

Aboriginal cultural values, social economic connections, and opportunities in relation to groundwater in NSW

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Submitted to: DPE-Water

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Readers are advised photos or mention names in this publication may contain images or stories of deceased Aboriginal people.

The author acknowledges his ancestors and groundwater experts that have gone before him and the Elders that sustain us now.

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Aboriginal Cultural Values, Social, Economic Connections and Opportunities with Groundwater in NSW

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Executive Summary

The Department of Planning and Environment – Water (DPE – Water) published the NSW Groundwater Strategy in December 2022. In developing this strategy, DPE – Water funded a desktop study of Aboriginal people’s values, and their social and economic connections to groundwater management in NSW and the opportunities available to DPE – Water to remedy some of the poor decisions and gaps in policy and guidance relating to this subject in executing the requirements of the *Water Management Act 2000*.

DPE – Water is responsible for ensuring sustainable, secure and healthy water resources and services for NSW. The department manages the surface and groundwater in the state, developing and implementing plans for water security in NSW, and managing regional and metropolitan water supply and usage. DPE – Water also aims to provide transparent stewardship of water resources and deliver services and reforms that support sustainable and healthy environments, economies and societies.

DPE – Water administers the *Water Management Act 2000* and the associated water sharing plans, which are the primary tools to define water sharing arrangements in NSW. The water sharing plans have objectives of significance to Aboriginal people, including:

- protecting water needed to meet Native Title and Basic Landholder Rights (access to water without the need for a licence)
- providing water for the environment
- licences for Aboriginal cultural purposes and Aboriginal community development purposes.

To ensure the Groundwater Strategy addressed these aims of water sharing plans, this study was conducted to:

- document Aboriginal use and management practices as well as current challenges and opportunities affecting Aboriginal communities and their use of groundwater resources in NSW;
- better understand and protect Aboriginal cultural values and uses of groundwater;
- support economic development for Aboriginal communities through improved access to groundwater; and
- review how traditional values of groundwater management can be better considered in NSW’s existing groundwater management framework.

This document provides a framework for addressing these objectives for the Groundwater Strategy by incorporating Aboriginal traditional knowledge in considering:

- the missed opportunities and poor policy decisions under the legislation and water sharing plans in the past that the department can learn from;
- the current understanding and available data collected by the department on Aboriginal groundwater dependent cultural values and uses in water planning;
- the current barriers and potential risks to these values;
- the requirements and objectives of Aboriginal peoples in relation to groundwater management;
- the desired cultural inputs of Aboriginal peoples in relation to groundwater management; and
- opportunities to incorporate cultural, spiritual, environmental, social and economic for improved access to groundwater.

The report has been prepared based on a desktop assessment that reviewed internet sites, available documents, past reports and reviews, and incorporated the author’s industry knowledge and experience.

There have been past poor decisions and currently process and management gaps in the allocation of groundwater for use by Aboriginal communities, and inconsistencies between the treatment of Aboriginal values and rights to groundwater for other uses, such as industry or for the support of groundwater-dependent ecosystems. Some of these gaps arise from there being insufficient knowledge-sharing and recording of Aboriginal groundwater-dependent cultural values and culturally significant sites.

The following 16 recommendations attempt to address some of these poor decisions, gaps and inconsistencies, in addition to providing advice on consulting Aboriginal communities and dealing with Aboriginal people and their business in a culturally sensitive way. The recommendations are listed here and appear in the document alongside relevant discussion.

#	Recommendation	Rational
1	Ensure all legislation (including water sharing plans and water resource plans) apply the same rules to groundwater-dependent cultural values and culturally significant sites, as applied to identified high-priority groundwater-dependent ecosystems.	To limit drawdown and impact to those values and sites.
2	Develop a program to collect, identify, and record groundwater-dependent cultural values and culturally significant sites, with a culturally appropriate system of recording.	An item must be identified before it can be protected or supported.

3	Establish a protocol, agreed under a memorandum of understanding between agencies responsible for assessing groundwater works, ensuring no groundwater dependent cultural values and culturally significant sites are likely to be impacted by the proposed groundwater licence or works.	To ensure cultural values and culturally significant sites are considered in the assessment of groundwater licence or works applications.
4	Ensure the Natural Resource Access Regulator, Environment Protection Authority and other relevant agencies have the necessary tools (e.g. legislation, capacity, technology) to prosecute against the illegal and over extraction, impact or destruction of groundwater dependent cultural values and culturally significant sites, supported by partnerships, cross- agency collaboration, and or a memorandum of understanding between regulators.	To improve the ability of the Natural Resource Access Regulator (and other agencies) to exercise their function in prosecuting impact to groundwater dependent cultural values and culturally significant sites.
5	Include a meaningful acknowledgement of Aboriginal people and their country at the beginning of the Groundwater Strategy.	To demonstrate respect to the Traditional Owners of the land that is the subject of the document, and to recognise the continuing relationship between Indigenous people and their Country.
6	Prepare a Commitment Statement upfront in the objectives of the Groundwater Strategy that seeks to acknowledge the past history (Truth Telling in water) of dispossession and disconnection of Aboriginal people from groundwater. The Commitment Statement should also state that a meaningful strategy can understand, protect and value the cultural significance of groundwater while providing economic outcomes.	To provide Aboriginal people with the reassurance that the department is changing its way of doing business.
7	Always use capitals when naming Aboriginal people, Torres Strait Islander people (limited	To avoid offence to the First Peoples of Australia.

	connection in NSW), Indigenous people, and First Peoples in NSW governments documents. Do not use the term First Nations, as it comes from Canada and North America.	
8	Employ Aboriginal groundwater staff, offer work placements and graduate opportunities or scholarships for Aboriginal people, and become the agency where employees want to work and stay. Establish links with a university and courses relating to groundwater. Provide Aboriginal employment and consulting opportunities allowing Aboriginal people to monitor and collect water quality bore data through the river rangers program in the Murray–Darling Basin, the Indigenous Land and Sea Corporation and Indigenous Protected Areas.	To build the capacity of Aboriginal people to take an active role in groundwater management.
9	If an office has no Aboriginal water staff, a framework for engaging with Aboriginal communities about water must be established that addresses protocols, gives enough time to build trust, establishes a process for collecting information and protecting groundwater-dependent cultural values and culturally significant sites, and incorporates this information into plans as rules.	To allow culturally appropriate engagement with, by and for Aboriginal people.
10	Engage staff and resources for monitoring groundwater-dependent cultural values and culturally significant sites that have water sharing plan rules associated with them for the life of that plan.	To determine if the rules in place are protecting groundwater-dependent cultural values and culturally significant sites.
11	Ensure every staff member is culturally aware of the significance of groundwater and its values for Aboriginal people. This could be provided through a fact sheet, training or made part of new staff inductions.	To allow culturally appropriate engagement with Aboriginal people.

12	Ensure any remade, or reviewed water sharing plan acknowledges a positive determination of Native Title or outcome of that determination where water rights are specified.	To guarantee water sharing plans reflect land and water ownership and associated rights.
13	Groundwater is made available and committed to through negotiations with Traditional Owners and Native Claimants – avoiding the Barkandji issue of OML allocation in the Water Sharing Plans per Hartwig (2017).	Ensure the traditional owners get access to water entitlements and rights based on determinations and land hand backs.
14	Assess whether models such as IQQM, MODFLOW or the eWater Source model could consider demand for and protection of groundwater-dependent cultural values and culturally significant sites.	To expand the opportunities of cultural or economic groundwater for Aboriginal people.
15	Create a memorandum of understanding or partnership with bordering states and territories to coordinate consultations and share information regarding Aboriginal communities.	To ensure that Aboriginal communities are not over-consulted by different governments asking the same questions about water, avoiding consultation fatigue.
16	Determine the volume for the Specific Purpose Access Licence on the availability of water in each water sharing plan – not by a cap of 500 ML.	To improve the equity and reduce the restrictiveness of the Licence terms.

Acronym	Meaning
AHIMS	Aboriginal Heritage Information Management System
AWI	Aboriginal Water Initiative
DPE – Water	NSW Department Planning and Environment – Water
LTADEL	Long-Term Average Annual Extraction Limit

ML	Megalitre = 1,000,000 litres
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1 Introduction

The Department of Planning and Environment – Water (DPE – Water) is responsible for ensuring sustainable, secure and healthy water resources and services for NSW. They manage the surface and groundwater in the state, develop and implement plans for water security in NSW, and manage regional and metropolitan water supply and usage. Further, DPE – Water is expected to provide transparent stewardship of water resources and deliver services and reforms which support sustainable and healthy environments, economies and societies.

DPE – Water has an opportunity to develop a groundwater strategy that, if meaningful, will acknowledge Aboriginal people in NSW and their connection to groundwater on Aboriginal Country for over 65,000 years.

