# AUSTRALIAN government RESPONSE

## Call for submissions: Questionnaire to inform the thematic report on “Nexus water-economy: water management for services and productive uses from a human rights approach”

Australia thanks the Special Rapporteur on the human rights to safe drinking water and sanitation for his invitation to provide a submission to inform the Report on “Nexus water-economy: water management for services and productive uses from a human rights approach”.

**Question 3: What should be the role of the State in the management of aquatic ecosystems and the water obtained in them?**

Agencies at different levels of government have a role in the management of Australia’s water resources. State and territory governments are primarily responsible for managing water within their jurisdictions. The Australian Government provides national coordination and leadership to drive policy and law reforms to manage our water resources sustainably and productively for future generations of Australians.[[1]](#footnote-2)

The Murray–Darling Basin is the largest system of waterways in Australia. It covers an area the size of France and Germany combined in the south-east of Australia. It includes rivers, lakes, wetlands, floodplains and dams in New South Wales, Queensland, South Australia, the Australian Capital Territory and Victoria.[[2]](#footnote-3) More than 3 million people rely on the Basin’s rivers for many uses, including drinking, washing, running businesses, tourism and recreation. Water from the Basin’s rivers is also needed for our environment. Water needs to be managed carefully to meet all these needs, so that the rivers are healthy and can support future generations.[[3]](#footnote-4)

The Australian Government owns entitlements to water in the Murray–Darling Basin. The Government uses this water to keep rivers healthy, so they may continue to support communities for future generations. This water is referred to as ‘water for the environment’. Managing water for the environment is the job of the Commonwealth Environmental Water Holder (CEWH), supported by the Commonwealth Environmental Water Office (CEWO). The CEWH is just one of many water holders in the Murray–Darling Basin, and is subject to the same fees, allocations, and rules as other water users. The CEWH is an independent statutory position established under Australia’s national water law, the *Water Act 2007*.[[4]](#footnote-5)

Many different people and organisations work with the CEWO to decide how, when and where water for the environment will be delivered across the Murray–Darling Basin. Some of the CEWO’s delivery partners include:

* State government land managers and environmental water holders: work with the CEWO to deliver environmental flows at local sites.
* River operators: manage government storages on the rivers, including planning and delivering environmental flows.
* Scientists: research how best to use water to help the environment and monitor whether it’s making a difference.
* First Nations peoples: provide guidance on how environmental flows can meet cultural objectives.
* Local communities and interest groups: input into how, when and where water is delivered.
* Murray–Darling Basin Authority: sets limits on water use through the Murray-Darling Basin Plan, provides advice on Basin-wide priorities and runs the River Murray system.[[5]](#footnote-6)

In addition to the Australian Government’s coordination and leadership role in water management, and responsibility for environmental water in the Murray–Darling Basin, the Government also protects the environment through the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act and regulations are Australia's main national environmental legislation. They provide a way to protect and manage nationally and internationally important plants, animals, habitats and places. This includes protecting water resources relating to coal seam gas development and large coal mining development.[[6]](#footnote-7)

**Question 5: If water is considered a common good, how do you think water for productive uses should be managed in conjunctural or permanent circumstances of water scarcity? Do you know of any experiences or research on allocating water rights in circumstances of scarcity, during drought periods, or in the face of new uses and demands once sustainable availability limits were reached?**

Australia faces major challenges to ensure a sustainable water supply for agriculture, the environment and communities in the face of climate variability, water scarcity and growing demand for water.[[7]](#footnote-8)

The National Water Initiative (NWI) is Australia’s blueprint for national water reform, created in 2004 and agreed by all states and territories. This shared commitment by all Australian governments provides a framework and principles to underpin the sustainable management of our water resources. It aims to increase the efficiency of Australia’s water use, provide investment confidence and greater certainty for the environment, and improve water security for rural and urban communities.[[8]](#footnote-9)

States and Territories recognised the need to increase the productivity and efficiency of Australia’s water use, to service rural and urban communities, and to ensure the health of river and groundwater systems by establishing clear pathways to return all systems to environmentally sustainable levels of extraction.[[9]](#footnote-10) Under the NWI, States and Territories develop statutory water plans defining the appropriate water management arrangements to achieve environmental and water security outcomes.[[10]](#footnote-11) States and Territories allocate water access entitlements consistent with these water plans.[[11]](#footnote-12)

