enhances the sector's overall results and performance.
- Mapping and modelling in support of planning and implementation of projects is central in the water sector.
- We have strong competencies within certain elements, such as asset management, master plans and decision support systems.

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### **Implementation tools**

- To achieve stable supply, we have a strong collaboration between authorities and the rest of the water sector in terms of planning, regulations and measures taken on water management
  - We have implemented the full-cost-recovery-principle, which secures a close relation between price and service and means that the price of water covers all costs related to protect and manage the water resource and water infrastructure.
  - A fair price for water that covers all costs increases focus on water consumptions and promotes the circular economy thinking in the water sector and provides a better protection of the water resource, both in terms of quality and quantity. It contributes to water efficiency and development of technologies.
  - The consumption-based price of water in Denmark has minimized water use in households and industries. Danish households use on average 1.3% of household income for water and wastewater. UN has established a 3% affordability-level for water and wastewater.
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## Core narrative and experiences from the Danish water sector

### Water for smart liveable cities

Increasing urbanization implies that more and more people globally live in cities. This increases the demand for well-functioning cities that are attractive to live in and for balancing between cities and their basins.

Water for smart liveable cities represent Danish core competencies and Copenhagen is one of the leading cities within this field.

During IWA-2020, we wish to emphasize that smart water management is a precondition for creation of smart cities. We also focus on implementation of Principles for Water Wise Cities as a key framework for finding solutions for urban water challenges, and we wish to highlight:

- Water as an integrated element in the modern, smart city.
- Looking at the water sector's impact on development of cities we wish to emphasize their need to be smart (intelligent solutions and digitalization) and liveable (blue and green, clean drinking water, efficient sanitation, health and well-being bathing water and controlled flooding).
- Smart Cities - digitalisation, artificial intelligence, automation, cybersecurity – are areas where Denmark holds a strong position
- Copenhagen is an example of a clean city with a clean harbour owing to highly efficient sewer systems, detention basins and water treatment technologies.
- Clean and well-tasting water at a price that is affordable for consumers characterize liveable cities alongside efficient solutions for climate change adaptation, managing increasing stormwater volumes and linking cities to basins.
- Liveable cities are able to adapt to changing circumstances.
- In the future, we need more focus on emerging pollutants to ensure that this does not end up in nature and drinking water and we need to reduce combined sewer overflows to reduce water pollution.

### Water as a resource

We focus on water as a central element of the circular economy and to utilise our resources as efficiently as possible:

- We see groundwater as a significant water resource and wish to sustain this as an unpolluted resource, and we wish to share our knowledge on groundwater internationally. In order to secure the resource we focus on quality and quantity, including minimizing consumption in general, in households, agriculture and industries.
- Groundwater protection, monitoring and mapping is an important area and we have a long and extensive tradition for resource protection and groundwater-based sustainable water supply – both in terms of quality and quantity
- Linked to groundwater protection we have experience with and a strong concept/legislation on contaminated site clean-up.
- We wish to reduce water waste. Water that has been recovered must be delivered to the consumers and we will reduce water loss in the distribution network to the lowest possible, sustainable level.
- Links between water, food and energy is important. We aim for a zero-water footprint in industries and food production.
- Within the Danish water sector, wastewater contributes with resources and new products such as nutrients and phosphorus for agriculture. Resource recovery are central areas of activity and we have well-documented technologies.

- We focus on "Fit for Purpose water" as an expression of efficient management of water in industries either as reuse of water that is cleaned to the necessary quality or rainwater that is harvested. The water-consuming industry is a key stakeholder in this discussion.

### **Water and Energy**

Globally it is expected that the total energy consumption will double in 2030. The energy consumption in the water sector therefore matters in meeting the global climate and energy goals and fulfil commitments from SDG's and the Paris Agenda.

Based on the Danish performance benchmark it is possible to establish specific targets for energy consumption and based on this energy efficiency.

We aim for ambitious targets for energy efficiency in the water sector and for utilities with the goal to achieve a carbon-neutral water sector in the whole water cycle.

At IWA-2020 we want to highlight and discuss:

- That the Danish water sector contributes to meeting global climate targets through energy efficiency and in doing so reduce emissions significantly.
- In addition, at the same time water utilities contribute to production of green energy through energy recovery from wastewater.
- Rapidly growing cities need more energy, but instead of being an energy-consuming sector, the water sector moved towards being a sector that produces environment and climate friendly energy and thus contributes to greener cities.
- In Denmark we already have and are about to establish many more energy/resource efficient treatment plants with the ambition to become carbon neutral in the whole water cycle.