



WATER SERVICES
ASSOCIATION OF AUSTRALIA



**WSAA submission to the
Senate Select Committee on
PFAS**



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The Water Services Association of Australia (WSAA) welcomes the inquiry by the Senate Select Committee on PFAS. WSAA is the national peak body representing the water sector in Australia and New Zealand. Our members provide water and wastewater services to over 24 million customers in Australia and New Zealand, and many of Australia's largest industrial and commercial enterprises.

The water sector plays a critical role in protecting public health by delivering safe drinking water and managing wastewater. Our sector serves as the kidneys for society. This means we engage with Australians who every day turn on their taps and flush their toilets. Our responsibility to the public is clear: deliver safe, clean water, and manage wastewater to protect public health and the environment. Dedicated professionals across the sector work tirelessly in investigating, assessing, and responding to a range of risks that challenge this responsibility every day.

The water sector has demonstrated leadership in managing public health risks through initiatives like Health-Based Targets (HBTs) for drinking water, which were adopted nearly a decade ahead of their inclusion in the Australian Drinking Water Guidelines. Similarly, the sector is addressing the complex challenge of PFAS contamination, not only in drinking water but also in wastewater systems. While utilities take comprehensive measures to treat wastewater and meet regulatory and community expectations, the accumulation of PFAS in these systems presents significant technical, environmental, and economic challenges.

We firmly believe that source control is the most effective and sustainable approach to managing PFAS risks. Without action to limit the entry of PFAS into wastewater systems, treatment costs will rise, placing additional pressure on customers and communities. Addressing PFAS requires collaboration across all sectors of society, as water utilities alone cannot mitigate risks introduced by external sources.

This inquiry provides an important opportunity to showcase the water sector's proactive efforts, including expanded monitoring and research initiatives, which often exceed regulatory requirements. Water utilities are committed to working in and strengthening partnerships with governments, regulators, and other sectors to develop practical, evidence-based solutions that reduce the impacts of PFAS. We urge governments to take decisive steps to support source control measures, align regulatory frameworks, and address gaps in PFAS management.

The water sector's approach to PFAS reflects its broader commitment to risk management – balancing multiple pressures such as population growth, ageing infrastructure, climate change impacts, and affordability. We offer this submission with the aim of fostering solutions and a call to action for the protection of public health and the environment, while ensuring the long-term sustainability of water services.

Recommendations to the Senate Select Committee

- 1. Ban or restrict PFAS in non-essential consumer products:** Prohibit the importation, manufacture, and sale of non-essential consumer and household products containing PFAS. If this is not achievable, impose stricter controls on everyday consumer products, that limit primary human exposure to PFAS and the amount entering the environment.
- 2. Implement mandatory labelling and disclosure requirements:** Introduce mandatory labelling and disclosure requirements for all products containing PFAS, including information about the type and concentration of PFAS compounds that are present.
- 3. Develop and implement a National Contaminants Strategy:** Develop a broader strategic approach to manage emerging pollutants and contaminants that are a priority for Australia. A well-defined strategy would help prioritise resources for collaborative research and investigation, followed by consultation to identify and recommend actions to the Australian Government. Crucially, this strategy must include provisions for adequate resourcing of the NHMRC and the Heads of the EPAs, to enable them to respond effectively and collaborate with affected sectors to address the concerns and risks associated with PFAS and other emerging contaminants. Additionally, the strategy should include priority areas for Australian Government investment to accelerate technological development for the treatment and destruction of PFAS compounds.
- 4. Implement the national coordination of source control, monitoring, and remediation of contaminants:** A collaborative approach, led by a taskforce of regulatory agencies and relevant peak industry bodies, would enhance coordination and information-sharing, which are essential for addressing the contamination of PFAS. The proposed Environment Protection Australia could play a key role in this effort, aligning the objectives of both the NEMP and IChEMS processes and addressing regulatory gaps. By moving beyond a sole focus on 'end-of-pipe' controls, the taskforce could explore more comprehensive, long-term solutions. It is vital that all stakeholders work together towards the shared goal of reducing PFAS contamination and safeguarding public health and the environment.