1.1 Objectives of this report

To ensure the Groundwater Strategy (published in late 2022) considered Aboriginal cultural values, social and economic connections, and opportunities in relation to groundwater in NSW, the department contracted a desktop study to document:

- the missed opportunities and poor policy decisions under the legislation and water sharing plans in the past that the department can learn from;
- the current understanding and available data collected by the department on Aboriginal groundwater dependent cultural values and uses in water planning;
- the current barriers and potential risks to these values;
- the requirements and objectives of Aboriginal peoples in relation to groundwater management;
- the desired cultural inputs of Aboriginal peoples in relation to groundwater management;
- opportunities to incorporate cultural, spiritual, environmental, social and economic for improved access to groundwater.

This information would enhance groundwater benefits for everyone through the incorporation of Aboriginal traditional knowledge into the Groundwater Strategy.

2 Groundwater in NSW

Groundwater plays a key role in the stories and understanding and observation of Country from an Aboriginal point of view. NSW DPE – Water is well placed to fully comply with the *Water Management Act 2000* and associated Regulations. The Instruments that guide the implementation of the Act are the water sharing plans (88 of them), including the many groundwater related plans for Aquifers, Alluvial, Fractured Rock and Porous Rock groundwater sources. In the past there has been more emphasis on surface water, and NSW has a vast amount of groundwater planning to undertake and get right.

The extraction of groundwater occurs in 240 water sources across NSW. Groundwater is an important source of water¹ for towns, industry and irrigators, and for domestic and stock use. Those water users can rely on groundwater extraction to support their activities. Groundwater is also important for the environment. It supports some ecosystems and provides base flow to rivers. Over-extraction or contamination of groundwater can have serious, long term and sometimes permanent impacts on the groundwater system. This may ultimately reduce the volume and quality of water available for the users and ecosystems that depend on this groundwater.

NSW DPE – Water manages groundwater at a regional level known as the ‘water source’ scale, and at a local scale between individual bores.

The volume of water that can be taken from a water source is defined in the water sharing plan for that water source. Water sharing plans apply to all surface water and groundwater in NSW. They manage water extraction for use by irrigators, industry, towns and communities to ensure there is water for the environment but there has been no protection of groundwater for Aboriginal people and cultural values.

¹ [What is groundwater? | Water \(nsw.gov.au\)](https://www.nsw.gov.au/what-is-groundwater)

3 Aboriginal people and groundwater

3.1 Importance of groundwater to Aboriginal people

For up to 65,000 years or in Aboriginal people's stories time immemorial (or day one), water has always been a crucial component of Aboriginal people's subsistence and survival in the sometimes harsh and ever drying landscape of Australia. The diversity of people in Aboriginal Australia should be acknowledged and respected and all Aboriginal people should not be viewed as a single group with common values, lores, goals and capacity. Legislation and policy should also not separate land and water, as Aboriginal people connect all aspects of the environment, the land, water and sky.

Aboriginal people are a part of all the regions identified by DPE – Water. They understand them, dance and sing stories about them and have done so for thousands of generations with the understanding and assisted by thousands of years of observation. The connection does not stop at the borders of states and territories or at boundaries of water sharing plans. The connection to land and waters (Country) is deep and a birthright for Aboriginal people. The inland river networks were the highways, the old well-trodden walking tracks became travelling stock routes or major highways, the groundwater sites were important places for trade links to songlines and wetlands were the supermarkets.

With climate change projected to increase the duration and intensity of droughts, groundwater will become even more critical in sustaining society and agriculture, not only because it constitutes an important part of available freshwater in NSW, but also because groundwater is relatively less sensitive than surface water to short term and seasonal climatic variations. Groundwater can support communities in adapting quickly to climate change if it used and shared sustainably. Aboriginal people are seen as being the most impacted by climate change and contribute the least to its causes, leaving them and the values they hold to groundwater very vulnerable.

The splitting of responsibilities between different departments of governments and the separation of landscapes has been an ongoing issue for Aboriginal people. Governments have not considered the impact that separating the management of land and water has on Aboriginal people's connection to Country.

Groundwater plays a key role in the stories and understanding/observation of Country from an Aboriginal point of view, and the stories that have sustained Aboriginal people in dry

country (with limited surface water) are not represented in the way NSW manages groundwater.

3.2 Groundwater Dependent Cultural Values

There are a range of cultural values associated with groundwater, such as those discussed in Moggridge *et al.* (2019) and Moggridge (2020):

- Physical values – living significant (scarred/carved) trees are very rare (as of 2021), as many have been felled for agriculture or removed for building dwellings or to fuel fires. If they have survived, they may appear on heritage databases with National Parks and Wildlife Service and in the Aboriginal heritage information management system (AHIMS) administered by Heritage NSW. If they exist, they are still dependent on groundwater and must be protected from drawdown from mining or new bore licences as a priority.
- Non-physical values – Dreaming stories and landscapes – like the Rainbow Serpent, Creation sites and cultural heroes, and linking with the spiritual – like song lines or Dreaming tracks that connect communities across Australia, are very significant. Aboriginal people may not give DPE – Water access to this information.
- Education – the transfer of knowledge from generation to generation. Teaching can be challenged by the drying-up of springs, which can stop flowing for several reasons. If they dry, the teaching cannot be undertaken, and the value disappears.
- Economics – cultural economy and western economy. If Aboriginal people have access to water in groundwater systems, they then could trade temporarily to generate revenue.
- Men’s and Women’s business (gender-based knowledge, rights and values) – for instance many groundwater sites on authors Country - Kamilaroi country are women’s sites. Only women can work with and collect values from female Aboriginal people and vice versa.
- Massacre sites – these are sad sites where frontier battles occurred with traditional groups, many of these massacre sites, reported and unreported as part of the violent frontier were close to water.
- Culturally-specific environmental conditions to sustain totemic species or Cultural Keystone Species – the understanding of groundwater dependent ecosystems and values are at a landscape level, and they may cross state borders.
- Ceremonial sites are always close to water – the ability to hold large gatherings of people near water is essential. There are always scarred and carved trees near old ceremonial and Bora Grounds.
- Burial places (known and unknown) – many of the ancestors are buried near water sites and this needs to be considered when new groundwater works are licenced.

- Language — connects Aboriginal people to place, to story and song, to understanding and knowledge, and to water. Language can be challenged by the drying up of springs. When they stop flowing and dry, the language may disappear.

