

Framework: Multiple benefits of ownership and
management of water by Traditional Owners

FINAL REPORT

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NCECONOMICS

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This report has been prepared by Alluvium Consulting Australia Pty Ltd for the **Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC)** under the contract titled '**Framework: Multiple benefits of ownership and management of water by Traditional Owners**'.

The development of the method and framework involved a collaborative, co-design process, working closely with the Traditional Owner Partnership through multiple workshops and with feedback guiding the content of the method.

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Cover artwork by Biripi woman Vicki Golding



Acknowledgement of the Traditional Owners of Australia

Alluvium Consulting Australia (Alluvium) recognises and acknowledges the unique relationship and deep connection to Country shared by First Nations People, as the Traditional Owners and First Peoples of Australia. Alluvium is committed to supporting close involvement and participation of Traditional Owners in aquatic research and management.

Traditional Owners attach enormous cultural and spiritual significance to landscapes. In the First Nation Peoples' world view, people and Country (including lands, waterways and seas) are interdependent entities that are intrinsically linked in the landscape. This means that there is no separation of nature and culture. The health and wellbeing of Traditional Owners is directly influenced by both the health of the environment and the degree to which Traditional Owners can be actively involved in caring for it.

As First People of Australia, Traditional Owners have inherent rights that were never traded or given away. These inherent rights are recognised in a wide range of International, Federal, State and Territory Government instruments that afford Traditional Owners ownership and custodial interests in Country and recognises their unique responsibility to care for their communities, cultural landscapes, biodiversity and places of particular cultural significance.

Ongoing access to Country and its resources is essential so Traditional Owners can continue cultural practices, maintain links with the land and care for and be intricately involved in repairing Country and cultural economies. Traditional Owners individuals and communities can retain and obtain valuable knowledge and skills through being proactively involved in environmental management and conservation opportunities.

Australian society can benefit from Traditional Owners' knowledge, relationships and cultural and environmental practices and protocols that are alive and vibrant in these communities. This engagement will provide Australian society with a foundation to establish meaningful and sustainable relationships and sound working partnerships.



The cover artwork is by Biripi woman Vicki Golding and was commissioned by Alluvium as part of the development of our organisation's Reconciliation Action Plan. It tells the story of the water catchment flowing to the coast, with both men and women meeting together to discuss protecting our environment. We chose the Eagle as our totem animal, flying high, watching over the land, powerful and strong.

Aboriginal and Torres Strait Islander readers are advised that this document may contain images of people who have died. All images have been taken with consent.

Summary

Traditional Owners are seeking new ways to correct historical exclusion from Victoria’s water entitlement framework and to achieve the restoration of water rights that were never ceded. Part of the justification for addressing this exclusion comes through the articulation of the benefits that occur when Traditional Owners manage and own water. However, while other claimants to water resources (e.g. irrigated agriculture, mining, and even the environment) have relatively well-accepted ways of measuring the benefits that come from ownership of and control over water resources Traditional Owners have not been afforded access to water, leading to further challenges in measuring the benefits of reversing this historic injustice. This is despite Australian and international literature demonstrating that there are a range of benefits that are expected to come from Traditional Owner management and ownership of water and land and that these benefits are likely to result in spill over benefits for the wider community.

There is a need to bring this evidence together into a framework that demonstrates how changes in ownership and management can result in benefits at the scale of individuals, at a Traditional Owner Nation level, and also creates a ripple effect that extends to the wider community and, in some cases, the whole of Victoria and Australia.

Objective

The primary objective of this project is to develop a framework for identifying and communicating the multiple benefits from Traditional Owner management and ownership of water in a way that can inform government decision making whilst ensuring these benefits are expressed and measured in ways that are meaningful for Traditional Owners, through the three dimensions of Healthy Country, Healthy Mob, Sovereignty and Self-determination. It is intended that this framework be used by government departments (including the Department of Treasury and Finance and the Department of Environment, Land, Water and Planning), other public sector bodies (such as water authorities and catchment management authorities), and delivery partners to guide decisions that would have impact on Traditional Owner access to water, including restoration of water rights, and management of water, including through the Central and Gippsland Region Sustainable Water Strategy.

Elements of the framework

The framework contained in this report comprises three main elements:

1. **Context for change** –the international and Australian policy context that supports the case for change in current approaches to water-based decision-making in Victoria to reflect Traditional Owner values and objectives.
2. **Method** –the steps that can be used to describe a proposed change, and identify and measure its likely positive benefits . It could also be used to describe disbenefits associated with no change. It describes the process of estimating monetary value when appropriate and communicating the benefits to a range of audiences.
3. **Supporting evidence** – summary of the documented benefits of Traditional Owner management and ownership of land and water resources based on a review of Australian and international literature.

Each element of the framework is described in more detail within the report; however a summary of the method is presented below.

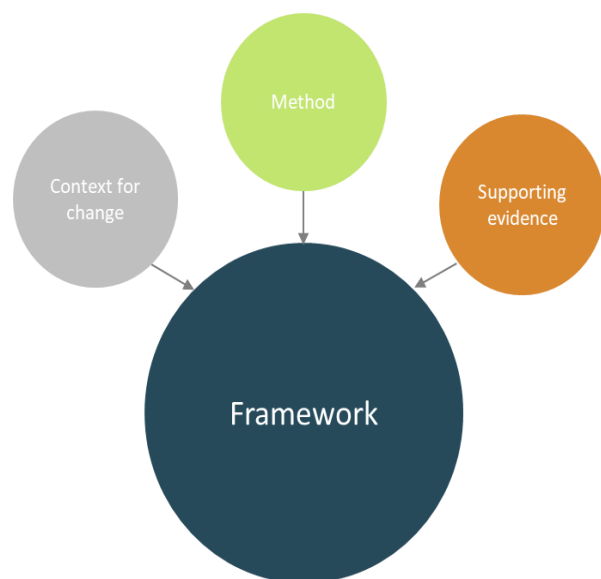


Figure ES1. Framework for communicating the multiple benefits of ownership and management

Method

Traditional Owner management and ownership of water could be represented by a number of proposals, including, but not limited to:

1. A water right that allows Traditional Owner management organisations to determine how water can be used, including for economic development opportunities, or for sale/lease on the water market.
2. A Traditional Owner management organisation with advisory role in the management of water.
3. A Traditional Owner management organisation with decision-making role in the management of water. This could include decisions about on-ground activities to fulfil cultural obligations.

Each of these forms will result in different types of benefits (e.g. physical and economic benefits) and different scales over which benefits will be experienced (e.g. at the individual or community scale).

The following method has been developed with these proposals in mind. It comprises the following key steps (Figure ES2). It is intended to be used to both identify and estimate the expected benefits of a proposal as well as support the evaluation of benefits, following the implementation of a given change to Traditional Owner management or ownership of water. For simplicity of expression, it has been described assuming it is implemented to support an expected change in current arrangements.

Implementation

The extent to which specialist knowledge, in-depth analysis, and resources are required to implement the method depends on the type of proposal under consideration (e.g. provision of advisory services to inform water management or the provision of a water entitlement), the audience (e.g. wider community or government decision-makers), and the communication objective (e.g. to share information or to develop a business case).



Figure ES2. Method for identifying, quantifying communicating benefits

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1 Introduction

1.1 The project

Traditional Owner representatives are partnering with the Department of Environment, Land, Water and Planning (DELWP) in the development of the new Central and Gippsland Region Sustainable Water Strategy (SWS). The sustainable water strategies are a statutory process for water resource planning over a 10-year period that are used to manage the threats to supply and water quality for environmental, economic, cultural and recreational values.

A partnership of four Traditional Owner Corporations—Bunurong Land Council Aboriginal Corporation, Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC), Wadawarrung Traditional Owners Aboriginal Corporation and Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation—have commissioned Alluvium to develop a framework to support the identification and measurement of the multiple benefits of ownership and management of water by Traditional Owners.

Alluvium and Natural Capital Economics were engaged by the Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC), on behalf of the Traditional Owner Partnership to develop this methodology and framework.

Project objectives

The objectives of the project are to develop a framework that, when applied, can demonstrate

- The health, wellbeing and economic benefits for Traditional Owners associated with the ownership and management of water.
- Benefits (including water security) to other water users (e.g. the environment, recreational users, irrigators and others) as a result of Traditional Owner ownership and management.
- The flow-on implications for quadruple bottom line outcomes for the Central and Gippsland Region.
- Contributions to mobs as well as meeting Government priorities and obligations such as the Treaty process, Closing the Gap, the Victorian Self-Determination Reform Agenda and legal obligations.

This project forms Stage 1, where the scope includes the development of a framework that can be applied in different contexts (e.g. to different Country) to provide an evidence base that supports the allocation of water and water management responsibilities to Traditional Owners across quadruple bottom line principles. This work will directly inform the SWS development.

Stage 2 (outside of this project) includes the application of the framework to all or part of the Central and Gippsland Region.

Project approach

The development of the method and framework involved a collaborative, co-design process, working closely with the Traditional Owner Partnership through multiple workshops and with feedback guiding the content of the method.

Terminology

In this report we use the following terminology:

A **Traditional Owner** is a person who, through membership of a descent group or clan, is responsible for caring for particular Country. A Traditional Owner is authorised to speak for Country and its heritage.

Aboriginal refers to both Aboriginal and Torres Strait Islander peoples. The use of the term **Indigenous** is retained in international examples and in the names of programs, initiatives and publication titles. Unless otherwise noted, the term Indigenous in this report is also inclusive of Australian Aboriginal and Torres Strait Islander peoples.

This report refers to cultural values, and to benefits. Cultural **values** are used to describe the things are important to Traditional Owners for spiritual, customary, social or economic purposes either past, present or

future. Examples include custodial values, future use values, identity values or place based values, to name a few.

Benefits are used to describe how these values could be considered within a framework, including benefits to the wider community. In this way, they can be considered the manifestation of the value.

The term **Country** is used throughout to refer to both land and water resources. Traditional Owner culture revolves around relationships to the land and water. For Traditional Owners, Country is a part of who they are, just as they are a part of it. Country includes all the sentient and non-sentient parts of the world and the interactions between them.

While the term **Traditional Owners** is used throughout the document in a general sense, it is important to recognise that it may be applied to any or all of the Traditional Owner Corporations as they self-determine: e.g. the Bunurong Traditional Owners, Gunaikurnai Traditional Owners, Wadawurrung Traditional Owners, and Wurundjeri Woi-wurrung Traditional Owners.

1.2 Ownership and management of water by Traditional Owners

Water ownership and management can encompass a broad spectrum of ways that Traditional Owners may be enabled or seek to be involved with or influence water resources.

Cultural flows are water entitlements (or rights) that are owned or managed by Traditional Owners in accordance with their own laws and cultural protocols. Each Traditional Owner group will determine how to use its own water entitlements, including caring for Country and cultural heritage, providing for healthy people and wellbeing, and delivering economic benefits and sustainable development.

Water ownership (or rights) in Victoria may occur through many different avenues under Victoria's Water Act 1989¹:

- section 8 rights — the right to take water from a waterway, groundwater bore, spring, soak or dam on or adjacent to the landholder's property, for domestic and stock purposes (no fees and charges).
- section 8A rights — the right of Traditional Owners to take water from a waterway, groundwater bore, spring, soak or dam on or adjacent to land that is the subject of a Traditional Owner Settlement Agreement, for purposes related to the cultural values and uses specified in the agreement (no fees and charges). These rights are expressed in Traditional Owner Settlement Agreements. Currently none of the Traditional Owner Partnership corporations is able to access section 8A rights, as the process requires both having a Recognition and Settlement Agreement, and having section 8A rights written into that agreement.
- section 51 licence — the right to take water from a waterway, dam or groundwater bore under the conditions specified on the licence (including a specific location for use). This licence can be transferred to another user (traded), and includes fees and charges for water use.
- water share — the right to receive water allocations in a declared water system (such as the Thomson-Macalister system). Water share owners do not need to own land, water shares can be transferred (traded), and there is an annual fees for water share ownership.
- water allocation — the physical water available under a water share, allocated by a water corporation in a declared system. Water allocation owners do not need to own land (unless they wish to use the water on land), water allocation can be transferred (traded), and there is an annual fee for water use.

Traditional Owner cultural outcomes may also be achieved by management of water or flow that is owned by others but is managed in partnership or solely by Traditional Owners, to realise Traditional Owner cultural values. Traditional Owner partnership in the management of water could range from on-ground involvement, co-management, sole management of water not 'held' by Traditional Owners, and co-governance approaches.

¹ Central and Gippsland Region Sustainable Water Strategy Discussion Draft 2021 https://www.water.vic.gov.au/__data/assets/pdf_file/0032/544847/Central-and-Gippsland-SWS-consultation-draft-v2.pdf

Throughout this report we refer to ‘ownership and management’, which is intended to encompass the range and different forms that Traditional Owner self-determination in water management could take and could be implemented, noting that arrangements for ownership and management of water by Traditional Owners in Australian jurisdictions are evolving, and as such these descriptions represent a point in time.

1.3 This document

This document is the project report for the development of a method and framework to identify, measure and describe the multiple benefits of ownership and management of water by Traditional Owners. The framework contained in this report comprises three main elements:

- The case for change – context for why this work is needed (Section 2)
- Method – the steps for identifying and measuring benefits (Section 3)
- Supporting evidence for the benefits – summarised under the three dimensions of Healthy Country, Healthy Mob, Sovereignty and Self-determination, this chapter explores the benefits identified through the literature review (Section 4)

1.4 Next steps

The framework presented in this report is intended to support Traditional Owners and others to articulate benefits and demonstrate how changes in ownership and management can result in changes at the scale of an individual, family group, clan or nation and also result in a ripple effect that may extend to the broader community, the whole of Victoria, and Australia.

A decision making framework for water for Traditional Owners is currently being developed with water corporations as part of the urban water security planning process. GLaWAC has been advised that at least one water corporation is prepared to apply the framework in a case study, to test the method and how the results can be used to inform decision-making.

2 The context for change

The Aboriginal communities of Australia have a unique and enduring connection to Country that spans many thousands of years. Prior to the arrival of Europeans, Aboriginal communities implemented a range of sophisticated land and water management practices. There is ample evidence across Australia and internationally that the inclusion of “Indigenous Technical Knowledge” in decision making about natural resources – whether fisheries, forests, wildlife or water resources - significantly improves the outcomes for everyone involved (Bongaarts, 2019; Christopher P Burgess et al., 2009; Dodson, 2014; Garnett & Sithole, 2007; Herse et al., 2020a; Johnston et al., 2007a; Stacey et al., 2013; Weir et al., 2011).

Traditional Owners’ access to those resources following dispossession is extremely limited. For example, in the Murray-Darling Basin, Aboriginal water holdings constitute less than 0.2% of available surface water (Hartwig, L. and S. Jackson (2020).

In recent years, as a result of a range of international, national and state declarations and policies to restore Indigenous influence over, and access to, natural resources, including water, progress is being made to redress this dispossession. The following sections provide an overview of some of these declarations and policies.

2.1 UN Declaration on the Rights of Indigenous Peoples

In 2007, the UN General Assembly voted to adopt the United Nations Declaration on the Rights of Indigenous peoples. The Declaration is a comprehensive international instrument on the rights of Indigenous peoples and establishes a universal framework of minimum standards for the survival, dignity and well-being of Indigenous peoples. The Declaration states that:

“Indigenous peoples have the right to self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development”.

While initially voting against it, Australia now supports the Declaration, indicating the desire to take steps to implement the rights of Indigenous peoples in alignment with the Declaration. The Declaration also includes many other Articles that are particularly relevant to this project. Namely:

- Article 4: “Indigenous peoples, in exercising their right to self-determination, have the right to autonomy or self-government in matters relating to their internal local affairs, as well as ways and means for financing their autonomous functions.”
- Article 25: “Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard”.
- Article 26: “Indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired. Indigenous peoples have the right to own, use, develop and control the lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired. States shall give legal recognition and protection to these lands, territories and resources. Such recognition shall be conducted with due respect to the customs, traditions and land tenure systems of the Indigenous peoples concerned”.
- Article 29: “Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories or resources. States shall establish and implement assistance programmes for Indigenous peoples for such conservations and protection, without discrimination. States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the land or territories of Indigenous peoples without their free, prior and informed consent”.

2.2 Australian context

Within the Australian context, progress has been accelerated in the past decade to further the work of self-determination and treaty.

The **National Water Initiative (NWI)** 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. Prior to the advent of the NWI, specific Indigenous interests in water and contributions to water policy and planning were not prioritised at a national level (Jackson & Morrison 2007). The NWI included a number of clauses specifically addressing Indigenous matters and in 2017, a module to the NWI was released, titled *Engaging Indigenous Peoples in Water Planning and Management*, which is intended to support water planners and managers develop and implement NWI consistent, inclusive water planning and management processes that support Indigenous social, spiritual and customary objectives.

In 2020, the **National Agreement on Closing the Gap**² was renewed with a focus on:

- Overcoming the entrenched inequality faced by Aboriginal and Torres Strait Islander people.
- Empowering Aboriginal and Torres Strait Islander people to share decision-making authority.
- Building a strong and sustainable Aboriginal and Torres Strait Islander community-controlled sector.
- Improving mainstream institutions so that they are culturally safe and responsive.
- Providing access to Aboriginal and Torres Strait Islander-led data.
- 16 socio-economic outcomes including "Aboriginal and Torres Strait Islander people maintain a distinctive cultural, spiritual, physical and economic relationship with their land and waters".

This renewed agreement builds on the original Closing the Gap targets set out in 2007. In line with the agreement, Victoria has prepared the Victorian Closing the Gap Implementation Plan 2021-2023, which makes a strong commitment not only to meet the objectives outlined in the Closing the Gap Agreement but to progress self-determination and Treaty.

The Closing the Gap targets include the following, which are relevant to this project:

- Aboriginal and Torres Strait Islander people enjoy long and healthy lives.
- Aboriginal and Torres Strait Islander people enjoy high levels of social and emotional wellbeing
- Aboriginal and Torres Strait Islander people maintain a distinctive cultural, spiritual, physical and economic relationship with their land and waters, including through the following supporting indicators:
 - Aboriginal and Torres Strait Islander people's owned land and water titles
 - Number of Aboriginal and Torres Strait Islander people employed in water and land management
- Strong economic participation and development of people and their communities
- Adults are not overrepresented in the criminal justice system

In 2016, DELWP committed to the principles of self-determination in **Water for Victoria** which included the introduction of the Aboriginal Water Policy. The key objectives of this chapter were to: recognise Aboriginal values and objectives of water; include Aboriginal values and traditional ecological knowledge in water planning; support Aboriginal access to water for economic development; and build capacity to increase Aboriginal participation in water management. Following the publication of *Water for Victoria*, the Water and Catchment Legislation Amendment Bill was passed in 2019. The amendment supports the incorporation of Aboriginal values and water uses into planning and management and stipulates that consultation with Traditional Owner groups, Native Title holders and Aboriginal parties is required in the development of plans and strategies.

The discussion draft of the **Central and Gippsland Region Sustainable Water Strategy** was released in October 2021. Sustainable Water Strategies are plans to secure the future water needs of Victoria's regions with a long-term view (the next 50 years). A chapter titled Healthy Country, Healthy Mob was prepared by the Central and

² <https://www.closingthegap.gov.au/national-agreement/national-agreement-closing-the-gap>

Gippsland Region Sustainable Water Strategy Traditional Owner Partnership. This includes the following proposed directions:

- make a portion of unallocated water available to Traditional Owners
- return river water to Traditional Owners as the use of climate-resilient water supplies increases
- explore opportunities to work with water corporations to protect and improve cultural values through the management of water supply systems and waterways for shared benefits
- identify opportunities for Registered Aboriginal Parties within the region to have a ‘seat at the table’ and a say in all aspects of water management through the implementation of the Central and Gippsland Region Sustainable Water Strategy.

The Victorian Traditional Owner **Cultural Landscapes Strategy**, authored by Victorian Traditional Owners, was launched on 27 August 2021. The Cultural Landscapes Strategy provides direction to the Victorian government about how it can enable and empower Traditional Owner self-determination in land management. The ULTRAL Landscapes Strategy Strategic Framework includes the following five objectives:

- To restore the knowledge system.
- To strengthen Traditional Owner Nation resilience.
- To enable Traditional Owner cultural landscape planning.
- To embed Traditional Owner knowledge and practice into policy, planning and the management of Country.
- To enable the application of Traditional Owner cultural objectives, knowledge and practice in the management of public land.

In 2018, The Victorian Government released the **Victorian Aboriginal Affairs Framework 2018-2023**. The Framework outlined two key purposes:

1. Victorian Government’s overarching framework for working with Aboriginal Victorians, organisations and the wider community to drive action and improve outcomes.
2. Sets out the whole-of-government self-determination enablers and principles and commits government to significant structural and systemic transformation.

The Framework has a shared vision: “All Aboriginal Victorian people, families and communities are healthy, safe, resilient, thriving and living culturally rich lives”, with 20 goals across 6 domains or themes. It is guided by a set of enablers and guiding principles. Outlined within the Framework are broad areas for action which include supporting cultural pride and identity among Aboriginal Victorians; supporting Traditional Owner-led management and control of land, water and other natural resources; and strengthening Aboriginal leadership, representation, decision-making and resource allocation/distribution at the local, regional and state levels, recognising the needs of Aboriginal communities.

The Victorian Government also developed the *Self-Determination Reform Framework* the purpose of which is to:

1. Build on and update the 2011 Victorian Government Aboriginal Inclusion Framework
2. Provide a consistent understanding of how government should enable self-determination.
3. Provide guidance for whole-of-government and departmental transformation to enable self-determination.
4. Provide a consistent approach to reporting on government’s efforts to enable self-determination.

This document provides guidance to Victorian Government departments on how to develop their own strategies for progressing self-determination and treaty in relation to the policy areas they manage.

Pupangarli Marnmarnepu ‘Owning Our Future’ is the self-determination strategy of the Department of Environment, Land, Water and Planning (DELWP) which was published in 2020. The Strategy is a five-year plan that outlines the strategic direction, outcome and priorities of the Department in regard to Aboriginal self-determination. The Strategy has a vision and four desired outcomes which are shown in Figure 3.

