

Managing Environmental Contaminants

Risk assessment and remediation solutions

CSIRO scientists are international leaders in contaminants research. Delivering commercially viable and cost-effective solutions, our researchers have developed scientifically robust risk assessment tools and remediation technologies for managing environmental contaminants, based on understanding their sources, fate and behaviour in soils and aquifers.

Many of these new physico-chemical and ecotoxicological techniques now underpin regulatory approaches relating to waters and sediments. Researchers are also developing innovative attenuation and remediation techniques for a range of hazardous chemicals.

Biogeotechnology for better agricultural outcomes

Many industrial processes can be improved through the application of geochemistry and biotechnology. Innovative solutions to the challenge of sustainable nutrient management in soils have been developed by CSIRO, including improved techniques to assess soil fertility and the design of fertiliser technologies that enhance nutrient use efficiency.

SWAT-HT

The non-toxic synthetic clay material Hydrotalcite (HT) is widely considered to be a 'miracle clay', owing to its wide range of commercial applications. CSIRO is currently developing environmental applications for SWAT-HT, including 'Green' fertilisers and feedlot waste management applications.



CSIRO scientist using a nephelometer to measure turbidity in water polluted by blue green algae



Aerial crop spraying, using fungicides/herbicides, of a carrot crop

Ecological risk assessment

Risk assessment is an essential decision-making tool for minimising and managing the risks associated with environmental contaminants. CSIRO has a strong track record in defining risk via assessment of exposure pathways for a variety of contaminants.

Pesticide Impact Rating Index (PIRI)

CSIRO's Pesticide Impact Rating Index (PIRI) assesses the risk of water pollution from run-off, spray drift or leaching. PIRI underpins better understanding of exposure pathways, speciation and bioavailability of contaminants and their ecotoxicological impacts, especially when mixtures of contaminants are present in either terrestrial or aquatic ecosystems.

Remediation solutions

CSIRO has a strong research focus on environmental assessment, monitoring and field-scale remediation technologies for industrial and urban pollutants – including petroleum fuels, chlorinated solvents, munition compounds, pesticides, nutrients and metals.

Innovative treatments for environmental contaminants include permeable reactive barrier systems, bioremediation, air and fluid flushing technologies, immobilisation techniques, natural attenuation and phytoremediation. Research efforts target off-site plume migration and source-Zone remediation.

Global impact

Diagnostic tools and research methods developed by CSIRO have been adopted by global companies and aid organisations. PIRI has been used by several Australian agencies, and has been implemented internationally in the Philippines, Ecuador, Syria, and Thailand.



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