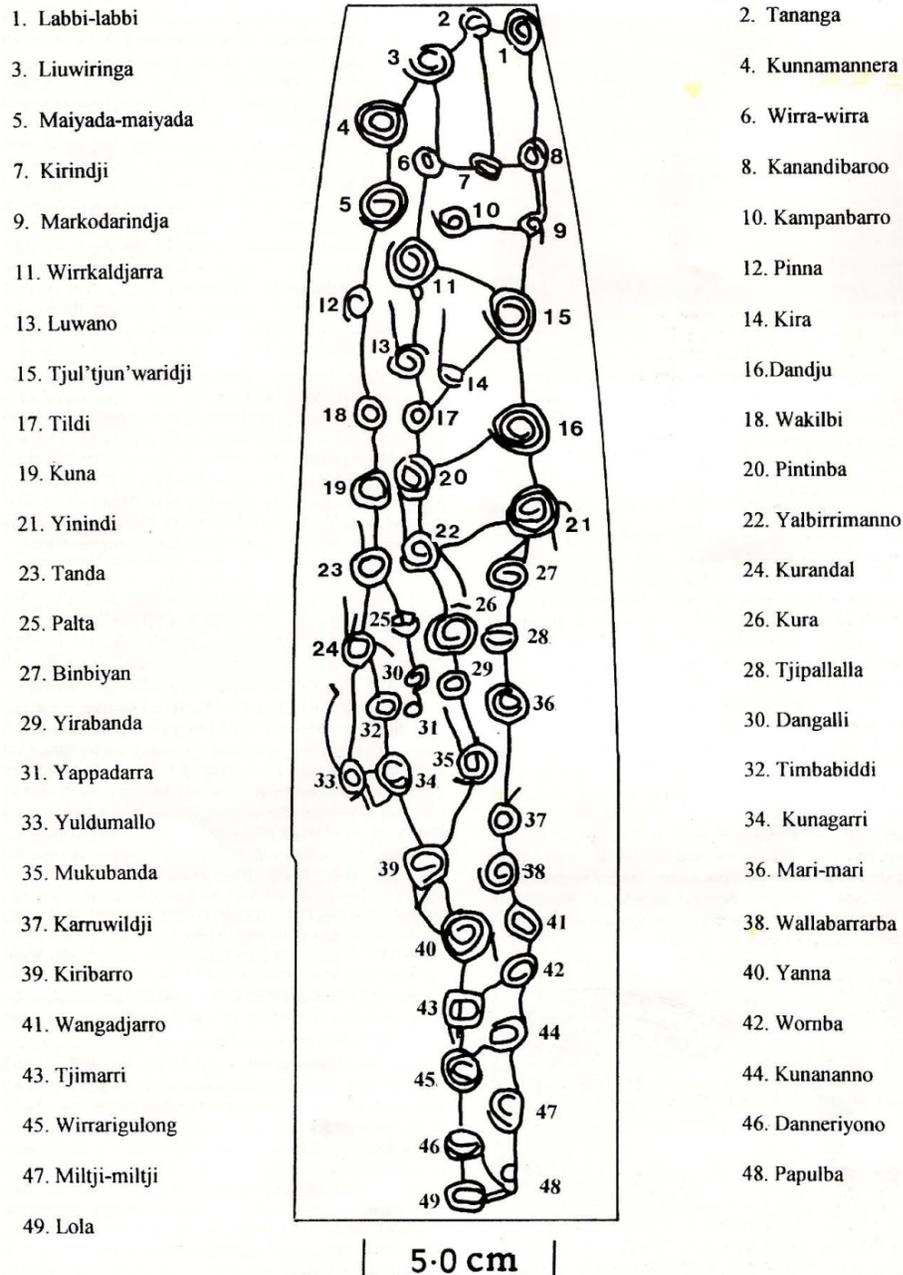


Figure 1: A highly conventionalized map of the Western Australian water resources of the Bindibu [=Pintupi], as carved into the back of a spear-thrower and each water source having its own language descriptor. Source: Redrawn from a photograph of Thomson (1962) in Bayly (1999) page 19 in Moggridge (2005 and 2021).

3.3 Groundwater-dependent culturally significant sites

Groundwater-dependent culturally significant sites (GDCSS) formations and sites (Table 1) occur throughout the Australian landscape and hold value for Aboriginal people. DPE – Water has been able to consider the NSW sites since the *Water Management Act 2000* was passed by Parliament and should now take the opportunity to ensure these are considered in groundwater deliberations, reviews, and renewal of water sharing plans. The groundwater-dependent culturally significant sites should also be recognised as values and uses under Murray–Darling Basin planning for water resource plans.

Collecting knowledge of these culturally significant sites relies on connecting with and engaging in a culturally appropriately way with Aboriginal people to learn how they value groundwater-dependent sites such as those discussed in Moggridge *et al.* (2019) and Moggridge (2020) and below in Table 1.

Table 1. List of potential groundwater-dependent culturally significant sites that could be identified and protected in NSW. (Moggridge *et al.* (2019) and Moggridge (2020))

GDCSS	Description
Springs	Water that discharges from the ground. Significant to Aboriginal people, and even more so in a dry landscape.
Karst and Limestone Systems	Some strong connections, as they can provide water and shelter. Some are no-go places with bad spirits – for instance where bats fly out at dusk.
Aquifers – deep	The Great Artesian Basin is the best example of a deep aquifer. These discharge “old water” and have strong connectivity to springs.
Aquifers – shallow	Smaller aquifers whose discharge may be classed as soaks / soakage’s and including or perched aquifers and dry riverbeds in dry Country. Includes alluvial aquifers that typically occur adjacent to rivers.
Recharge areas	The surface catchment for a groundwater aquifer – like the Pilliga Forest – should be protected and not interfered with, as they are very important places for culture.
Rivers that rely on baseflow and springs	Some streams and springs are fed by groundwater base flow during low rainfall periods. Mostly permanent waterholes that survive through major drought are refugia and culturally significant.
Wetlands	Wetland systems adapted to wetting and drying periods may be dependent on groundwater during dry periods.

Native wells or rock holes	These form on granite outcrops and hold surface water. The following two photos are significant sites (Rock Wells) to the author, they are located in southwest Queensland. They may not be in NSW, but their cultural landscape connection, stories and values that cross state borders and move across the Kamilaroi country and especially to Boobera Lagoon (Error! Reference source not found.) and acted as a gathering place. There is an example in NSW at Byrock near Bourke.
Fractured and Porous Rock Systems	Large and up to landscape scale aquifers where the water itself and stories that connect it are significant for many of the values listed in Section 3.2.
Mound Springs	A spring where mounds are formed from deposition of sediments and salts accumulated as the spring water evaporates. An oasis in a dry landscape and always significant as reliable water sources (the cover photo shows Lake Peery Mound Springs, near White Cliffs in NSW).
Mud Springs	Formed when an aquifer forces mud to the surface through fissures in the ground. Bores have reduced the pressure of aquifers so many are no longer active. Between 1993-2002 mud springs grew and collapsed in the NSW Liverpool Ranges. Examples occur in other Australian states. They have significance as sources of water, food and materials, as story places and landscape features and as sites for cultural activities.
Hanging Swamps	These occur in sandstone country and are very significant as a water source and for collection of important species.
Coast Sand systems	These have supplied Aboriginal people with fresh water in a salty environment. There are groundwater dreaming stories linked to shallow coastal sands systems.
Paleochannels	The remnant of inactive river channels that have been filled or buried by younger sediment, which continue to have water, knowledge and stories attached to them.
Bores	These more modern connections to groundwater are a critical water supply for human survival. In Western Australia some bores are seen as culturally significant and are called the new <i>Jila's</i> (water holes).



Figure 2: The Rock Well at Weengallon, Qld (Moggridge)



Figure 3. Weengallon Rock Well sign (Moggridge)

3.4 Understanding and protecting groundwater-dependent Aboriginal cultural values and sites

Every DPE – Water staff member should be aware of the cultural significance of groundwater and its value to Aboriginal people when considering groundwater as a water source. This corporate knowledge should include respect and understanding of why these sites and values require protection, as staff have a responsibility to ensure Aboriginal sites and values are considered and protected.

Raising awareness could be undertaken for example through educational materials, training, a long overdue Aboriginal Water Strategy and through processes to induct new staff. If the profiles of these values and sites become common knowledge, the protection of groundwater-dependent cultural values and sites will be at the forefront of the minds of DPE – Water staff when considering new licences, allocations, controlled activities including aquifer interference, other works, regulatory impacts and reviewing or renewing water sharing plans.

DPE – Water is able to make positive change for good, ‘recognise the past to inform the future’. This could be achieved through a quadruple bottom line approach to evaluate performance across 6 pillars (see below), adding a cultural assessment to the traditional economic, environmental and social assessment.

This approach has its origins in corporate reporting, encouraging a move away from company performance being judged on the single financial bottom line towards a more holistic view. Use has been extended to the planning sphere, where triple and quadruple bottom line principles are reflected in the approaches taken throughout Australia and New Zealand. The most recent example is the current (2021) review or refresh of the National Water Initiative, under which a Committee of Aboriginal Water Interests has been established by the federal Department of Agriculture, Water and Environment. The terms of reference require the Committee to consider the review of the National Water Initiative to a quinary bottom line, looking at cultural, spiritual, environmental, social and economic factors.

DPE – Water is working with Aboriginal communities to better recognise cultural values in water management. DPE – Water engaged with Aboriginal people as part of the water resource planning process. Some common themes emerged from the consulted Nations that led to the development of 6 pillars that describe the key objectives and outcomes of consulting Aboriginal communities in water management processes (Figure) and found at [Objectives and principles for engaging with Aboriginal people | Water \(nsw.gov.au\)](https://www.nsw.gov.au/objectives-and-principles-for-engaging-with-aboriginal-people)². Also involved in the development of the 6 pillars was the Water Coalition (a group coordinated by

² [Objectives and principles for engaging with Aboriginal people | Water \(nsw.gov.au\)](https://www.nsw.gov.au/objectives-and-principles-for-engaging-with-aboriginal-people)

DPE-Water, which no longer exists), Murray Lower Darling Rivers Indigenous Nations, and the former Northern Basin Aboriginal Nations coalition, which no longer exists.

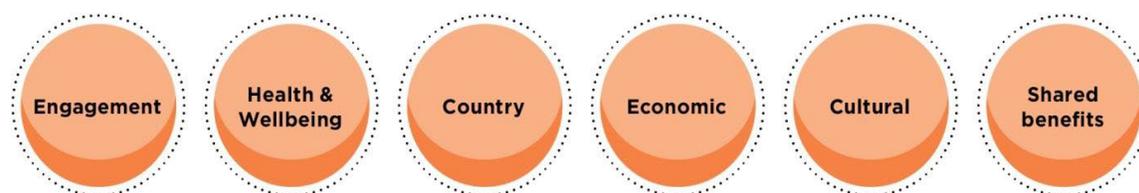


Figure 4. Six pillars identified through consultations.

3.5 Equity of Aboriginal values and sites compared to groundwater dependent ecosystems

DPE – Water has identified high-priority groundwater dependent ecosystems in the water sharing plan schedule and has consistent rules protecting them. An equal level of protection, resources and collection of data and information should be afforded to groundwater dependent cultural values and culturally significant sites as identified by Aboriginal through recommended consultation and engagement.

