

Opportunities for Membrane Technology in Africa

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Abstract

In many African countries, water is a scarce resource. The situation has worsened over the past decades as countries are still trying to ensure basic access to drinking water under challenging economic conditions. Water scarcity is caused by a range of issues including inevitable climate change, water pollution, and other human actions on streams, rivers, lakes, and groundwater. The focus is now increasingly turning towards non-conventional water treatment technologies such as membrane technology including the use of desalination. This further focuses on other opportunities including harnessing solar and wind energy thus making the efficiency of desalination plants attractive. Most regions are looking at opportunities for seawater reverse osmosis plants which could be powered by such renewable sources. African governments are investing in water desalination plants enabling and powering such sustainable technologies. For instance, in Northern Africa, the construction of large-scale seawater RO desalination facilities has been fast expanding – especially in Algeria, Egypt, Morocco, and Tunisia - due to geographic water stresses, thereby seeking to support critical drinking water needs and agricultural activities. Countries such as Ghana and Senegal in Western Africa are also acquiring similar membrane technologies, despite the high cost of energy. While commercial solutions for solar-powered RO desalination systems are now emerging on the Continent. Research efforts are still needed to overcome several economic and environmental challenges, the focus of many research endeavors in many academic institutions. In terms of knowledge dissemination, the African Membrane Society (AMSIC) has mobilized world-class specialists to offer membrane desalination courses to its members thus supporting human capacity development efforts. This includes the implementation of hands-on training sessions devoted to technicians and engineers, thus streamlining the deployment of RO desalination resources on the Continent. The presentation will therefore reflect on these efforts, discuss key opportunities, and further explore the adoption of these technologies by governments and state-funded entities concerning usage, and support in terms of funding for implementation and research. AMSIC engagement for promoting cutting-edge meetings on membrane and filtration sciences in Africa will also be highlighted. The talk will demonstrate that membrane technology could find its place within Africa's growing industrial ecosystem.