

ENI AWARD 2015

Protection of the Environment Prize

Menachem Elimelech

Winner

Novel Forward Osmosis Process for the Treatment of Water

Biography

Menachem Elimelech is the Roberto Goizueta Professor at the Department of Chemical and Environmental Engineering at Yale University. Professor Elimelech received his B.Sc. and M.Sc. degrees from the Hebrew University in Jerusalem and Ph.D. from the Johns Hopkins University in 1989 in Environmental Engineering. Elimelech was a Professor at the University of California, Los Angeles from 1989 to 1998, a Visiting Professor at the California Institute of Technology in 1996, a Guest Professor at the Swiss Federal Institute of Technology (ETH) in 1997, Exxon-Mobil Chair Professor at the National University of Singapore in 2002, and a World Class University Professor at Korea University in Seoul from 2009 to 2013.

Professor Elimelech has published over 300 journal publications and is one of the world's most cited researchers in the field of environmental engineering and science. His research interests include (i) engineered osmosis for sustainable treatment of water and power generation, (ii) environmental applications and implications of nanomaterials, (iii) membrane separations for desalination and wastewater reuse, and (iv) water and sanitation in developing countries.

Professor Elimelech was involved in the writing of two influential review articles that shaped the research agenda in water purification and desalination in recent years. The first was a review article in the prestigious *Nature* magazine on the state-of-the-art and the future of science and technology for water purification. The article highlighted some of the science and technology being developed to improve the disinfection and decontamination of water, as well as efforts to increase water supplies through the safe reuse of wastewater and efficient desalination of sea and brackish water. The second review article in the influential *Science* magazine addressed the future of seawater desalination. The article critically reviewed the possible reductions in energy demand by state-of-the-art seawater desalination technologies, the potential role of advanced materials and innovative technologies in improving performance, and the sustainability of desalination as a technological solution to global water shortages.

Professor Elimelech was elected to the United States National Academy of Engineering in 2006 and was awarded the Athalie Richardson Irvine Clarke Prize in 2005. Among his other notable awards are: American Society of Civil Engineers, Walter L. Huber Civil Engineering Research Prize in 1996; American Institute of Chemical Engineers Lawrence K. Cecil Award in Environmental Chemical Engineering in 2008; World Class University Professorship at Korea University in 2009; American Society of Civil Engineers Simon Freese Award and Lecture in

2011; and Thomson Reuters Highly Cited Researcher in 2014.

Professor Elimelech has advised 33 Ph.D. students and 26 postdoctoral researchers, many of whom hold leading positions in academia and industry. In recognition of his excellence and dedication in teaching and mentoring, he received the W.M. Keck Foundation Engineering Teaching Excellence Award in 1994, the Yale University Graduate Mentoring Award in 2004, and the Yale University Postdoctoral Mentoring Prize in 2012.