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# The Northern Territory's water planning arrangements

A technical report from the CSIRO Victoria River Water Resource  
Assessment for the National Water Grid

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Aspects of the Assessment have been undertaken in conjunction with the NT Government.

The Assessment was guided by two committees:

- i. The Assessment's Governance Committee: CRC for Northern Australia/James Cook University; CSIRO; National Water Grid (Department of Climate Change, Energy, the Environment and Water); Northern Land Council; NT Department of Environment, Parks and Water Security; NT Department of Industry, Tourism and Trade; Office of Northern Australia; Queensland Department of Agriculture and Fisheries; Queensland Department of Regional Development, Manufacturing and Water
- ii. The Assessment's joint Roper and Victoria River catchments Steering Committee: Amateur Fishermen's Association of the NT; Austrade; Centrefarm; CSIRO; National Water Grid (Department of Climate Change, Energy, the Environment and Water); Northern Land Council; NT Cattlemen's Association; NT Department of Environment, Parks and Water Security; NT Department of Industry, Tourism and Trade; NT Farmers; NT Seafood Council; Office of Northern Australia; Parks Australia; Regional Development Australia; Roper Gulf Regional Council Shire; Watertrust

Responsibility for the Assessment's content lies with CSIRO. The Assessment's committees did not have an opportunity to review the Assessment results or outputs prior to their release.

This report was reviewed by Dr Ian Watson (CSIRO), Dr Cuan Petheram (CSIRO) and Seonaid Philip (CSIRO). Seonaid Philip also generously assisted with data-chasing and map-making.

#### Acknowledgement of Country

CSIRO acknowledges the Traditional Owners of the lands, seas and waters of the area that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present.

#### Photo

Aquaculture farms, Northern Territory. Source: CSIRO – Nathan Dyer

## Director's foreword

Sustainable development and regional economic prosperity are priorities for the Australian and Northern Territory (NT) governments. However, more comprehensive information on land and water resources across northern Australia is required to complement local information held by Indigenous Peoples and other landholders.

Knowledge of the scale, nature, location and distribution of likely environmental, social, cultural and economic opportunities and the risks of any proposed developments is critical to sustainable development. Especially where resource use is contested, this knowledge informs the consultation and planning that underpin the resource security required to unlock investment, while at the same time protecting the environment and cultural values.

In 2021, the Australian Government commissioned CSIRO to complete the Victoria River Water Resource Assessment. In response, CSIRO accessed expertise and collaborations from across Australia to generate data and provide insight to support consideration of the use of land and water resources in the Victoria catchment. The Assessment focuses mainly on the potential for agricultural development, and the opportunities and constraints that development could experience. It also considers climate change impacts and a range of future development pathways without being prescriptive of what they might be. The detailed information provided on land and water resources, their potential uses and the consequences of those uses are carefully designed to be relevant to a wide range of regional-scale planning considerations by Indigenous Peoples, landholders, citizens, investors, local government, and the Australian and NT governments. By fostering shared understanding of the opportunities and the risks among this wide array of stakeholders and decision makers, better informed conversations about future options will be possible.

Importantly, the Assessment does not recommend one development over another, nor assume any particular development pathway, nor even assume that water resource development will occur. It provides a range of possibilities and the information required to interpret them (including risks that may attend any opportunities), consistent with regional values and aspirations.

All data and reports produced by the Assessment will be publicly available.



Chris Chilcott

Project Director

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# Shortened forms

SHORT FORM	FULL FORM
<b>ANU</b>	Australian National University
<b>ESY</b>	estimated sustainable yield
<b>CRCNA</b>	Cooperative Research Centre for Developing Northern Australia
<b>DEPWS</b>	Northern Territory Department of Environment, Parks and Water Security
<b>NT</b>	Northern Territory
<b>NT Water Act</b>	<i>Water Act 1992</i> (NT)
<b>NWI</b>	National Water Initiative
<b>SAWR</b>	Strategic Aboriginal Water Reserve
<b>TERC</b>	Territory Economic Reconstruction Commission
<b>WAP</b>	water allocation plan