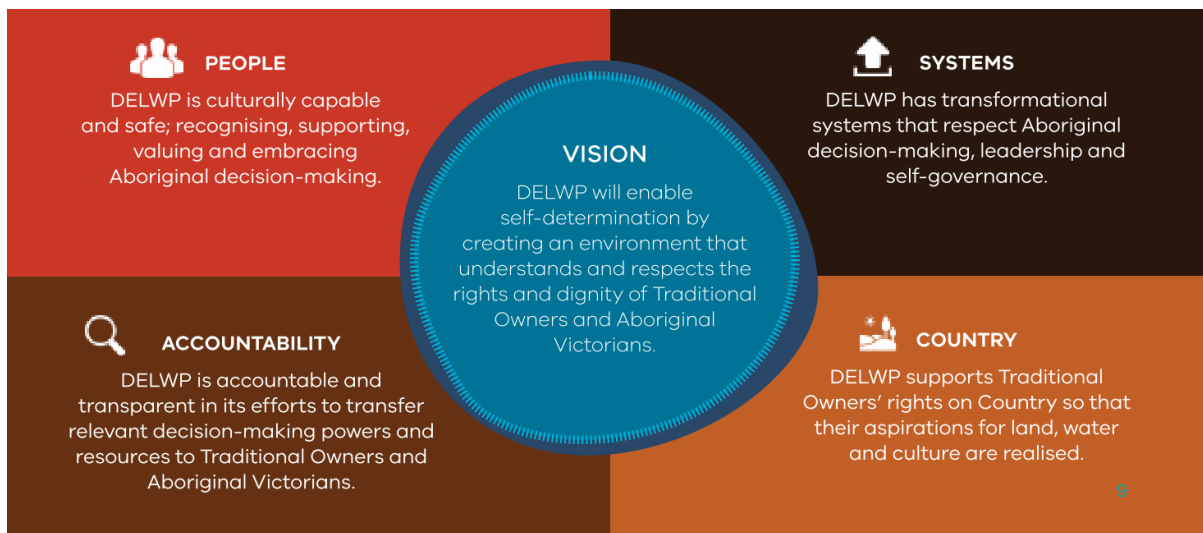


Figure 3. The vision and four desired outcomes of Pupangarli Marnmarnepu 'Owning Our Future', DELWP's self-determination strategy. Source: DELWP 2020

Outcome indicators or success measures have also been outlined for the four desired outcomes. While most of these relate to systems and processes such as embedding culturally safe practices and providing a culturally safe workplace, outcomes indicators for the Country theme are most practical in terms of the management and ownership of natural resources. For example

- Indicator 3.2: Recognise and implement the decisions that Traditional Owners determine over sustainable management of water resources.
- Indicator 3.3 Recognise and implement the decisions that Traditional Owners make over traditional lands and resources.

These links to government policy and strategy will be important to frame the considerations and discussions about the potential benefits of Traditional Owner management and ownership of water resources.

2.3 Review of values

Land and waters on Country, a sense of place, spirituality, responsibility, family, lore and language – these and more shape the cultural values that are intrinsic for Traditional Owners, formed over many thousands of years.

Cultural values include tangible natural resources and heritage, and also intangible cultural heritage and are linked to Creation stories, long-standing connections to Country, the performance of cultural practices and cultural obligations and the achievement of self-determination. When Traditional Owners are disconnected from culture, there is a deep impact on the sense of identity and belonging.

The Traditional Owner Partnership have articulated cultural values that align with the cultural values as articulated in the National Cultural Flows Research Project (MLDRIN et al., 2014) and are presented in Figure 4.

The collation of identified values provides important context to understanding the benefits associated with Traditional Owners managing and owning water. Further information on values identified by Bunurong, Gunaikurnai, Wadawurrung and Wurundjeri –Woi-Wurrung Traditional Owners is provided in Appendix B.

The values can be grouped into three key themes: Healthy Country, Healthy Mob and self-determination and sovereignty. Some values occurring in more than one category. These three themes are also adopted in the *Cultural Water for Cultural Economies* report (O'Donnell et al 2021a)

AFFECTIVE VALUES	Qualities of the resource that sustain important affective qualities, such as aesthetic appreciation, ambience, inspiration, sensory responses, ecological appreciation, spiritual realisation and emotional well-being,
CUSTODIAL VALUES	Moral or cultural obligations for the care of the landscape for present and future generations. Custodial values include values associated with bequest, future options and the transmission of knowledge and learning.
FUTURE USE VALUES	Includes commercial or enterprise development aspirations.
IDENTITY VALUES	Sites or features of the resource that contributes to self or group identification.
PLACE-BASED VALUES	Places that are dependent upon the resource that are significant or valuable for their existence.
PRACTICE-BASED VALUES	Qualities of the resource or location that is necessary to support personally, socially or culturally important practices, such as recreational use, resource harvest or spiritual and ceremonial practice.
RELATIONAL VALUES	Contributions of a site or feature of the resource that sustains, represents or embodies a relationship to historical or spiritual connections with the landscape, identity, genealogy, law and custom as a whole.
SOCIAL COHESION	Sites or qualities of the resource that contribute to community connectedness, social interaction, trust, inclusion, sense of belonging and the reduction of conflict within a community.
WELL-BEING VALUES	The qualities of the resource or location that contribute to physical and mental health, therapeutic activity and quality of life.

Figure 4. Values adopted by the Traditional Owner Partnership

Healthy Country

Country is the lifeline that sustains Mob. It is the source of all life and provides all the essential resources for survival. Everything on Country is connected. There is no separation between landscapes, waterways, natural and cultural resources and people. In order for Country to keep providing the resources and sustaining life as it has always done, Country needs to be healthy. The health of individual species is important but because everything is connected, Healthy Country is critical. Having Healthy Country means individual species and resources of value will be looked after. Traditional Owners have cultural and moral obligations to care for Country. To protect and heal the damage of the past and to protect Country for future generations. Obligations to care for Country connect people across communities and language groups and extend across the landscape (MLDRIN et al., 2017).

Country is the connection to the past, to ancestors, to history and to the future. This connection is ongoing and has never been broken. Features on the landscape provide a direct connection to ancestors and the past. Maintaining values and sites on Country are important to maintain this connection to the past. Culture is embedded in Country and is foundational to identity. Continuing cultural practices link people to ancestors through shared customs. To continue these cultural practices, it is essential that Country is healthy. Many resources used in cultural practices rely on healthy Country and the protection of important places to make them available for use.

Healthy Mob

The wellbeing of Mob is about more than just physical health and security. There are many elements to wellbeing. A key pillar of wellbeing is maintaining strong spiritual and cultural connections to Country. This can only be done through the ongoing practice of culture which is dependent on a Healthy Country. The wellbeing of Mob is also dependent on having stable and secure employment and housing. Caring for Country can provide opportunities to secure the future economically and contribute to wellbeing.

Self-determination and sovereignty

Victorian Traditional Owners maintain that their sovereignty has never been ceded (*Advancing the Treaty Process with Aboriginal Victorians Act 2018*). Traditional Owners have a cultural obligation to care for Country and invaluable knowledge of Country through sustained traditional practices and management approaches. Country that is managed in harmony with traditional practices is healthy, having sustained people for thousands of years. This long-standing knowledge of and occupation of Country provides the basis for Aboriginal rights to use, manage and control Country. Through these rights, work can be progressed to heal and protect Country, to improve the wellbeing of Mob, to maintain and pass down cultural practices and traditions. The right of Aboriginal groups to use, manage and control Country ensures that Country can be managed utilising traditional knowledge which inherently results in sustainable use. Self-determination is a key component of the United Nations Declaration on the Rights of Indigenous Peoples.

2.4 Capturing Traditional Owner values in government decision making

Dispossession and disempowerment over the past 250 years, in terms of what the Mob call 'Country', and what settler governments call 'land and natural resources like water, flora and fauna', has led to great pain, suffering and loss in social, physical and mental health in Indigenous communities. This is in part because of the deep and interconnected relationships Traditional Owners have to Country. These connections are reflected in the values outlined above.

Some of these values can be described in monetary terms through market transactions. However, there are many benefits that are not visible within conventional economic analysis and frameworks, either because it is not appropriate or ethical or because we do not yet have appropriate methods for considering them. For example, benefit-cost analysis relies on the estimation of monetary values. Where these values cannot or should not be estimated in monetary terms, there is a risk that decisions will be made without sufficient consideration of Traditional Owner values (see for example Choy, 2018).

This lack of visibility can result in these values and benefits being overlooked in government decision-making, policy setting, and prioritisation including when budgets are being determined. This is despite being of great importance to Traditional Owners and potentially making a significant contribution to the wider community.

These challenges go part of the way towards explaining that, despite academic literature and past legal decisions across Australia (e.g. "Yotti" Kingsley et al., 2009) strongly supporting the proposition that increased ownership and management of water and land resources will significantly increase the agency, autonomy, self-determination and self-esteem of Traditional Owners, attempts to correct historic dispossession have failed.

This project is intended to provide a bridge between conventional western frameworks commonly used in public policymaking and Traditional Owner values by providing an approach for considering the range of values and benefits associated with Traditional Owner management and ownership of water.

3 Method

Traditional Owners are seeking new ways to correct historical exclusion from Victoria's water entitlement framework and to achieve the restoration of water rights that were never ceded. Part of the justification for addressing this exclusion comes through the articulation of the benefits that occur when Traditional Owners manage and own water. However, while other claimants to water resources (e.g. irrigated agriculture, mining, and the environment) have relatively well-accepted ways of measuring the benefits that come from ownership of and control over water resources, Traditional Owners have not been afforded access to water, leading to further challenges in measuring the benefits of reversing this historic injustice.

This is despite the literature demonstrating that there are a range of benefits that are expected to come from Traditional Owner management and ownership of water and land and that these benefits are likely to result in spill over benefits for the wider community (see Section 4).

There is a need to bring this evidence together into a framework that demonstrates how changes in ownership and management can result in benefits at the scale of individuals, Traditional Owner Nation, and also creates a ripple effect that extends to the wider community and, potentially, the whole State of Victoria and the nation.

The following sections provide further detail about the method for identifying, quantifying and communicating the benefits.

3.1 Method for identifying, measuring and communicating benefits

Traditional Owner management and ownership of water could take a number of forms, including, but not limited to:

1. A water right that allows Traditional Owner management organisations to determine how water can be used, including caring for Country and for economic development opportunities, or for sale on the water market.
2. A Traditional Owner management organisation with advisory role in the management of water.
3. A Traditional Owner management organisation with decision-making role in the management of water. This could include decisions about on-ground activities to fulfil cultural obligations.

Each of these forms will result in different types of benefits (e.g. physical and economic benefits) and different scales over which benefits will be experienced (e.g. at the individual or community scale).

The following method has been developed with these proposals in mind, however it is recognised that Traditional Owner management and ownership may take different forms. It comprises the following key steps (Figure 5). It is intended to be used to both identify and estimate the expected benefits of a proposal as well as support the evaluation of benefits, following the implementation of a given change to Traditional Owner management or ownership of water. For simplicity of expression, it has been described assuming it is implemented to support an expected change in current arrangements.

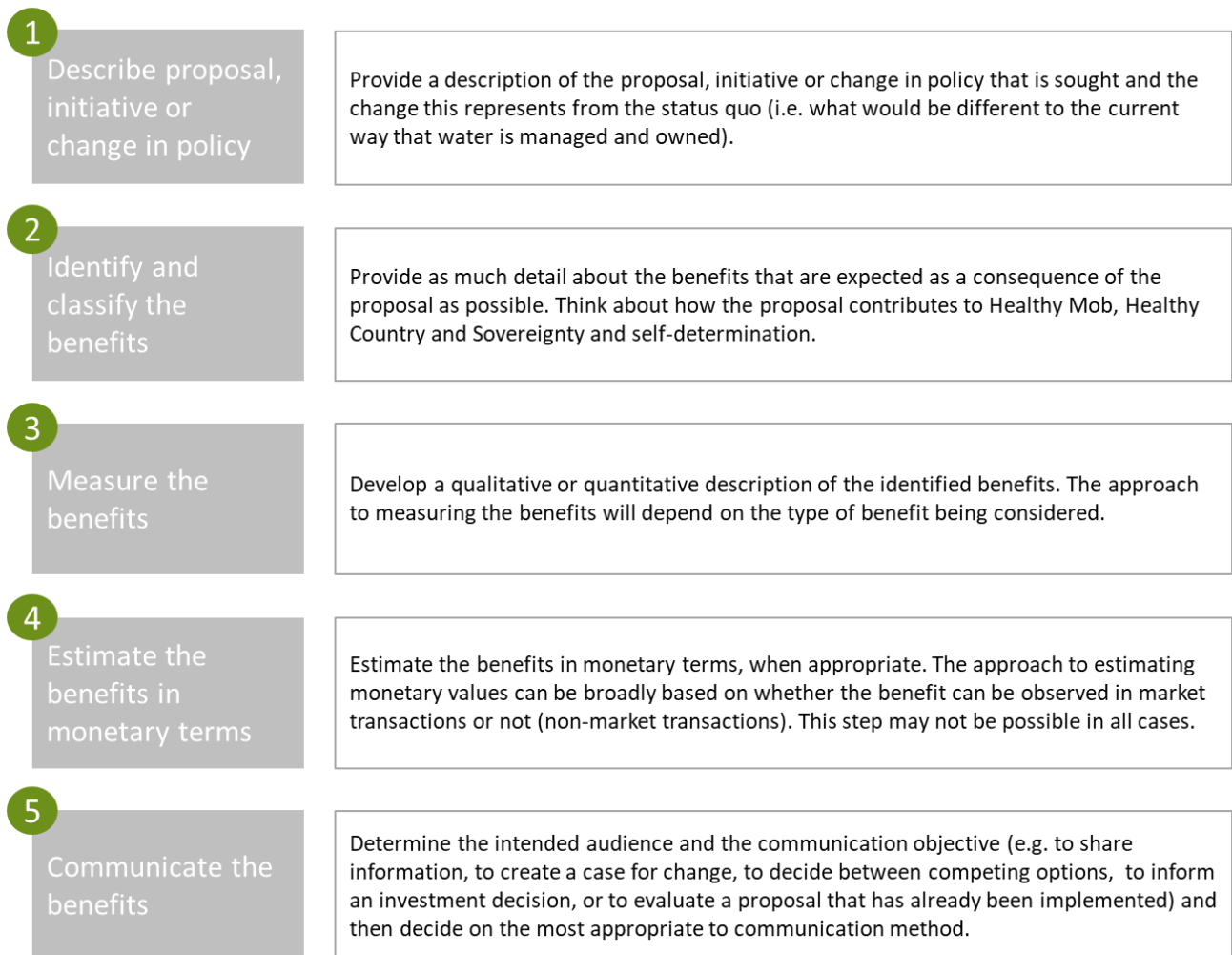


Figure 5. Framework for identifying, measuring and communicating benefits

Step 1: Describe the proposal

This step involves providing a description of the proposal³ that is sought and how this differs from the status quo (i.e. what would be different to the current way that water is managed and owned).

Assess whether the proposal involves:

- Traditional Owners sharing traditional knowledge and practices to improve the management of water for cultural outcomes
- Traditional Owners deciding how water is managed.
- Traditional Owners being involved in ‘on the ground’ activities that would result in representatives of Traditional Owner organisations being more active (e.g. monitoring watering events or works to provide habitat for totem species).
- The allocation of a water right to a specific volume of water
 - How it could be used, for example, for non-consumptive purposes like fulfilling cultural obligations to care for Country or for economic development purposes (e.g. aquaculture).

³ Note this could also be an initiative, or a change in policy.

Considerations:

This step does not require specialist knowledge, in-depth analysis, and should not require significant resources. However it requires consultation with Traditional Owners to determine their preferences. This step should be done regardless of the nature of the proposal or the intended audience.

Step 2: Identify and classify the benefits that arise from the proposal

This involves building on Step 1 and providing as much detail about the benefits that are expected as a consequence of the proposal. To help avoid missing any benefits, think about how the proposal contributes to Healthy Mob, Healthy Country and Sovereignty and self-determination.

It is also necessary to think about the nature of the benefit that is experienced. For example, it may be a direct benefit for Traditional Owners (e.g. a contribution to autonomy and self-determination that comes from acquiring a water right), or an indirect benefit through the ability to exercise this right (e.g. by establishing an agribusiness enterprise).

Questions to consider when undertaking this step include:

Could the proposal result in changes relating to Sovereignty and Self-determination? For example:

- An increase in power of Traditional Owners over water management decisions?
- An increase in the number of Traditional Owners who will be employed in providing advisory services for the management of water?
- An increase in the recognition of sovereignty of Traditional Owners?
- An increase in economic development opportunities?
- An increase in the economic wellbeing of Traditional Owners and the communities they live in?

Could the proposal result in changes relating to Healthy Mob? For example:

- An improvement in wellbeing (physical or mental) for Traditional Owners?
- An increase in the number of Traditional Owners who will visit Country or a change in the number of hours spent on Country fulfilling cultural obligations?

Could the proposal result in changes relating to Healthy Country? For example:

- An increase in the cultural condition as a consequence of Traditional Owner management (e.g. increase in fish breeding or reduction in deaths of iconic species)?
- An increase in the number of Traditional Owners employed in caring for Country (e.g. monitoring watering events or works to provide habitat for totem species)? This could include a change from casual employment to part or full-time employment, or a new position altogether.

The timing, frequency and duration of benefits, geographic and social distribution also need to be considered, for example:

- When is the benefit likely to occur? E.g. in the short, medium or long-term.
- How often is the benefit likely to occur? E.g. once-off or regularly.
- Where is the change likely to occur? E.g. for a given river system within the Country of a Traditional Owner organisation or for all river systems, or will it have an impact at a national level (e.g. in relation to sovereignty).
- Who or what will benefit? E.g. individuals involved in on-ground activities, Traditional Owner management groups and their families, and/or the wider community.
- How will the benefit contribute to key government obligations?

In describing the benefits, it may be helpful to develop causal pathways to understand how a proposal will create a series of intermediate benefits that contribute to a final benefit (or the benefit to be measured).

The following causal summaries have been based on a review of the literature and provide an illustrative example of how a change in ownership and management can result in benefits across Healthy Mob (Figure 6), Healthy Country (Figure 7) and Sovereignty and self-determination (Figure 8). It should be noted that these reflect non-specific causal pathways for a general proposal. Specific proposals will result in different intermediate and final benefits. As such, these examples should be considered illustrative and will need to be created for each new proposal.

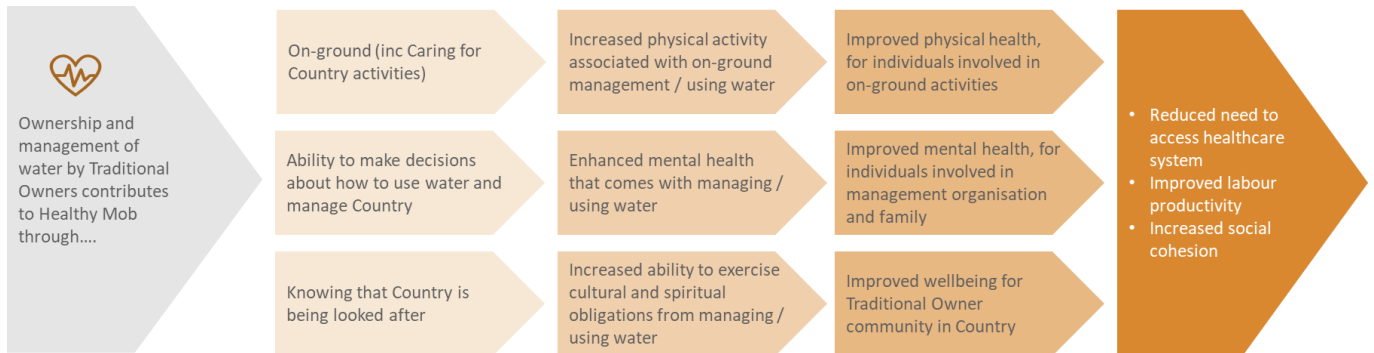


Figure 6. Ownership and management of water by Traditional Owners contributes to Healthy Mob

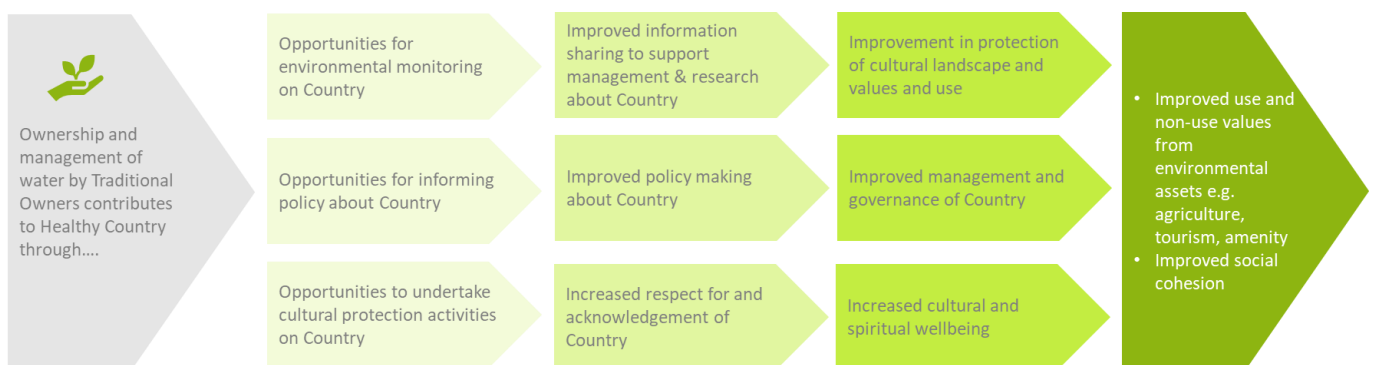


Figure 7. Ownership and management of water by Traditional Owners contributes to Healthy Country

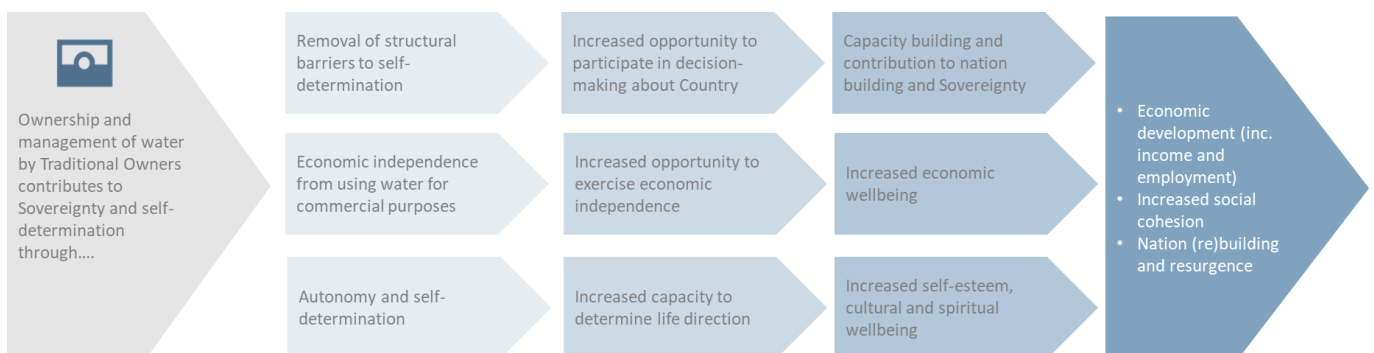


Figure 8. Ownership and management of water by Traditional Owners contributes to Sovereignty and Self-determination

Considerations:

This step could be completed by Traditional Owner groups. It does not require in-depth analysis, and should not require significant resources. Rather, it should be possible to complete this based on knowledge about the proposal and the local context. The evidence provided in Section 4 and analysis provided in Table 1 to Table 3 below can be drawn upon to describe these benefits.

This step should be done regardless of the nature of the proposal or the intended audience.

Step 3: Measure the expected (or already experienced) benefits

If not already identified through Step 2, this step involves quantifying the identified benefits. The approach to quantifying the benefits will depend on the type of benefit being considered. Some benefits can be readily described in quantitative terms (e.g. volume of water under Traditional Owner control or increase in the number of Traditional Owners in decision-making roles related to water management). Other benefits can be described in qualitative ways (e.g. how Traditional Owners feel when they have, or exercise, ownership or management of water).

There are a range of analytical tools that can be used to support the estimation of value, depending on the benefit being considered. Some examples include ecosystem services assessments, total economic valuation, surveys of beneficiaries or participants in a given program, or narratives from informed Traditional Owners. More information about these tools is provided in Appendix C.