Our submission addresses the key areas outlined in the Senate Select Committee's Terms of Reference, with a focus on how the water sector's role, regulatory frameworks, and collaborative approaches are integral to managing PFAS risks.

Understanding PFAS and the water sector

Through widespread historical use and due to their nature, PFAS compounds are ubiquitous, persistent, bioaccumulative, and resistant to degradation, which makes them particularly challenging to manage in the water sector. As the scientific understanding of PFAS evolves, the water sector supports ongoing review of guidelines to ensure they reflect the latest evidence and are suited to Australian conditions.

The sector's capacity to manage PFAS is shaped by regulatory support and compliance obligations, the availability of treatment technologies, and cost considerations for both utilities and customers. The water sector's role in managing PFAS can, and often does, extend beyond compliance requirements for drinking water and wastewater management guidelines. Utilities engage in proactive risk management by trying to identify potential PFAS sources, monitoring raw water, treated drinking water, wastewater effluent, recycled water and biosolids, and developing treatment and mitigation strategies. Importantly, water utilities are not a primary source of PFAS, and accept the task of managing PFAS as a secondary source presence in water systems because of contamination from industrial, commercial, and

consumer product sources. Primary sources of PFAS are direct applications of PFAS compounds in products or processes, while secondary sources are indirect sources that are contaminated by PFAS from the primary sources (e.g. wastewater).

Effective source control is widely recognised as the best strategy for PFAS management and requires clear, strict, and enforceable regulations and monitoring for PFAS in consumer products. Global evidence demonstrates that implementing robust source control measures significantly reduces exposure and associated risks. This is reflected in the observed decline of PFAS concentrations in human blood¹ following reductions in PFAS production and use. The improvement of source control measures would alleviate the operational burden on water utilities, reduce treatment costs, and lessen the financial impact on customers and communities. This further enables the broader objectives of the water sector to deliver sustainable, safe, clean, and affordable water drinking supplies and wastewater services.

WSAA has developed resources on PFAS, including [a fact sheet](#) and [frequently asked questions](#) document. WSAA's resources aim to raise awareness of PFAS issues, highlight sector-led initiatives, and provide transparent information to stakeholders, including customers, the community, regulators, and governments.

¹ Australian National University (ANU) 2021, *PFAS Health Study: Blood Serum Study Report*, Australian National University, Canberra.

Response to Terms of Reference of Senate Inquiry

(a) the extent of data collection on PFAS contamination of water, soil and other natural resources;

Health policy agencies and regulators, such as federal, state and territory health departments, establish health-based guideline values, while state and territory Environmental Protection Authorities (EPAs) set operational requirements and issue licences that define monitoring obligations. These obligations guide the scope of monitoring undertaken by water utilities. The frameworks are enforced by health and environmental regulators, and effective coordination between these regulators is needed to ensure consistent application of national guidelines and a shared understanding of PFAS contamination risks. This alignment enables water utilities to conduct evidence-based risk assessments and implement appropriate responses, including targeted monitoring activities.

When PFAS contamination is detected in drinking water or wastewater above health or environmental guideline values, water utilities must undertake additional monitoring and investigations. These efforts often focus on areas with known PFAS use, such as airports, defence sites, and industrial zones. Testing is conducted at multiple points within water supply and wastewater systems, including raw water sources, treated drinking water, wastewater effluent, recycled water and biosolids². While raw water is not required to meet drinking water standards, it is frequently tested to support proactive risk management and inform the selection of appropriate treatment processes.

For PFAS testing, stringent sample collection and laboratory analysis protocols are followed to prevent contamination and ensure the accuracy of results. This process is guided by national standards and technical guidelines to maintain consistency, precision, and accountability in testing procedures, and provide confidence in the validity of results.

Water utilities across the country have been publishing and updating data on PFAS monitoring in raw water and drinking water on their websites.

Recycled water has a pivotal role in enhancing water security and productivity, particularly in non-drinking applications such as agriculture, industrial processes, and urban irrigation. These uses help alleviate pressure on drinking water supplies and contribute to sustainable water management.

