



Sheeja JAGADEVAN

Home Country

India

Degree

PhD in Engineering
Science

Expertise

Environmental
Engineering

Research Focus

Toxic Metalworking
Fluid Wastewater

Host University

University of Oxford,
United Kingdom

Fellowship Awarded

2010

Sheeja Jagadevan was born in Trivandrum, India but her father's job took her family to a great many places and exposed her to a medley of socio-cultural traditions. In her spare time she enjoys reading and travelling. Active in community service and teaching, she is attempting to foster the values of responsibility, sharing and selflessness in her own daughter.

Sheeja graduated in 1996 with her BSc in life sciences from Andhra University in India, and in 1998 she earned her MSc in environmental science, also from Andhra University. She then spent two years at the Indian Institute of Technology in Bombay, where she earned her Master of Technology degree in environmental engineering. In 2008 she enrolled as a PhD student in the Department of Engineering Science at the University of Oxford in the United Kingdom.

At Oxford Sheeja is researching hybrid technologies for remediation of industrial wastewater. She says that nature has an amazing ability to cope with small amounts of water wastes and pollution, but it would be overwhelmed if we stopped treating the billions of gallons of wastewater and sewage produced every day before releasing it back to the environment. Treatment plants reduce pollutants in wastewater to a level nature can handle. Sheeja is focusing on treatment of toxic metalworking fluid (MWF) wastewater. Using a combination of advanced oxidation processes and bioremediation, her approach combines complementary physico-chemical and biological technologies to optimize the processing of MWF wastewater treatment. The toxicity associated with this MWF formulation is largely due to biocides added into the blend to prevent bacteriological action during its lifetime.

Most major cities in India face severe urban water management challenges related to drinking water supply, storm water and wastewater treatment. In light of climate change and finite natural resources, addressing these challenges in sustainable ways will require innovative solutions arising from interdisciplinary collaboration. Sheeja believes that a clever manipulation of chemistry, microbiology and engineering could tackle this problem in a sustainable manner.

When she completes her degree Sheeja plans to teach at the Indian Institute of Technology.