For example: the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011* states in:

- s42 *Rules for water supply works located near groundwater dependent culturally significant sites:*
- (1) *A water supply work approval must not be granted or amended to authorise the construction of a water supply work which, in the Minister’s opinion, is located within:*
 - (a) *100 metres of a groundwater dependent culturally significant site in the case of a water supply work solely for basic landholder rights, or*
 - (b) *200 metres of a groundwater dependent culturally significant site in the case of a water supply work not solely for basic landholder rights.*

The rule can only be applied and enforced where these sites have been identified and included in the plan and this is currently a limitation across the state.

DPE – Water should also ensure that the *Water Management Act 2000* provides groundwater-dependent cultural values and culturally significant sites the same protections under Aquifer Interference and Controlled Allocation decisions made for the purpose of restoring or rehabilitating a water source or its dependent ecosystems:

- s.33 *The controlled activity and aquifer interference activity provisions of a management plan for a water management area may also deal with the following matters:*

- (a) *the undertaking of work for the purpose of restoring or rehabilitating a water source or its dependent ecosystems*
- (e) *other measures to give effect to the water management principles and the objects of this Act,*

s.97 *Grounds of refusal of certain applications. An aquifer interference approval is not to be granted unless the Minister is satisfied that adequate arrangements are in force to ensure that no more than minimal harm will be done to the aquifer, or its dependent ecosystems, as a consequence of its being interfered with in the course of the activities to which the approval relates.*

Recommendation 1: Ensure all legislation (including water sharing plans and water resource plans) apply the same rules to groundwater-dependent cultural values and culturally significant sites, as applied to identified high-priority groundwater-dependent ecosystems.

Rationale: To limit drawdown and impact to those values and sites.

3.6 Collecting information about Aboriginal groundwater-dependent cultural values and significant sites

DPE — Water has the challenge of building a process and program with relevant people that are culturally aware, resourced and supported to engage (again) the Aboriginal communities that are affected by new, renewed and remade water sharing plans, both coastal and inland. These are diverse communities that are sceptical of government, who must interact with different staff every time, who are bound by short timeframes and at times the Department has employed consultants that are not up to date or informed of water management. It seems that government is consistently wanting information and knowledge from Aboriginal people with nothing provided in return - reciprocity.

A protocol to identify whether groundwater dependent cultural values and culturally significant sites are likely to be impacted by planned works and a memorandum of understanding is needed between departments to ensure this assessment takes place.

As the Aboriginal Water Initiative System has been allowed to go into disrepair with limited data input and access, as a minimum, a search of the [Heritage NSW Aboriginal Heritage Information Management System \(AHIMS\) should be conducted. This](#) database that contains detailed information on over 100,000 recorded sites and over 14,000 archaeological and cultural heritage assessment reports, although the AHIMS register does not identify whether a site is water dependent.

Recorded Aboriginal objects and places and declared Aboriginal Places are referred to as 'Aboriginal sites' in AHIMS which includes:

- information about Aboriginal objects that have been reported to the Director General, Department of Premier and Cabinet
- information about Aboriginal Places which have been declared by the Minister for the Environment to have special significance with respect to Aboriginal culture
- archaeological reports.

Aboriginal communities use AHIMS to help them identify, manage, conserve and protect local sites and heritage. Government, industry and heritage professionals use AHIMS to access information for land-use planning, regulation and conservation management. The information on the database can also be used for archaeological surveys, cultural heritage research projects, development proposals, property purchases and oral history projects.

Gaps in policy and understanding occur across governments and especially in the area of water management. For instance, it is not clear to Aboriginal people whether they can apply to the Minister to have an area declared as a groundwater-dependent culturally significant site or can this declaration only be based on Government's recommendations. Once declared, the Minister may set out local impact rules that are to apply to that area which will protect its pressures, water levels, water quality and groundwater dependent ecosystems. It would be helpful to clarify these processes and what can be done by the department through policy, guidance or legislation to have areas declared as groundwater-dependent culturally significant sites.

Recommendation 2: Develop a program to collect, identify, and record groundwater-dependent cultural values and culturally significant sites, with a culturally appropriate system of recording.

Rationale: An item must be identified before it can be protected or supported.

Recommendation 3: Establish a protocol, agreed under a memorandum of understanding between agencies responsible for assessing groundwater works, ensuring no groundwater dependent cultural values and culturally significant sites are likely to be impacted by the proposed groundwater licence or works.

Rationale: To ensure cultural values and culturally significant sites are considered in the assessment of groundwater licence or works applications.

Recommendation 4: Ensure the Natural Resource Access Regulator, Environment Protection Authority and other relevant agencies have the necessary tools (e.g. legislation, capacity, technology) to prosecute against the illegal and over extraction, impact or destruction of groundwater dependent cultural values and culturally significant sites, supported by partnerships, cross- agency collaboration, and or a memorandum of understanding between regulators.

Rationale: To improve the ability of the Natural Resource Access Regulator (and other agencies) to exercise their function in prosecuting impact to groundwater dependent cultural values and culturally significant sites.

4 Federal and state planning for Aboriginal access to groundwater

4.1 National Water Initiative

The National Water Initiative is Australia's blueprint for water reform, with governments across Australia agreeing on actions to achieve a cohesive approach for managing, planning, pricing and trading Australia's water resources. NSW is a signatory to the National Water Initiative, approved by the Council of Australian Governments in 2004.

Under the National Water Initiative, the Australian, state and territory governments have acknowledged the importance of groundwater. Important groundwater-specific components of the National Water Initiative are to:

- improve knowledge of groundwater surface water connectivity, with significantly connected systems to be managed as one integrated resource;
- complete the return of currently over-allocated or over-used systems to environmentally sustainable levels of extraction;
- improve understanding of sustainable extraction rates and regimes, and develop common approaches to achieving sustainability; and
- develop better understanding of the relationship between groundwater resources and groundwater dependent ecosystems.

The Initiative was the first time Australia had accounted for Indigenous interests in water planning and management but was vague about how these interests should be incorporated and, in some ways, restricted the ability to achieve change. For example, the separation of entitlements to water from titles to land to promote water trading creates a serious challenge because it undermines the Indigenous conception that land and water are integrally connected.

The commitment contained in the National Water Initiative states that water plans must take account of Indigenous issues by making arrangements for Indigenous representation in water planning 'wherever possible' and provide for Indigenous social, spiritual and customary objectives 'wherever they can be developed'. They should also include allowance for 'the possible existence of native title rights to water in the catchment or aquifer area' (National Water Commission 2004, paras 52–54).

The National Water Initiative (s52) requires that the States provide for Indigenous access to water resources through water planning processes which ensure:

- the inclusion of Indigenous representation in water planning, wherever possible; and
- that water plans incorporate Indigenous social, spiritual and customary objectives and strategies for achieving these objectives wherever they can be developed.

As recommended by the Productivity Commission, the National Water Initiative is currently being reviewed, given long delays in implementing the original commitments, a lack of state and territory commitment to the plan, and some aspects no longer being relevant.

Aboriginal people are a key partner who are providing guidance and truth-telling to inform the process and a new document.

4.2 National Groundwater Strategic Framework 2016–2026

Jointly developed by the Australian and state and territory governments in 2017, the National Groundwater Strategic Framework is a result of the National Water Initiative. With increasing demands and impacts on groundwater, a nationally coordinated approach for Australia’s groundwater systems was sought. This Framework provides a strategic 10-year vision within the National Water Initiative context, focusing on 3 priority objectives where action is required to sustain our groundwater resources and enable ongoing access to this increasingly valuable water resource.

At a national level there is only minimal consideration of the Indigenous cultural values of groundwater. The only mention of the cultural significance of groundwater in the National Groundwater Strategic Framework is in 3 *Strategic objectives* (page 6), which states as one of 6 points that groundwater supports a range of values, including those of cultural significance for Indigenous Australians. There is no action to address the intrinsic (including cultural values of groundwater, including for Indigenous Australians, and the Framework acknowledges that the calculated economic value of groundwater does “not include the intrinsic value of the non-consumptive use of groundwater for environmental water requirements, cultural values and the maintenance of water quality.”

4.3 Water Sharing plans

The primary legislation administered by DPE – Water is the *Water Management Act 2000*. A key tool in implementing the *Water Management Act 2000* is the water sharing plans, including the Aquifer, Alluvial, Fractured Rock and Porous Rock groundwater related plans. Water sharing plans are the primary tool to define water-sharing arrangements in NSW.

DPE – Water maintains details of the current status of the water sharing plans for each of the 14 regions on their website.³

Of significance to Aboriginal people, the water sharing plans:

- protect the water needed to meet Native Title and Basic Landholder Rights (that is access to water without the need for a licence);
- provide for water for the environment; and
- provide for the ability to apply for licences for Aboriginal cultural and community development purposes in many areas of NSW.