In 2017, the Australian and State and Territory Governments adopted a set of guidelines for water planners and managers to consider the impacts of climate change and extreme events on water resources. The guidelines suggest incorporating climate information into water plans to improve the transparency of water planning decisions, and to allow water users to identify and manage climate risks. It reiterates the importance of water planners clearly identifying and demonstrating how climate trends and projections have been considered in developing water plans. This includes the need to describe how water will be managed to take account of climate variability within a planning period, and how water planning approaches may need to transition over time to respond to potential longer-term climate impacts.[[12]](#footnote-13)

Droughts are a naturally occurring feature of Australia’s climate, and, when coupled with the high demand for water in the Murray-Darling Basin, have accelerated the degradation of the basin system. At the height of the Millenium Drought (1997-2009), it became evident that further collaboration and coordination was required to secure the health of the basin. Basin state governments agreed to refer some of their constitutional authority for water management to the Commonwealth under the national *Water Act 2007* to address transboundary water management issues.

This led to the development and implementation of the Murray–Darling Basin Plan (2012), which sets limits on the amount of water that can be taken from the rivers in the Basin, known as Sustainable Diversion Limits (SDLs). SDLs ensure water is fairly distributed across all states depending on availability, level of requirement and use. The Murray Darling Basin Authority plays an important role in calculating how much water belongs to each state in the river system before the states then calculate water allocations.

**Question 6: Could you share practical experiences or research on the management of productive water uses under the uncertainty imposed by climate change?**

Water scarcity is a persistent issue in Australia given the relatively dry and variable climate and now the emergence of climate change. Water is a valuable commodity particularly within agriculture, which accounts for around three quarters of total use. Water is also of value to other industries, households and increasingly environmental agencies.[[13]](#footnote-14)

Australia’s urban water industry has committed to achieving net zero greenhouse gas emissions by 2050. The Water Services Association of Australia (WSAA) acknowledges that while water utilities face different circumstances, capacity and capabilities, the industry will continue to collaborate with stakeholders and incorporate emerging research to meet the challenges of a changing climate. WSAA plans to achieve net zero by 2050 by:

* avoiding energy use and emissions through innovative smart design of new and renewed water and wastewater assets.
* minimising energy and emissions through efficiency and optimisation of pumps and the way we operate our systems.
* recovering and generating renewable energy (e.g. wind, solar, biogas, hydrogen) and local upcycled materials (e.g. soil conditioner, biochar) from our activities.
* substituting emissions-intensive energy with zero-emissions renewable energy sources.
* embracing new technologies and innovative solutions that reduce emissions, such as utilising climate adaptation measures as an enabler for mitigation.
* sequestering carbon (e.g. native forests or wetlands on land managed by water utilities.
* offsetting residual emissions, using local offsets where possible and exploring initiatives that enhance liveability and climate change adaptation for our communities and environment.[[14]](#footnote-15)

Climate change is impacting on the health of the Murray–Darling Basin, and scientists predict the Basin’s climate is likely to become drier and more variable. In addition to more extreme droughts, there may also be more extreme floods and other events like bushfires and water quality issues predicted. Climate models by Australia’s national science agency predict that by mid-century, the Murray–Darling Basin may experience a 5% reduction in average annual rainfall, leading to a 20% reduction in average annual runoff. In an extreme scenario, the reduction in average annual rainfall could be as much as 15%, resulting in a 40% reduction in average annual runoff. The models also suggest that droughts could occur twice as frequently. [[15]](#footnote-16)

The Murray–Darling Basin Plan (2012) helps prepare for droughts by ensuring water is managed fairly for all users: the environment, farmers, people across the Basin and First Nations. The impact a drought will have depends on how long it lasts and whether there have been other droughts in recent years. A drought will also affect different elements of the river system differently. During a drought, all allocations are reduced, whether the water is for farming or the environment. Everyone who holds water entitlements is treated equally. Water allocations for farmers are based on recent rainfall and water in dams.[[16]](#footnote-17)

When there is a severe drought, water that is 'critical for human needs' is prioritised. This is the minimum amount of water required to meet basic human needs such as drinking and hygiene, as well as water for livestock.[[17]](#footnote-18)

WATER SENSITIVE URBAN DESIGN IN AUSTRALIA

Water Sensitive Urban Design (WSUD) is an important part of water cycle management and is an approach that integrates whole of water cycle management into urban planning and design. In natural environments, rainwater mostly evaporates, gets absorbed by plants or soaks into the ground. Urban development dramatically changes these processes, clearing land of vegetation and covering it with 'hard' or impervious surfaces that cannot let water through. As a result, rainwater runs off these surfaces, through stormwater drains and straight into waterways as polluted stormwater in a very short time. This changes the timing, speed and volume of water flows, which can affect waterways and bays.