Questions to consider when undertaking this step include: To what extent could the proposal impact Sovereignty and Self-determination? For example:

- How many Traditional Owners are likely to be employed in providing advisory services and in what capacity?
- How many Traditional Owners are likely to be employed in providing on-ground activities and in what capacity (e.g. casual, part-time, full-time)?

To what extent could the proposal impact Healthy Mob? For example:

- How many Traditional Owners are likely to report an improvement in physical health and in what way (e.g. improved fitness, fewer days absent from work)?
- How many Traditional Owners are likely to report an improvement in mental health and in what way (e.g. improved self-esteem)?
- How many Traditional Owners are likely to report an improvement in spiritual wellbeing and in what way (e.g. improved connection and cohesion with family and community)?

To what extent could the proposal impact Healty Country? For example:

- How many Traditional Owners are likely to visit Country or how many additional hours will be spent on Country fulfilling cultural obligations?
- How might cultural condition improve as a consequence of Traditional Owner management (e.g. increase in fish breeding or reduction in deaths of iconic species)?

Given the resources required to measure the range of benefits that could arise, it may be necessary to prioritise the benefits that are measured and articulated. Criteria for prioritising the benefits to focus on could include:

1. The importance of the benefit to the Traditional Owner group
2. Extent to which benefits can be readily attributed to the proposal
3. Ease of data collection and collation
4. Potential magnitude of the benefits experienced by Traditional Owners
5. Potential magnitude of the benefits experienced by the wider community
6. Extent to which the benefit contributes to key government obligations
7. Extent to which the benefit has previously been neglected and under-appreciated.

Considerations:










This step requires specialist knowledge, a degree of analysis and is likely to require additional resources. This step is necessary, if for example, creating a case for change or a business case. For other audiences/ communication objectives (e.g. for information sharing), this step is desirable, but not essential.

Given the resources required to measure all benefits that could arise, it may be necessary to prioritise the benefits measured.

Identifying the scale and timing of benefits





















Table 2, Table 3, and Table 4 (overleaf) provide a list of the benefits that may be experienced for a given proposal, broken down by benefit category (Healthy Mob, Healthy Country and Sovereignty and self-determination), who or what is likely to benefit, the scale and timing of the benefit, and how it could contribute to key government obligations. These illustrative tables can be used to assist with undertaking Step 3, but will need to be created for each new proposal.

The tables draw on the following legend for describing the potential timing and scale of benefits:

Timing of benefit <i>(i.e. when might the benefit be observed)</i>		Scale of benefit <i>(i.e. over what range might the benefit be experienced)</i>	
	Short term = 0 – 5 years	 Individual(s) and families	 Local (e.g. a river reach or a wetland) ⁴
	Medium term = 6 – 10 years	 Members of Traditional Owner management organisation	 Regional or catchment scale
	Long term = > 10 years	 Traditional Owner communities	 State / National

⁴ This may be referred to as Country or Nation by Traditional Owners.

Table 1. Indicative approaches to categorising and measuring benefits to Healthy Mob

Traditional Owner benefit				Wider community benefits			Potential contribution to Government obligations	Approach to measuring
Traditional Owner benefit impact / indicator	Nature of benefit	Timing of benefit realisation	Scale of benefit	Wider benefits	Timing of benefit realisation	Scale of benefit		
<i>i.e. Which attribute would we expect to change and / or which attribute could be measured</i>	<i>i.e. Further description of the benefit indicator (e.g. results in a direct, indirect, intrinsic benefit or combination)</i>	<i>i.e. When might the benefit be realised</i>	<i>i.e. What might be the scale (e.g. Individual/ family group / clan group/ Traditional Owner organisation or community)</i>	<i>i.e. Could the benefits to Traditional Owners result in flow-on / additional benefits to the wider community</i>	<i>i.e. When might the wider benefit be realised?</i>	<i>i.e. What might be the scale (local, regional, or state/ national)</i>	<i>i.e. Which Government obligations will it contribute to</i>	<i>i.e. What general approach could be used to measure the benefits</i>
Physical benefits— Increased physical activity, better nutrition, reduced exposure to risk factors (e.g. smoking, obesity and physiological stress)	Direct benefit— improved physical health for on-ground delivery staff			Reduced pressure on healthcare services and associated cost savings			Victorian Aboriginal Affairs Framework 2018-2023 Korin Korin Balit-Djak Aboriginal health, wellbeing and safety strategic plan 2017–2027 Balit Murrup Aboriginal social and emotional wellbeing framework 2017–2027 Closing the Gap targets	Quantitative— change in types of use of healthcare services Quantitative—change in workforce participation Quantitative—change in life expectancy Qualitative/semi-quantitative— observations, surveys, structured / unstructured interviews to understand changes in physical health.
				Increased labour productivity and economic contribution				
Mental health benefits— improved self-esteem and well-being, connection to family and community	Direct benefit— improved mental health for Traditional Owner management organisation			Reduced pressure on healthcare services and associated cost savings			Victorian Aboriginal Affairs Framework 2018-2023 Korin Korin Balit-Djak Aboriginal health, wellbeing and safety strategic plan 2017–2027 Balit Murrup Aboriginal social and emotional wellbeing framework 2017–2027 Closing the Gap targets	Quantitative— change in types of use of healthcare services Quantitative—change in workforce participation Quantitative—change in life expectancy Quantitative—change in domestic violence and other crime Qualitative/semi-quantitative— observations, surveys, structured / unstructured interviews to understand changes in mental health and wellbeing
				Increased labour productivity and economic contribution				
			Greater social cohesion (avoided cost)					






































Traditional Owner benefit				Wider community benefits			Potential contribution to Government obligations	Approach to measuring
Traditional Owner benefit impact / indicator	Nature of benefit	Timing of benefit realisation	Scale of benefit	Wider benefits	Timing of benefit realisation	Scale of benefit		
	Intrinsic—connection to family and community for Traditional Owner management organisation			Greater social cohesion (avoided cost)				
Spiritual benefits—Autonomy and self-determination	Intrinsic benefit—autonomy and self-esteem for Traditional Owner community			Greater social cohesion (avoided cost)			<p>Victorian Aboriginal Affairs Framework 2018-2023</p> <p>Korin Korin Balit-Djak Aboriginal health, wellbeing and safety strategic plan 2017–2027</p> <p>Balit Murrup Aboriginal social and emotional wellbeing framework 2017–2027</p> <p>Closing the Gap targets</p>	Qualitative/semi-quantitative—Observations, surveys, structured / unstructured interviews to understand changes in self-esteem and social cohesion

Table 2. Indicative approaches to categorising and measuring benefits to Healthy Country

Traditional Owner benefit				Wider community benefits			Potential contribution to Government obligations	Approach to measuring
Traditional Owner benefit impact / indicator	Nature of benefit	Timing of benefit realisation	Scale of benefit	Wider benefits	Timing of benefit realisation	Scale of benefit		
<i>I.e. Which attribute would we expect to change and / or which attribute could be measured</i>	<i>I.e. Further description of the benefit indicator (e.g. results in a direct, indirect, intrinsic benefit or combination)</i>	<i>i.e. When might the benefit be realised</i>	<i>i.e. What might be the scale (local, regional, or state/ national)</i>	<i>I.e. Could the benefits to Traditional Owners result in flow-on / additional benefits to the wider community. If yes, what are they</i>	<i>i.e. When might the wider benefit be realised</i>	<i>i.e. What might be the scale (local, regional, or state/ national)</i>	<i>I.e. Which Government obligations will it contribute to</i>	<i>I.e. What general approach could be used to measure the benefits</i>
Improved understanding and management of Country	Direct benefit—improved monitoring and information sharing, facilitation of adaptive management			Improved information to support management and research			The Water Act 1989 (Vic), and related strategies including Water for Victoria (incorporating traditional knowledge), Central and Gippsland Region Sustainable Water Strategy State Environment Protection Policy (Waters), through the protection of surface water Victorian Traditional Owner Cultural Landscapes Strategy Closing the Gap targets	Quantitative—change in condition of cultural assets Quantitative—change in ecosystem services from natural assets ⁵ Quantitative—avoided cost of restoring degraded ecosystems Qualitative/semi-quantitative—observations, surveys, structured/unstructured interviews to understand changes in spiritual wellbeing and social cohesion
	Indirect benefit—improved outcomes for Country			Improved use and non-use values from environmental assets ⁶				
	Intrinsic—spiritual benefits for Traditional Owner community			Greater social cohesion (avoided cost)				

⁵ Examples of ecosystem services include climate regulation, avoided salinity management costs, water quality (e.g. avoiding blue-green algae and black water events), and pollination services.

⁶ In this context 'use value' refers to the benefit from using or consuming environmental assets, e.g. water, recreation, fishing. Non-use values refers to non-consumptive uses such as the value of knowing the environmental asset is available for future generations.

Traditional Owner benefit				Wider community benefits			Potential contribution to Government obligations	Approach to measuring
Traditional Owner benefit impact / indicator	Nature of benefit	Timing of benefit realisation	Scale of benefit	Wider benefits	Timing of benefit realisation	Scale of benefit		
	Intrinsic benefit—respect for, and acknowledgement of, Country by Traditional Owner management organisation			Improved use and non-use values from environmental assets	 			
Improved protection of cultural landscape and cultural values and uses	Direct benefit—reduced risks to cultural landscape and cultural values and uses			Improved use and non-use values from environmental assets	 	 	Water for Victoria (Recognise Aboriginal values and objectives of water) State Environment Protection Policy (Waters), through the protection of surface water Flora and Fauna Guarantee Act, through environmental benefits that support the protection of threatened species, Protecting Victoria's Environment - Biodiversity 2037. Victorian Traditional Owner Cultural Landscapes Strategy	Quantitative—change in condition of cultural assets Quantitative—avoided impacts from species/habitat loss Qualitative/semi-quantitative—observations, surveys, reading Country assessments, Aboriginal waterway assessments, structured/ unstructured interviews to understand change in respect for cultural landscape and values.
	Intrinsic benefit—respect for, and acknowledgement of, Country by Traditional Owner management organisation			Improved use and non-use values from environmental assets	 	 		





































Traditional Owner benefit				Wider community benefits			Potential contribution to Government obligations	Approach to measuring
Traditional Owner benefit impact / indicator	Nature of benefit	Timing of benefit realisation	Scale of benefit	Wider benefits	Timing of benefit realisation	Scale of benefit		
Improved policy for Country	Direct benefit—management and governance of natural assets by Traditional Owner management organisation			Improved use and non-use values from environmental assets			The Water Act 1989 (Vic), and related strategies including Water for Victoria and Central and Gippsland Region Sustainable Water Strategy. State Environment Protection Policy (Waters), through the protection of surface water Flora and Fauna Guarantee Act, through environmental benefits that support the protection of threatened species Victorian Traditional Owner Cultural Landscapes Strategy Closing the Gap targets	Quantitative—change in condition of cultural assets Quantitative—change in ecosystem services from natural assets Quantitative—avoided cost of restoring degraded ecosystems Qualitative/semi-quantitative—observations, surveys, structured / unstructured interviews to understand changes in management and governance

Table 3. Indicative approaches to categorising and measuring benefits from Sovereignty and Self-Determination

Traditional Owner benefit				Wider community benefits			Potential contribution to Government obligations	Approach to measuring
Traditional Owner benefit impact / indicator	Nature of benefit	Timing of benefit realisation	Scale of benefit	Wider benefits	Timing of benefit realisation	Scale of benefit		
<i>I.e. Which attribute would we expect to change and / or which attribute could be measured</i>	<i>I.e. Further description of the benefit indicator (e.g. results in a direct, indirect, intrinsic benefit or combination)</i>	<i>I.e. When might the benefit be realised</i>	<i>I.e. What might be the scale (e.g. Individual/ family group / clan group/ TO organisation or community)</i>	<i>I.e. Could the benefits to Traditional Owners result in flow-on / additional benefits to the wider community</i>	<i>I.e. When might the wider benefit be realised?</i>	<i>I.e. What might be the scale (local, regional, or state/ national)</i>	<i>I.e. Which Government obligations will it contribute to</i>	<i>I.e. What general approach could be used to measure the benefits</i>
Improved autonomy and self-determination	Intrinsic benefit—autonomy and self-esteem for Traditional Owner management organisation			Greater social cohesion (avoided cost)			Victorian Charter of Human Rights and Responsibilities Act 2006 Working toward a treaty or treaties with Aboriginal Victorians Victorian Self-Determination Reform Framework Korin Korin Balit-Djak Aboriginal health, wellbeing and safety strategic plan 2017–2027 Balit Murrup Aboriginal social and emotional wellbeing framework 2017–2027 Central and Gippsland Region Sustainable Water Strategy Closing the Gap targets United Nations Declarations on the Rights of Indigenous people	Qualitative/semi-quantitative—observations, surveys, structured / unstructured interviews to understand changes in self-esteem and social cohesion
Removal of structural barriers	Direct benefit—opportunities for Indigenous water rights for Traditional Owner management organisation			Economic development opportunities			Water for Victoria (improving access to water) Central and Gippsland Region Sustainable Water Strategy Victorian Charter of Human Rights and Responsibilities Act 2006	Quantitative—change in number of Traditional Owners with water rights to water Quantitative—change in number of Traditional

Traditional Owner benefit				Wider community benefits			Potential contribution to Government obligations	Approach to measuring
Traditional Owner benefit impact / indicator	Nature of benefit	Timing of benefit realisation	Scale of benefit	Wider benefits	Timing of benefit realisation	Scale of benefit		
	Direct benefit—opportunities for Indigenous participation in resource management for TO management organisation			Greater social cohesion (avoided cost)			<p>Working toward a treaty or treaties with Aboriginal Victorians</p> <p>Victorian Self-Determination Reform Framework</p> <p>Victorian Aboriginal Affairs Framework 2018-2023</p> <p>Victorian Aboriginal Economic Strategy 2013-2020</p> <p>Tharamba Bugheen: Victorian Aboriginal Business Strategy 2017-2021</p> <p>Closing the Gap targets</p> <p>United Nations Declarations on the Rights of Indigenous people</p>	<p>Owners in formal NRM management positions</p> <p>Qualitative/semi-quantitative—observations, surveys, structured / unstructured interviews to understand changes in social cohesion and economic wellbeing</p>
	Indirect benefit—increased economic well-being for Traditional Owner management organisation			Improved understanding and use of Traditional knowledge and skills in resource management				
	Intrinsic benefit—autonomy, and self-esteem for Traditional Owner community			Improved understanding and use of Traditional knowledge and skills in resource management				
Greater economic independence	Direct benefit—increased economic well-being, including income and employment for Traditional Owner management organisation			Economic development opportunities			<p>Water for Victoria (including objective for Aboriginal access to water for economic development)</p> <p>Central and Gippsland Region Sustainable Water Strategy</p> <p>Victorian Self-Determination Reform Framework</p>	<p>Quantitative—change in registered aboriginal businesses</p> <p>Quantitative—change in employment</p> <p>Quantitative – Traditional Owner Corporations shift to economic self determination</p>

Traditional Owner benefit				Wider community benefits			Potential contribution to Government obligations	Approach to measuring
Traditional Owner benefit impact / indicator	Nature of benefit	Timing of benefit realisation	Scale of benefit	Wider benefits	Timing of benefit realisation	Scale of benefit		
	Direct benefit—increased economic well-being, including income and employment for Traditional Owner management organisation			Greater social cohesion (avoided cost)			<p>Victorian Aboriginal Affairs Framework 2018-2023</p> <p>Victorian Aboriginal Economic Strategy 2013-2020</p> <p>Tharamba Bugheen: Victorian Aboriginal Business Strategy 2017-2021</p> <p>Closing the Gap targets</p>	<p>through sustainable partnerships and business enterprise based on in perpetuity water rights</p> <p>Quantitative—change in level of socio-economic disadvantage</p> <p>Qualitative/semi-quantitative—observations, surveys, structured / unstructured interviews to understand changes in economic wellbeing and social cohesion</p>
Contribution to Sovereignty	Indirect benefit—capacity building from participation in decision-making and contribution to nation building			Greater social cohesion (avoided cost)			<p>Victorian Charter of Human Rights and Responsibilities Act 2006.</p> <p>Advancing the Treaty Process with Aboriginal Victorians Act 2018</p> <p>Victorian Self-Determination Reform Framework</p> <p>Water for Victoria (build capacity)</p> <p>Victorian Traditional Owner Cultural Landscapes Strategy (Traditional Owner Nation resilience)</p> <p>Central and Gippsland Region Sustainable Water Strategy</p> <p>Closing the Gap targets</p> <p>United Nations Declarations on the Rights of Indigenous people</p>	<p>Quantitative—change in Traditional Owner representation in water governance positions</p> <p>Quantitative—change in number of river systems that are Traditional Owner led, and maturity of Traditional Owner led organisations</p> <p>Qualitative/semi-quantitative—observations, surveys, structured / unstructured interviews to understand changes in capacity and social cohesion</p>

Step 4: Estimate the benefits in monetary terms

Depending on the intended audience for communicating the benefits, there may be a need to provide monetary estimates, for example, when preparing a business case for investment⁷. Where this is considered necessary, this step involves estimating the benefits in monetary terms, where this is possible, desirable and ethical.

The approach to estimating these monetary values depends on the benefit under consideration. Some benefits can be observed directly through market transactions (e.g. water trades) while others can be observed indirectly through stated-preference methods (e.g. reducing the risk to cultural landscape and cultural values and uses).

Determining the most appropriate approach to valuation requires an understanding of the impact, the economic approaches available for estimating monetary values, and should always be undertaken in consultation with Traditional Owners. It is important to describe any assumptions or pre-conditions that are required to support the estimation of benefits. This may include, for example the causal attribution between the proposal and the benefit being measured. This is particularly important for benefits that are less certain. There can be significant uncertainties, for example, where benefits are expected to occur in the longer-term (e.g. improvement in environmental condition), to gradually accumulate, or where there is a less direct link between the proposal / initiative / policy change and the benefit (e.g. changes in social cohesion). Section 4 provides a range of evidence that could be drawn upon to complete this step.

Benefits that are not considered appropriate to attempt to place a monetary value include⁸:

- Recognition of Human Rights.
- Recognition of sovereignty and self-determination.
- Being able to fulfil cultural obligations to Country.

These benefits have intrinsic value and attempting to estimate their monetary value may have the effect of degrading these values⁹. Such benefits are therefore best described through qualitative narrative (e.g. case studies) or through academic inquiry. Should it be necessary, the value of these benefits can also be argued through appeals to justice and the rights of Traditional Owners.

Considerations:

This step requires engagement with Traditional Owners, specialist valuation knowledge and in-depth analysis and is likely to require significant resources. This step may help to better inform an investment decision or to decide between competing options, but would not be necessary for other audiences/communication objectives such as sharing information.

Step 5: Communicate the benefits

Having calculated the estimated benefits, the next step is communicating the benefits. As with any communication, the most appropriate approach to communicating the benefits depends on the intended audience and the communication objective (e.g. to share information, to create a case for change, to decide between competing options, or to inform an investment decision).

Where the audience is a government department, it is important to discuss how benefits should best be communicated to meet its needs. For example, if the scenario involving Traditional Owner management and ownership of water requires an investment decision, a particular format and content may be required to align

⁷ Note that, where resources, time, or if not required because by the communication audience mean that this step is not required, the next step (Communicating the benefits) should be undertaken.

⁸ The determination of which benefits are appropriate to estimate in monetary terms should be undertaken in consultation with Traditional Owners.

⁹ While it is not considered appropriate to estimate these benefits in monetary terms, they can have flow-on benefits that may be appropriate to value; for example improvements in mental health.

with government decision-making processes. Alternatively, if the purpose is to inform Traditional Owners and the wider community, a less formal approach would be more appropriate.

Considerations:

This step is highly dependent on the objective of the communication and the intended audience. Communication to inform investment or to compare between options is likely to require specialist skills, in-depth analysis and significant resources. Less formal communication (e.g. to inform the wider community of the benefits from Traditional Owner management and ownership of water) may require less specialist skills, analysis and resources.

4 Supporting evidence for the benefits

This section provides an overview of the supporting evidence of the benefits that come from Traditional Owner ownership and management of water. This evidence can be drawn on to prepare proposals and to inform Steps 2 and 4 of the method (Section 3).

The benefits have been arranged to reflect the three dimensions of Traditional Owner value: Healthy Mob, Healthy Country, Sovereignty and Self-determination. Because formal recognition of Traditional Owner water rights is currently almost non-existent within Australia, much of the literature focuses on the benefits from natural resource management more broadly, and some international supporting examples. The literature review protocol that underpinned the review is provide in Appendix A.

Figure 9 presents the conceptual alignment between the dimensions of Traditional Owner values and the notion of a quadruple bottom line that reflect commonly found in Western value frameworks. It illustrates that there is a high degree of interconnectedness and complexity between the two value frameworks. Solid lines suggest a high level of alignment, whereas dashed lines suggest less direct but still existent alignment.

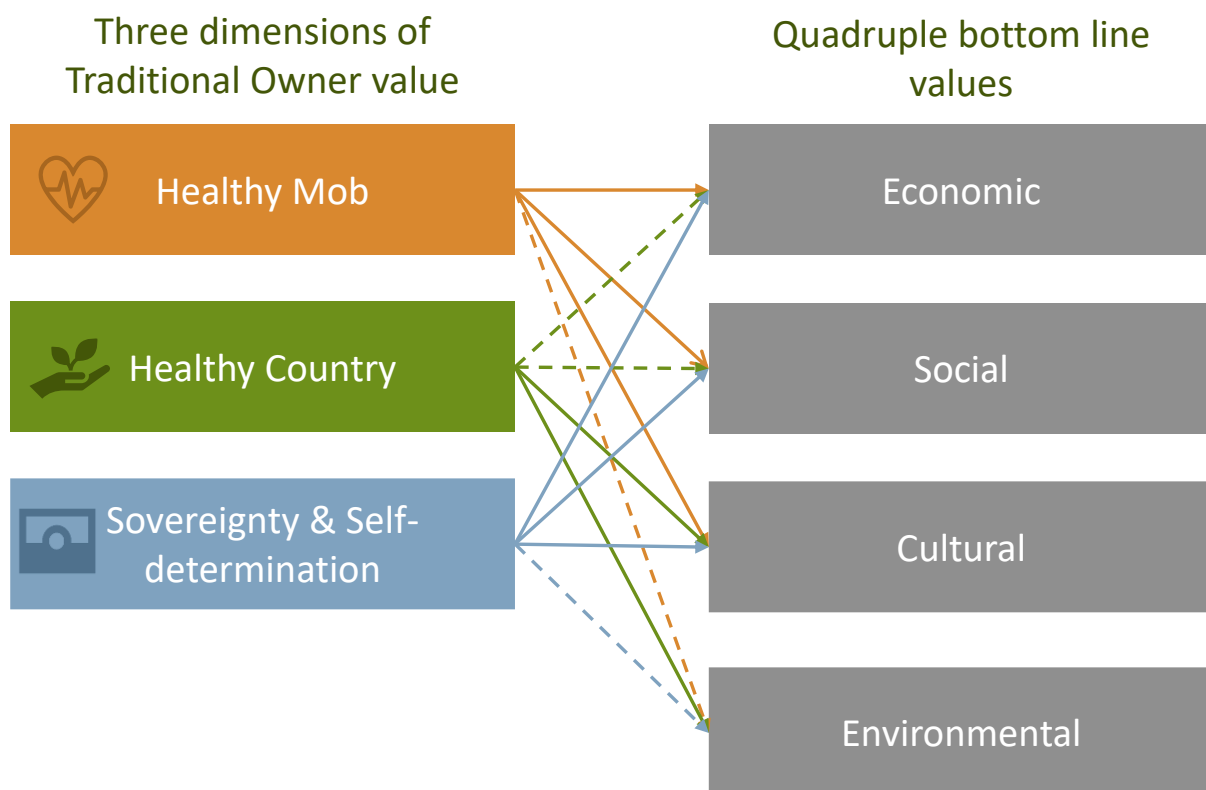


Figure 9. Alignment between the three dimensions of Traditional Owner benefits and the quadruple bottom line

Each dimension of Traditional Owner value is discussed below, along with the main benefits that are associated with these values based on the literature reviewed. Benefits to the wider community are identified, as are the connections to State and Federal government priorities and obligations, including legal obligations.

