# Multifunctional Hybrid Nanocomposites for the Separation of Toxic and Microbial Contaminants from Water

www.nanowateratuclan.org

## Researching Nanotechnology for Safe Water: A Global Solution for Developing and Developed World

**An International Project funded by UK-India Education and Research Initiative (UKIERI) for the period of July 2014 to December 2016 (Contract No. IND/Cont (E) 14-15/055)**

## Challenges

**Arsenic pollution in ground water hence consequences of human life**

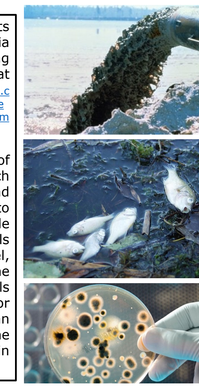







Nuclear radioactive contaminants in North West of UK and Cumbria due to nuclear decommissioning plant at Sellafield. (http://www.heraldscotland.com/news/14157272.Scottish_shellfish_are_contaminated_by_radioactive_waste_from_Sellafield/)

Each year 45,000 tonnes of batteries are used in UK of which only 3% of them are recycled and the remaining 97% goes into landfill waste. Batteries are made from a number of materials including acid, lead, nickel, lithium, cadmium, mercury. The leaking of such toxic materials through landfill waste is a major problem in UK and other European countries as they contaminate the soil / water and accumulate in wildlife and humans

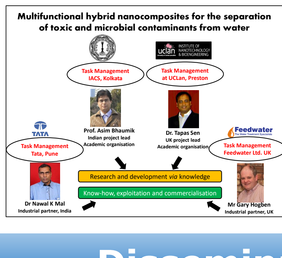


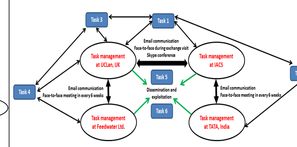
**Industrial waste and microbial contaminants**

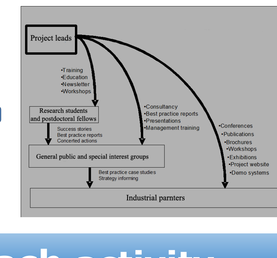
## Project objectives

- Development of multifunctional hybrid nanocomposites for the removal of toxic (arsenic) and using the recently developed novel surface chemistry (Sen et al, *Scientific Reports* 2: 564, | DOI: 10.1038/srep00564,2012, Nature publishing Group) to tackle the bacterial contaminants such as Legionella, E-Coli (E-Coli O157 and O104) and Salmonella from water.
- Exploitation of such nanocomposites by industrial partners as the end users

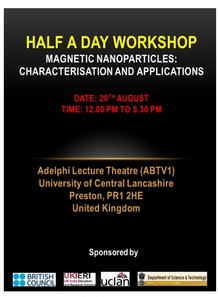
## Project consortium and management strategy




## Dissemination and outreach activity




**Workshop photo**



**Symposium photo**

