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Towards Sustainable Desalination Technologies in the MENA region

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Abstract

Desalination has become the most appropriate solution to produce fresh water to serve the continuously growing population in the world and to contribute to ensuring water security. Desalination is vital for MENA countries and their reliance on this source is expected to grow fast. This growth will only be possible by continuing to improve the sustainability of related technologies. Desalination can reasonably be considered a worthwhile adaptation strategy only if we ensure proper construction, minimize environmental impacts and generate electricity from renewable energies. There is an urgent need to make desalination technologies more affordable and extend them to low-income and lower-middle income countries. At the same time, though, we have to address potentially severe downsides of desalination — the harm of brine and chemical pollution to the marine environment and human health. The good news is that efforts have been made in recent years and, and we see a positive and promising outlook, with continuing technology refinement to decrease costs and increase the sustainability, using advanced pre-treatments that minimize the use of chemicals, and brine discharge methods that help dilution and improving economic affordability, we see a positive and promising outlook. Especially important is to decrease energy consumption, which has an impact on the operation costs and also the environmental impact through carbon dioxide emissions. If we learnt something from Covid19 crisis, is that the MENA region needs to localise knowledge and technology. By designing incentives for local businesses, governments can attract domestic investments in manufacturing critical components and cultivating local innovations to attain economic sustainability. Government and enterprises should not continue to build and operate desalination plants as before; steps should be taken to attract local investors using set targets for locally produced products and labor force and to manage these assets minimising the life-cycle cost of environmental impact.

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Biography

Dr. El Kharraz is head of Research at MEDRC (Oman) where he manages its research programs. He has more than 20 years of experience (Spain, France, Oman, Euro-Mediterranean region) in water issues. He was chair of evaluation of PRIMA program water projects, apart from evaluator of the Palestinian-Dutch Academic Cooperation Program on Water. He has been projects manager at the Euro-Mediterranean Water Information System in France for 12 years. He has published and contributed to hundreds of conferences in more than 55 countries, journals and reports in the fields of water management, desalination, remote sensing and scientific research. He co-authored UNESCO science report 2015. He contributed to numerous projects funded by the EC, ESA, USAID, and other programs (FP, H2020, ENPI CBC-Med, LIFE, SMAP…). He got MSc & PhD degrees in Physics from the University of Valencia, Spain. He got a Diploma in Enterprises Management from SKEMA Business School, France.

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