4.1 Healthy Mob

Involvement of Traditional Owners in natural resource management leads to health and wellbeing benefits

The health and wellbeing benefits associated with Indigenous involvement in natural resource management programs are well documented (Barber & Jackson, 2017; Hunt et al., 2009; Pert et al., 2020; Weir et al., 2011).



The benefits can be broadly characterised as: physical health, mental health and spiritual connection. Each of these are discussed in more detail below. Benefits can also be more general, such as an improvement in overall quality of life (Pert et al., 2020).

Involvement of Traditional Owners in natural resource management leads to physical health benefits...

The literature identifies the following changes that may lead to physical health benefits to Traditional Owners:

- Increased physical activity
- Better nutrition (from hunting and fishing)
- Reduced exposure to risk factors such as smoking, obesity and physiological stress.

Indigenous participation in Indigenous land and sea management (ILSM) programs can result in physical health improvements through less exposure to health risk factors like smoking, poor diet or lack of exercise (Davies et al. (as cited in Pert et al., 2020)). In a case study of an ILSM program in Arnhem land, Northern Territory, physical health improvements were measured and quantified through health indicators, which showed increases in physical activity, better nutrition, lower obesity, and lower physiological stress as some of the positive health outcomes (Christopher P Burgess et al., 2008, 2009; Garnett & Sithole, 2007).

Jackson et al., 2014 find that the restoration of the environment increases populations of specific wild aquatic species, which results in increased opportunity for hunting and fishing and, ultimately, increased opportunities for Indigenous people to harvest resources to supplement diet.

Involvement in NRM programs has also been linked to the prevention of serious disease and illnesses that occur in the later stages of life (Johnston et al., 2007b). For example, Indigenous participation in land management has been found to reduce the incidence of chronic diseases such as diabetes, hypertension and renal disease (Campbell et al., 2011).

Involvement of Traditional Owners in natural resource management leads to mental health benefits...

Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices¹⁰.

The literature identifies the following main mental health benefits to Traditional Owners:

- Improved self-esteem and well-being
- Improved connection to family and community.

Participation in ILSM programs can result in mental health improvements through factors like improved self-esteem (Davies et al. (as cited in Pert et al., 2020); (Christopher P Burgess et al., 2008, 2009; Garnett & Sithole, 2007); Te Aho 2011).

In research undertaken in North Queensland, Larson et al., 2019 found improvements in wellbeing due to the introduction of a ranger program, recent Native Title determination, and declaration of an Indigenous Protected Area. In this instance, wellbeing improvements were most influenced by “knowing that Country is being looked after” and “having legal right/access to Country” (Pert et al., 2020).

Research conducted for the National Framework to Report on the Benefits of Indigenous Cultural Fire Management revealed that health and well-being benefits are attained from various stages of fire management. Pre-burn activities such as fire plan development and training events were reported to have allowed Indigenous people to share their knowledge, which improved their mental health (Maclean et al., 2018).

Jarvis et al., 2021 found that the knowledge exchange processes associated with ILSM programs enhances the wellbeing of Indigenous people who are directly and indirectly involved. Improvements in wellbeing included increased levels of self-respect and employment, improvement in the strength of family and community bonds, and benefits of maintaining and creating pride in Indigenous culture.

¹⁰ <https://www.mentalhealth.gov/basics/what-is-mental-health>

Indigenous involvement in NRM programs supports psycho-social determinants of health and well-being such as connectedness, social cohesion and collective efficacy (Anderson & Kowal, 2012; McCallum, 2007; Rowley et al., 2008). Studies by Richmond et al., 2005 and Reilly et al., 2008 find that culturally congruent natural and cultural resource management programs play an important role in facilitating these psycho-social factors by providing opportunities to restore environmental and cultural connections that have been severed by colonial stronghold. Such factors mediate the direct impacts of health risks and strengthen Aboriginal people's sense of control or efficacy (Hill et al., 2013).

Collective efficacy and social cohesion are factors that can play a significant role in mitigating neighbourhood violence (Sampson et al., 1997). This is highlighted in a study by Anderson and Kowal (2012), who found that for Aboriginal groups of Utopia, a remote community in the Northern Territory, physical distance and autonomy (as a result of government agencies exercising discretion in the implementation of programs) not only promoted social cohesion among neighbouring Aboriginal groups but also facilitated interdependence between the Utopia community and the pastoralists in the region (Anderson & Kowal, 2012).

Involvement of Traditional Owners in natural resource management leads to spiritual health benefits...

The literature identifies the following main spiritual health benefits to Traditional Owners:

- Connectedness to culture and Country
- Autonomy and self-determination (discussed in Section 4.3)

The meaning of spirituality to Traditional Owners and Connection to Country is described in Box 1. For many Indigenous communities natural resource management is 'caring for Country' as it maintains cultural connectedness to Country without separating the ecological, spiritual and social aspects that are an integral part of Indigenous culture (Burgess et al., 2009). In south-eastern Australia participants of a study among Indigenous groups described this connectedness to land and the environment as an important component of Indigenous spiritual and physical health, stating that "spiritual and emotional strength in the fact that you can be together on the land ... that's historically yours" (Anderson & Kowal, 2012).

Box 1. Spirituality and Connection to Country

The 'dreaming' is the dimension of sacred eternal time when ancestors' spirits came up out of the earth and down from the sky to shape the land, rocks, rivers, mountains, forests and deserts. The Spirit Ancestors created all the people, animals and plants that were to live in the country and laid down the laws, customs and codes of conduct that Aboriginal People lives were to follow.

Across Australia, Connection to Country is an intrinsic birth-right for Aboriginal people. Generally speaking, Connection to Country includes land and water, plants and animals to create a greater understanding of the Dreaming and Songlines relating to each family, Clan and Nation. Aboriginal philosophy – the Dreaming – is based on the inter-relatedness of all people and things. This means that people are related to their cultural environment and that all Aboriginal people are related to each other in some way. All relationships are important, and any situation will be resolved by calculating the relative importance of the relationship involved.

The Dreaming is continuous and present, a cycle of life without beginning or end, a parallel and all-inclusive reality. It is something mystic and beyond words – a feeling of harmony of the universe, in tune with the rhythm of the land, waters and our constellations. Dreaming is the life of the spirit and imagination, expressed in Aboriginal peoples' cultural responsibilities to care for and repair Country. To maintain a cultural way of life. Most of all, the Dreaming can be described as a religious experience – the spiritual tie that binds Aboriginal people to the land, waters and the stars, that they belong to, that owns them. The sun, moon and all the stars are Dreaming figures.

"The Dreaming is the dimension of sacred eternal time when Ancestors Spirits came up out of the earth & down from the sky to shape the land, rock, rivers, mountains, forests and deserts. The Spirit Ancestors created all the people, animals & plants that were to live in the country & laid down the laws, customs and codes of conduct that Aboriginal people lives were to follow"

Songline Definition – Oxford Dictionary

(In Australian Aboriginal belief) a route through the landscape which is believed to have been travelled during the Dreamtime (or Alcheringa) and which features a series of landmarks thought to have related to events during this time

“An expert song-man, by listening to their order of succession, would count how many times his hero crossed the river, or scaled a ridge, and be able to calculate where, and how far along a Songline he was.”

A Traditional song or recording a journey made during the Dreamtime. *“The dance became an important part of setting the structure of who we are, what our songs and songlines are....And all of their Dreamtime stories, all of their songlines are all about the plants and the animals and the stories of how everything came to be.”*

Garnett & Sithole (2007) highlight the relationship between physical and spiritual health, especially from the maintenance and/or re-establishment of cultural connections to Country. Maclean et al., 2018, reporting on the National Framework to Report on the Benefits of Indigenous Cultural Fire Management, found that activities such as site preparation, field visits, training and carrying out the burns provided Indigenous participants opportunities to exercise and fulfil spiritual obligations.

“Yotti” Kingsley et al., 2009 describe a sense of autonomy and control over the land as something that provides spiritual, physical, emotional and mental sustenance (“Yotti” Kingsley et al., 2009). This is also reflected in Morrison (2007, cited in Barber & Jackson, 2017) who argues that the processes involved with skill development and learning when Indigenous people participate in NRM programs provide individuals with a sense of autonomy (Barber & Jackson, 2017).

This finding is echoed in Jarvis et al. (2021) who found that the knowledge exchange processes associated with Indigenous Land and Sea Management (ILSM) programs enhances the wellbeing of Indigenous people who are directly and indirectly involved. Improvements in wellbeing included increased levels of self-respect and employment, improvement in the strength of family and community bonds, and benefits of maintaining and creating pride in Indigenous culture. These findings align with the findings of Larson et al. (2019), who also found ILSM programs improve wellbeing for Indigenous people through cultural and social factors. Of 26 benefits, participants considered “Country looked after”, “schools” and “legal right to Country”, to contribute most to wellbeing improvement over a 5-year period.

Case study from the National Cultural Flows Project

The National Cultural Flows Project (MLDRIN et al., 2017) was a 7-year project that compiled an evidence base for how Traditional Owner management and ownership of water can deliver benefits to the environment, First Nations people and the broader community. The aim of the project was to assist in securing a future where First Nations’ water allocations are embedded in the nations’ water planning and management frameworks to deliver cultural, spiritual, environmental, economic and social benefits.

Gweeargal (Lignum) at Toogimbie

Toogimbie Indigenous Protected Area is located on the floodplain of the Murrumbidgee and comprises 4,600 hectares. The objective of water management at the site was to revive Gweeargal (lignum) shrubland which is facing a range of threats even in managed landscapes. Over more than 15 years of work at the site, Traditional Owner management has resulted in many benefits. With the availability of ‘cultural water’, the river and floodplain have been reconnected allowing carbon and nutrient rich water to inundate the floodplain and stimulate the growth of plants, insects and molluscs which has in turn provided an abundant food source for a variety of birds. The watering of the floodplain has also stimulated the growth of Gweeargal which provided habitat for a diversity of bird species from spoonbills and swans to cockatoos and finches. Environmental benefits that have emerged at the site have also had flow on effects for neighbouring agricultural properties through an increase in the diversity of plant and animal life that has been attracted to the region.

The watering of the floodplain at Toogimbie has not only provided a range of environmental benefits, but other benefits have also resulted. The ability to care for Country with the resulting health of prosperity of the landscape reflects a cultural revival that allows the Nari Nari to fulfil their cultural and moral obligations to care for Country. Traditional Owner management of the site has also provided jobs and vocational training opportunities not only in environmental management of the site but also in the advising of local farmers to help improve on-farm sustainability and efficiency.

Traditional Owner health and wellbeing benefits lead to benefits for the wider community

As well as the benefits outlined above, the literature identifies the following additional benefits to the wider community when Traditional Owners have ownership and management of land and water:

- Reduced healthcare costs
- Reduced costs from lack of social cohesion/antisocial behaviour

Improvements to the health and well-being of Aboriginal communities have been linked to broader benefits. A literature review by Weir et al. (2011) suggests that as NRM programs address health risk factors they allow future cost-savings in health care. This refers to the savings generated by preventing serious disease and illnesses that occur in the later stages of life (Johnston et al., 2007b). With regard to chronic diseases such as diabetes, hypertension and renal disease, Campbell et al. (2011) found that lower rates of such diseases can be associated with the involvement of Aboriginal communities in land management. The study engaged approximately 300 Aboriginal people from a remote community in NT and estimated that annually the health savings for the community amount to \$268,000 (Campbell et al., 2011).

Barber & Jackson (2017), also theorise that there may be potential health benefits to the wider community from ILSM programs because they contribute to enhanced amenity and enjoyment of the environment (which benefits all visitors, Traditional Owner and non-Traditional Owners alike) as well as the potential to reduce the spread of environmental pests and diseases (which benefits industries such as agriculture).

Morrison (2007, cited in Barber & Jackson, 2017) and Burgess et al. (2005) argue that when individuals are unable to develop their autonomy and identity through a positive relationship with Country this may lead to substance abuse and violence. They further suggest that NRM programs may have a broader impact on reduction of such behaviour and incidents, which benefits not only individuals, but also the wider community.

A study by Hunt et al. (2009) on the social benefits of Indigenous involvement in NRM revealed a range of benefits that include lowered substance abuse, education and skill development, improved social cohesion, increased community self-esteem and improved early development for youth. Programs such as 'Caring for Country' have also been linked to reduced rates of recidivism which has been an important priority for tackling the disadvantages faced by Aboriginal communities (Johnston 1991 as cited in Weir et al., 2011). Reductions in rates of recidivism and disadvantage create flow on benefits to the wider community.

Health and wellbeing benefits contribute to government obligations

The benefits of Traditional Owner management and ownership of water described above for Healthy Mob would contribute to many government obligations including:

Closing the Gap targets

Victorian Aboriginal Affairs Framework 2018-2023

Korin Korin Balit-Djak Aboriginal health, wellbeing and safety strategic plan 2017–2027

Balit Murrup Aboriginal social and emotional wellbeing framework 2017–2027

The benefits of Traditional Owner management and ownership of water described above for Healthy Mob would contribute to **Closing the Gap targets**, including:

- Aboriginal and Torres Strait Islander people enjoy long and healthy lives.
- Aboriginal and Torres Strait Islander people enjoy high levels of social and emotional wellbeing

- Aboriginal and Torres Strait Islander people maintain a distinctive cultural, spiritual, physical and economic relationship with their land and waters, including through the following supporting indicators:
 - Aboriginal and Torres Strait Islander people's owned land and water titles
 - Number of Aboriginal and Torres Strait Islander people employed in water and land management
- Adults are not overrepresented in the criminal justice system

The benefits of Traditional Owner management and ownership of water described above for Healthy Mob would contribute to **Victorian Aboriginal Affairs Framework 2018-2023**, including the shared vision that 'All Aboriginal Victorian people, families and communities are healthy, safe, resilient, thriving and living culturally rich lives' and the goal that Aboriginal land, water and cultural rights are realised (Goal 18). In addition, The benefits of Traditional Owner management and ownership of water described above for Healthy Mob would contribute to the following goals from the Victorian Aboriginal Affairs Framework 2018-2023:

- Health & Wellbeing:
 - Aboriginal Victorians enjoy health and longevity (Goal 11), including Aboriginal health status, quality of life and life expectancy
 - Aboriginal Victorians enjoy social and emotional wellbeing (Goal 14)
- Justice & safety:
 - Aboriginal over-representation in the justice system is eliminated (Goal 15)
 - Aboriginal Victorians feel safe and connected (Goal 17)
- Culture & Country:
 - Aboriginal culture and language are supported (Goal 19) and celebrated
 - Racism is eliminated (Goal 20)

The benefits of Traditional Owner management and ownership of water described above for Healthy Mob would contribute to **Korin Korin Balit-Djak Aboriginal health, wellbeing and safety strategic plan 2017–2027**, including:

- Aboriginal Elders and young people lead self-determining lives (Priority focus 1.2), including through promoting cultural identity and community connections for Aboriginal young people
- Aboriginal culture, knowledge and heritage is valued and embraced (Priority focus 2.1)
- Aboriginal Victorians are connected to culture, Country and community (Priority focus 2.2), including working towards a well established and supported network of Aboriginal Gathering Places that continues to provide support for their local Aboriginal communities.
- Aboriginal Victorians are resilient and have optimal social and emotional wellbeing (Priority focus 5.1) and
- Aboriginal Victorians are healthy and well (Priority focus 5.2), including reducing chronic disease and its impacts and working towards all Aboriginal people meeting the national guidelines on levels of physical activity.

The benefits of Traditional Owner management and ownership of water described above for Healthy Mob would contribute to **Balit Murrup Aboriginal social and emotional wellbeing framework 2017–2027**, including the vision that 'Victorian Aboriginal people, families and communities achieve and sustain the highest attainable standards of social emotional wellbeing and mental health.' The framework presents the dimensions of Aboriginal social and emotional wellbeing (Figure 10) – the physical, mental and spiritual benefits of Traditional Owner management and ownership of water support these dimensions.

Determinates of social and emotional wellbeing

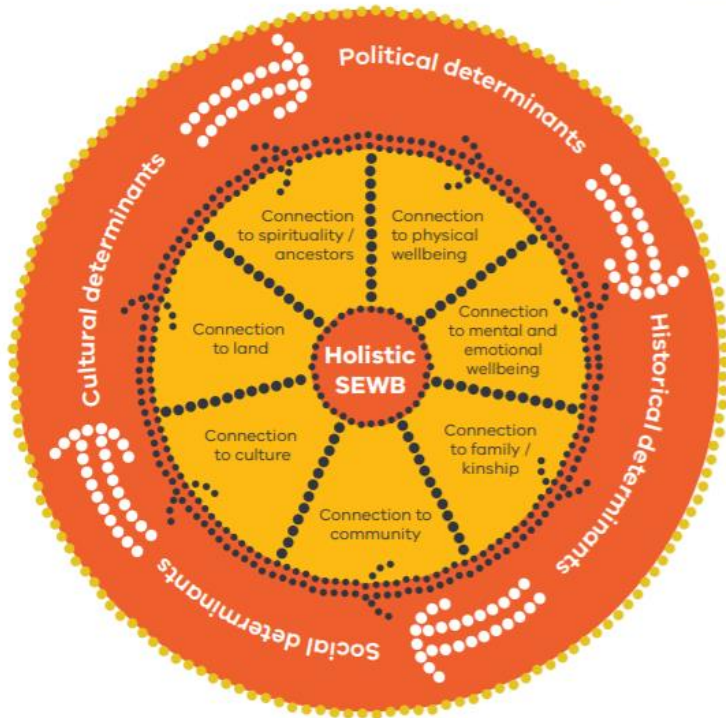


Figure 10. *Determinates of social and emotional wellbeing in the Balit Murrup Aboriginal social and emotional wellbeing framework 2017–2027. Artist: Tristian Schultz, RelativeCreative. Reference: Gee, Dudgeon, Schultz, Hart & Kelly 2013 on behalf of the Australian Indigenous Psychologists Association*

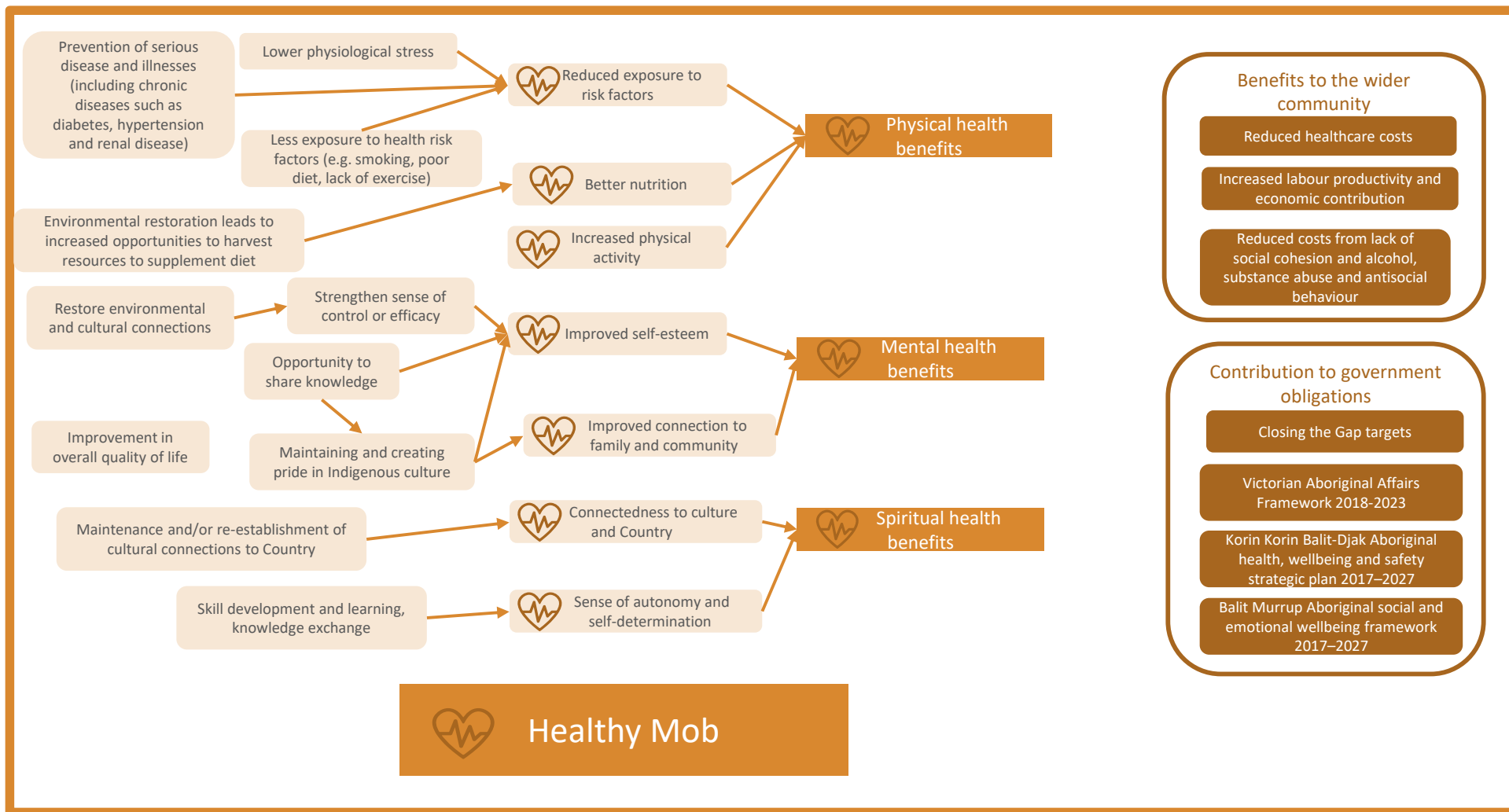


Figure 11. Overview diagram of Healthy Mob benefits arising from Traditional Owner management and ownership of water

4.2 Healthy Country



Involvement of Traditional Owners in natural resource management leads to improved outcomes for Country

Healthy Country refers to the importance of place and the health of the entire ecosystem, with some specific elements including water quality, controlling pest species and maintaining a natural, seasonal flow regime. The concept of healthy Country includes the practices of only taking what you need, moving seasonally.

The elements of Healthy Country might include:

- Protecting keystone species such as those that are part of Creation Stories or other totem species identified by Traditional Owners
- Supporting conditions at meeting places
- A seasonal flow regime
- Maintaining the availability of food, materials and tools for traditional practices. This could include plants for basket weaving or fish and birds as a food source.

