Communiqué at the 25th Conference of the Parties of the United Nations Convention for Climate Change (UNFCCC) in Madrid

Water stress due to climate change: At COP 25, the Global Clean Water Desalination Alliance calls for the decarbonization of desalination and making it affordable for all

Madrid, *12 December 2019* – The roaring threat of water stress in several regions of the world, exacerbated by climate change, calls for a determined reaction by the international community, to discuss workable solutions for ensuring enhanced water security through renewable energy sources.

Close to 2 billion people (73 percent of them in Asia) live in areas where water tends to become severely scarce, and the gap is projected to rise. Countries at risk are not just poor ones; Australia, Italy, Spain and even America will endure difficult water shortage. The UK's Environment Agency has warned that England is set to run short of water within 25 years. Similarly, in many areas of the USA, the demand for freshwater is likely to increase while supplies decrease partly due to climate change. The threat is even more significant in most developing countries and vulnerable regions, such as islands and sea-level cost lines.

There are now over 20'250 installed desalination plants worldwide operating in over 150 countries, with an overall capacity of 100 million cubic meters per day, which is expected to double over the coming decade. According to Prof. Vasilis Fthenakis, Director of the Center for Life Cycle Analysis at Columbia University and Board member of the Global Clean Water Desalination Alliance, "Water desalination belongs to the forefront of today's global water, energy, and climate challenges and producing fresh water via water desalination is essential for arid, water-stressed regions". However, he adds that "The technology is expensive and energy-intensive. The cost of energy is a significant factor of such high cost, and the use of fossil fuels that currently power desalination plants causes emissions of greenhouse gases and other hazardous pollutants."

Prof. John H. Lienhard, Director of the Abdul Latif Jameel Water and Food Systems Laboratory at the Massachusetts Institute of Technology (MIT) and Board member of the Global Clean Water Desalination Alliance, points out that "Desalination can be driven by renewable power, using technologies available today, particularly through the coupling of reverse osmosis plants with wind and solar electricity. What is required however is accelerated R&D to deploy large-scale, low-carbon electricity, including diverse energy storage technologies."

Leon Awerbuch Chairman of the Energy and Environment Committee of the International Desalination Association (IDA) and Board member of the Global Clean Water Desalination Alliance stated on behalf of the industry that "The desalination industry is serious in its commitment to environmental responsibility and, in fact, it has already done much to mitigate potential environmental impacts. While the demand for desalinated water is growing at a pace of 15% per year, care of the environment, sustainability considerations of energy efficiency and use of renewable energy is playing an increasing role in the type, configuration, siting and energy source for desalination plants. Modern seawater desalination has a 60-year history and demonstrated ability to provide new clean water for continuous development of communities around the world".

The reduced cost of renewable energy is making clean desalination increasingly more viable and accessible to all countries. Prof Fthenakis explains "The recent cost reductions and technological advances of solar and other renewable energy systems create opportunities for developing low-cost and emission-free desalination technologies. Furthermore, emerging hybrid technologies (e.g. Membrane Distillation (MD), Forward Osmosis (FO)) have the potential to reduce the cost of clean renewable energy desalination to very affordable levels below $0.50/m3" [ed: for emerging technologies and at lower price levels with established RO technology].

To mitigate the problem of desalination residues and achieve zero liquid discharge desalination, Dr Guillermo Zaragoza of the Center for Energy, Environmental and Technology Research of the Ministry of Science, Innovation and Universities of Spain stresses that "There is a need for brine concentration processes, as an opportunity for thermal desalination technologies that can be powered by solar thermal energy or even waste heat from concentrated solar power generation."

Developing Clean Desalination requires billions in investments in the short term and according to Jean-Pascal Pham-Ba, Spokesperson of the Terrawatt initiative and Treasurer of the Global Clean Water Desalination "To enhance the financing and to reduce its cost, all stakeholders need to contribute, and a new system needs to be collectively built: an innovative form of public private partnership, not at project level but at market level, a Systemic Public Private Partnerships (PPP)."

Fatma Ben Fadhl, Executive Director of the Global Clean Water Desalination Alliance, explains "The Global Clean Water Desalination Alliance works through its network of over 200 organizations from public and private sectors and academia to promote and develop consistent policies and stable regulatory frameworks that are setting clear and ambitious targets and long term fresh water off-take models, based on efficient tendering processes, clear GHG emissions reduction targets, renewable energy supply according to long term Power Purchase Agreements, brine and other process by-products disposal and treatment, with secured capacities to administratively manage the overall processes".

The leverage on public finance is as important as the development of adapted policy and regulatory frameworks for clean desalination plants. This could be achieved by including climate and development finance in project finance structuring where applicable, to support the fresh water off-takers (i.e. municipalities, regional governments, public agencies, private enterprises, large factories, mines, etc.), to ensure long-term credit worthiness, to bring in low cost institutional capital, such as pension funds, and to provide political and financial de-risking instruments. There is also a need for full standardization of plants financing, construction and operation as well as long term water supply contracts, in order to scale-up renewable energy-based desalination, to streamline processes and reduce transaction costs.

Mrs Ben Fadhl points out that "The Global Clean Water Desalination Alliance is promoting the implementation of clean energy-based desalination by capitalizing on existing experiences and pilot projects in several areas and creating a knowledge platform on clean desalination." She adds that "the Global Clean Water Desalination Alliance has adopted a strategy for establishing partnerships to develop direct actions in countries and to support the deployment of renewable energy-based desalination."

To speed-up the deployment of clean and climate-friendly desalination infrastructure, the Global Clean Water Desalination Alliance calls for:

- Public investments in pilot clean desalination projects;
- Access to climate and other green finance by the desalination industry;
- Technical assistance for needs assessments, planning and risk mitigation of desalination projects in developing countries;
- Private and public sectors to dialogue on water reuse and desalination to address the most urging climate impacts on water availability;
- The establishment of Centers of excellence on clean desalination to be supported in all regions.

For further information on the Global Clean Water Desalination, visit http://www.gcwda.org
For further details and interview requests contact Mrs. Fatma Ben Fadhl at fbenfadhl@gcwda.org