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# Units

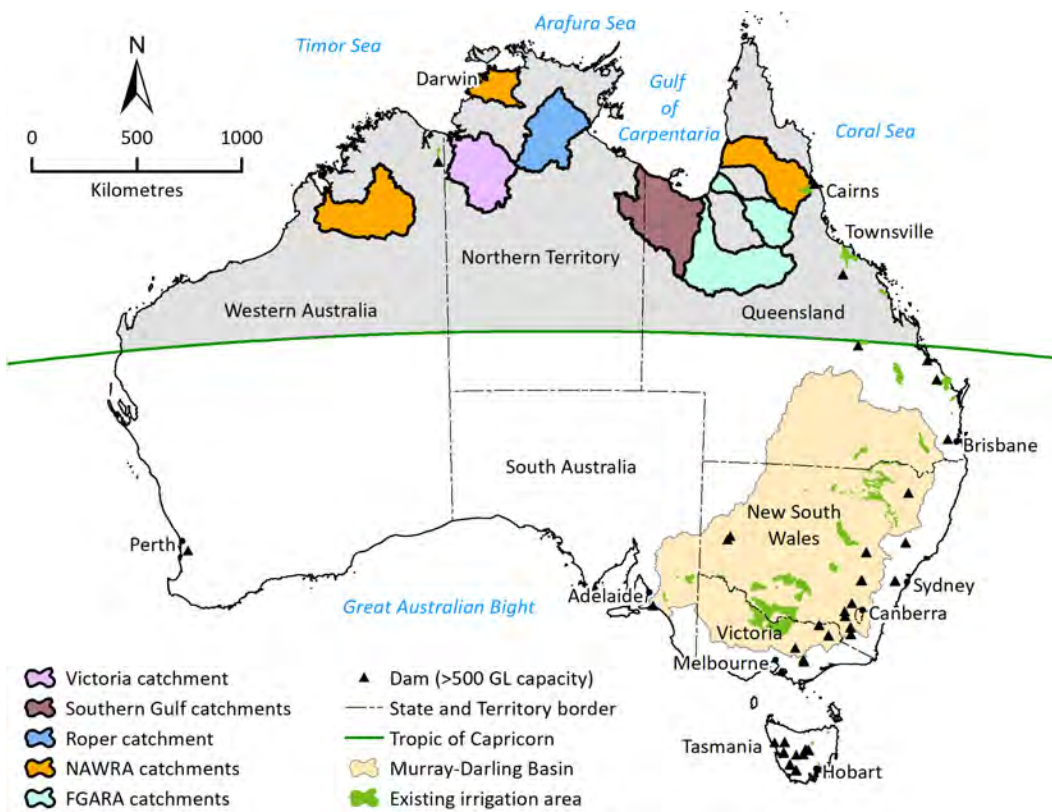
UNIT	DESCRIPTION
km <sup>2</sup>	square kilometre
GL	gigalitre
ha	hectare
ML	megalitre

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# Preface

Sustainable development and regional economic prosperity are priorities for the Australian and NT governments and science can play its role. Acknowledging the need for continued research, the NT Government (2023c) announced a Territory Water Plan priority action to accelerate the existing water science program ‘to support best practice water resource management and sustainable development.’

Governments are actively seeking to diversify regional economies, considering a range of factors. For very remote areas like the Victoria catchment (Preface Figure 1-1), the land, water and other environmental resources or assets will be key in determining how sustainable regional development might occur. Primary questions in any consideration of sustainable regional development relate to the nature and the scale of opportunities, and their risks.



**Preface Figure 1-1 Map of Australia showing Assessment area (Victoria catchment and other recent CSIRO Assessments)**

FGARA = Flinders and Gilbert Agricultural Resource Assessment; NAWRA = Northern Australia Water Resource Assessment.

How people perceive those risks is critical, especially in the context of areas such as the Victoria catchment, where approximately 75% of the population is Indigenous (compared to 3.2% for Australia as a whole) and where many Indigenous Peoples still live on the same lands they have inhabited for tens of thousands of years. About 31% of the Victoria catchment is owned by Indigenous Peoples as inalienable freehold.

Access to reliable information about resources enables informed discussion and good decision making. Such information includes the amount and type of a resource or asset, where it is found (including in relation to complementary resources), what commercial uses it might have, how the resource changes within a year and across years, the underlying socio-economic context and the possible impacts of development.

Most of northern Australia's land and water resources have not been mapped in sufficient detail to provide the level of information required for reliable resource allocation, to mitigate investment or environmental risks, or to build policy settings that can support good judgments. The Victoria River Water Resource Assessment aims to partly address this gap by providing data to better inform decisions on private investment and government expenditure, to account for intersections between existing and potential resource users, and to ensure that net development benefits are maximised.