While advanced treatment technologies effectively minimise PFAS risks in recycled water intended for drinking purposes, the management of risks in other applications remains a priority. Collaborative efforts between water utilities, regulators, and end-users are essential to mitigate contamination risks and optimise the safe use of recycled water. Such partnerships enable the development and enforcement of guidelines and monitoring tailored to specific applications, ensuring that recycled water continues to deliver community benefits.

The beneficial re-use of biosolids transforms a waste product into a resource that reduces emissions, locks up carbon, enhances soil structure, and lowers reliance on synthetic or imported fertilisers. This practice is highly valued by the farming community and is subject to stringent regulation.

Regulatory frameworks for biosolids management vary across States and Territories, outlining the roles and responsibilities of producers (e.g., water utilities), users, and environmental regulators. State-specific guidelines often include classification systems based on contamination grades, which dictate permissible uses for biosolids. Testing and monitoring

² Biosolids are defined as the wastewater sludge that had been sufficiently stabilised and can be beneficially used for its nutrient, soil conditioning and/or energy production qualities. Steps to use biosolids:

1. Classify biosolids based on Contaminant Grade.
2. Determine the permitted beneficial re-use options based on the classification.
3. Apply the best management practices and constraints for the identified re-use.

protocols are employed to evaluate soil conditions before and after land application, with requirements tailored to state regulations and intended uses. These data are reported to environmental regulators as part of permitting and licence conditions, ensuring the safe and beneficial reuse of biosolids. Unregulated PFAS source control and the rising costs associated with PFAS management—if borne solely by the water sector—could jeopardise beneficial biosolids reuse, potentially increasing water bills and diminishing the significant environmental and agricultural benefits it provides.

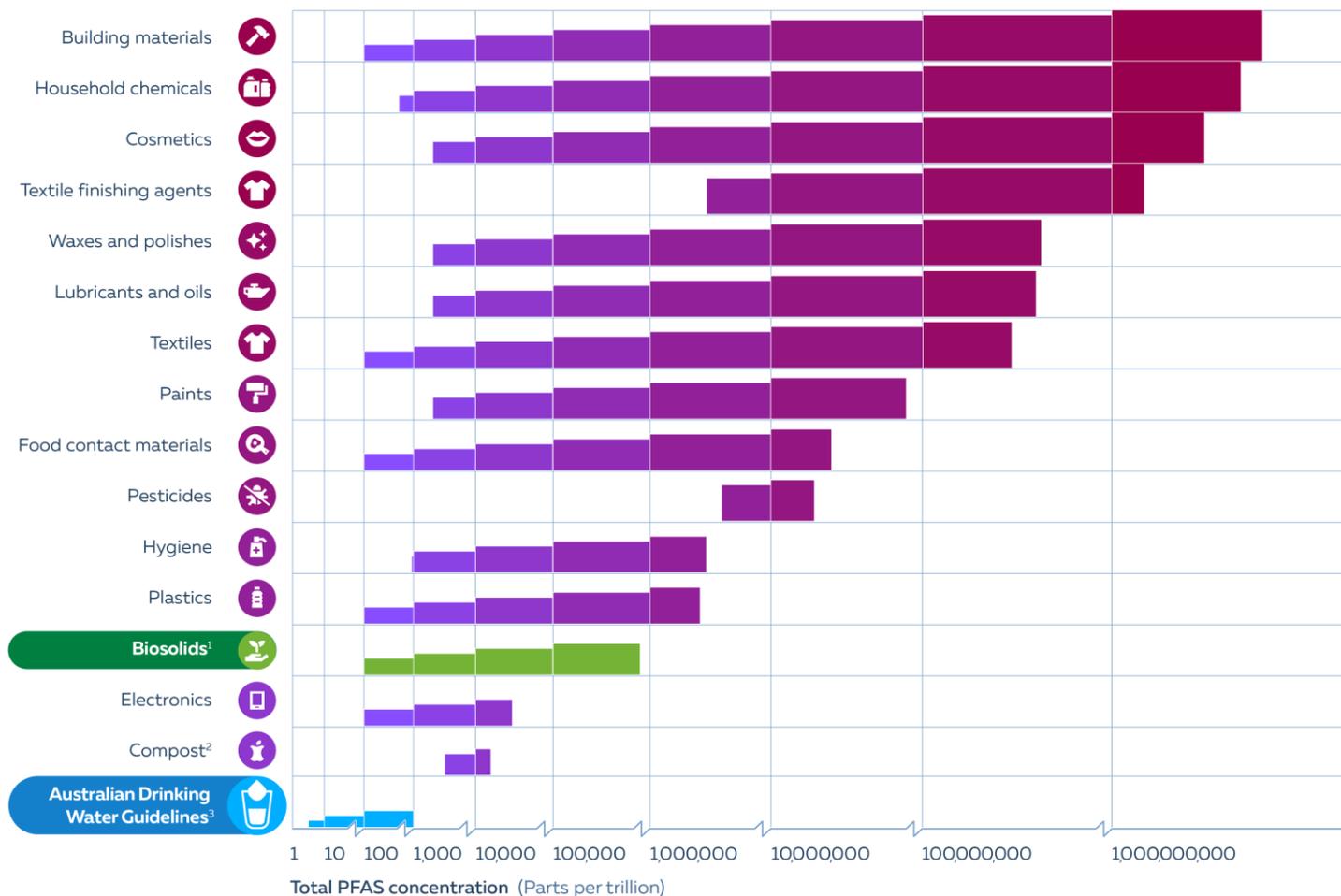
The water sector is committed to ensuring that resources such as biosolids and recycled water deliver tangible benefits to communities, the natural environment and support the transition to a circular economy.