Traditional Owner involvement in management of Country may lead to improved outcomes for Country in the following ways:

- Improved environmental understanding and management through integration of Traditional knowledge
- Improved environmental protection through recognition of Traditional Owner rights
- Improved environmental policy outcomes through involvement of Traditional Owners.

Integration of Traditional Owner knowledge and involvement of Traditional Owners in caring for Country leads to improved environmental understanding and management...

Indigenous peoples' Traditional knowledge has been recognised around the world for its value in environmental management (Hill et al., 2012).

The environmental benefits of Traditional Owner **water management** can be observed through a range of partnerships / programs between Indigenous groups, and state government agencies and regional management authorities. This includes:

- The Aboriginal Water Program (AWP) in Victoria has focused on including Aboriginal values and traditional ecological knowledge in water planning and delivering on *Water for Victoria*.
 - Recently, this has included two gigalitres of unallocated water in the Mitchell River to be made available to Traditional Owners for the first time in the state's history.
- Nari Nari's management of Gayini Nimmie Caira
- Commonwealth Environmental Water Office work with First Nations to plan, deliver and monitor water for the environment.
- North Australian Indigenous Land and Sea Management Alliance Ltd (NAILSMA) in the Northern Territory
- Place-based management programs such as the ecological monitoring of Black Swans by Māori (New Zealand) and the Murrundi Recovery Sugar Shack Wetland Management Plan (South Australia)
- Māori partnerships with industries, such as the Sustainable Dairying: Water Accord 2013-2017
- National Water Initiative (NWI) training module on "Engaging Indigenous peoples in water planning and management" (COAG, 2017).

These partnerships / programs have contributed to improved environmental understanding and management through, for example:

- Exploration of seasonal watering plans, cultural mapping, water management plans, and research on cultural flows between Traditional Owner groups and Catchment Management Authorities
- Development of the Aboriginal Waterways Assessment tool, that measures and prioritises river and wetland health so that Traditional Owners can more effectively participate in water planning and management in the Basin.

- Increased understanding and protection of important wetlands and waterways, including Gayini Nimmie Caira, Toogimbie Indigenous Protected Area (IPA), Dharriwaa Narran Lakes, Teringie Wetlands, and Edward/Kolety-Wakool river system.
- Development of ‘Translating Yannarumi in water resource risk assessments’ project which created a new approach to assessing risk to First Nations in water planning and management.
- The incorporation of the principle of kaitiakitanga or guardianship into riparian practice.
- The incorporation of engagement with Indigenous peoples in water planning and management.

Further detail about these partnerships / programs is contained in Box 2 (overleaf).

Research in NSW found that Traditional knowledge has contributed to a range of environment benefits including restoring freshwater, marine, wetland and bush ecosystems, feral animal and weed control, protecting endangered species, improving biodiversity and carbon abatement (Hunt et al., 2009). Furthermore, combining Traditional knowledge with Western science has been found to improve the sustainability (i.e. the ability to maintain a diverse range of functions and capacity to survive) of socio-ecological systems (Hill et al., 2012).

Box 2. Overview of partnerships / programs that incorporate Traditional knowledge

Aboriginal Water Program (AWP)

The Aboriginal Water Program (AWP) in Victoria was established to improve the engagement of Aboriginal people in Victorian water management and to reconnect Aboriginal communities to water for cultural, spiritual, and emotional purposes (DELWP, 2021). The program provided funding for Traditional Owners to take on an active role in the management of the State’s water resources and facilitate the Aboriginal values that are outlined in the Water for Victoria program. Projects were initiated by Traditional Owner groups in partnerships with Catchment Management Authorities (CMAs) and explored seasonal watering plans, cultural mapping, water management plans, and research on cultural flows. Each of these projects aimed to support Aboriginal values and achieve significant environmental outcomes (DELWP, 2020). Important environmental benefits have been achieved from projects such as the Barengi Gadjin AWP that has supported the development of accurate environmental watering priorities. The release of environmental water in the Wimmera River through the Barengi Gadjin AWP assisted in the re-establishment of natural flooding regimes within the billabong system that further restored the habitats of native plants and animals (DELWP, 2020)

Most of the projects outlined in the AWP utilise the Aboriginal Waterways Assessment. The aim of the Aboriginal Waterways Assessment program was to develop 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 (MDBA, 2019). This assessment has provided accurate, meaningful, and accessible information on local biodiversity, flows condition and other factors relevant to river health analysis. The program has generated valuable local knowledge that has contributed to cross-disciplinary research and enabled members of Indigenous groups to assist in river and wetland health assessment (DELWP, 2019; MDBA, 2019). For example, the Towards Cultural Flows project that focused on the Glenelg River utilised information from the assessment to alter environmental flow timing to secure both environmental outcomes and Aboriginal values. The insights gained from this project has contributed to improvements to the condition of fish species and vegetation along the Glenelg River (DELWP, 2019).

Nari Nari’s management of Gayini Nimmie Caira

Gayini is part of the Lowbidgee floodplain and is an area of national and international conservation significance. Following government purchase of 19 separate properties in the Lower Murrumbidgee Valley in 2013, a consortium led by The Nature Conservancy was successfully awarded the management of Gayini. The Nature Conservancy then facilitated the legal transfer of ownership of Gayini to the Nari Nari Tribal Council. Once more in possession of their land, Nari Nari people are caring for it using a combination of traditional and modern techniques to improve its productivity and enhance its values.

Since back managing this Country, Nari Nari have assessed and maintained roads and infrastructure, protected culture and heritage sites, and removed large numbers of feral pests. They have also importantly reinstated a more natural flooding regime across the property and laid almost 400 kilometres of pipes delivering water to parts of the property where it is needed by livestock. (The Nature Conservancy, n.d.)

Commonwealth Environmental Water Office (CEWO) work with First Nations to plan, deliver and monitor water for the environment

The CEWO is continuing to build relationships with First Nations' organisations and communities, to learn from and identify ways to support cultural values alongside environmental outcomes. This includes (Department of Agriculture, 2021):

- Protecting Country and Culture with Nari Nari Tribal Council. Toogimbie Indigenous Protected Area (IPA) is located on the southern side of the Murrumbidgee River between Hay and Maude. The Toogimbie IPA is part of the traditional lands of the Nari Nari people who, through the Nari Nari Tribal Council, manage the property for the restoration and protection of Country and culture. Since 2016 the Commonwealth Environmental Water Office, the Nari Nari Tribal Council and the NSW Department of Industry, Planning and Environment have worked together to deliver Commonwealth Environmental Water to Toogimbie IPA.
- Environmental flows for Teringie Wetlands. Ngarrindjeri are the Traditional Owners of the Ruwe (Country), waters and Yarluwar-Ruwe (Sea Country) of the Lower River Murray, Coorong and Lower Lakes in South Australia. The Ngarrindjeri Regional Authority, the peak regional organisation of the Ngarrindjeri, began a partnership with the Commonwealth Environmental Water Office in 2016 with the aim of delivering water to culturally and environmentally significant sites.
- Working together for Dharriwaa. For over seven years, the Narran Lakes and surrounding river system remained dry. The Lakes, known as Dharriwaa by the Yuwaalaraay/Euahlayi people, is a significant meeting place for Aboriginal peoples and a source of food and medicine. The origin story of Dharriwaa highlights its immense cultural significance and demonstrates the importance of the area, especially for waterbirds. In early 2020, after welcome rainfall in the region, the Commonwealth Environmental Water Office (CEWO) worked to ensure more water flowed into the Narran Lakes. Traditional Owners from the Narran Lakes Joint Management Committee helped to monitor the wildlife and plant recovery since water reached Dharriwaa.
- Turtle monitoring with Yarkuwa Indigenous knowledge Centre, NSW. The Yarkuwa Indigenous Knowledge Centre is a Traditional Owner organisation in Deniliquin NSW, which aims to preserve traditional knowledge for future generations. Through Flow-MER, members from the Yarkuwa Indigenous Knowledge Centre worked with researchers from Charles Sturt University to examine how flows of environmental water impact turtle movement and condition. Over the summer of 2019-20, the research team undertook to trap, handle and monitor turtle populations water in six wetlands along the Edward/Kolety-Wakool river system. The local knowledge and experience of the Yarkuwa fieldworkers has driven the project's success, while providing an opportunity to learn new skills and share knowledge now and into the future.

North Australian Indigenous Land and Sea Management Alliance Ltd (NAILSMA)

The North Australian Indigenous Land and Sea Management Alliance Ltd (NAILSMA), was formed between Indigenous land councils in NT. This alliance is particularly recognised for its facilitation of a network of Indigenous led ranger groups that manage a diverse range of environmental issues. The work of these groups on coastal and river management in NT has been fundamental to the protection and conservation of threatened species such as the Largetooth Sawfish, Dugong and the marine turtle (NAILSMA, n.d.).

Place-based management initiatives

Place-based management initiatives in Indigenous communities have also been effective in achieving holistic environmental outcomes and addressing the disadvantages experienced by the Indigenous communities (Gilbert R., 2012). The engagement of Indigenous communities through place-based initiatives has been beneficial to resolving scale discrepancies in socio-ecological systems that prevent environmental outcomes from being realised (Herse et al., 2020b). Scale discrepancies refer to the disruptions to conservation that are caused when governments fail to spatially align environmental management with ecosystem processes. The disruptions impede conservation by limiting feedback from socio-ecological systems and inhibiting managers from detecting and responding to environment changes (Cumming et al., 2006). Herse et al., 2020 argues that the involvement of Māori in Black Swan management in New Zealand through place-based management such as ecological monitoring can generate relevant, consistent and long-term datasets that will not only

inform local and broad -scale environmental management but also provide the communities with a wealth of traditional ecological knowledge.

In their work on Nyikina Country, Milgin et al., 2020 found that Indigenous “hydro-ecological knowledge is deeply ethical. Knowledge about the Country’s network of social-ecological relationships cannot be dissociated from knowledge about how to act appropriately within this network, and thereby fulfil one’s responsibilities within the Nyikina law of relationships that supports the Country’s vitality”. This conceptualisation as belonging to place leads to a social and ecological rhythms that are in harmony where people take appropriate actions to sustain and enhance both social and ecological health. This results in outcomes that are fundamentally more sustainable than Western interventions in the environment.

The ‘Translating Yannerumi in water resource risk assessments’ project created a new approach to assessing risk to First Nations in water planning and management. The new approach integrates knowledge from the Ngarrindjeri Nation, South Australian Government, and western science and aims to better incorporate First Nations values into river management. In turn, this is expected to provide a wider benefit to Indigenous wellbeing and by improving relationships between Indigenous and non-Indigenous groups (Hemming et al., 2020).

Hemming et al. (2017a) examined the development of Murrundi Recovery Sugar Shack Wetland Management Plan (South Australia) as an example of successful water management collaboration between Indigenous people and government. Successful collaboration was achieved using a nation-to-nation approach which built capacity for collaboration, increased knowledge transfer and strengthened relationships between the two groups. Hemming et al. suggested this nation -to-nation approach created a plan which encapsulates both Western and Indigenous understanding which allows it to meet both ecological and cultural needs.

Industry partnerships

Māori have also played a significant role in the improvement of water quality through their partnerships with industries. One example of this is the Sustainable Dairying: Water Accord 2013-2017, this was an industry-initiated agreement the was developed with oversight from Māori authorities, farmers, regional councils and government department (Dairy NZ, 2015). A specific commitment of the accord was to develop partnership with Māori-led agribusinesses and understand how the principle of kaitiakitanga or guardianship can be incorporated into riparian practice. The accord was highly successful in improving water quality, it effectively excluded 98% of stock from accord-specified waterways through non-statutory commitments (Dairy NZ, 2015; McKergow et al., 2016).

Recognition of Indigenous people rights over Country leads to environmental protection benefits...

Nature managed by Indigenous peoples and local communities is under increasing pressure. Nature is generally declining less rapidly in Indigenous peoples’ land than in other lands, but is nevertheless declining, as is the knowledge of how to manage it. According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) at least a quarter of the global land area is traditionally owned, managed, used or occupied by Indigenous peoples (Bongaarts, 2019).

The formal recognition of Indigenous rights over land and water resources by government agencies has played a significant role in their protection from exploitation by external groups. In Latin America and the Caribbeans, Indigenous territories face significant threats of land clearance and fires, initiated by external groups that include miners, oil palm producers, petroleum companies and cereal farmers (Bongaarts, 2019; Davis & Wali, 1994). In many cases these groups have government backing and enough financial capacity to cause widespread degradation to these valuable ecosystems. Formal recognition of Indigenous and tribal rights over these territories has legally prevented the entry of these groups while acknowledging Indigenous and tribals rights to demarcate and oversee their territories (Bongaarts, 2019).

The formal recognition of Indigenous and tribal rights over their territories has also been associated with increase in agricultural productivity in neighbouring crop lands and pastures. A recent study that focused on ten countries in Latin America found that in regions where Indigenous territories had clearly defined property rights,

improvement in agricultural productivity were observed in crop and pasture areas outside the territories indicating that farmers utilised their existing land more intensively (Bongaarts, 2019).

The recognition of Indigenous and tribal rights has also been employed as grounds to grant legal personhood to rivers and places of Indigenous importance. Examples of legal recognition of places can be found in New Zealand and Victoria (see Box 3). Poelina et al. describes the recognition of rivers as living being as “grounded in ancient First Law (Traditional Law, Customary Law, or Aboriginal Law) which promotes the holistic natural laws for managing the balance of life” (as cited in O’Donnell, 2020).

Box 3. Examples of the creation of legal rights to places

In New Zealand, places such as Te Urewera, Mount Taranaki and the Whanganui River have been recognised as ‘legal entities’ being granted all the rights, duties, powers and liabilities as that of a person. Magallanes 2016 views this consideration of Te Urewera, the Whanganui River and Mt Taranaki as persons “truly reflects the Indigenous cosmological view of people as part of nature, not separate nor above it” (as cited in Geddis & Ruru, 2020). These legislative changes were meant to represent the acknowledgement of the ‘Rights of Nature’ in Aotearoa New Zealand law and serve as a mechanism to strengthen the protection of these places by providing them with defence from human exploitation and degradation. In addition, the recognition of places as persons in New Zealand also broke a deadlock between the Crown and the Iwi settling historical injustices caused by extensive Crown breaches of the Treaty of Waitangi pre 1992 (Geddis & Ruru, 2020).

The Birrarung/Yarra River in Victoria was recognised as a legal living integrated entity via the Yarra River Protection (Wilip gin Birrarung murrn) Act 2017 (Vic)(O’Donnell, 2020). This included the establishment of a statutory independent voice for the Yarra River, the Birrarung Council, a statutory advisory body which must have at least two Traditional Owner representatives on it. While this does not give the Yarra River full legal personhood, it does enshrine a voice for Traditional Owners in the river’s management and protection.

The Yarra River Protection (Wilip-gin Birrarung murrn) Act 2017 is the first legislation in Australia to be co-titled in a Traditional Owner language. ‘Wilip-gin Birrarung murrn’ translates as ‘keep the Birrarung alive’ in Woi-wurrung, the traditional language of the Wurundjeri Woi-wurrung people. The Act prescribes how a long-term Community Vision and the Yarra Strategic Plan, which will give effect to the vision, are to be developed.

Co-management between Traditional Owners and government agencies leads to improved policy about Country...

The formation of partnerships and governance arrangements between Indigenous communities, conventional conservation groups and environmental protection agencies have been crucial to the establishment and success of environmental policies. Globally, co-management has led to the formation of ‘best practice models’ for community engagement and water resource planning and management (Dodson, 2014).

Over the last two decades, New Zealand has led the adoption of Indigenous concepts in freshwater management through several shared governance models, frameworks, knowledge systems, principles, policies and plans. Some of the most notable examples of co-management in practice have stemmed from the Treaty of Waitangi (1840). This Treaty exemplifies that freshwater management strongly reflects Indigenous rights and has provided an important foundation for the formation of meaningful partnerships and networks between government bodies and the tribes of Iwi/Hapu. The Treaty of Waitangi has formed the basis of several statutory co-management schemes in freshwater catchments, which include the Waikato and Waipa rivers and the Te Arawa and Te Waihora lakes (Harmsworth et al., 2016). These Māori-led policy tools have not only built capacity for the tribes of the Iwi/Hapu tribes, but also the local and central governments, enabling these bodies to achieve desired social, cultural and environmental outcomes. Improved environmental and cultural outcomes in particular have been made visible in waterways across Aotearoa-New Zealand, through the application of a cultural monitoring tool i.e. the Cultural Health Index. This tool utilised holistic management variables to assist in accurately determining the condition of waterways which enabled the application of appropriate management interventions that further resulted in the achievement of restoration objectives associated with water quality, habitat connectivity and land-use (Harmsworth et al., 2016; Tipa & Teirney, 2003). Research by Harmsworth et al. (2016) also indicates that a variety of kaupapa Māori-based (Māori centred, Māori knowledge

based) frameworks and assessment tools can be utilised globally to support collaborative processes and demonstrate and articulate the values of freshwater resources to Indigenous people.

Similarly in Canada, voluntary and statutory agreements have been established through co-management arrangements (Notzke, 1995). For the management of water resources, one crucial agreement was the Devolution Agreement. This agreement was introduced for Canada's Northwest Territories. The agreement is particularly important as it transferred judicial powers from the federal government to the Indigenous governments of the Northwest Territories. The government of the Northwest Territories was bestowed with the responsibility of overseeing the management of natural resources and public land. Using monitoring methods, the government utilised traditional ecological knowledge to implement the Northwest Territories Water Stewardship Strategy (NWTWSS) (Aganagic, 2019). In the long term, this strategy was largely successful in maintaining environmental values associated with waterways of Northwest Territories. Significant environmental outcomes from the strategy included improved water quality, unaltered flow rates and restoration of aquatic ecosystems. Social benefits were also accrued from the strategy as it provided residents of the Northwest Territories with access to safe and clean drinking water (GNT, n.d.).

Environmental benefits lead to benefits for the wider community

The environmental benefits created by Traditional Owner ownership and management result in flow-on benefits to the wider community, including:

- Enhanced use /consumption of environmental assets (e.g. increased recreational enjoyment and amenity value, improved agricultural productivity, improved water quality, which can be estimated in monetary terms)
- Enhanced non-use /existence values (e.g. the value for future generations or simply knowing the environment exists without using it)

The NAILSMA network of ranger groups in northern Australia has had a broader impact on well-being of local communities, as some ranger groups are employed by the Australian Quarantine and Inspection Service to intercept invasive weeds washed onshore and invasive insects such as dengue mosquitoes (Weir et al., 2011).

Resource management agencies and conservation groups engaged in co-management programs, have identified benefits in the form of improved conservation outcomes that directly contribute to national benefit (Hunt et al., 2009).

Environmental benefits contribute to government obligations

The environmental benefits of Traditional Owner management and ownership of water described above would contribute to Closing the Gap targets, including:

- Aboriginal and Torres Strait Islander people maintain a distinctive cultural, spiritual, physical and economic relationship with their land and waters, including through the following supporting indicators:
 - Aboriginal and Torres Strait Islander people's owned land and water titles
 - Number of Aboriginal and Torres Strait Islander people employed in water and land management

Improved understanding of Country and protection of cultural landscape and cultural values and uses can also lead to health benefits including mental health and spiritual benefits through connection to Country. The contribution of these benefits to many government obligations are explored above (Section 4.1).

The benefits of Traditional Owner management and ownership of water described above for Healthy Country would contribute to **Korin Korin Balit-Djak Aboriginal health, wellbeing and safety strategic plan 2017–2027**, including:

- Aboriginal culture, knowledge and heritage is valued and embraced (Priority focus 2.1)
- Aboriginal Victorians are connected to culture, Country and community (Priority focus 2.2), including working towards a well established and supported network of Aboriginal Gathering Places that continues to provide support for their local Aboriginal communities.

The environmental benefits of Traditional Owner management and ownership of water would also contribute to state and federal obligations to protect environmental values, including:

- The Water Act 1989 (Vic)
- State Environment Protection Policy (Waters), through the protection of surface water
- Flora and Fauna Guarantee Act, through environmental benefits that support the protection of threatened species
- Water for Victoria
- Protecting Victoria's Environment - Biodiversity 2037
- Regional catchment strategies and waterway management plans

The benefits of Traditional Owner management and ownership of water described above would contribute to Water for Victoria through the following objective:

We will recognise the values that water has for Traditional Owners and Aboriginal Victorians. The water sector will support Aboriginal participation in Victorian water planning and management frameworks through consultative structures that address the rights and interests of Victoria's Traditional Owners.

Specifically, the benefits discussed here would support the Water for Victoria commitment to:

- Recognise Aboriginal values and objectives of water
- Include Aboriginal values and traditional ecological knowledge in water planning
- Build capacity to increase Aboriginal participation in water management

Traditional Owner management and ownership of water described above may contribute to the Victorian Traditional Owner **Cultural Landscapes Strategy** through the following objectives:

- To restore the knowledge system.
- To enable Traditional Owner cultural landscape planning.
- To embed Traditional Owner knowledge and practice into policy, planning and the management of Country.
- To enable the application of Traditional Owner cultural objectives, knowledge and practice in the management of public land.

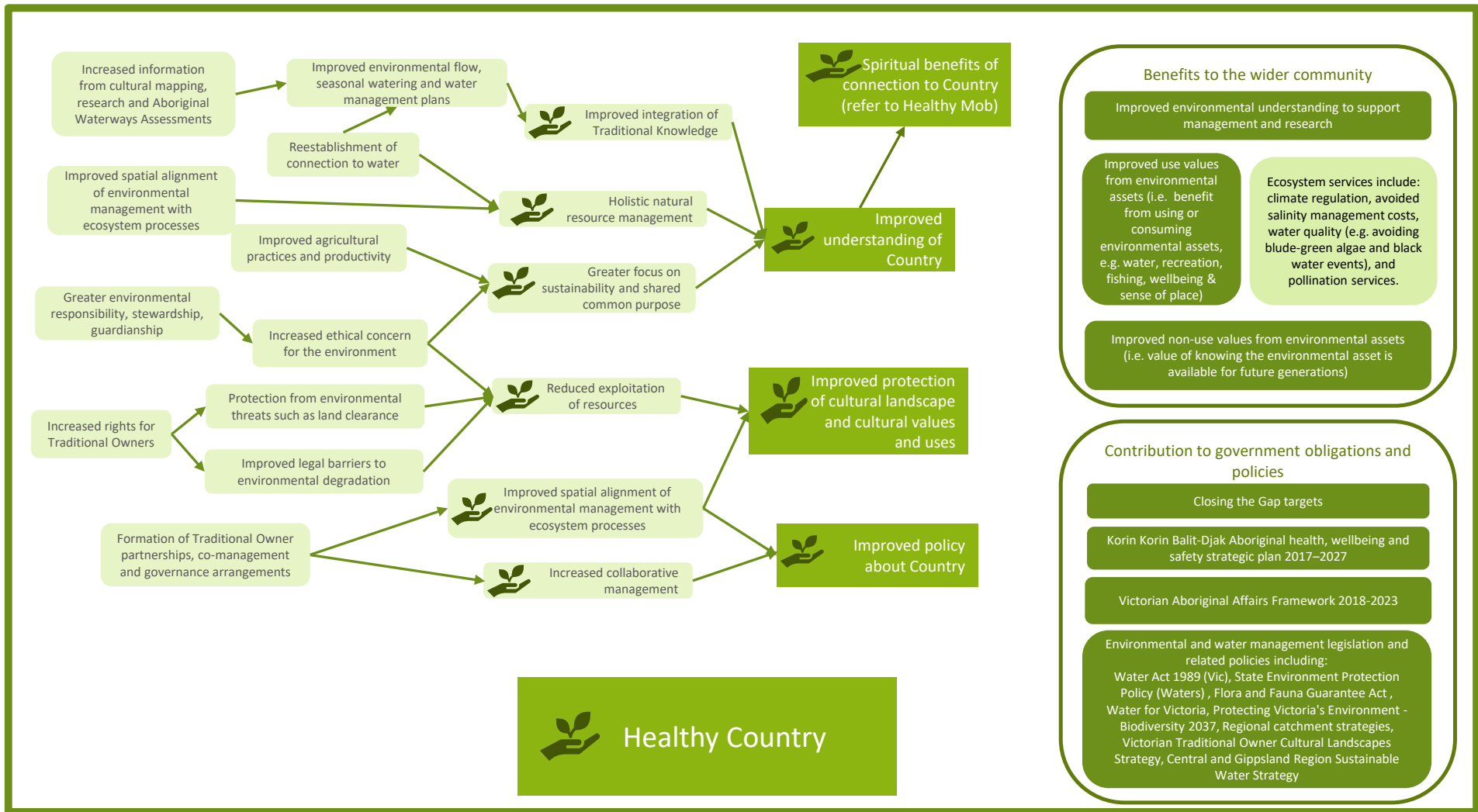


Figure 12. Overview diagram of Healthy Country benefits arising from Traditional Owner management and ownership of water

4.3 Sovereignty and self-determination



Sovereignty has been described as power and authority to govern. Victorian Traditional Owners maintain that their sovereignty has never been ceded. Since time immemorial, Victorian Traditional Owners have practiced their laws, customs and languages, and nurtured Country through their spiritual, material and economic connections to land, water and resources.