The Assessment differs somewhat from many resource assessments in that it considers a wide range of resources or assets, rather than being a single mapping exercise of, say, soils. It provides a lot of contextual information about the socio-economic profile of the catchment, and the economic possibilities and environmental impacts of development. Further, it considers many of the different resource and asset types in an integrated way, rather than separately. The Assessment has agricultural developments as its primary focus, but it also considers opportunities for and intersections between other types of water-dependent development.

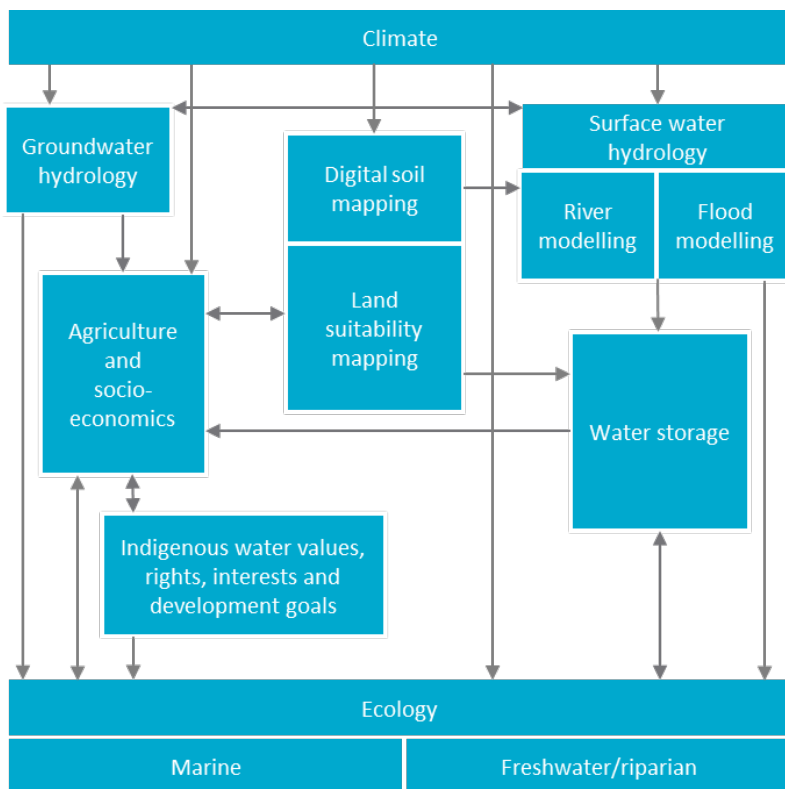
The Assessment was designed to inform consideration of development, not to enable any particular development to occur. The outcome of no change in land use or water resource development is also valid. As such, the Assessment informs – but does not seek to replace – existing planning, regulatory or approval processes. Importantly, the Assessment does not assume a given policy or regulatory environment. Policy and regulations can change, so this flexibility enables the results to be applied to the widest range of uses for the longest possible time frame.

It was not the intention of – and nor was it possible for – the Assessment to generate new information on all topics related to water and irrigation development in northern Australia. Topics not directly examined in the Assessment are discussed with reference to and in the context of the existing literature.

CSIRO has strong organisational commitments to reconciliation with Australia's Indigenous Peoples and to conducting ethical research with the free, prior and informed consent of human participants. The Assessment consulted with Indigenous representative organisations and Traditional Owner groups from the catchment to aid their understanding and potential engagement with its fieldwork requirements. The Assessment conducted significant fieldwork in the catchment, including with Traditional Owners through the activity focused on Indigenous values, rights, interests and development goals. CSIRO created new scientific knowledge about the catchment through direct fieldwork, by synthesising new material from existing information, and by remotely sensed data and numerical modelling.

Functionally, the Assessment adopted an activities-based approach (reflected in the content and structure of the outputs and products), comprising activity groups, each contributing its part to create a cohesive picture of regional development opportunities, costs and benefits, but also risks. Preface Figure 1-2 illustrates the high-level links between the activities and the general flow of information in the Assessment.





**Preface Figure 1-2 Schematic of the high-level linkages between the eight activity groups and the general flow of information in the Assessment**

### *Assessment reporting structure*

Development opportunities and their impacts are frequently highly interdependent and, consequently, so is the research undertaken through this Assessment. While each report may be read as a stand-alone document, the suite of reports for each Assessment most reliably informs discussion and decisions concerning regional development when read as a whole.