(b) sources of exposure to PFAS, including through environmental contamination, food systems and consumer goods;

The sources of PFAS include firefighting foams, and a wide range of everyday consumer and industrial products: textiles, leather products, food packaging, sunscreen, insect repellent, fertilisers, non-stick cookware, pesticides, furniture polishes, carpets, shampoos, cosmetics and air and dust, to name only a few. Dewapriya et al (2023), published a paper about the concentrations of PFAS in consumer products from which some figures can be drawn (Figure 1 overleaf). We note that Figure 1 represents relative concentrations of PFAS, and does not attempt to convey exposure to PFAS, or how much of the PFAS could contaminate the environment, be ingested or absorbed.

Water utilities do not generate PFAS but must manage its occurrence in catchments and/or its presence in wastewater as a secondary source. Addressing PFAS requires a shared responsibility approach, recognising that the sources of PFAS lie outside the control of water utilities. The presence of PFAS in water supply and wastewater systems often results from upstream activities, including industrial discharges, the use of firefighting foams, and consumer products entering source water supplies and/or wastewater systems. As such, water utilities rely on guidance and regulatory frameworks set by health agencies and environmental protection authorities to inform their risk assessments, prioritise monitoring, and determine appropriate response measures.

Relative concentrations of PFAS in consumer products, drinking water guidelines and biosolids



1 Nguyen, H.T., Thai, P.K., Kaserzon, S.L., O'Brien, J.W., Mueller, J.F. (2024) Nationwide occurrence and discharge mass load of per- and polyfluoroalkyl substances in effluent and biosolids: A snapshot from 75 wastewater treatment plants across Australia. *Journal of Hazardous Materials* 470, 134203

Moodie, D., Coggan, T., Berry, K., Kolobaric, A., Fernandes, M., Lee, E., Reichman, S., Nuggeoda, D., Clarke, B. (2021), Legacy and emerging per- and polyfluoroalkyl substances (PFAS) in Australian biosolids. *Chemosphere* 270, 129143

2 Sivaram, A. K., Panneerselvan, L., Surapaneni, A., Lee E., Kannan, K., Megharaj, M. (2022). Per- and polyfluoroalkyl substances (PFAS) in commercial composts, garden soils, and potting mixes of Australia. *Environmental Advances* 7, 100174

