Ministry of Environment of Denmark
Department

MINISTRY OF FOREIGN AFFAIRS OF DENMARK

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**Danish proposal for an interactive dialogue at the UN Water Conference in New York, March 2023**

# Danish Theme: Resilience to climate change and extreme events – focus on solutions in the water sector

Lack of clean drinking water, untreated wastewater, droughts and floods are today some of the biggest global challenges. Water is a prerequisite for sustainable life and continued growth for people and business. Access to water is vital in order to prevent economic, political and human crises.

The world is not on track to achieve Sustainable Development Goal No. 6 on water and sanitation and the COVID-19 pandemic has hindered progress toward these water-related targets. Although in the past year, progress has been made towards achieving SDG6, the gap between global water supply and demand is projected to reach 40 percent by 2030 if current practices continue.

Challenges in the water sector are further exacerbated by climate change, which has resulted in increasing global temperatures, changes in precipitation patterns, and extreme weather events leading to excessive flooding and droughts, and threatening water and food security, health, and the environment.

Climate change and the need for climate adaptation underline the need for investment in water, especially in developing countries, where the consequences are expected to be greatest. At the same time, climate change is already intensifying the pressure on access to clean water and sanitation, and the need for better water resources management.

Water is a key enabler providing multiple co-benefits to other sectors and answers for global challenges. Without water, sustainable development is impossible. Climate change directly impacts water availability and quality: urbanisation, population growth and economy development put more pressure on natural resources and ecosystems, and biodiversity are threatened and pandemics are emerging – the urgency for cross-sectorial action is evident.

**The Danish proposal for an interactive dialogue at the UN Water Conference in New York, March 2023:**

*Denmark finds it critical to focus on water management in relation to climate mitigation and climate adaptation – water resource management including urban water management, climate change adaptation and flood prevention. It is important with a strong holistic perspective with focus on solutions for the whole water cycle. Efficient management of water means less transport of water and lower energy consumption. At the conference it is important to focus on opportunities for action and the importance of funding needs, governance and partnerships for actions.*

**Denmark has a number of strengths in the water area.**

The Danish water expertise and technological strongholds are a result of the Danish water supply and wastewater treatment policies, R&D and investment efforts for the past 40 years.

The key Danish strongholds in relation to water management with the focus on climate mitigation and climate adaptation are:

1. Sustainable groundwater management

Climate change is affecting global rainfall patterns and water distribution, which can challenge access to safe and affordable drinking water globally. Since there is approximately 100 times more groundwater than fresh surface water on Earth, and since groundwater is more resistant to drought and pollution than surface water, it makes sense to utilize this important source of water in a sustainable manner. An ambitious groundwater mapping program in Denmark laid the foundation for the groundwater expertise of Danish companies. Groundwater can be mapped with airborne geophysical mapping through helicopter flyovers. This map is used for groundwater modelling and monitoring, which in Denmark is the foundation for sustainable groundwater management. Site-specific groundwater protection zones have subsequently been established to prevent groundwater contamination from urban development and agricultural sources. The knowledge of sustainable groundwater management can aid in securing water supply amidst population increases and climate change of particular importance to vulnerable countries.

2. Effective Water management - Minimizing Non-Revenue Water (loss of drinking water in the supply network).

Denmark is a world leader in preventing loss of drinking water through pricing and incentive policies and benchmarking of water supplies, triggering the development of state-of-the-art distribution, detection, metering and monitoring systems. Non-revenue water encompass both unbilled authorized consumption, apparent losses (water theft and metering inaccuracies), and real losses (from transmission mains, storage facilities, distribution mains or service connections). Managing and reducing water loss is key to avoid overexploitation of water-resources (groundwater or surface water), balancing the cost of water and for efficient and clean water supply. The Danish levels of water loss in the distribution system are on average 5.5 percent nationally, which is very low in comparison to the general global picture, where 10-30 percent loss is common, and in some parts of the world, the losses can exceed 50 per cent. As water globally is a scarce resource, focus on water loss is important, especially in countries where climate change means increased risk of drought.

3. Wastewater treatment and resource recovery, including production of energy

In Denmark, our water sector can treat wastewater (and transport wastewater as well as drinking water) to our citizens using far less energy than other EU countries or other comparable industrialized countries. The water sector is one of the most energy consuming sectors in the world, with the main consumption for wastewater treatment. Globally, the water sector consumes four percent of total annual electricity use. In the EU-28 and in the U.S., that number is around three percent of total annual electricity use. In Denmark, only 1.9 percent of the Danish electricity use is consumed by the water sector (2016 figures), and that number is expected to drop in the years to come. Less energy consumption in the water sector has an impact on the overall global climate.

4. Climate adaptation including urban water management and “smart city” solutions.

Having experienced floods from cloudbursts and storms, Denmark has felt the consequences of changed climate first-hand. New agenda-setting megatrends are shaping the Danish water sector in terms of climate adaptation and “smart city” solutions: Firstly, striving for liveability through use of multifunctional blue-green infrastructure. Secondly, digitalisation, which is currently transforming water systems from passive, single-purpose infrastructure elements into active and adaptive units that can respond differently according to situation and be planned, designed and operated in an integrated manner. This connects the water sector

to the broader smart cities agenda, which strives at increasing citizen involvement, and potentially contributes to making the water sector more efficient, more innovative and more sustainable. Water governance, technology development and daily operations in Urban Water Management in Denmark is based on a high level of trust, engagement and enforcement of regulations, which ensure public legitimacy. Over the past 50 years, a professional effort has streamlined and further developed the water sector to provide environmental benefits, effectiveness and efficiency and to support sustainability efforts. And in recent years, to also contribute to an overall green transformation of society in a manner which promotes economic growth and employment.