

Climate risk of toxic shock

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The effects of climate change could expose Australians to greater risks from toxic contamination, a leading scientist has warned.

Increased flooding could release contaminants previously regarded as secure into groundwater, [rivers](#), oceans, the [food supply](#) and [atmosphere](#), the director of the CRC for Contamination Assessment and Remediation of the Environment, Professor Ravi Naidu said today.

“Most of our urban landfills contain highly toxic substances from past decades – and were designed for the climatic conditions at the time. These have now changed, with the risk of bigger and more frequent floods, droughts, heat and acidity releasing substances we thought were gone for good,” he says.

Professor Naidu is inviting Federal and State governments and Environment Protection Agencies to rethink nationwide contamination and cleanup policy in the light of the risk that yesterday’s poisons could be remobilised into our environment.

“The floods in Queensland and northern NSW illustrate how things are changing – and how we can no longer count on toxic disposal systems designed half a century or more ago to work as well in future under changed climate conditions,” he says.

“From now on all landfills and contaminated sites will need better flood protection upstream and high-tech contamination barriers downstream to filter the [groundwater](#) that leaches out of them, and remove the heavy

metals, pesticides, hydrocarbons and organic toxins it contains.”

Other contaminated land containment systems such as cover systems, stabilisation, etc could also be adversely impacted by climate change via factors such as wet-dry and freeze-thaw cycles.

Professor Naidu says that climate change also brings increased urgency to the task of rehabilitating contaminated lands.

“Where you have a large area of contaminated land it is often very hard for plants or soil microbes to regrow, leading to reduced carbon sequestration which adds to climate change. Researchers are currently working on specially-adapted trees, grasses and soil microbes which can be used to recover these sites, devastated by historic industrial and mining activities – but there is a need to speed up national efforts to adopt such solutions, he adds.

Another form of contamination likely to accelerate under climate change is acidification.

“Acid rain produced by the industrial release of sulphur dioxide from coal fired power stations into the atmosphere is poisoning lakes, forests and soils in the northern hemisphere. When soils become more acidic they can release toxic heavy metals as well as carbon.

“At the same time the carbon dioxide we release when we use vehicles or fossil-fuelled electricity is increasing acidity in the world’s oceans and endangering their food chains,” Prof. Naidu explains.

“There are engineering solutions to these problems, which involve trapping the gases before they enter the atmosphere and disposing of them safely – but they are costly and will need to be adopted universally.”

These issues illustrate how climate change can affect the total toxic load delivered to society in its food, water and environment, and the importance of acting in a timely fashion to prevent this happening.

“People often regard contamination as a local issue, and contaminants as things which tend to stay in one place or where they are put.

“This is no longer the case. Man-made contamination by toxic organic chemicals and metals is already swirling around the planet in air, water and wildlife – and there is a risk that the changes unleashed by climate change will mobilise even more,” Prof. Naidu warns.

“Containment of contaminants is critical in the sustainable management of legacy contaminants. It is not yet time to be alarmed – but we should be concerned. And we should certainly begin to think about the solutions.”

Australian industries, including the mining , energy and agriculture sectors, are world leaders in developing and implementing environmentally-friendly and cost-effective solutions to contamination issues, he says.

“If Australia makes an early start in overcoming these unforeseen impacts of [climate change](#) it will also position us as a world leader and exporter of clean, green solutions for a changing world. It will not only be healthy – it will also be profitable and create jobs.”

Provided by CRC CARE

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