The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) describes **self-determination** as the ability for Indigenous people to freely determine their political status and pursue their economic, social and cultural development. The Victorian Government has heard from community that Aboriginal self-determination encompasses a spectrum of rights that are necessary for Aboriginal Victorians to achieve economic, social and cultural equity, based on their own values and way of life.¹¹

Key sovereignty and self-determination benefits from Traditional Owner involvement in natural resource management include:

- Improved autonomy and self-determination
- Removal of structural barriers
- Economic development

Involvement of Traditional Owners in natural resource management leads to improved autonomy and self-determination...

The right to self-determination includes the right to several forms of autonomy as well as the right participate in state governance (Daes, 2004).

“Yotti” Kingsley et al., 2009 describe a sense of autonomy and control over the land as something that provides spiritual, physical, emotional and mental sustenance (“Yotti” Kingsley et al., 2009). This is also reflected in Morrison (2007, cited in Barber & Jackson, 2017) who argues that the processes involved with skill development and learning when Indigenous people participate in NRM programs provide individuals with a sense of autonomy (Barber & Jackson, 2017; Hill et al., 2012).

Involvement of Traditional Owners in natural resource management leads to removal of structural barriers to self-determination...

Indigenous peoples’ sovereignty over natural resources relies strongly on the decolonization of governance structures (Daes, 2004). Using evidence from Yukon First Nations, Wilson & Inkster, 2018 suggest that recognition and respect for Indigenous water values cannot be achieved using the governance approaches of settlers. Regaining control of natural resources has been considered an important prerequisite for self-determination in the UN Draft Declaration on the Rights of Indigenous Peoples (Dietrich & Düsseldorf, 2018).

The development of co-management and co-governance arrangements is an important area of postcolonial political development (Dodson, 2014). Co-governance arrangements provide state governments with opportunities to overcome settle-colonial constraints and transform water management by recognising the values of Indigenous Peoples (Fisher & Parsons, 2020; Te Aho, 2010), while also removing governance structures which created hostility (Hemming et al., 2017a; Te Aho, 2017; Tsatsaros et al., 2018). Box 4 (overleaf) contains examples of the benefits of co-governance arrangements from New Zealand.

In the Australian context, Moggridge et al., 2016 investigated Indigenous water policy in Australia and identified benefits from establishing a National Aboriginal Water Strategy that would provide a coordinated approach to water management at a national level. Co-management arrangements such as this are considered to offer the chance for government to support Indigenous water management approaches and Indigenous peoples right to self-determination.

¹¹ Victorian Government Self-Determination Reform Framework

Box 4. New Zealand examples of co-governance of water

A notable example of how laws pertaining to water resources have evolved beyond the constraints of settler-colonial structures and towards legislative and ontological pluralism¹² is the Waikato and Waipa River Acts and the Waipa River settlement between the Government of New Zealand and the Ngāti Maniapoto, a tribal group that possesses ancestral authority over the Waipa River (Fisher & Parsons, 2020). The Acts outlined a range of co-management arrangements that included Indigenous-led management plans, regulations, joint-management agreements, river objectives and other regulation. These arrangements resulted in several planning documents that not only enhanced freshwater management but also improved working arrangements and communication between crown agencies and the tribal groups (Fisher & Parsons, 2020; Muru-Lanning, 2012). A key factor that determined the success of these co-management arrangements has been ensuring that government agencies and Indigenous groups share a common purpose for environmental management (Maxwell et al., 2020).

In New Zealand, there is also a growing number of freshwater co-management arrangements between Māori and local government agencies. Under these arrangements no one owns the water, which is consistent with some Māori's view but not all. In this example, the ability to co-manage has created more effective relationships between Māori and local government and increased Māori ability to "carry out customary activities". Furthermore, these arrangements have provided opportunities for traditional knowledge to be used to assess the health of waterways and promoted inclusion and mutual respect (Te Aho, 2010, 2011, 2017). Despite this, arguments have been made that these arrangements still favour government and provide inadequate financial compensation (Te Aho, 2017) indicating that co-management may not be an ideal outcome for all Indigenous people (Te Aho, 2010, 2011, 2017).

Economic development benefits supports self-determination

Indigenous ownership or management of water will provide Traditional Owners with the ability to use water for economic opportunities like agriculture or tourism (Jackson & Langton, 2012a; Macpherson, 2017), which can lead to or support self-determination. Based on research associated with ILSM programs, such opportunities will likely have a benefit to individuals and families through direct income as well as to the wider community through economic multiplier effects and economic development (Jarvis et al., 2018a; Jarvis et al., 2018b).

Currently, water law frameworks in most Australian States do not provide Traditional Owners with water to be used for commercial purposes. Instead, water is granted as part of "environmental or cultural flows" (Macpherson, 2017). This can restrict the economic benefit that can be derived from this water and land held by Indigenous people. Furthermore, the water provided to Indigenous people for cultural purposes cannot be temporarily or permanently traded, which like inalienable land, prevents the raising of capital for economic advancement (Macpherson, 2017). Water policy reform, which gives Traditional Owners access to the consumptive pool of water, would be expected to address these issues and enhance Indigenous economic opportunities. Examples of such reforms and supporting policy are described in Box 5.

Box 5. Policy and reforms to support economic development

Macpherson et al., 2018 argues that, for equity reasons, the rules governing Indigenous water rights should be the same as those governing non-Indigenous water rights. This would allow Indigenous people the same economic opportunities as non-Indigenous water rights holders. If the rules are the same, Indigenous people will be able to choose if water is used for economic or cultural purposes offering more economic opportunities (Jackson & Langton, 2012b). The Water for Victoria plan indicates that Indigenous Victorians may be allocated water for economic purposes in the future. This will assist self-determination, including economic self-determination¹³ (Macpherson et al., 2018).

The Cultural Water for Cultural Economies project is part of a Victorian State Government commitment to create opportunities for Aboriginal communities to access water for economic development (O'Donnell et al., 2021a). The project focused on including Aboriginal people in water management decision making processes

¹² The notion that there are different ways or modes of being.

¹³ In this context, economic self-determination relates to the ability of Traditional Owners to pursue economic development by being able to access water for commercial purposes.

and strengthening the influence of Aboriginal people in water governance. By doing so the project aims to contribute to sustainable management of water resources and the attainment of the inland waters target of the National Agreement on Closing the Gap (O'Donnell et al., 2021)

Involvement of Traditional Owners in natural resource management can support Nation (re)building and resurgence, and give effect to sovereignty...

Interests of Traditional Owners in natural resource management has driven nation (re)building and resurgence and given effect to sovereignty.

Involvement in natural resource management has presented Traditional Owners with opportunities for nation (re)building or to further develop existing nation building processes and tools. Nation (re)building or (re)strengthening refers to the approaches that indigenous people take to bring together and implement policies, processes, mechanisms, and other structures of governance that build the foundation for the future they want (Keisha, 2018). It has been defined as “The enhanced capacity of Indigenous nations to realize their own cultural, educational, economic, environmental, and political objectives through foundational actions of their own design and initiation” (HPAIED, n.d.). The potential contributions of natural resource management to nation (re)building can be understood through the elements of nation building that include sovereignty, effective self-governing bodies, cultural match, strategy planning and public-spirited leadership (NNI, n.d.). These factors can be reflected in a case study that focuses on the emergence of governance arrangements of the Ngarrindjeri Nations.

In Southeast Australia, the Ngarrindjeri Nation like other Indigenous Nations of the Murray Darling Basin assert an inherent right and responsibility to use and protect the flow of water through Murrundi (River Murray). They strive to exercise this right as they consider the Murrundi to be the lifeblood of their nation (Hemming et al., 2019). The Ngarrindjeri stress that the success of cultural flows requires building indigenous political capacity that starts with the recognition of indigenous groups as not just cultural interest groups but as political entities that can exercise authority in water management and give effect to indigenous peoples’ sovereign rights over water resources (Hemming et al., 2017b) To support the Ngarrindjeri Nation’s rights and interests in culturally significant land and water, the leaders and elders of the Nation have used insights gained from the devastating legal and political conflicts associated with Hindmarsh Island bridge development issue (1999) to improve political literacy and understanding of colonial legal structures. With these insights and driven by their desire to assert their sovereign political rights in water management, the Ngarrindjeri Nations have established legislative mechanisms that assess and manage environment water risks in a culturally relevant way that acknowledges the value of the Ngarrindjeri (Hemming et al., 2019). Over the years, these nation building activities for the Ngarrindjeri have been supported by ongoing research funded by initiatives such as the Murray Futures Program and through institutions that include the Australian Research Council and the Goyder Institute for Water Research, ultimately facilitating the establishment of Ngarrindjeri Regional Authority (NRA) (Hemming et al., 2019). The formation of the NRA was crucial to the development of a range of political instruments that acted as tools for further redeveloping Ngarrindjeri Nationhood, and facilitating improved collaboration between nonindigenous groups and Traditional Owners in natural resource management that in turn strengthened the Nation’s foundations in water policy and planning (Behrendt et al., 2017).

Sovereignty and self-determination benefits lead to benefits for the wider community

As well as the benefits outlined above, the literature identifies the following additional benefits to the wider community when Traditional Owners have ownership and management of land and water:

- Human rights improvements and related economic benefits
- Economic development, improved workforce participation

Moggridge, Taylor & Poelina (2016), outline benefits from addressing the United Nations Declaration of Rights of Indigenous People’s provisions in relation to water. They identify benefits such as human rights improvements and a closing of the ‘gap’ by providing Traditional Owners with water for economic use. Furthermore, human rights improvements may improve Australia’s ability to attract financial capital, human capital and technologic advancements which would have a positive impact on Australia’s economy (Kavuri & Shao, 2017)

Jarvis, Stoeckl & Hill et al. (2018b) estimated the regional economic multipliers associated with ILSM program expenditure and found that they can exceed the regional economic multipliers of industries such as mining and agriculture¹⁴. The ILSM programs provide income to Indigenous and non-Indigenous households, however, income to Indigenous households was found to be greater, helping to ‘close the gap’ associated with income inequality. Increased Indigenous income which is spent in regional locations will assist regional economic development through the income multiplier effect.

Sovereignty and self-determination benefits contribute to government obligations

The benefits of Traditional Owner management and ownership of water described above would contribute to obligations to human rights, including the **United Nations Declarations on the Rights of Indigenous people** and the **Victorian Charter of Human Rights and Responsibilities Act 2006**.

Victorian Charter of Human Rights and Responsibilities Act 2006 - section 19(2)

‘Aboriginal persons hold distinct cultural rights and must not be denied the right, with other members of their community –

- a. to enjoy their identity and culture;
- b. to maintain and use their language;
- c. to maintain their kinship ties; and
- d. to maintain their distinctive spiritual, material and economic relationship with the land and waters and other resources with which they have a connection under traditional laws and customs.’

The benefits of Traditional Owner management and ownership of water described above would assist the Victorian Government in its work **toward a treaty or treaties with Aboriginal Victorians** (in line with the Advancing the Treaty Process with Aboriginal Victorians Act 2018). This process aims to create a better future for all Victorians and enable true self-determination for Aboriginal people.

The benefits of Traditional Owner management and ownership of water described above would contribute to Water for Victoria through the following objective:

We will recognise the values that water has for Traditional Owners and Aboriginal Victorians. The water sector will support Aboriginal participation in Victorian water planning and management frameworks through consultative structures that address the rights and interests of Victoria’s Traditional Owners.

Specifically, the benefits discussed here would support the Water for Victoria commitment to:

- Recognise Aboriginal values and objectives of water
- Include Aboriginal values and traditional ecological knowledge in water planning
- Support Aboriginal access to water for economic development
- Build capacity to increase Aboriginal participation in water management

Traditional Owner management and ownership of water may contribute to the Central and Gippsland Region Sustainable Water Strategy proposed directions, including:

- make a portion of unallocated water available to Traditional Owners
- return river water to Traditional Owners as the use of climate-resilient water supplies increases
- explore opportunities to work with water corporations to protect and improve cultural values through the management of water supply systems and waterways for shared benefits
- identify opportunities for Registered Aboriginal Parties within the region to have a ‘seat at the table’ and a say in all aspects of water management through the implementation of the Central and Gippsland Region Sustainable Water Strategy.

¹⁴ Economic multipliers are influenced by the scale of the region examined, with a smaller region presenting less opportunities for ‘re-spend’ and therefore a smaller economic multiplier. They are also influenced by expenditure patterns, with more labour intensive industries generally having higher multipliers than capital intensive industries (Jarvis, Stoeckl, Hill, et al., 2018)

Traditional Owner management and ownership of water described above may contribute to the Victorian Traditional Owner **Cultural Landscapes Strategy** through the following objectives:

- To strengthen Traditional Owner Nation resilience.

These benefits would also contribute to the **Victorian Self-Determination Reform Framework** through the enablers of Transfer power and resources to communities, address trauma and support healing, and prioritise culture. In DELWP’s self-determination strategy, Pupangarli Marnmarnepu ‘Owning Our Future’, these benefits would contribute to the following outcome and indicators.

Outcome: DELWP supports Traditional Owners’ rights on Country so that their aspirations for land, water and culture are realised	Indicator: Recognise and implement the decisions that Traditional Owners determine over sustainable management of water resources
Outcome: DELWP has transformational systems that respect Aboriginal decision-making, leadership and self-governance.	Indicator: Support the aspirations and participation of Aboriginal Victorians in building their wealth and strengthening their economic independence

The benefits of Traditional Owner management and ownership of water described above for Healthy Mob would contribute to **Victorian Aboriginal Affairs Framework 2018-2023**, including the shared vision that ‘All Aboriginal Victorian people, families and communities are healthy, safe, resilient, thriving and living culturally rich lives’ and the goal that Aboriginal land, water and cultural rights are realised (Goal 18). In addition, The benefits of Traditional Owner management and ownership of water described above for Healthy Mob would contribute to the following goals from the Victorian Aboriginal Affairs Framework 2018-2023:

- Opportunity & prosperity:
 - Strong Aboriginal workforce participation, in all sectors and at all levels (Goal 9), including the objectives to increase Aboriginal household income in line with the Victorian median, and increase Aboriginal business ownership and support Aboriginal Entrepreneurs
 - Aboriginal income potential is realised (Goal 10), including the objective to increase Victoria’s Aboriginal gross income and decrease the opportunity cost of Aboriginal income inequality
- Culture & Country:
 - Aboriginal culture and language are supported (Goal 19) and celebrated
 - Racism is eliminated (Goal 20)

The benefits of Traditional Owner management and ownership of water described above for Sovereignty and Self-determination would contribute to **Victorian Aboriginal Economic Strategy 2013-2020**, including the vision that ‘Building opportunity and economic prosperity for all Aboriginal Victorians’ and the goals for more job opportunities across the economy and growing Aboriginal enterprise and investment.

The benefits of Traditional Owner management and ownership of water described above for Sovereignty and Self-determination would contribute to **Tharamba Bugheen: Victorian Aboriginal Business Strategy 2017-2021**, including the vision that ‘Tharamba Bugheen: Victorian Aboriginal Business Strategy 2017-2021’.

The benefits of Traditional Owner management and ownership of water described above for Healthy Mob would contribute to **Korin Korin Balit-Djak Aboriginal health, wellbeing and safety strategic plan 2017–2027**, including:

- Aboriginal Elders and young people lead self-determining lives (Priority focus 1.2), including through promoting cultural identity and community connections for Aboriginal young people
- Aboriginal culture, knowledge and heritage is valued and embraced (Priority focus 2.1)

The benefits of Traditional Owner management and ownership of water described above would contribute to **Closing the Gap targets**, including:

- Aboriginal and Torres Strait Islander people maintain a distinctive cultural, spiritual, physical and economic relationship with their land and waters, including through the following supporting indicators:
 - Aboriginal and Torres Strait Islander people’s owned land and water titles

- Number of Aboriginal and Torres Strait Islander people employed in water and land management
- Strong economic participation and development of people and their communities
- Adults are not overrepresented in the criminal justice system

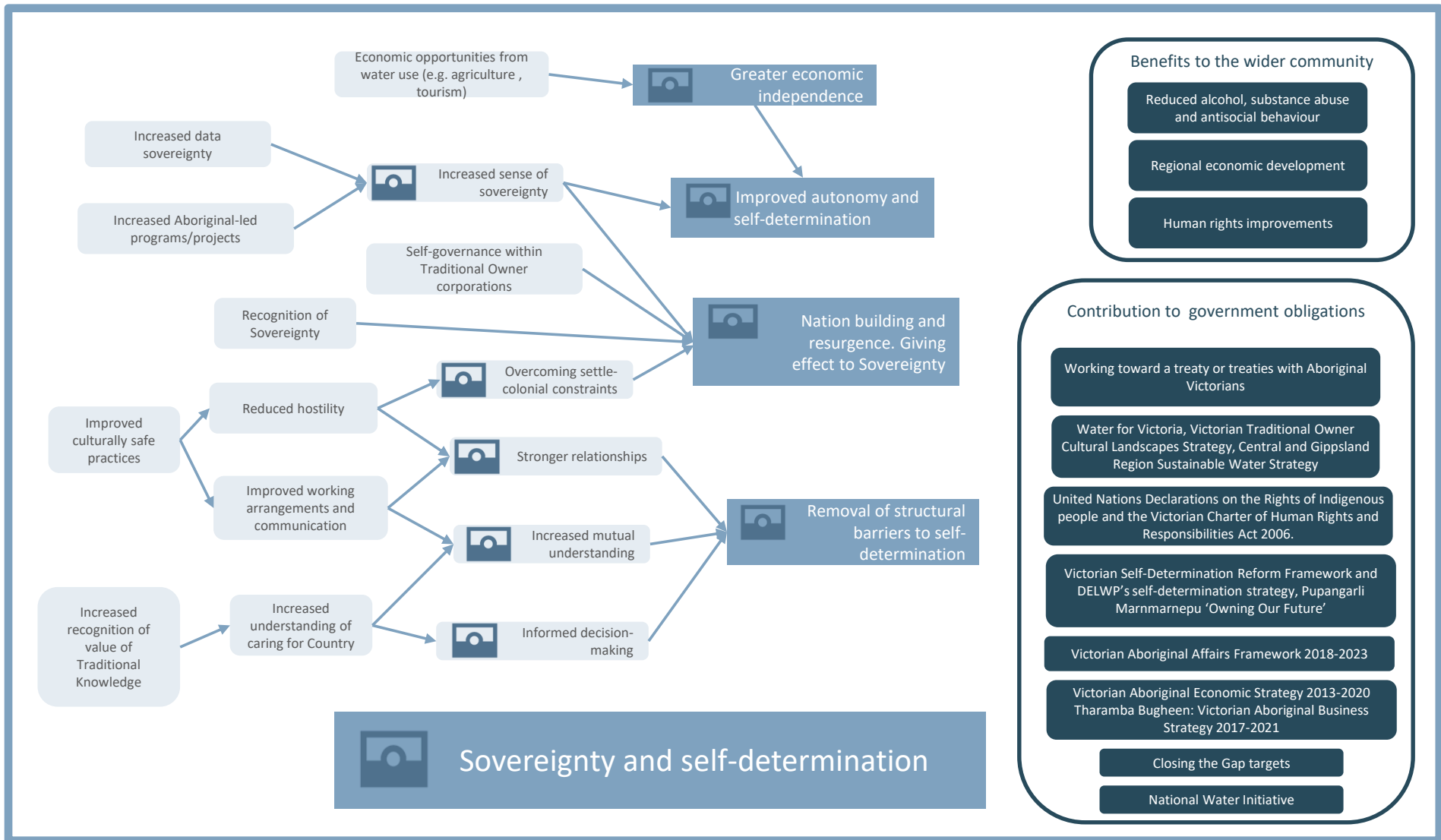


Figure 13. Overview diagram of sovereignty and self-determination benefits arising from Traditional Owner management and ownership of water

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Appendix A: Literature review protocol

As a part of the Multiple benefits of ownership and management of water by Traditional Owners project, Alluvium is undertaking a literature review to identify and understanding the benefits of Traditional Owner management and ownership of water.

We have undertaken a literature review to meet the following project objectives:

- To understand the health, wellbeing and economic benefits for Traditional Owners associated with the ownership and management of water.
- To identify the benefits (including water security) to other water users (e.g. the environment, recreational users and irrigators) as a result of Traditional Owner ownership and management.
- To understand the flow-on implications for quadruple bottom line outcomes for the Central and Gippsland Region (cultural, economic, environmental and social).
- To understand how Traditional Owner management and ownership contributes to meeting Government priorities and obligations such as the Treaty process, Closing the Gap, the Victorian Self-Determination Reform agenda and legal obligations, UNDRIP.

Our approach to the literature review was guided by the following steps (Table 4). This was provided to the Traditional Owner Partnership for review and input to ensure that the scope of the literature review matches your expectations and needs.

We have used [Mendeley](#) as our reference management and library application for the literature review. The use of Mendeley allows for efficient collaboration for the project team as all members will have access to organised studies in a common location. This will enable us to easily provide the reference library to the Traditional Owner Partnership Group.

In addition to the below steps, we have been guided by seminal works and references included in those works, as well as connecting with Brad Moggridge and Sue Jackson.