3 National Health and Medical Research Council (NHRMC). (2024), *Per- and poly-fluoroalkyl substances (PFAS) Chemical Fact Sheet (Draft)*

Chart developed based on Dewapriya, P., Chadwick, L., Gorji, S.G., Schulze, B., Valsecchi, S., Samanipour, S., Thomas, K.V., and Kaserzon, S. L. (2023). Per- and polyfluoroalkyl substances (PFAS) in consumer products: current knowledge and research gaps. *Journal of Hazardous Materials Letters* 4 100086 1-7

Note Total PFAS concentrations in various consumer and industrial product categories globally in comparison with the proposed ADWG and biosolids, presented in ng/L or ng/Kg equivalent to ppt. Concentrations presented provide the range of total PFAS concentrations items contained in the reference studies and do not attempt to convey how much PFAS could contaminate the environment, be ingested or dermally absorbed by people. Data include several types of PFAS commonly found in the market, including but not limited to PFCAs (e.g., PFOA), PFASAs (e.g., PFBS, PFHxS, PFOS), fluorotelomers, sulfonamides, PAPs, and other novel PFAS.

Figure 1. Relative PFAS concentrations across various product categories compared to biosolids and drinking water guidelines.

(c) the health, environmental, social, cultural and economic impacts of PFAS;

PFAS monitoring, investigation, and treatment impose a financial burden on water utilities. For larger utilities, these costs are often manageable, but smaller utilities may face significant financial strain. Without direct government funding or access to alternative, non-customer-funded capital investment avenues, these costs are likely to be passed on to customers through higher water bills, exacerbating household financial pressures during a cost-of-living crisis.

The installation of advanced treatment technologies, such as reverse osmosis or granular activated carbon, while effective for treatment, can be both capital and energy intensive. Additionally, operational costs rise due to the need to manage PFAS-contaminated waste streams generated by these processes.

These expenses add to an already constrained financial landscape for water utilities, which are tasked with balancing the renewal of ageing infrastructure, addressing population growth and climate change, and meeting housing development targets while maintaining customer affordability. Expecting water utilities to absorb the financial burden of PFAS management risks deferring critical infrastructure upgrades, limiting capacity to support growth, reducing assistance for vulnerable customers, and curtailing investment in other essential services. This cascading effect highlights the urgent need for increased financial support from government to ensure that the costs are not solely borne by utility customers.

Adopting a shared responsibility approach will enable water utilities to maintain service quality, support community growth, and safeguard public health without compromising other key priorities often mandated by governments or regulators.

Given the substantial costs of PFAS management, there is an increasing need for additional government support and investment. The water sector is actively exploring opportunities to partner and collaborate with governments and other sectors to address PFAS risks. Expecting water utility customers alone to shoulder this financial burden is neither equitable nor sustainable.

(d) challenges around conducting and coordinating health and exposure research into PFAS, including the adequacy of funding arrangements and the influence of the chemicals industry over the evolving body of scientific evidence on the health effects of PFAS, including in respect to First Nations communities;

The water sector has demonstrated leadership in research on PFAS, partnering with international and national research organisations to improve understanding and sharing latest research developments.

Internationally, WSAA is a member of the Global Water Research Coalition (GWRC), which has and continues to facilitate international knowledge sharing and showcasing best practices for PFAS management.

Nationally, the water sector has had PFAS as featured topic at Ozwater, the water sector's largest national conference, for at least the past eight years. This highlights the importance of this topic to the national water agenda. Water Research Australia (WaterRA), the water sectors member-based research agency, provides a platform for ongoing PFAS research, supporting the development of practical guidance and applied research that informs utilities' operational decisions.

In recognition of the risk of the beneficial re-use of biosolids, work by the Australian New Zealand Biosolids Partnership (ANZBP) has brought the sector to understand and help

address issues related to PFAS and biosolids. The ARC Training Centre for Transformation of Australia's Biosolids Resource is a further example of the high level of sector collaboration and proactive investigation in safeguarding the beneficial re-use of biosolids through cutting edge research and technological development.

