

SUSTAINABLE NANOTECHNOLOGY LANDSCAPE: TOOLS AND ASSESSMENT METRICS

Arturo A. Keller, Ph.D.

Professor, School of Environmental Science and Management
University of California Santa Barbara



Abstract: With increasing development and implementation of nanotechnology throughout many sectors in society, how do we ensure it is sustainable? How do we measure sustainability? How do we make the best use of this technological advances, with minimal environmental impacts, and considering economic and social objectives? What are some useful metrics?

Bio: Dr. Keller received his M.S. and Ph.D. degrees in Civil and Environmental Engineering from Stanford University. He holds a B.S. in Chemical Engineering and a B.A. in Chemistry from Cornell University. Dr. Keller has almost 40 years of experience in projects involving wastewater treatment, hazardous waste handling and management, pollution prevention and minimization, recycling and process modifications to reduce emissions. He is currently a Professor at the University of California in Santa Barbara, teaching at the graduate-level Bren School of Environmental Science and Management. His research interests include fate and transport of organic pollutants, as well as the development of innovative remediation technologies and pollution management strategies. He has published over 270 peer-reviewed papers. Dr. Keller was co-Director of the NSF and USEPA funded UC Center for the Environmental Implications of Nanotechnology (CEIN), funded for 12 years for a total of \$48M from 2008 to 2020, which was dedicated to providing key information for addressing and managing any risks that may arise during the use of nanotechnology. Dr. Keller led the group studying fate & transport, exposure and life cycle assessment of nanomaterials. In addition, Dr. Keller has developed several applications of nanotechnology to treat contaminated water sources and soils. In recognition of his contributions in this area, in 2015 Dr. Keller received the Agilent Thought Leadership award (\$1.5M), and in 2019 a Special Tribute by the Sustainable Nanotechnology Organization.