Water sharing plans and the *Water Management (General) Regulation 2018* recognise Aboriginal cultural values within water sources and allow for the granting of specifically purposed Aboriginal cultural licences such as the Specific Purpose Access Licence. This licence for example, is too restrictive, limiting take under the water sharing plans to licenced activities – for cultural purposes – and to 10 ML. Instead, access to cultural water must be a basic right and not only for Native Title but for anyone that identifies as Aboriginal (Moggridge, 2010).

According to Jackson (2004), Indigenous interests do not translate easily into Western environmental management frameworks, which are based on objectification and quantification. In NSW current water sharing plans look to protect cultural values through several non-economic provisions, including:

- working with Nation groups that have received a positive determination under Native Title and seeking the volumes to accommodate those rights;
- setting distances rules and buffers from new development/bores/works; and
- allowing for the allocation of the 10 ML Aboriginal Cultural Access Licence.

The final incorporation of cultural values into water sharing plans includes identifying and taking a record of water dependent cultural values with a culturally appropriate system of recording (see 3.6 Collecting information about Aboriginal groundwater-dependent cultural values and significant sites).

The concept of environmental flows (very much surface water based) is an example of this tendency to define everything in quantifiable units so that they will be easy to compare and allocate water for. This can clash with cultural values and Aboriginal people, as those voices are not considered for determining when and where environmental flows are delivered. If cultural values are not collected, the fallback position is that environmental flows ‘cover’ them. Environmental water cannot be the fallback if it is not tested or established by water managers, as suitably addressing the needs of Aboriginal people.

As mentioned, the assessment of environmental flows rarely considers linkages to groundwater and the potential connection of values for groundwater. DPE – Water has the

³ www.industry.nsw.gov.au/water/plans-programs/water-sharing-plans/status

opportunity to consider these values sitting side by side with the delivery of environmental water, replenishing pools that lose to groundwater, wetlands, shallow alluvial systems and major recharge areas. For many Aboriginal people who do not see surface water on their country, groundwater is the only value set and environmental flows to maintain surface water mean little to those people.

The National Groundwater Strategic Framework (discussed in Section 4.2) points out:

“To manage groundwater effectively it is essential to recognise the connection between groundwater and surface water, its interaction with other natural resources and land use, groundwater quality, and groundwater functions in supporting important ecosystems including wetlands, rivers and groundwater-dependent vegetation. The connection groundwater has with built water systems (for example, water supply) must also be recognised to optimise water management outcomes.”

West of the Great Dividing Range the *Water Act 2007* (Cth) also applies, including the Murray Darling Basin Plan, which requires states and territories to prepare Water Resource Plans including Chapter 10 Part 14 *Indigenous Values and uses*, based on variable and poorly written provisions for Indigenous engagement and compliance with the Act. This results in different management requirements between the Basin specific water resource plans and coastal water sharing plans.

4.4 Groundwater Dependent Ecosystems Atlas

The Groundwater Dependent Ecosystems Atlas⁴ web-based mapping application allows you to visualise, analyse and download information for an area of interest without needing specialised software. Types of ecosystems include:

- aquatic ecosystems that rely on the surface expression of groundwater – this includes surface water ecosystems which may have a groundwater component, such as rivers, wetlands and springs. Marine and estuarine ecosystems can also be groundwater dependent, but these are not mapped in the Atlas;
- terrestrial ecosystems that rely on the subsurface presence of groundwater – this includes all vegetation ecosystems; and
- subterranean ecosystems – this includes cave and aquifer ecosystems.

The Groundwater Dependent Ecosystems Atlas is a federal tool that provides an example of how to record a link between a groundwater resource and Aboriginal cultural values. The Atlas was developed as a national dataset of groundwater dependent ecosystems to inform groundwater planning and management. It is the first and only national inventory of groundwater dependent ecosystems in Australia. Understanding these systems is essential for groundwater management and planning, and importantly any understanding of any

⁴ www.bom.gov.au/water/groundwater/gde/

cultural values of groundwater dependent ecosystems must be incorporated to understand the full extent of the system's value. The Atlas could be improved by better engaging with Indigenous people to identify these cultural values and their links to groundwater-dependent ecosystems. Opportunity to establish a strikeout text to establish that no groundwater-dependent cultural values were considered.

4.5 Acknowledge Aboriginal people in NSW and their connection to groundwater

The acknowledgement is a sign of respect which acknowledges that Aboriginal people in NSW were the first people to connect and understand to groundwater. For consistency, each Water Sharing Plan and Water Resource Plan acknowledges the relevant Aboriginal people and their country with Nations listed.

Some examples of appropriate acknowledgements follow.

The Royal Society of Queensland's *Springs of the Artesian Basin*⁵ acknowledges "the First Peoples of the Great Artesian Basin, their long custodianship and inherent connection to the Basin and its springs, soaks, shallow aquifers, deep ancient waters and Country. We pay respect to the knowledge and cultural values of First Peoples of Australia and acknowledge Elders past, present and future." This acknowledgment was crafted especially for *Springs of the Great Artesian Basin* by author Bradley Moggridge and editor Angela Arthington.

The Murray Darling Basin Plan, created under the *Water Act 2007 (Cth)*, includes an acknowledgement of the Traditional Owners of the Murray-Darling Basin on page 3.

"The Murray-Darling Basin Authority acknowledges and pays its respect to the Traditional Owners and their Nations of the Murray-Darling Basin. The contributions of earlier generations, including the Elders, who have fought for their rights in natural resource management are also valued and respected. The Authority recognises and acknowledges that the Traditional Owners and their Nations in the Murray-Darling Basin have a deep cultural, social, environmental, spiritual and economic connection to their lands and waters.

The Authority understands the need for recognition of traditional Owner knowledge and cultural values in natural resource management associated with the Basin. Further research is required to assist in understanding and providing for cultural flows. The Authority supports the belief of the Northern Murray-Darling Basin Aboriginal Nations and the Murray Lower Darling Rivers Indigenous Nations that cultural flows will provide beneficial outcomes for Traditional Owners.

The approach of Traditional Owners to caring for the natural landscape, including water, can be expressed in the words of Ngarrindjeri elder Tom Trevorrow: "our traditional

⁵ Proceedings of the Royal Society of Queensland, 2020. Springs of the Great Artesian Basin VOLUME 126, accessed at www.royalsocietyqld.org/2020-springs-special-issue-vol-126/

management plan was don't be greedy, don't take any more than you need and respect everything around you. That's the management plan – it's such a simple management plan, but so hard for people to carry out." This traditional philosophy is widely held by Traditional Owners and respected and supported by the Murray-Darling Basin Authority.

Recommendation 5: Include a meaningful acknowledgement of Aboriginal people and their country at the beginning of the Groundwater Strategy.

Rationale: To demonstrate respect to the Traditional Owners of the land that is the subject of the document, and to recognise the continuing relationship between Indigenous people and their Country.

4.6 A commitment statement

DPE – Water has an opportunity to move beyond past neglect and the dispossession and disconnection of Aboriginal people from groundwater and provide direction through the Groundwater Strategy and the proposed Aboriginal Water Strategy by committing a way forward, acknowledging the past wrongs and establishing a framework to influence the future. A commitment statement by DPE – Water is recommended to get the Strategy on the right foot and direction.

Recommendation 6: Prepare a Commitment Statement upfront in the objectives of the Groundwater Strategy that seeks to acknowledge the past history (Truth Telling in water) of dispossession and disconnection of Aboriginal people from groundwater. The Commitment Statement should also state that a meaningful strategy can understand, protect and value the cultural significance of groundwater while providing economic outcomes.

Rationale: To provide Aboriginal people with the reassurance that the department is changing its way of doing business.

4.7 Descriptors

Descriptors and titles and an agreed naming convention must be adhered to by DPE – Water, as offence may be caused by using the incorrect identifier.

There are many terms for the First Peoples of Australia. 'Aboriginal' is a term extensively used and widely accepted throughout Australia when referring to Aboriginal peoples and topics. Aboriginal peoples are the first peoples of mainland Australia.

'First Nations' is now perceived as a generic term but is not specific to Australia and can be applied to describe Indigenous peoples from other countries (such as Canada). Hence it will not be used in this report.

'Indigenous' is a term extensively used throughout Australia when referring to the Aboriginal and/or Torres Strait Islander peoples of Australia, and related topics. The terms 'Aboriginal', 'Indigenous' and 'Traditional Owners' may be used interchangeably throughout this document to refer to the First Peoples.

Recommendation 7: This can be contentious but keep it simple, always use capitals when naming Aboriginal people, Torres Strait Islander people (limited connection in NSW), Indigenous people, and First Peoples in NSW governments documents. Try not use the term First Nations, as it comes from Canada and North America.

Rationale: To avoid offence to the First Peoples of Australia.