WSAA supports the establishment of multi-agency collaborations, with sufficient funding, to facilitate cross-industry research into PFAS risks and mitigation measures. These collaborative efforts ensure the water sector remains equipped with the latest knowledge and technological advancements to address emerging PFAS challenges.

As part of WSAA's ongoing work for equitable access to clean drinking water and safe sanitation, we have investigated the challenges broader than PFAS for First Nations communities through our [Closing the Water for People and Communities Gap Report](#). The report highlights the complexity and cumbersome bureaucracy that exists for water quality monitoring as well as the importance of engaging with communities on drinking water. This work aligns with WSAA's commitment to First Nations people and communities, delivering customer value and supporting the water sector across Australia in achieving Sustainable Development Goal 6.

(e) the effectiveness of current and proposed federal and state and territory regulatory frameworks, including the adequacy of health based guidance values, public sector resourcing and coordination amongst relevant agencies in preventing, controlling and managing the risks of PFAS to human health and the environment;

WSAA also acknowledges the important role of the National Health and Medical Research Council (NHMRC), supported by the Water Quality Advisory Committee, as Australia's independent authority on health-related drinking water guidelines. The NHMRC's transparent evidence review and 'evidence-to-decision' framework, detailed in its Administrative Reports, facilitate robust scrutiny and build public confidence in the regulatory process.

In parallel, WSAA and the broader water sector have actively engaged in the consultation process led by the Heads of EPA for Australia and New Zealand during the development of the PFAS National Environmental Management Plan (NEMP) 3.0. This collaborative process has enabled the water sector to contribute practical insights to improve the criteria outlined in the guidelines, supporting effective implementation across jurisdictions to benefit communities.

The effectiveness of current regulations is reflected in studies such as the Food Standards Australia New Zealand (FSANZ) Australian Total Diet Study, which found that:

- PFAS levels in the Australian food supply are very low;
- There are no public health and safety concerns for the general population; and
- Additional risk management measures, such as setting maximum levels, are not currently needed in the Australia New Zealand Food Standards Code.

Nonetheless, Australia must remain vigilant to the evolving challenges of PFAS management. Ongoing monitoring and research, such as FSANZ investigations, are crucial to maintaining low-risk levels and responding promptly to emerging evidence of potential risks. These collaborative and transparent regulatory efforts underscore the importance of a whole-of-society approach to PFAS management, ensuring that mitigation responsibilities are equitably distributed across all contributors.

The primary responsibility for source control should rest with those involved in the regulation, production and use of PFAS-containing products. Effective source control is essential to minimise treatment costs and prevent water utilities from bearing the burden of issues they did not create.

g) international best practices for the environmentally sound management and safe disposal of PFAS;

Australia's contribution to global PFAS research is exemplified by innovations such as foam fractionation technology, which has demonstrated significant potential in removing PFAS from water. The Australian water sector is currently navigating a critical transition phase in its approach to PFAS management, with an increased emphasis on operational changes aimed at preventing further PFAS contamination in biosolids. This transition is being propelled by the sector's commitment to adopting international best practices and engaging in collaborative initiatives designed to bolster operational resilience and capacity.

A key element of this transition involves learning from international expertise and case studies. By leveraging global knowledge and applying it within the Australian context, water utilities are enhancing their ability to manage PFAS risks effectively. This focus is particularly evident in the evolving biosolids management framework, which underscores the sector's broader objective of protecting public health and the environment while minimising future risks associated with PFAS contamination.

To address the challenges of PFAS management in biosolids, Australian utilities are actively exploring advanced treatment technologies, including thermal conversion methods. These technologies are being evaluated for their capacity to mitigate PFAS contamination, as well as other possible and future contaminant risks and support the development of circular economy outcomes. Through collaborations with organisations such as the GWRC, WaterRA, and the ANZBP, WSAA is supporting research and development into innovative solutions such as [biochar's potential for PFAS removal](#).