Table 4. Literature review steps and scope

Step	Suggested approach/examples
Definition of scope	The focus of this literature review is identifying benefits of Traditional Owner management and ownership of water
Description of a search strategy	<p>The search strategy will be based on the research question and scope as follows:</p> <ul style="list-style-type: none"> • Themes: health and wellbeing, cultural, socio-political, economic and environmental benefits. • Key words, terms and phrases: “Indigenous”, “management”, “governance”, “co-governance”, “bi-cultural governance”, “decision-making”, “environmental”, “rights holders”, “ecological”, “water”, “benefit/s”, “economic benefit/s”, “values”, “natural resource”, “natural resource management”, “return on investment” “ROI”, “quadruple bottom line”, “Sovereign people/s” • Synonyms: “Aboriginal”, “Traditional Owner”, “First Nations”, “First People/s”, “Waterways”, “advantage”, “gain” • Timeframe: we will look at literature published in the last 10-15-20 years (noting that specific work from prior to 10 years will be included (or referenced in more recent work). • Data bases: JSTOR, Proquest, EBSCO, Informit; Google Scholar (used for searching connected articles). • Specialist journals: AlterNative, Australian Aboriginal Studies, Journal of Australian Indigenous Issues, Ngoonjook. • Government and other official websites: e.g. DELWP, MLDRIN, NBAN, Fitzroy River organisations (these will be key sources in the collation of contextual information and information on values). • Specific documents: Country plans, DELWP’s Self-determination reform strategy, Pupangarli Marnmarnepu ‘Owing Our Future’, Victorian Aboriginal Affairs Framework (VAFF) 2018- 2023, Victorian Government Self-Determination Reform Framework (these will be key sources in the collation of contextual information and information on values), Cultural Water for Cultural Economies research project, National Closing the Gap 2020), National Cultural Flows work
Explanation of inclusions/exclusion criteria	<p>We suggest the following inclusion/exclusion criteria when reviewing search results:</p> <ul style="list-style-type: none"> • Publication year: From year 2000 with a greater emphasis on publications post-2010. • Geographic location: Focus will be on literature relating to the Australian context, but also drawing on additional literature relating to positive examples from Canada, New Zealand, South/Central America and the U.S.A. • Topic area: Indigenous/Traditional Owners’ water management, governance (including “co” and “bi-cultural” Indigenous/Traditional Owners’ natural resources management, community natural resource management. • Type of material: peer-reviewed journal articles, government department reports, books, and industry reports, and policy work undertaken by First Peoples

Step	Suggested approach/examples
Assessment of the methods and quality of previous literature	<p>As part of the documentation process, we will use a Likert scale to rank studies for their quality. The methods used in previous studies will also be documented. The assessment will encompass:</p> <ul style="list-style-type: none"> • Quality: Peer-reviewed and well written material will be highest ranked while some industry reports may be ranked lower for quality depending on content. The following evaluation will be used: <ul style="list-style-type: none"> ○ Accuracy - Is the information reliable? Is the information error-free? Is the information based on proven facts? Can the information be verified against other reliable sources? ○ Authority - Who is the author/s? Do they have the qualifications or cultural background to speak/write on that topic? Is the author affiliated with a reputable university or organization in this subject field? Is the source peer reviewed or refereed? ○ Objectivity - What is the intended purpose of the information? Is the information fact or opinion? Is the information biased? ○ Currency - When was the information published? Is the information current or out-dated? Does currency matter in this topic? ○ Coverage - Does the information covered meet our information needs? Does it provide basic or in-depth coverage? • Methods: literature review, industry consultation reports, survey reports, quantitative analysis.
Presentation of included literature	<p>The included literature will be documented in our report and summarised into a spreadsheet. The spreadsheet will include information on authors, year of publication, publication type, benefits identified, methodology used, quality ranking and link to the study.</p>
Interpretation of findings	<p>We will synthesise the findings to identify key themes (e.g. health and wellbeing, cultural, socio-political, economic and environmental benefits). We will apply the ecosystem services framework to further group the identified benefits into ecosystem services (provisioning, regulating, cultural and support services).</p>

Appendix B: Overview of Traditional Owner values relevant to the Central and Gippsland Region

Traditional Owner groups across Victoria have a vast range of values that are important to them. These values are not just tangible natural resources but are often more abstract and intangible and are linked to Creation stories, long-standing connections to Country, the performance of cultural practices and the right to self-determination and self-sufficiency. Important values have been identified by Gunaikurnai, Wadawurrung and Wurundjeri –Woi-Wurrung¹⁵ in their Country plans and have been summarised below, along with information on Bunurong values from the National Cultural Flows Research Project.

The below collation of identified values provides important context to understanding the benefits associated with Traditional Owners managing and owning water.

Intangible values

Intangible values are arguably the most important values and are generally the same across Traditional Owner groups. Values exist even when they cannot be seen. Important intangible values are described below.

Healthy Country

Country is the lifeline that sustains Mob. It is the source of all life and provides all the essential resources for survival. Everything on Country is connected. There is no separation between landscapes, waterways, natural and cultural resources and people. In order for Country to keep providing the resources and sustaining life as it has always done, Country needs to be healthy. The health of individual species is important but because everything is connected, Healthy Country is critical. Having Healthy Country means individual species and resources of value will be looked after. Traditional Owners have cultural and moral obligations to care for Country. To protect and heal the damage of the past and to protect Country for future generations. Obligations to care for Country connect people across communities and language groups and extend across the landscape (MLDRIN et al., 2017)

Continuing connection and cultural practice on Country

Country is the connection to the past, to ancestors and to history. This connection is ongoing and has never been broken. Features on the landscape provide a direct connection to ancestors and the past. Maintaining values and sites on Country are important to maintain this connection to the past. Culture is embedded in Country and is foundational to identity. Continuing cultural practices link people to ancestors through shared customs. To continue these cultural practices, it is essential that Country is healthy. Many resources used in cultural practices rely on healthy Country and the protection of important places to make them available for use.

Healthy Mob

The wellbeing of Mob is about more than just physical health and security. There are many elements to wellbeing. A key pillar of wellbeing is maintaining strong spiritual and cultural connections to Country. This can only be done through the ongoing practice of culture which is dependent on a Healthy Country. The wellbeing of Mob is also dependent on having stable and secure employment and housing. Caring for Country can provide opportunities to secure the future economically and contribute towards the wellbeing of Mob.

Self-determination and sovereignty

Traditional Owners have a cultural obligation to care for Country and invaluable knowledge of Country through sustained traditional practices and management approaches. Country that is managed in harmony with traditional practices is healthy having sustained people for thousands of years. This long-standing knowledge of and occupation of Country provides the basis for Aboriginal rights to use, manage and control Country. Through these rights, work can be progressed to heal and protect Country, to improve the wellbeing of Mob, to maintain and pass down cultural practices and traditions. The right of Aboriginal groups to use, manage and control

¹⁵ Note that the Woi- Wurrung Country plan is yet to be finalised.

Country ensures that Country can be managed utilising traditional knowledge which inherently results in sustainable use.

Bunurong

The Bunurong Country Plan is not yet developed, however some values were identified through the National Cultural Flows Research Project Literature Review (MLDRIN et al., 2014).

Sawtells Creek

The creek is a spiritually significant place and the mouth of the creek is home of the Tooroodun, a bunyip responsible for illnesses and supernatural events.

Water wells

There are three economically significant water wells on Bunurong Country, Rickets Points Well, Black Rock Well and Long Bob's Well. These wells provided a reliable water source for the Bunurong.

Solomons Ford

The site is on the Maribyrnong River and contains archaeological evidence for the use of fish and eel traps which would have been economically significant. The site itself, while disturbed may still be archaeologically significant.

Gunaikurnai

The Gunaikurnai Country Plan (Gunaikurnai Aboriginal Land and Waters Corporation, 2015) describes some of the tangible, natural resources that are highly valued, including

- River red gum – the bark of which provided material to craft canoes from, an important tool for navigating the lakes and waterways of Gunaikurnai Country.
- Stringybark – used to make rope along with branches and bark to make shelter.
- Possums – the skins of possums were stitched together and used to create cloaks to provide warmth through the colder months. Possums were also a source of food.
- Kangaroos – were a main source of food however, this was also supplemented with wombats, emus, koalas, echidnas, goannas, frogs, ducks, swans, pelicans, sea eagles, cormorants and spoonbills.
- Seafood – was another main source of food and included mussels, abalone, flat mullet, snapper, garfish, perch, bream and flathead.
- Bogong moth – was annual delicacy and important food source in cooler months. The Bogong moth also played an important part in cultural practice of Aboriginal groups in South-eastern Australia being the focus of an annual gathering of clans that came together to feast on the moth.
- Water ribbons – were a popular food source and remain so in the present day.
- Silver banksia – were soaked in bowls to make a sweet drink.
- Pigface – was an important source of salt in the diet.
- Tea tree, old man weed, river mint and milk thistle – these plants were important medicine plants that provided remedies for a range of ailments including cuts, bruises, pain and breathing issues.
- Wattle blackwood – was used for a range of purposes including the hard wood for spear throwers and shields, its inner fibres which were woven into fishing lines and its bark that was soaked and used to treat rheumatism.

Aside from these tangible values, different landscapes across Gunaikurani Country also represent important values that are less tangible. These values are described below.

Tarra-Bulga National Park

The Tarra-Bulga National Park is home to some of the last refuges of native old growth forest in an area that has been extensively cleared. For the Gunaikurani, the remnant old growth forest represents a time when they were the only inhabitants of the land and is a living reflection of Country at the time of their ancestors. The Park is also a culturally significant place as part of the creation storyline.

The Knob Reserve

The Reserve is a significant meeting place with all 5 clans of the Gunaikurnai traditionally meeting in this location for trading, corroborees and other cultural ceremonies. In addition to this significance the Reserve is home to a variety of artefacts including scar trees and grinding grooves which reinforce the sites importance.

Gippsland Lakes Coastal Park

The high diversity and abundance of resources within the Gippsland Lakes has meant it has been a major source of food for the Gunaikurnai. Archaeological evidence also demonstrates that various locations were used as camping ground signifying a long-standing connection to this location. There is also a significant connection to the Park as it contains many burial grounds.

The Lakes National Park

The Lakes National Park is home to large array of wetland plant and animal species as well as migratory birds. As a result, the site provides habitat for many of the Gunaikurnai totem species. As with the Lakes Coastal Park, the National Park contains a number of camping sites evidenced by shell middens.

Gippsland Lakes Reserve on Raymond Island

Raymond Island was an often-visited location thanks to its strategic location which provided an excellent lookout to the surrounding area. The Island was an important location for the collection of swan eggs and there is evidence of shell middens, scar trees and burial sites on the Island.

Lake Tyers State Park

Lake Tyers or Bung Yarnnda is a site that had abundant food and other resources and as such was a meeting place for the 5 clans of the Gunaikurnai. In addition to its ancient importance, the area has more modern significance being the site of the Lake Tyers Mission, the place where people lived after being forcibly removed from Country.

Corringale Foreshore Reserve

The Reserve area was known as a place with abundant food resources and was frequently used as camping ground and fishing spot. The place has an important role in connection to Country and many who lived off-Country came to this place to reconnect to their traditional lands. This site continues to be used as a place to camp, fish and gather food resources and the evidence of long-standing occupation can be seen in shell middens, canoe scars and an earth oven.

Mitchell River National Park

The Mitchell River National Park contains a wealth of cultural history related to food gathering, conflict, local spirits and community life. Food, medicine and sources of water were collected from various locations in the Park and Deadcock Den is an important men's place. The Den of Nargun is an important women's place that may have been used for women's initiation and learning ceremonies. There are abundant caves throughout which provided shelter and the rocky, rugged terrain provided an excellent lookout to the surrounding country, Burial grounds have also been located within the Park.

Buchan Caves Reserve

The Reserve is a significant archaeological site that contains a number of rare artefacts including artwork done in animal fat, ceremonial rings and burial grounds. The caves were used as shelter on the journey to the mountains and there is evidence of camping spots as well as a significant massacre site.

New Guinea Cave II

This site a rare cultural and archaeological site. It is significant because it is one of the oldest inhabited caves in the world and was used as camping and shelter spot on the journey to the mountains. The site is home to some of the few examples of rock art in Victoria and the broader area was important for stone tool manufacturing with thousands of artefacts documented in the area.

Wadawurrung

The following tangible, natural resources have been identified by Wadawurrung (Wadawurrung Traditional Owners Aboriginal Corporation, 2020) as important:

- Murnong (yam daisy) – plentiful food resource that is highly nutritious
- Go-yin (wallabies), Goim (kangaroos), walert (possums), ducks and swans – key sources of food that were hunted and processed using boomerangs and spears
- Buniya (eels) – another important food resource that were caught in eel traps, a practice that Aboriginal groups of south-west Victoria are well known for.
- Crayfish, abalone, fish, mussels, pips and oysters – food sources.
- Black wattle – the resin was traditionally used to treat diarrhoea and prevent infections.
- Grass trees – an important source of material for thatching while the flower spikes were used to make spear shafts and the sap for glue.
- Native animals – such as echidna, Porroggitj (brolga), Yoorn (spotted-tailed quoll), emu, frogs etc. are part of what keeps Country healthy. Some animals such as Connewarre (black swan) have strong cultural meanings such as totemic species.

Waterways

The waterways of Wadawurrung Country hold a special significance for its people because of their relationship to the Wadawurrung creation story. The rivers of Wadawurrung Country are living sources from Bundjil who created everything and were created for the survival of the Wadawurrung and all living things. The main river systems (Barwon, Yarowee, Leigh and Moorabool) Barre Warre Yulluk run from the mountains to the ocean and tell the story of connection to Country. Waterways were important places to meet, gather food resources, make important decisions were also important travel routes.

Lower Barwon Wetlands

The Lower Barwon Wetland complex and estuary is an important cultural site for the Wadawurrung. The site is connected to Connewarre (Black Swan) Dreaming.

Fyansford

This site at the confluence of the Barwon and Moorabool Rivers is a significant cultural place.

Inland Country

The Inland Country includes large areas of western volcanic plains grasslands, temperate grasslands and grassy eucalypt woodlands. These areas had abundant food resources that could sustain populations year-round and allowed family groups to dwell in stone huts. Inland grasslands were important sources of Murnong (yam daisy) and other roots and tubers. The grasslands were also home to Kwenda (bandicoot) and Yoorn (spotted-tail quoll) which helped to increase the growth of Murnong (yam daisy) through digging and tilling the soil.

You Yangs National Park

This site is a site of cultural significance through its connection to the creator being Lowen who created the landscape as flew down and turned everything to granite wherever he landed. As well as this, a site within the vicinity of the park is home to an 11,000 year old stone arrangement which represents the long-standing knowledge of Country. As well as these culturally significant sites, the volcanic landscape was important as camping grounds with the ability to create stone depressions to capture fresh water and abundant material for stone tool making.

Coastal Country

The Coastal Country contains an abundance of cultural sites being a highly productive area. The coast as used to harvest and gather food, was the site of permanent camps, where sharing and trading occurred and where ceremony was performed. Fish traps and ochre pits are important cultural places along the coastline. Moonah woodlands are important to teach people about marriage stories.

Warre – Sea Country

Sea Country provides bountiful resources for the Wadawurrung. Sea Country is a place to fish, harvest and dive and supplies many essential foods such as rock lobster and abalone. The estuaries are important breeding places that help with the renewal of sea life and are important to keep the ecosystem healthy.

Wurundjeri Woi-wurrung

All of Wurundjeri Woi-Wurrung Country is important to Wurundjeri Woi-Wurrung people.

The following tangible, natural resources have been identified by Wurundjeri Woi-Wurrung Cultural Heritage Aboriginal Corporation in their draft Country Plan (McConachie et al., n.d.) as having important values. The below not exhaustive, they are a selection;

- Resources – this includes food sources, medicines, materials for tools, stone and ochre, ecological communities, waterways and totemic species
- Natural features – places of shelter, lookouts, waterways, mountains and high places, mature trees.
- Places of ceremony and spirituality – this includes story places, initiation places, gathering places and tribal and clan boundaries. Some of these places are described in more detail below.
- Archaeological sites and materials – including artefacts from stone, wood, bone etc., scarred trees, stone quarries, fish traps, shell middens and earth and stone rings.
- Routes and tracks – including routes of movement, dreaming tracks, water sources and ridges, trade routes and landmarks and lookouts.
- Men's and Women's business – these include areas of ceremony, resource gathering and traditional skills and crafts.
- Places of recent history – Wurundjeri history did not end with the arrival of Europeans and recent places such as places on contact and conflict, cemeteries, places of employment, community meeting places and places of enjoyment are part of the cultural values.

Bolin Bolin Billabong and Banyule Flats Cultural Landscape

This area has evidence of both historic and contemporary use. A recent cultural values study found that the landscape in the area was shaped by Wurundjeri Woi-wurrung occupation, land management, social structures and belief systems.

Sunbury Rings Complex

The Sunbury Rings are important ceremonial sites although the exact nature of their former use has been lost. The area is associated with white ochre.

Will-ee-im Moor-ing (Mt William)

This site is a culturally significant location being located on the boundary between the Woi-wurrung and Taungurong languages groups. A stone axe quarry is located at the site, the stone of which is highly valued for its hardness. Stone from this quarry has been located in Southern Queensland and Eastern South Australia, indicating it was a sought-after trade item. The site also has spiritual significance as it is believed that ancestral creators transformed themselves into the landscape and Will-ee-im Moor-ing is an important part of this.

Appendix C: Review of approaches to identifying and communicating benefits

The following section provides an overview of different approaches to identifying and communicating the benefits of greater management and ownership of water by Traditional Owners ('frameworks', for short). It provides information about each framework and its advantages and disadvantages in relation to how readily they could be used to identify and measure the benefits of greater management and ownership of water. Ultimately, these approaches informed the Method outlined in Section 3.

Overview of approach

The approach to identifying frameworks was less formal than for the review of benefits and drew on the collective experience of the project team in preparing program evaluations, economic assessments, and advising governments on water related policies and projects.

Four key frameworks were identified:

1. Ecosystem services approach
2. Multi-criteria analysis approach
3. Total economic value approach
4. Cost-benefit analysis approach

Each of these frameworks are described in further detail, along with how they could be applied to help describe the benefits of ownership and management of water by Traditional Owners.

It should be noted that the frameworks have been selected based on their ability to support the scoping and identification of the range of benefits that are experienced by Traditional Owners and the broader community from management and ownership of water. Limitations within the field of economics means that quantitative valuation of benefits within these frameworks is not fully supported and, in some cases (e.g. cultural benefits), valuation is not appropriate on ethical grounds. This does not imply the frameworks are inadequate, rather our methods of describing, and then estimating, values are evolving.

Also, these frameworks are based on economic approaches which seek to reduce/dissect value into discrete components to understand total value and, through this process, to better understand the trade-offs involved in making decisions about how humans interact and use natural resources. Such approaches are not well-aligned with Traditional Owner views, where society and the environment are interdependent and indivisible. As such the frameworks should be considered tools for communicating benefits and value, rather than a reflection of value itself.

Findings

1. Ecosystem services approach

The benefits can be described as ecosystem services, or the benefits people obtain from the natural environment. The current best practice framework for this approach is outlined in the Common International Classification of Ecosystem Services¹⁶ (CICES). The CICES has been developed by the European Environment Agency as part of a revision of the *System of Environmental Economic Accounting: Experimental Ecosystem Approach* (SEEA:EEA), currently being led by the United Nations Statistical Division.

In Australia, development of the SEEA:EEA has had input from and is endorsed by various Australian Government departments, including the Australian Bureau of Statistics (ABS), the Bureau of Meteorology (BOM)¹⁷, Victorian Department of Environment, Land, Water and Planning (DELWP)¹⁸, Qld Department of

¹⁶ For further information see: <https://cices.eu/resources/>

¹⁷ For example see: http://www.bom.gov.au/environment/doc/environmental_accounts_landscape.pdf

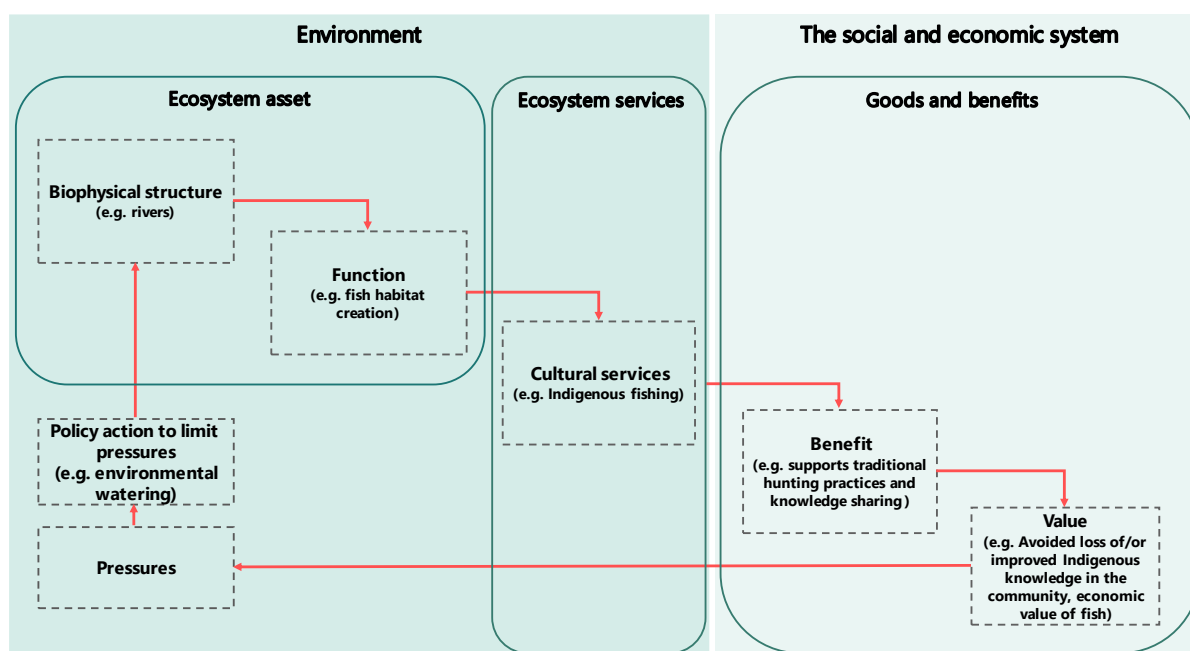
¹⁸ https://www.environment.vic.gov.au/__data/assets/pdf_file/0034/459574/Ecosystem-services-from-forests-in-Victoria-Assessment-of-Regional-Forest-Agreement-regions.pdf

Environment and Science¹⁹ and Department of Agriculture, Water and the Environment, among others. In Victoria, DELWP has used this approach to inform assessment of the linkages between forests, ecosystem services, the economy and society as whole (McCormick & Showers, 2019).

The CICES ecosystem services are categorised into three broad types:²⁰

1. *Provisioning services*: all the products obtained from ecosystems (e.g. raw water).
2. *Regulating and Maintenance services*: benefits obtained from the regulation of ecosystem processes (e.g. regulation of water quality, air quality, climate and erosion).
3. *Cultural services*: related to non-material benefits, for instance recreation, aesthetic experiences, and spiritual enrichment.