The overriding gap of Australia's planning documents for groundwater, is that states and territories have neglected groundwater and Aboriginal people's connection, understanding and rights to groundwater.

Below is an extract from Moggridge (2005), which was eventually published (Moggridge, 2020).

The few studies conducted on Aboriginal people and groundwater has been at a local or regional level, investigating groundwater quality and quantity. However even fewer studies have looked at the close cultural relationship between Aboriginal people and groundwater.

This paper records the beginnings of my groundwater research on relationships, Dreamtime stories and cultural knowledge. My intention was, and still is, to inspire other Aboriginal people and researchers to take the subject matter further.

5 How traditional values of groundwater management can be better considered in NSW's existing groundwater management framework?

DPE – Water needs to identify Aboriginal water values and uses, from a cultural, social, economic and environmental point of view in all groundwater plan areas and water sources.

5.1 Employing Aboriginal people

Identifying and protection Aboriginal water values and uses should involve the employment of suitably qualified Aboriginal staff. If they are not qualified to understand water, they must be trained. These staff would undertake extensive engagement with local and other relevant Aboriginal stakeholders.

Under the objectives and principles of the *Water Management Act 2000*, the department has failed on many grounds to adequately engage and consider the water requirements of Aboriginal people for both surface water and more so for groundwater and has lacked transparency. Given the legislation has been in existence for 22 years, this is a poor result. Employing Aboriginal staff would help to address some of these issues.

There are protocols, models and methods already applied to undertake this. It is worth considering the pros and cons of a previous method undertaken by the Aboriginal Water Initiative, which was established through Closing the Gap funds and ran between 2012-2017. The Aboriginal Water Initiative delivered many benefits and provided a mechanism to re-engage and reconnect Aboriginal communities with water through culturally appropriate protocols (Moggridge *et al.* 2019).

The following case is described in Moggridge and Thompson (2021). The state of Victoria released *Water for Victoria* policy (DELWP, 2016), which in Chapter 6 *Recognising and Managing for Aboriginal Values* included 4 key actions:

- recognising Aboriginal values and objectives of water;
- including Aboriginal values and traditional ecological knowledge in water planning;
- supporting Aboriginal access to water for economic development; and

- building capacity to increase Aboriginal participation in water management.

The policy was associated with a funding programme which totalled AUD\$9.7million, which included funding to create a targeted Aboriginal water unit (DELWP 2016 and Productivity Commission 2017). The Victorian Department of Environment, Land, Water and Planning has established an Aboriginal Water Officers Network, closely linked to catchment management authorities, which work closely with communities to develop cultural watering plans and deliver water in partnership with the Victorian Environmental Water Holder.

5.2 Information sources

The previous tools and information that the Aboriginal Water Initiative developed — including relevant stories in newsletters like *Water Yarning 1–7* — can no longer be found online. This is a significant loss as these resources were valuable.

DPE — Water has a great opportunity to update the *Our Water Our Country* manual to include a stronger groundwater presence. There is limited availability of the manual and it is not available on DPE — Water’s webpage, although the PDF version can be accessed via the Australian River Restoration Centre’s web page.⁶ An old Word version is available if DPE — Water wants to update it, but the original authors approval to do so will be required. There was a video created from the DVD inside the manual that was uploaded onto YouTube for *Our Water Our Country*.

A series of DVD’s were produced by the Aboriginal Water Initiative and the Aboriginal Water Initiative (AWI) DVD 1 can be found on their YouTube.⁷

The National Cultural Flows Research outputs should be reviewed while considering the Aboriginal Waterways Assessment methodology when preparing, in consultation with Aboriginal people, a method for collecting groundwater dependant cultural values.⁸

The Aboriginal Waterways Assessment program developed a tool that consistently measures and prioritises river and wetland health so that Traditional Owners can more effectively participate in water planning and management in the Basin. The method was developed and modelled on the New Zealand Cultural Health Index. As a tool prepared for and by Aboriginal people this is primarily for surface water and wetlands but could be adapted by DPE — Water for groundwater. This is a large gap in knowledge and an undeveloped area of methods in water management and cultural values.

⁶ <https://arrc.com.au/wp-content/uploads/2019/09/Our-Water-Our-Country.pdf>

⁷ www.youtube.com/watch?v=G6z05suNkAA

⁸ Mooney, W., and A. Cullen. 2019. “Implementing the Aboriginal Waterways Assessment Tool: Collaborations to Engage and Empower First Nations in Waterway Management.” *Australasian Journal of Environmental Management* 26 (3): 197–215. doi:10.1080/14486563.2019.1645752; and National Cultural Flows Research Project. 2018. <http://culturalflows.com.au>; and Aboriginal Waterways Assessment program www.mdba.gov.au/publications/mdba-reports/aboriginal-waterways-assessment-program

5.3 National Water Initiative engagement module

The Engaging Indigenous peoples in water planning and management⁹ module, was jointly developed by the Australian and state and territory governments in 2017 as part of the National Water Initiative.

Policy guidelines for the National Water Initiative were established to assist jurisdictions develop and implement National Water Initiative-consistent water planning and management arrangements and specifically for Indigenous engagement. A series of modules were agreed to, to provide further guidance on specific issues.

Commonwealth and state and territory agencies engage with Indigenous people on water issues through their water planning processes. This module can help improve and build on these existing engagement processes to ensure inclusive approaches to water planning that support genuine consideration of Indigenous social, spiritual and customary objectives.

DPE – Water can access protocols to engage with Aboriginal people in groundwater water sharing plans through Moggridge *et al.* (2019) and the Australian Department Agriculture, Water and the Environment, National Water Initiative and Council of Australian Governments' Engaging Indigenous peoples in water planning and management module.

A newly developed method is currently evolving between governments and in partnership with the Barkandji and Gomeri/Kamilaroi water committee. This method has moved away from the current convenient model of only engaging with the Northern Basin Aboriginal Nations and Murray Lower Darling Rivers Indigenous Nations.

5.4 NSW Aboriginal Groundwater Program

The opportunity exists to develop an Aboriginal Groundwater Program and the overarching objective of it must be to improve Aboriginal involvement and representation within the groundwater management and planning processes in NSW as well significantly increase the ownership of groundwater entitlements from the current 0.022 percent share (Hartwig and Jackson, 2020).

A program may achieve this by providing Aboriginal people with information and skills to:

- gain a further understanding of NSW groundwater planning and reforms including how Aboriginal people may have input into local water sharing plans or water resource plans;
- understand the rights of Aboriginal people in the NSW Water Sharing Plans, including what water licences are directly relevant to Aboriginal communities;

⁹ [Engaging Indigenous Peoples in Water Planning and Management \(2016\) \(agriculture.gov.au\)](https://www.agriculture.gov.au/engaging-indigenous-peoples-in-water-planning-and-management)

- understand and engage in the process of identifying Aboriginal groundwater-dependent cultural values and culturally significant sites for inclusion in the water sharing plans or water resource plans if that is supported by their community and provided that the correct protocols are observed;
- enhance the Aboriginal community's capacity to participate in water planning activities including access to the water market, to facilitate the engagement of Aboriginal People in business and cultural opportunities. This engagement should occur at the local level and is also relevant to the NSW and Commonwealth Water Policies, like the review of the National Water Initiative;
- identify baseline information to inform performance indicators relative to Aboriginal outcomes in the review of plans; and
- inform future consultation and engagement processes with Aboriginal communities in water sharing planning.

One of the key mechanisms to deliver on the project objectives is through the delivery of workshops with community to inform communities and gain relevant information to inform water planning and licensing processes.

Recommendation 8: Employ Aboriginal groundwater staff, offer work placements and graduate opportunities or scholarships for Aboriginal people, and become the agency where employees want to work and stay. Establish links with a university and courses relating to groundwater. Provide Aboriginal employment and consulting opportunities allowing Aboriginal people to monitor and collect water quality bore data through the River Rangers program in the Murray–Darling Basin, the Indigenous Land and Sea Corporation and Indigenous Protected Areas.

Rationale: To build the capacity of Aboriginal people to take an active role in groundwater management.

5.5 Culturally appropriate methods for engaging Aboriginal people

There are a range of ways to undertake appropriate and meaningful consultation with Aboriginal people in groundwater management and planning processes.

- Reconnect with communities through information sessions targeting small groups, to introduce the challenges and opportunities (reciprocity) and building relationships, confidence, trust and respect between the Aboriginal Community and DPE – Water. This will also allow communities to develop an understanding of why they should be involved and generate interest in participating within a larger Nation's workshop. This process will identify the Aboriginal community stakeholders e.g. Traditional Owners, Knowledge Holders, Local Aboriginal Land Councils, Native

Title Group or Prescribed Body Corporate (rep body under Native Title) and other Aboriginal organisations and individuals with an interest in water management.