WSUD can contribute greatly to sustainability and liveability, particularly when considered as part of an overall urban strategy.

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The Victorian Planning Provisions (VPP) set stormwater management objectives that residential subdivisions must meet. These objectives are designed to reduce the harm to Victorian waterways, bays and the ocean. Local councils and the Victorian Government are responsible for these provisions, and Melbourne Water also plays a role.

Under the VPP, local councils must ensure that urban run-off from new residential subdivisions meet best practice water quality and flow requirements. One key objective of this provision is to minimise increases in stormwater run-off and protect the environmental values and physical characteristics of receiving water from degradation by urban run-off.

Some of the design concepts for WSUD included in the [South Eastern Councils’ WSUD Guidelines](https://www.melbournewater.com.au/sites/default/files/South-Eastern-councils-WSUD-guidelines.pdf) are bioretention swales, raingardens, vegetated buffer strips, sand filters, constructed wetlands, shallow ponds and lakes, sedimentation basins and rainwater tanks.

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The Western Australian Department of Water and Environmental Regulation (DWER) has published a series of brochures offering information on water sensitive urban design. The brochures include information about the design and installation of water sensitive systems and will help those involved with water sensitive urban design in local governments, consultancies and developer companies, particularly managers and directors.

DWER’s brochures cover concepts such as biofilters, constructed wetlands, sediment and litter traps, pervious paving, infiltration basins and trenches, and living streams. In particular, WSUD in Western Australia supports [retrofitting existing stormwater infrastructure to enhance its environmental benefit](https://www.newwaterways.org.au/wp-content/uploads/2020/09/Retrofitting_final.pdf). For example, the Coolgardie Drain to Living Stream project saw 45000 wetland and dryland trees, shrubs, sedges and rushes planted, and 4500 tonnes of clay removed across a 500m stretch of drain. [Read the brochures and see other examples of WSUD in Perth](https://www.wa.gov.au/government/document-collections/water-sensitive-urban-design-brochures).

**Question 12: Could you share and assess significant examples of water markets or public water banks?**

Australia has a number of well-developed water markets, where water rights are freely traded between end users. Water markets allow Australia’s scarce water resources to be efficiently allocated between competing uses in response to fluctuations in supply and demand.[[18]](#footnote-19) Water markets in Australia have an estimated turnover of $1–7 billion annually, with the 2021-22 year having an estimated turnover of $4 billion.[[19]](#footnote-20)

The Australian water market comprises many separate markets each defined by water systems or administrative boundaries. The scale of Australia's water markets varies greatly, from small unconnected water systems to extensive connected systems such as the Southern Murray–Darling Basin, which is the largest water trading area in Australia.[[20]](#footnote-21)

The Southern Murray–Darling Basin is Australia’s most significant water market and is seen as a world leader in the market-based allocation and management of scarce water resources. It is unique because of a high degree of hydrological connectivity allowing for relatively unconstrained water trading between systems and across state boundaries. In contrast, the Northern Murray–Darling Basin faces limited hydrological connectivity between individual water systems. This results in variations in market prices and trading activity between systems.[[21]](#footnote-22)

There are two main water products in Australia: allocations and entitlements. Entitlements are ongoing rights to a share of water from a water resource each year while allocations are the volume of water allocated to an entitlement in a given year, usually expressed as a percentage of entitlement volume. Trade in entitlements represents a permanent transfer of water access rights while trade in allocations involves the temporary transfer of water within an irrigation season.[[22]](#footnote-23)

Trade allows water to be reallocated from lower value to higher value uses. Allocation trade helps irrigators adjust to short term shocks while entitlement trade facilitates longer term structural adjustment. For example, allocation trade significantly reduced the cost of the Millennium drought by allowing irrigators with permanent plantings to purchase water from irrigators in other regions in the southern connected Murray-Darling Basin.[[23]](#footnote-24)

The principles embedded in the National Water Initiative provide essential prerequisites for water market development, including:

* setting an effective cap on total sustainable water extractions;
* water resource plans and water access entitlements that provide long term security of access by water users to their share of the water resource;
* sound regulatory and governance frameworks within which water trading can take place; and
* good water management such as metering and water accounting.