The conceptual framework of CICES is based on the cascade model shown in Figure 14. This model shows cause–effect relationships for how changes to the environment lead to changes in social and economic systems. The ecosystem services framework starts with the concept of ecosystem assets — defined as spatial areas containing a combination of biotic and abiotic components and other characteristics that function together. Examples of ecosystem assets include waterways, estuaries, wetlands, mangroves or coral reef ecosystems.²¹ The extent and condition of these assets are influenced by pressures (e.g. water quality, habitat quality and catch rates, catch size) and policy interventions aimed at alleviating these pressures (e.g. imposing fishing restrictions on amounts, sizes or species, or changes to policies around fishing rights). The functioning of ecosystem assets generates a range of ‘services’ that contribute to human wellbeing.²² These services are known as ecosystem services and they are the ‘final’ outputs from ecosystems that most directly affect the wellbeing of people.²³ Services, in the cascade model (Figure 14), give rise to goods and benefits, as in the case of improved satisfaction values when anglers are able to catch fish, improved riparian land management practices that support Indigenous knowledge sharing, improved water quality leading to avoided costs of water treatment . When these benefits are achieved, the ‘production boundary’ is crossed and the values of these benefits may be estimated in monetary terms. These benefits may be estimated using both market and non-market valuation approaches.



¹⁹ See: <https://wetlandinfo.des.qld.gov.au/wetlands/management/wetland-values/values-services.html>

²⁰ All these three ecosystem services are underpinned by the ‘supporting services’(FAO, 2019).

²¹ Ecosystem assets are characterised in terms of *extent* and *condition*.

²² CICES defines ecosystem services as the ‘contributions that ecosystems (i.e. living systems) make to human wellbeing’.

²³ Haines-Young and Potschin (Haines-Young & Potschin, 2018): Common International Classification of Ecosystem Services (CICES) V5.1 and Guidance on the Application of the Revised Structure. Available from www.cices.eu.

Figure 14. *Illustration of the ecosystem services valuation framework*

The benefits identified from the ecosystem services approach can be used to inform the values for different aspects of a total economic valuation study and cost benefit analysis which are discussed in detailed in subsequent sub-sections. For example, recent studies by Sangha and colleagues demonstrated potential for incorporating capabilities and socio-cultural values of Indigenous communities through an ecosystem services framework and consequently, suggested a need for further consideration of these values in public policy (Sangha et al., 2019; Sangha & Russell-Smith, 2017).

The ecosystem services assessment approach allows for a thorough identification and analysis of the range of benefits that can be achieved from a program or policy initiative. Under this approach, benefits are carefully described, for specific assets and locations while taking into consideration both use and non-use values as well as the beneficiaries. Therefore, the approach supports the identification of benefits to specific groups such as Traditional Owners as well as to the broader community.

However, not all identified benefits can and should be monetised. For example, it is not possible to place a dollar value on benefits associated with the preservation of Indigenous fishing methods and knowledge. Adamowicz et. al. (1998) also discussed the potential challenges of applying economics valuation in the context of Indigenous cultural values from a theoretical perspective. Nonetheless, such benefits can be described and explained in a qualitative manner using this framework.

2. Multi-criteria analysis

Another framework for consideration is multi-criteria analysis (MCA). MCA is a decision support tool that was developed as part of a field of study called 'operations research'. It provides decision makers a systematic framework to account of impacts (positive and negative) in assessing different management options. Critically, MCA includes stakeholder and community participation in decision making whereby diverse—and at times competing—values and preferences can be considered in a transparent manner, either through collaborative or analytical means. MCA has been adopted for environmental management as it is valuable in assessing unique elements of a project that do not include financial components and making trade-offs where singular objectives are not desirable or feasible.

In an MCA, the value of the intended outcome of a decision is determined by the relative importance for each objective, which in this case is the quadruple bottom line (i.e. social, environmental, economic and cultural values). Weightings are commonly applied to each of the objectives to reflect their relative importance to decision-makers and/or stakeholders. Under each objective, there are typically several relevant criteria, against which each project or program is assessed. These criteria are also weighted within the objective to reflect their relative importance. The assessments against each criterion can use either the outputs of previous technical analysis (e.g. a hydrological model), or use a semi-qualitative approach based on expert elicitation/community engagement. It is this approach that allows different considerations to be incorporated into a single evaluation framework. MCA is often a complementary tool in decision-making where data limitations affect the feasibility of using other frameworks.

While a potentially useful tool for developing future management and asset use options, MCA could also be a valuable framework for consolidating the range of benefits identified in this study. In particular, the opportunity to develop community-derived weightings could provide a robust representation of the net benefits of ownership and management of water by Traditional Owners, especially where these benefits may have different relative values among affected stakeholders. An example of the potential structure of the MCA is shown in Figure 15.

MCA provides an integrative approach to options evaluation and decision making. It is highly effective where a consistent and clear basis for determining scores and weightings has been established and the evaluation framework has been agreed and documented before commencement of the analysis. Critically, the opportunity for involvement of affected communities and broader stakeholder groups provides for evaluations that are more reflective of the societal preferences, particularly where trade-offs of competing views and interests are required. Also, where economic valuation of Indigenous and cultural values are limited, MCA may allow for inclusion of these values through goal-setting in the decision-making process (Venn & Quiggin, 2007).

However, the weightings and scores involved in MCA require subjective and non-testable judgement on perceived values, which is further complicated by an increasing number of participants in the analysis.²⁴ Also, the results from the analysis may not be easily interpreted, which may reduce its acceptance by affected, non-participating stakeholders. Most importantly, if an MCA is improperly designed—including where participants are not entirely representative of affected stakeholders or weightings are determined based on predetermined objectives—results from the MCA may be subject to various sources of bias, at best, or lead to poor decision-making. This requires particular attention in the context of management by Traditional Owners given research finding a significant difference in values and importance for cultural and environmental conservation between Indigenous and non-Indigenous communities (Rolfe & Windle, 2003; Zander & Straton, 2010).

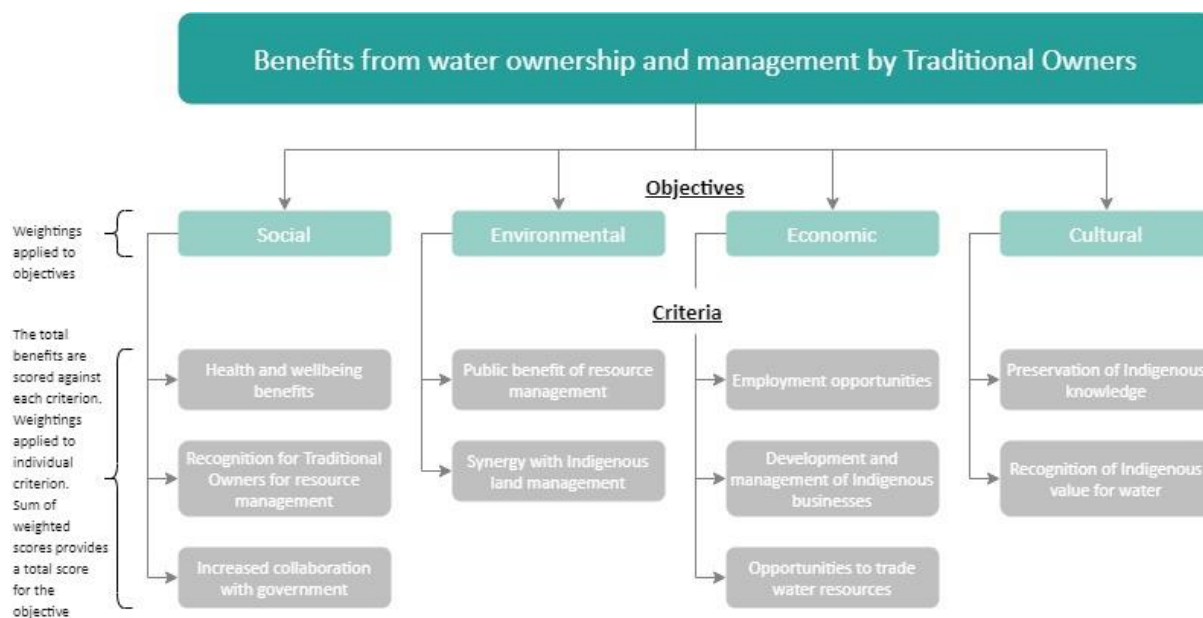


Figure 15. Illustrative MCA structure comprising objects and criteria

3. Total economic value approach

A Total Economic Value (TEV) approach is designed to capture the value derived by people from a natural resource (such as those identified in this study) or from built heritage / infrastructure by breaking it down into the various components that provide value. It is typically used in cost-benefit analysis to help identify the full range of values that people derive from a given resource or asset.

Figure 16 (overleaf) provides an overview of the TEV framework. It breaks down value into two key components:

1. Use value, which is the value derived from ‘consuming’ the resource or asset.
2. Non-use value, which is the value derived from the existence or preservation of the resource or asset.

Use value can be further defined in terms of:

- Direct use: the benefit from the direct consumption of the asset/resource, e.g. water, recreation, fishing
- Indirect use: the benefit from indirect consumption of the asset/resource, e.g. carbon sequestration
- Option value: the benefit from keeping the asset/resource in good condition so that it can support future use.

Non-use value can be further defined in terms of:

²⁴ This subjectivity may be reduced through the design of the MCA, clear description for participants and technical analysis.

- Bequest, altruistic and philanthropic value: the value from knowing that future generations may benefit from the use of the asset/resource
- Existence value: the value from knowing that the asset/resource will continue to exist independently from any possible present or future use by individuals

Similar to the MCA approach, the TEV process for identifying and scoping the range of benefits can be undertaken with reference to literature / research and from consultation with stakeholders. A key step is understanding the causal pathway between use (or non-use) of the asset / resource and the value to the beneficiary.

Having used the TEV approach to identify and scope the range of benefits, it can be extended to include the valuation of the benefits. Different benefits require different valuation techniques, for example benefits relating to the consumption of the asset/resource are often reflected in transactions between buyers and sellers (i.e. a market transaction, with an accompanying dollar price or cost). Other benefits, such as indirect environmental benefits, are not routinely bought and sold in the same way and 'non-market' valuation techniques are required to estimate the value in monetary terms.

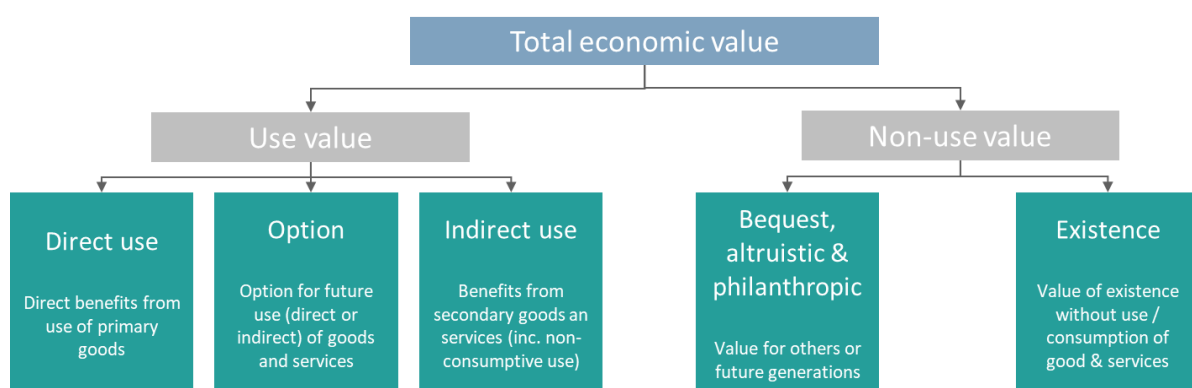


Figure 16. TEV framework and components for reflecting different values

Because it supports the systematic identification of a range of values, a TEV approach is considered appropriate for capturing the benefits of ownership and management of water by Traditional Owners. For example, health and well-being benefits could be reflected in both direct and indirect use. The approach also supports consideration of 'intangible' benefits such as bequest and existence value that are not typically included in NRM management decisions.

However, the TEV approach would not result in benefits being represented across the quadruple bottom-line categories of cultural, economic, environmental, and social. For example, a degree of additional interpretation would be required to identify the 'environmental' values from the TEV categories. Furthermore, while the TEV approach is useful for scoping and identifying a range of benefits, it does not necessarily mean that all benefits can be valued in monetary terms within the framework. For example, Venn and Quiggin (2007) argue that it is not feasible to estimate cultural values because, among other reasons, the non-tradeable nature of cultural values. .

4. Cost-benefit analysis

Cost-benefit analysis (CBA) is a valuation framework that attempts to estimate the total benefits and costs of a particular policy and provide a systematic means to compare with other options or a 'no policy' option. Figure 17 (overleaf) presents the typical steps in undertaking a CBA, starting with the identification of benefits and costs. In a CBA, a dollar value of the benefits and costs of a policy for all affected stakeholder is calculated. A positive net value indicates a benefit to the community.

CBA's are used extensively in policymaking, such as for Regulatory Impact Assessments in the Victorian state government where the Commissioner for Better Regulation requires a full CBA to account for all the benefits

and costs, and to determine the options with the highest net benefit (Department of the Treasury and Finance., 2016).

The Department of Treasury and Finance's (2011) toolkit on CBAs for regulation outlines four key steps for assessing if a policy is beneficial:

1. Identification of groups that will be affected—all primary and sub-stakeholder groups including businesses, consumers (groups), and governments should be identified to improve understanding of impacts, identifying key stakeholders and gathering relevant information.
2. Identification and assessment of costs and benefits from options being considered for addressing the problem—it is critical to identify the full range of costs and benefits resulting from the option(s) and quantify them in dollar values, including indirect impacts, future impacts and impacts that may not be readily available in monetary terms or non-market values (e.g. environmental, social and cultural impacts).
3. Consideration of other issues—including the discounting of future impacts, and assessment of risk and sensitivity.
4. Selection and application of the appropriate decision criteria to assess the relative effectiveness of or to rank options—using a consistent framework ensures the CBA delivers clear guidance for the policy/decision-maker.

CBA is favoured in policy-making because it encourages accounting of all costs and benefits for all affected stakeholders (as opposed to a narrow subset of stakeholders), is a systematic, consistent and transparent tool for decision-making, and helps maximise the net benefit to the community where multiple options are considered.

In the context of water ownership by Traditional Owners, a CBA allows for a quadruple bottom line to be considered, provided the appropriate estimation of all non-market values can be achieved. This includes valuation of environmental benefits (e.g. benefits of improved water quality for all users), social (e.g. improvements to wellbeing for local communities) and cultural (e.g. benefits from the preservation of Indigenous knowledge and water values).

However, it should be acknowledged that there are intangible impacts that may not be known or measurable. This was raised in Choy's (2018) study of Indigenous values in Malaysia where it was found that Indigenous communities' concerns with monetising cultural values and therefore, potential welfare implications for decision-making, based solely on CBAs. This adds to the concern that the metrics produced in a CBA, such as a benefit-cost ratio, are likely to be spurious accuracy. Also, where risk or sensitivity analysis is extensively used to overcome data limitations, the CBA can be flawed if used in isolation.

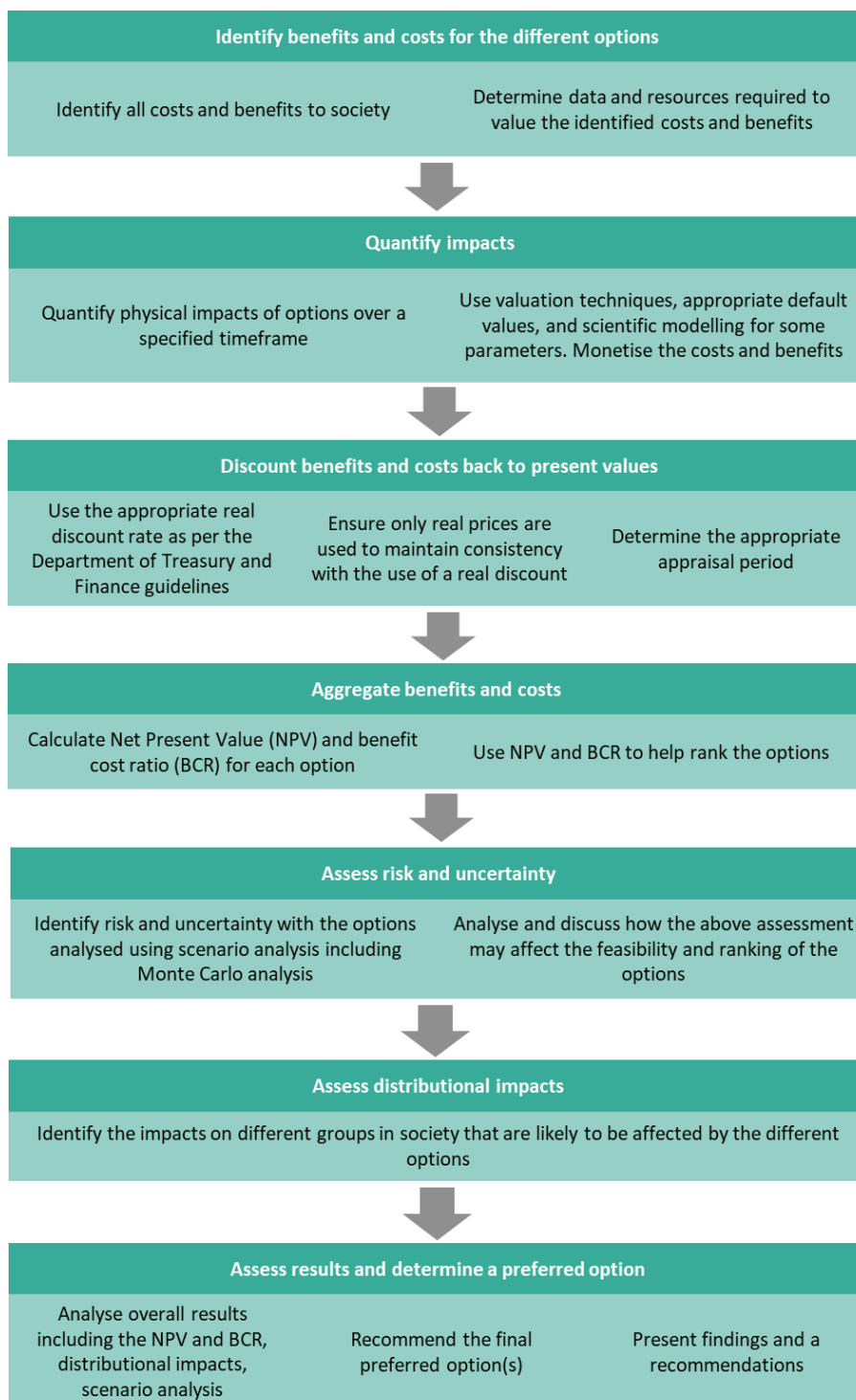


Figure 17. Typical steps in a CBA

Summary

Table 5 contains a summary of the advantages and disadvantages of each framework and how they could be used to inform the measurement of Traditional Owner management and ownership of water.

Table 5. Summary of advantages and disadvantages for each framework

Framework type	Advantages	Disadvantages	Potential application for measuring Traditional Owner management and ownership of water
Multi-criteria analysis	<ul style="list-style-type: none"> Allows for stakeholder and community participation in decision making. This is important for benefits (e.g. environmental) that are not easily valued through market transactions Ability to accommodate situations where data availability is poor, complementing other frameworks. Supports identification and measurement based on quadruple bottom line categories 	<ul style="list-style-type: none"> Requires subjective and non-testable judgement on perceived values. Results may not be easily interpreted if used in isolation to justify position or decision. Risk of participants not being representative of all affected stakeholders. Results being subject to bias, particularly to decision-makers' objectives. 	<ul style="list-style-type: none"> Could be used to inform Step 3 (measure the expected (or already experienced) benefits)
Ecosystem services assessment	<ul style="list-style-type: none"> Provides a systematic way to scope and then value different benefits (including health & wellbeing, environmental and economic) that can be used to inform a total economic valuation process and/or a cost benefit analysis. Provides an opportunity to link the biophysical impacts with the economic, environmental, and social impacts. Improves transparency in communication risks and trade-offs in management of environmental assets (Maltby et al., 2018) . Overall, this framework is increasingly accepted by policy makers, regulatory authorities, industry, and academia as a key tool for assessing (Maltby et al., 2018). 	<ul style="list-style-type: none"> Increases complexity in the assessment process e.g. it requires practical know-how in the process of policy making, implementation and on-the-ground changes (Turner et al., 2008) Requires detailed information and/or data at a scale relevant to decision making, including asset location, function and extent of impacts, among others An ecosystem services approach would not result in benefits being reported in quadruple bottom line categories (e.g. a degree of additional analysis would be required to report the identified values in environmental, social, economic and cultural categories. Not all benefits identified can be quantified. 	<ul style="list-style-type: none"> Could be used to inform Step 3 (measure the expected (or already experienced) benefits)

Framework type	Advantages	Disadvantages	Potential application for measuring Traditional Owner management and ownership of water
Total economic value	<ul style="list-style-type: none"> Provides a systematic way to identify, scope and then value a range of benefits. Provides a systematic way to categorise benefits into five key types: direct use, indirect use, option value, bequest / altruistic and philanthropic value, and existence value. Includes consideration of tangible and 'intangible' benefits such as bequest and existence value that are not typically included in NRM management. Allows for both input from stakeholders as well as established literature / 'expert' opinion. 	<ul style="list-style-type: none"> Requires the establishment of a link between the use (or non-use) of the asset / resource and the value to the beneficiary²⁵. This is problematic when considering hypothetical ownership / management structures. A TEV approach would not result in benefits being reported in quadruple bottom line categories (e.g. a degree of additional analysis would be required to report the identified values in environmental, social, economic and cultural categories). To be most valuable, requires a relatively high level of data /quantification. This is problematic when considering benefits that are not readily quantified. Requires monetisation of benefits, which can be controversial in some circumstances? 	<ul style="list-style-type: none"> Could be used to inform Step 4 (estimate the benefits in monetary terms)
Cost-benefit analysis	<ul style="list-style-type: none"> Encourages consideration of all positive and negative impacts for all affected stakeholders, maximising net benefit for community/society. Promotes transparency and consistency in decision-making. 	<ul style="list-style-type: none"> Not all impacts can be captured or measured within a CBA. Requires monetisation of benefits, which can be controversial in some circumstances? Results may be giving a sense of false accuracy, especially with data limitations. Where valuation relies on willingness to pay techniques these may not be a good reflection of community values given unequal income distributions within the affected community. 	<ul style="list-style-type: none"> No direct application with in the method in Section 3; however it could be an extension of Step 4 (estimate the benefits in monetary terms) Useful if attempting to decide between two different approaches to achieving management or ownership of water by Traditional Owners

²⁵ This is problematic when considering some 'use' values as Traditional Owners do not currently have property rights for the consumptive use of water.

Key point:

The review of frameworks indicates that no one framework is 'perfectly' suited to the objective of understanding the quadruple bottom line benefits from Traditional Owner management and ownership of water. For example:

- An ecosystem services approach is well-suited for identifying benefits that are associated with changes in the environment (e.g. from TO ownership of water), but is better suited for detailed, site-specific changes, rather than high level policy changes.
- An MCA approach is well-suited for identifying benefits across the quadruple bottom line and for those benefits where measuring value through market transactions is difficult. However, the process of determining the value requires careful management to make sure that results are representative of community views.
- A TEV approach is well-suited to identifying, scoping and measuring a range of benefits, including 'intangible' benefits. However, like an ecosystem services approach, requires relatively high levels of data to support measurement.
- A CBA approach is well-suited to benefits the value of which is reflected in market transactions (e.g. recreational fishing) but is not well-suited to benefits such as cultural or socio-political benefits.

However, elements of each framework can be drawn upon to implement the method outlined in Section 3, especially Step 2 and 3.