WSAA is working closely with the Australian and New Zealand Biochar Industry Group (ANZBIG) to promote cross-sector collaboration. This partnership is focused on advancing standards and certification processes for biochar application, particularly in the context of rate-based guidance. Establishing such standards is critical to ensuring biochar's safe and effective use, opening opportunities to address PFAS contamination while supporting circular economy goals. The development of these standards aligns with the sector's overarching aim of enhancing sustainability and fostering innovation in biosolids management. Greater support is needed from the federal, state and territory governments in enabling such technological developments by removing policy and regulatory barriers and increased funding support.

Additionally, WSAA is exploring options to improve the utilisation of products derived from thermal conversion technologies. These efforts are part of a broader strategy to align Australian practices with international benchmarks in PFAS risk management. By prioritising innovative solutions, collaborative research, and the development of robust standards, the Australian water sector is demonstrating its leadership in addressing the complex challenges posed by PFAS, while contributing to global efforts to safeguard environmental and public health.

(j) international best practices for environmental and health risk assessments, reduction and management of PFAS contamination and exposure;

WSAA cautions the Committee on the interpretation of feedback provided when reference is given to cross-country comparisons. While the general principles of PFAS management may be consistent, the regulatory frameworks, drivers, and local context can differ significantly between countries, influencing the management and safe disposal of PFAS. This nuance is critical to understanding best practice.

For example, Australia's alignment with World Health Organization (WHO) guidelines for drinking water quality provides a strong basis for PFAS risk management. WSAA has recommended that the NHMRC consider upcoming WHO guidelines before finalising the Australian Drinking Water Guidelines for PFAS.

We encourage adopting a scientific, evidence-based approach to policy development and implementation, and associated decision-making. This should include a thorough evaluation of all relevant scientific evidence, ensuring its application considers the specific context and risks unique to Australia. Such an approach will enable well-informed, robust decisions that align with the country's priorities and unique context settings to address its challenges.

(k) areas for reform, including legislative, regulatory, public health and other policy measures to prevent, control and manage the risks of PFAS to human health and the environment, including the phasing out of these harmful substances; and

We expect the establishment of Environmental Protection Australia to significantly enhance coordination on PFAS source control, regulatory consistency, and strategic oversight. Such an agency would act as a centralised authority to drive alignment of regulatory frameworks, clarify roles and responsibilities, and facilitate effective management of PFAS across jurisdictions. This approach would promote consistency in standards, streamline regulatory processes, and reduce duplication of efforts across states and territories.

Environmental Protection Australia, together with Environment Information Australia, would support data collation and analysis, enabling a more comprehensive understanding of PFAS contamination. These agencies could be tasked with driving a cohesive strategy to coordinate actions on source control – for example, through IChEMS – while also informing reviews and updates to contamination management instruments such as the NEMP.

We strongly endorse the application of empirical evidence supported by robust data for national guideline reviews as a means of addressing regulatory uncertainty and inconsistency.

The water sector recognises the challenges posed by PFAS and other contaminants of emerging concern as part of a broader transition toward a circular economy. Achieving this transition requires regulatory frameworks that are responsive, constructive, and collaborative. The establishment of federal agencies like Environmental Protection Australia and Environment Information Australia would facilitate this transition by fostering a participatory approach to the drafting and development of regulatory requirements. Such an approach ensures that the water sector, with its shared commitment to public health and environmental protection, is actively engaged in shaping effective solutions.

Reform should target clear oversight and accountability to ensure an efficient and equitable approach to PFAS management. This includes facilitating better resource allocation, reducing regulatory uncertainty, and supporting water utilities in meeting compliance obligations. A coordinated approach is essential to ensure that all stakeholders in the PFAS production, usage, and management chain are held accountable, thereby minimising the financial and operational burdens on water utilities and their customers.

(l) any other related matters.

WSAA's current approach to the issue of PFAS contamination underscores the importance of proportionality in risk communication. Media coverage can amplify public concern, even when risks are low. Proactive, transparent, and evidence-based communication is essential to support public understanding and trust.

WSAA supports the Committee's inquiry and would be happy to assist further.