These actions underpin confidence to invest in water infrastructure and water management approaches, including investments that can help adapt to climate change.[[24]](#footnote-25)

The combination of water reform, reductions in transaction costs and increases in water scarcity have resulted in a steady increase in trade in allocations and entitlements since the 1980s.[[25]](#footnote-26)

But despite these steady increases in trade, water markets of the Murray–Darling Basin have faced challenges. The Australian Competition and Consumer Commission (ACCC) found in 2021 that the water market regulatory and policy framework had not kept pace with the growth and economic significance of Murray–Darling Basin (Basin) water markets. The ACCC identified areas for improvement regarding data availability, market rules, market integrity, lack of cross-jurisdictional coordination, and imbalances in the understanding of complex market conditions between major agribusinesses and smaller consumers, among others.[[26]](#footnote-27)

The ACCC’s water markets inquiry lead to 23 recommendations being made in the [Water market reform: final roadmap report](https://www.dcceew.gov.au/sites/default/files/documents/water-market-reform-final-roadmap-report.pdf). The Australian Government has committed to implementing all 23 recommendations for water market reform.[[27]](#footnote-28)

1. <https://www.dcceew.gov.au/water/policy/policy> [↑](#footnote-ref-2)
2. <https://www.dcceew.gov.au/water/policy/mdb> [↑](#footnote-ref-3)
3. Ibid. [↑](#footnote-ref-4)
4. <https://www.dcceew.gov.au/water/cewo/about-commonwealth-environmental-water> [↑](#footnote-ref-5)
5. Ibid. [↑](#footnote-ref-6)
6. <https://www.dcceew.gov.au/environment/epbc> [↑](#footnote-ref-7)
7. <https://www.dcceew.gov.au/water/policy/policy> [↑](#footnote-ref-8)
8. <https://www.dcceew.gov.au/water/policy/policy/nwi> [↑](#footnote-ref-9)
9. <https://www.dcceew.gov.au/sites/default/files/sitecollectiondocuments/water/Intergovernmental-Agreement-on-a-national-water-initiative.pdf>, para. 5 [↑](#footnote-ref-10)
10. Ibid, para. 37(i). [↑](#footnote-ref-11)
11. Ibid, para. 29. [↑](#footnote-ref-12)
12. <https://www.dcceew.gov.au/sites/default/files/sitecollectiondocuments/water/climate-change.pdf> [↑](#footnote-ref-13)
13. <https://www.agriculture.gov.au/abares/research-topics/water> [↑](#footnote-ref-14)
14. <https://www.wsaa.asn.au/sites/default/files/publication/download/Urban%20Water%20Industry%20Climate%20Change%20Position%20May%202022.pdf> [↑](#footnote-ref-15)
15. <https://www.mdba.gov.au/climate-and-river-health/water-quality-threats/drought> [↑](#footnote-ref-16)
16. Ibid. [↑](#footnote-ref-17)
17. Ibid. [↑](#footnote-ref-18)
18. <https://www.agriculture.gov.au/abares/research-topics/water> [↑](#footnote-ref-19)
19. <http://www.bom.gov.au/water/market/reports.shtml> [↑](#footnote-ref-20)
20. <http://www.bom.gov.au/water/market/documents/The_Australian_Water_Markets_Report_2021-22.pdf>, p 11 [↑](#footnote-ref-21)
21. Ibid, pp 12-13. [↑](#footnote-ref-22)
22. <https://www.agriculture.gov.au/sites/default/files/abares/documents/SnapshotOfAustralianWaterMarkets_v1.0.0.pdf> [↑](#footnote-ref-23)
23. Ibid. [↑](#footnote-ref-24)
24. <https://www.dcceew.gov.au/sites/default/files/sitecollectiondocuments/water/climate-change.pdf> [↑](#footnote-ref-25)
25. Ibid. [↑](#footnote-ref-26)
26. <https://www.dcceew.gov.au/sites/default/files/documents/water-market-reform-final-roadmap-report.pdf> [↑](#footnote-ref-27)
27. <https://www.dcceew.gov.au/water/policy/markets> [↑](#footnote-ref-28)