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A call to better control PFAS and other chemicals at Australia's borders

Almost every molecule of PFAS that has ever been synthesised, is still with us in PFAS form. Some do break down – but mostly into new PFAS. Many of these molecules contaminate soil, waterways, food, the atmosphere, rainfall, fish, reptiles, birds and mammals, including humans.

In 2023, Barr Engineering Co. and Hazen & Sawyer (engineering consulting companies), estimated the costs to remove and destroy PFAS from the environment for the Minnesota Pollution Control Agency [1]. The lead author was Dr Alison Ling, who has stated that she was astounded to find the scale of costs for the most affordable wastewater treatment option (GAC with reactivation). For a wastewater facility processing around 40 ML/day, capital costs ranged between USD \$41M-\$88M and additional operational and maintenance costs were USD \$4.5M-\$9.6M per year. Total 20-year additional costs for wastewater treatment, just for the state of Minnesota were estimated at USD \$12B-\$25B.

To meet current US EPA maximum contaminant levels (MCLs), US water industry peak bodies have estimated that more than USD \$50 billion will be needed to install and operate additional treatment technology over the next 20 years [2]. Hazardous substance designation for PFAS will add another USD \$3.5 billion per year in disposal costs [2].

In 2024, Dr Alison Ling scaled her analysis up to the whole globe, estimating that it would cost more than the global GDP to remove PFAS from the environment at the rate we are adding them right now [3].

In 2025, Dr Ling contributed to estimates of how much it would cost to remediate PFAS across Europe. Two estimates were produced [4]:

- Legacy cost estimate (€4.8B /year for 20 years): removing long-chain PFAS from landfill leachate and selected contaminated soils as well as drinking water that doesn't meet current European regulations (about 5% of drinking water).
- Emerging cost estimate (€100B /year - forever or until several decades after PFAS uses are widely restricted): removing "all PFAS" from all supplied drinking water, and nearly all from targeted soil sites, effluent from "large" wastewater plants, wastewater sludges applied to agriculture, and leachate).

The cost for drinking water treatment alone in Europe was estimated to be as high as €18 billion per year, with wastewater and sludge management costs even higher.

It is reasonable to assume that costs in Australia would be significantly greater since Australia has very little existing capacity to upgrade or operate drinking water or wastewater treatment plants with GAC. The GAC regeneration costs would also be significantly greater, since few suitable facilities exist in Australia.

As global science has evolved to suggest the need for increasingly low levels of PFAS for safe drinking water, reports of PFAS contamination have increased. PFAS pollution of environmental water bodies now puts the entire concept of safe, affordable publicly supplied 'tap water' in jeopardy.

The need to manage PFAS contamination of water at drinking water treatment plants will add significantly to the cost of managing and supplying safe drinking water. In most cases, these increased costs will be passed on to consumers, through increased water bills.

Passing on the costs of managing PFAS in drinking water to consumers is the opposite of the '*polluter pays principle*', -the idea that those who create pollution should pay for the costs of remediating it. Increasing customer bills for essential drinking water services is already highly contentious in Australia. This is evidenced by headlines referring to 'bill shock' following Sydney Water's recent proposal for increased prices to fund a combination of essential maintenance for aging systems, and future expansion to adequately service new development [5].

EurEau represents Europe's drinking and wastewater sector [6]. They encompass 38 national water services associations including public and private operators from 33 countries. In January 2025, EurEau released a paper, "PFAS Phase Out: A Prerequisite for a Water Resilient Europe" [7], highlighting the urgent threat that PFAS pose to the future of Europe's water services.

In response to their findings, EurEau called for a range of significant policy reforms in Europe. These proposed reforms are all equally valid and urgent in Australia. Thus, I have translated them to an Australian context as follows, and hereby present them as recommendations to the Select Committee:

- **Support a far-reaching ban for PFAS used in products made inside and outside Australia:** Under IChEMS, the Australian Government lists industrial chemicals on the IChEMS register in one of seven schedules according to their environmental risk and assigns risk management measures or other controls to manage these risks. In Dec 2023, the Australian Government scheduled PFOA, PFOS and PFHxS on Schedule 7 of the IChEMS register. This prohibits these chemicals from import, manufacture, export and use in Australia from 1 July 2025. This means that materials containing these products will not be able to be used in Australia or imported into Australia.
 - **Ensure all states and have legislation in place to fully apply IChEMS scheduling.**
 - **Expand IChEMS scheduling to include a much wider range of PFAS.**
 - **Institute and properly resource greater capability for chemical residue testing in a wide range of products, including cosmetics, furniture, fabrics, food, and food packaging, to support IChEMS restrictions and other risk management activities.**
- **Prolong PFAS use only in certain essential applications for a limited time:** Some PFAS uses, for example in medical applications, might be essential for people's health. In line with the European Commission's approach, these applications might enjoy longer transition periods, provided PFAS release to the environment is minimised and the end-of-life management is subject to strict certification. With a view to protecting drinking water, the World Health Organization (WHO) advises its member countries that "all non-essential uses of PFAS should be stopped".

- **Ban PFAS in fire-fighting foams:** The application has been significantly curtailed in Australia, but a complete ban is yet to be imposed. The Australian Government should broaden restrictions, applying the shortest possible transition periods. Firefighting foams have caused dramatic local PFAS pollution across Australia and alternatives are available.
- **Tackle PFAS in plant protection products:** The Australian Government should immediately withdraw the authorisation for all PFAS-containing plant protection products and biocides, and in particular those that lead to the formation of TFA. Available international data suggest that their use is leading to the accumulation of this substance in soil and groundwater.
- **Finalise health-based limit values for PFAS including TFA** in drinking water and food accompanied by strict control-at-source measures to avoid PFAS release to the environment. [Note the words 'health-based' are important here and Australian authorities should resist calls to adopt more pragmatically-derived values, such as those produced by the US EPA]. The same health endpoints (TDIs) should be applied across food, drinking water, and other sources of exposure.
- **Provide a long-term framework:** Regulation drives innovation. Only a clear phase-out date, possibly, supplemented by a short transition period, provides the regulatory framework that stimulates investment in alternative solutions. PFAS are increasingly restricted in other parts of the world. Australia can become a forerunner in developing PFAS-free alternatives.
- **Make the polluter pay:** PFAS pollution threatens to cost Australians billions of dollars every year. These costs will be increasingly borne by water operators, municipalities, health insurances, governments and others. By incorporating these costs in the PFAS price, we will not only bring fairness to the protection of people and the environment, but also make alternative, more sustainable solutions more competitive. Public authorities should provide complementary financing.
- **Promote innovation:** Australian research agencies (e.g. the ARC and NHMRC) should further support the development of adequate and more sustainable PFAS substitutes and PFAS removal and destruction technologies.

Furthermore, Australia must take steps to reduce the likelihood of similar chemical pollution problems occurring in future. Proper and thorough risk assessment would have revealed the '*forever chemical*' nature of PFAS at the time they were first introduced to products used in Australia. Ideally this would have occurred in the country of origin, however other countries cannot be relied upon to properly assess and control the chemical products they produce and export (there has clearly been very little 'environmental protection' delivered by the US EPA). Australian authorities must be much more proactive in assessing and regulating future incoming chemicals and chemical residues.

PFAS pollution in Australia underlines why we need a new global policy body on chemicals. Recently, I was a co-author on a published paper, calling for a new global body, to provide a global perspective on the science and develop global policy on chemical pollutants [8]. As we described, major challenges for such a body would be:

- I. to foster global knowledge production on exposure, impacts and governance going beyond data-rich regions (e.g., Europe and North America),
- II. to cover the entirety of hazardous chemicals, mixtures and wastes,
- III. to follow a one-health perspective considering the risks posed by chemicals and waste on ecosystem and human health, and
- IV. to strive for solution-oriented assessments based on systems thinking.

I believe it is time for the Australian Government to proactively support the establishment of an intergovernmental body, based on scientific knowledge, for improved regulation and management of chemical contaminants and waste. As this article shows, many others in the global scientific community see it the same way.

Finally, through current and ongoing reform of water management in Australia, the Commonwealth Government should seek to take a much more active role in setting drinking water quality and risk management requirements. To achieve this, the Commonwealth Government should draft and pass an Australian Safe Drinking Water Act. Such an Act would enable the Commonwealth to mandate consistent application of best practices for managing drinking water quality (as defined by the Australian Drinking Water Guidelines), nationally.

I call upon the Australian Commonwealth Government to adopt each of the recommendations presented in this document.

Yours sincerely,

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