- Run community workshops drawing participants from the relevant plan area, as this targets the communities linked to these areas.
- Follow-up after a workshop – do not be a one-visit-wonder. This provides the opportunity to establish protocols with the community on how they do business and engage. The Aboriginal community has their own set of priorities and DPE – Water staff need to follow the community’s timeframes and be aware of those protocols to appropriately work in partnership with community. It should also be clear that these priorities will sometimes take precedence over a scheduled Government visit, which can mean needing to be flexible when doing business – for instance a large community event or Sorry business (someone passing) with Aboriginal people and community.
- Establish a research agreement or information use agreement with key community members. The agreement can be a contractual agreement between DPE – Water and the Elder/Knowledge Holder. DPE – Water will require a secure database or negotiate with the community, supplying resources and funds for them to house the information. The agreement should protect Aboriginal intellectual property while allowing DPE – Water to access certain water-dependent information.
- Work with communities to identify and collect groundwater-dependent cultural values and allow for consideration of these assets in the planning process.
- Upload information to the agreed database with DPE – Water or secure with the community group. This information is the data negotiated with the groundwater planners and the management committees to be placed in water sharing plans as rules. Cultural Values and Uses information on the agreed database will hopefully inform:
 - development and review of water sharing plans;
 - rules and conditions in plans such as setbacks / buffers distances for new works, cease to pump;
 - flow bore and spring requirements or head levels – minimum or maximum;
 - relevant governance group deliberations;
 - whether – if the long-term average annual extraction limit (LTAAEL) is greater than the sustainable diversion limit – unallocated provisions exist in the system can be allocated to Aboriginal people for groundwater-dependent cultural values or culturally significant sites, or economic purposes;
 - Aboriginal specific licensing – Aboriginal Cultural Access Licence / Aboriginal Community Development Licence; and
 - monitoring of values and sites for the life of the Plan, which can determine if rules or licences implemented have maintained or improved the value or site.
- The values collected and the rules to protect them are then in place for the life of the water sharing plan. Monitoring would mean re-connecting with the traditional

owners to assess whether the rule has maintained or improved the value. This is a further opportunity to employ Aboriginal people to undertake the monitoring, for example through the use of River Rangers.

In addition, this process will ensure that accurate information is exchanged with communities to ensure the NSW Government is doing what it can in order to close the gaps in water management for Aboriginal people in NSW.

Recommendation 9: If an office has no Aboriginal water staff, a framework for engaging with Aboriginal communities about water must be established that addresses protocols, gives enough time to build trust, establishes a process for collecting information and protecting groundwater-dependent cultural values and culturally significant sites, and incorporates this information into plans as rules.

Rationale: To allow culturally appropriate engagement with, by and for Aboriginal people.

Recommendation 10: Engage staff and resources for monitoring groundwater-dependent cultural values and culturally significant sites that have water sharing plan rules associated with them for the life of that plan.

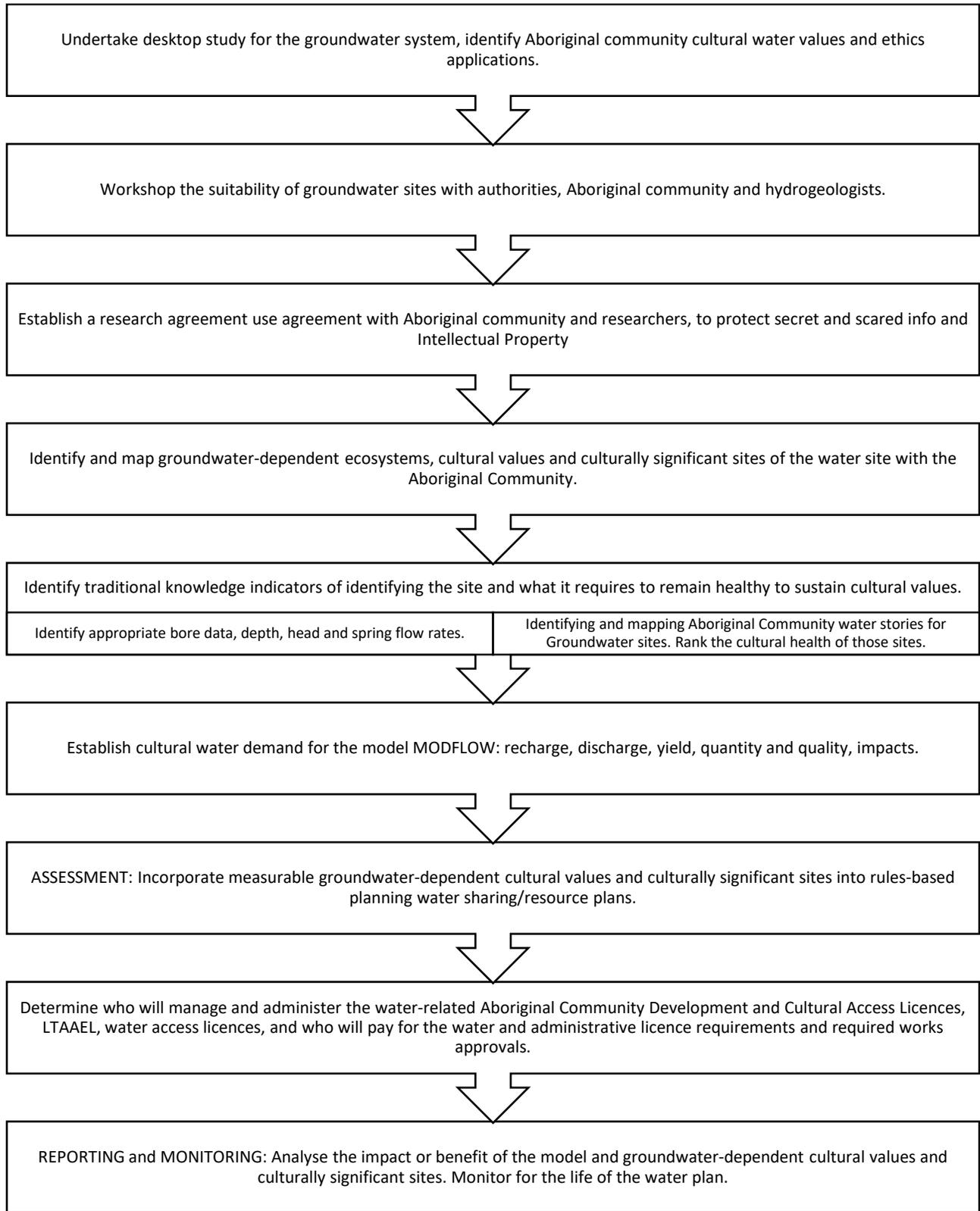
Rationale: To determine if the rules in place are protecting groundwater-dependent cultural values and culturally significant sites.

Recommendation 11: Ensure every staff member is culturally aware of the significance of groundwater and its values for Aboriginal people. This could be provided through a fact sheet, training or made part of new staff inductions.

Rationale: To allow culturally appropriate engagement with Aboriginal people.

A Framework figure has been adapted for groundwater rather than for a wetland has been provided for consideration (**Figure**) (Moggridge (2021).

Figure 5. An adapted framework recommended for groundwater and Aboriginal engagement.



5.6 Native Title

Current NSW guidance advises that Native Title recognises that Aboriginal and Torres Strait Islanders have rights and interests to lands and waters according to their traditional law and customs. Native Title is governed by the *Native Title Act 1993* (Cth), which establishes the process for claiming and recognising Native Title lands and waters in Australia. Anyone who holds Native Title for water, as determined under the *Native Title Act 1993* (Cth), can take and use water for personal, domestic and non-commercial communal purposes, such as manufacturing traditional artefacts, hunting, fishing, recreation, cultural and ceremonial purposes, without the need for a licence.

The department has the obligation to notify and negotiate the water requirements in water plans when a positive determination is established by the High Court. There are varying methods of notifying these parties dependent on the category of party and the nature of the proposed activity. Within the category of Native Title Aboriginal Parties, there are 3 sub-categories. These operate as a descending and exclusive hierarchy:

1. Determined Native Title holders or declared Indigenous Land Use Agreements - where such exists, they constitute the exclusive Aboriginal Party for an area.
2. Registered Native Title claimants or declared Indigenous Land Use Agreements - in the absence of determined Native Title holders, registered claimants constitute the exclusive Aboriginal Party for an area.
3. Non-Registered Native Title claimants - in the absence of the former 2 categories existing but there having previously been a claim at the time the *ACH* Act came into operation that is no longer registered and:
 - a. the claim failed but there are no other registered Native Title claimants; or
 - b. Native Title was surrendered under the terms of an Indigenous Land Use Agreement; or
 - c. Native Title was compulsorily acquired.

Recommendation 12: Ensure any remade, or reviewed water sharing plan acknowledges a positive determination of Native Title or outcome of that determination where water rights are specified.

Rationale: To guarantee water sharing plans reflect land and water ownership and associated rights.

Recommendation 13: Groundwater is made available and committed to through negotiations with Traditional Owners and Native Claimants – avoiding the Barkandji issue of OML allocation in the Water Sharing Plans per Hartwig (2017).

Rationale: Ensure the traditional owners get access to water entitlements and rights based on determinations and land hand backs.

5.7 Groundwater Models Consideration of Values and Sites

NSW has chosen the well advanced and accepted model of MODFLOW,¹⁰ to assess sustainable levels of water extraction from regional aquifers. A groundwater model that represents the groundwater system (aquifer) to an adequate level of detail can be used as a predictive scientific tool to quantify the impacts on the system of specified hydrological, pumping or irrigation stresses. Common applications of a regional scale groundwater model include:

- evaluating recharge, discharge and aquifer storage processes (water resource assessment)
- quantifying the sustainable yield (economically and environmentally sound allocation policies)
- predicting the impact of alternative hydrological or development scenarios (to assist decision making)
- risk based resource management (assessment of alternative policies).

The above model applications have not identified if values or sites are considered when developing models for rules and plans.

Recommendation 14: Assess whether models such as IQQM, MODFLOW or the eWater Source model could consider demand for and protection of groundwater-dependent cultural values and culturally significant sites.

Rationale: To expand the opportunities of cultural or economic groundwater for Aboriginal people.

5.8 Border Consultations

Groundwater systems do not stop at the physical state and territory borders of NSW and neither do many Aboriginal connections and values. Through the water sharing and water resource planning processes, a distinct disconnection between NSW and other border governments has been evident. This disconnection then impacts the engagement process, when dealing with border river/aquifer communities, which is unsatisfactory creating consultation fatigue. This includes an unfortunate waste of neighbouring state's resources in engaging with the same community twice, asking similar questions and seeking the same objectives and outcomes for values and uses.

¹⁰ www.industry.nsw.gov.au/water/science/modelling/groundwater-modelling

Recommendation 15: Create a memorandum of understanding or partnership with bordering states and territories to coordinate consultations and share information regarding Aboriginal communities.

Rationale: To ensure that Aboriginal communities are not over-consulted by different governments asking the same questions about water, avoiding consultation fatigue.

6 Economic development for Aboriginal communities through improved access to groundwater

Economic opportunities for Aboriginal people must improve in NSW, as they are currently limited to purchasing water entitlements from the water market in systems that are fully allocated in many areas.

Colonisation allowed for the removal of Aboriginal people from their respective countries, took their rights away, made speaking their many diverse languages illegal and every aspect of their life was regulated, including being placed on Missions and Reserves – as recently as 3 generations ago. Aboriginal people had their personal rights taken away, and their land and water, which was given to people willing to take on the frontier settlements. From this time land and water were ‘owned’.

As time went on, our land was divided up and if you had land, you received water for very little. Aboriginal people were first counted in the census in the late 1960’s thus making them human, but by this time all the good water and land was taken. Major reforms like the National Water Initiative and the Water Act – ultimately decoupling land and water – and further disenfranchising Aboriginal people.

It was not until recently that a comprehensive study done mostly by Dr Lana Hartwig looked at the entitlements of Aboriginal people in the Murray–Darling Basin. Her work emphasises the inadequacies and inequities in ownership of land and water. We can focus on the groundwater findings of her report.

Below are the 4 key findings for groundwater holdings in the Murray–Darling Basin, identified in a report by Hartwig and Jackson (2020):

- A novel method was developed for comparing groundwater entitlements across groundwater sustainable diversion limit resource units. The methodology determining available surface water cannot be applied to groundwater.
- Aboriginal organisations hold 0.556 GL of groundwater entitlements, which equates to 0.022% of the available groundwater resource across the whole Basin.
- A total of 6 Aboriginal-held groundwater entitlements were identified, all of which are located within NSW.
- These Aboriginal-held groundwater entitlements were valued at approximately \$772,800 (in 2015-16 terms).

6.1 Specific Purpose Access Licence, Aboriginal Community Development Licence

The Specific Purpose Access Licences are very restrictive, unfair and inequitable. These types of licences are limited to high flow classes in coastal systems and not available inland due to the Murray–Darling Cap, mostly due to plan areas being fully or over-allocated.

DPE – Water should consider basing the Licence on and determining it by the availability of water in each water sharing plan – not by a cap of 500 ML. The 500 ML was based on there generally being limited water in each plan, but there is no basis for this, and quantities should not be restricted. DPE – Water has the data and yield for these plans and could issue entitlements as a straight allocation with no restrictions i.e. remove the high flow rule and coastal only making the same rules available inland or under controlled allocations in groundwater sources with available water.

Recommendation 16: Determine the volume for the Specific Purpose Access Licence on the availability of water in each water sharing plan – not by a cap of 500 ML.

Rationale: To improve the equity and reduce the restrictiveness of the Licence terms.

DPE – Water state on their website¹¹ that “all water sharing plans recognise the importance of rivers and groundwater for Aboriginal people. All plans will allow Aboriginal communities to apply for a water access licence for drinking, food preparation, washing and watering domestic gardens, as well as for Aboriginal cultural uses such as manufacturing traditional artefacts, hunting, fishing, gathering, recreation, and ceremonial purposes. A licence may be granted if the uses are not associated with commercial activities. *Some plans for coastal rivers and groundwater systems may also allow applications for licences for Aboriginal community development purposes.*”

DPE – Water works closely with Aboriginal communities to develop water sharing plans. Aboriginal people have a spiritual, customary and economic relationship with land and water that provide important insight into 'best practice' for natural resource management.”

The cultural uses are for Aboriginal Cultural Access Licences. It is noted that with no ‘commercial activities’, this type of rule and licence is highly restrictive and an unfair component of the licence, with no tradability, no movement between plans, no connection to environmental water delivery. They only exist for the life or use of the purpose.

Some plans for coastal rivers and groundwater systems may also allow applications for licences for Aboriginal community development as a licenced purpose.¹² DPE – Water needs to ensure that its message and guidance are consistent – especially for licences – by

¹¹ www.industry.nsw.gov.au/water/plans-programs/water-sharing-plans/how-water-sharing-plans-work

¹² 2007 Aboriginal commercial licences were re-named as Aboriginal community development licences; however, water sharing plans made prior to 2007 still refer to Aboriginal commercial licences.

explaining how to apply for an Aboriginal community development licence, and what you can do with the water and the rules bounding the use. This is lacking across the board, further noting that Aboriginal people may not have internet services or access to smart phones, and may also have a poor understanding of water language.

An Aboriginal community development licence/aquifer access is another sub-category of access licences that allows water to be taken by Aboriginal persons or communities for commercial purposes. The water taken under these licences must benefit the community in a way that fosters economic and social development. These licences are intended to provide opportunities for Aboriginal communities to develop water-based industries. This is done through the *Water Act Regulation 2008* that allows for the granting of community development licences. Water sharing plans may also contain provisions in relation to the granting of these licences and can also specify a volume limit.

Aboriginal stakeholders have limited awareness of the existence of these licences, and no resources to enable their use. The department further fails to advise Aboriginal people of the exemptions of fees for cultural access licences and works approvals under an Independent Pricing and Regulatory Tribunal determination in 2014 (not applicable to water usage charges), leaving the community ill-informed of their rights to those exemptions. Further to this the cultural objectives of the water sharing plan clearly states that economic values are to be maintained, and where possible improved, yet the water sharing plan fails to adequately account for economic values of Aboriginal people of NSW.

Current NSW water sharing plans limit the amount of water that can be taken from a groundwater source by establishing a long-term average annual extraction limit (LTAAEL). For the majority of groundwater sources in the Murray Darling Basin, the LTAAEL is equal to the sustainable diversion limit.

There needs to be transparency when the LTAAEL does not equal the sustainable diversion limit, especially if 'new water' is advertised. When the LTAAEL is greater than the limit, it could be amended to equal the limit, providing the difference to Aboriginal people. When unassigned water becomes available, groundwater should be made available first – prior to bidding.

Issuing entitlements and licensing for economic activities for Aboriginal people will move NSW closer to meeting Target 15 of the 2021 *Closing the Gap*:¹³ *15. Aboriginal and Torres Strait Islander people maintain a distinctive cultural, spiritual, physical and economic relationship with their land and waters.*

There are negotiations at the highest levels of state and federal government seeking the Coalition of Peaks (collective of Indigenous Organisations, a peak body)¹⁴ to identify a target of water ownership in each jurisdiction. At the time of this report there is no

¹³ www.closingthegap.gov.au/closing-gap-targets-and-outcomes

¹⁴ <https://coalitionofpeaks.org.au/>

number/percentage target determined. However, as the Indigenous population of Australia is approximately 3%, that percentage has been discussed as a measure of appropriate water ownership in each jurisdiction.

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