The Assessment has produced a series of cascading reports and information products:

- Technical reports present scientific work with sufficient detail for technical and scientific experts to reproduce the work. Each of the activities (Preface Figure 1-2) has one or more corresponding technical reports.
- A catchment report, which synthesises key material from the technical reports, providing well-informed (but not necessarily scientifically trained) users with the information required to inform decisions about the opportunities, costs and benefits, but also risks associated with irrigated agriculture and other development options.
- A summary report provides a shorter summary and narrative for a general public audience in plain English.
- A summary fact sheet provides key findings for a general public audience in the shortest possible format.

The Assessment has also developed online information products to enable users to better access information that is not readily available in print format. All of these reports, information tools and data products are available online at <https://www.csiro.au/victoriariver>. The webpages give users access to a communications suite including fact sheets, multimedia content, FAQs, reports and links to related sites, particularly about other research in northern Australia.

## Executive summary

This report provides an overview of the water planning arrangements and provisions that apply to the allocation, licensing and management of surface and groundwater resources within the Victoria and Roper river catchments in the Northern Territory (NT).

The NT's water planning arrangements include its *Water Act 1992*, plus a number of key water allocation policies and guidelines that apply within the NT. Water allocation plans (WAPs) apply to defined areas within the NT.

Under the Act, a landholder may only extract groundwater or surface water if authorised by a licence that is attached to their land, apart from for stock and domestic use or the irrigation of a house garden not exceeding 0.5 ha.

The Northern Territory Water Allocation Planning Framework (Framework) sets out allocation rules that apply to water resources both within and outside WAP areas. The Framework prioritises the allocation of water to non-consumptive beneficial uses, that is, environmental and cultural values. The remaining water may be made available as a 'consumptive pool' for consumptive beneficial uses (e.g. agriculture, mining, etc.).

Under the Framework, water allocation rules and contingent allocations are applied differently in two zones: (i) the Top End Zone (i.e. for surface water catchments draining northwards into the Timor Sea or the Gulf of Carpentaria) and (ii) the Arid Zone (i.e. for inland-flowing catchments). Protecting discharges to rivers and springs is a priority in the Top End Zone, whereas managing groundwater resources and groundwater-dependent flows is the focus in the Arid Zone.

A Surface Water Take – Wet Season Flows Policy supplants the rules in the Framework in relation to the taking of water from rivers in the Top End Zone during the wet season. The policy defines the volume of water available from wet-season water flows for consumptive uses to be 5% of the 25th percentile of total flows for the three highest flow months of the year, based on the previous 50 years flow or modelled rainfall data for the river basin.

WAPs may be declared for areas that are located within formally defined water control districts. This typically occurs in areas where there may be significant existing or potential water demands that need to be more closely managed in order to protect ecological or cultural values and to avoid over-extraction from groundwater aquifers, river flows, or wetlands.

An estimated sustainable yield (ESY) is the amount of water that can be allocated from the water resource to support declared beneficial uses that is sustainable. An ESY primarily refers to the amount in the consumptive pool. The 'non-consumptive pool required to preserve environmental and cultural assets' is not part of the ESY.

Two WAP areas, as shown in Figure 2-2 (one declared and one currently in progress), intersect with the Roper catchment:

- The Georgina Wiso WAP area intersects with the southern Roper catchment and applies to groundwater in the Cambrian Limestone Aquifer. The plan was developed on the basis that this groundwater resource is likely to come under developmental pressure, given that surface water

supplies in the region are ephemeral in nature, that is, not reliable enough to be useful for consumptive purposes, but are important in recharging the underlying groundwater resource. The plan provides for a total ESY from the groundwater resource of 210 GL/year to be allocated: just under 20 GL/year for rural stock and domestic requirements, around 1 GL/year for public water supply, approximately 20 GL/year as a reserve for Indigenous economic development, and 10 GL/year for petroleum activities, with the remaining 159 GL/year allocated for other consumptive uses (e.g. agriculture, aquaculture, cultural values, industry, mining). The plan also identifies the areas of eligible land to which the Strategic Aboriginal Water Reserve (SAWR) Policy applies, and flags that the NT Government is currently preparing reports for the Central Land Council and the Northern Land Council that will outline how eligible landholders will be identified and how volumes of SAWRs will be allocated.

- The Mataranka WAP (for which a draft was released in March 2024) includes a key horticultural section of the Roper catchment and covering an area from near Larrimah, along the Stuart Highway, to north of Mataranka. The plan provides for a total ESY of 62,429 ML/year in the plan area comprised of 2,769 ML/year in the North Mataranka water management zone, 24,447 ML/year in the South Mataranka water management zone, and 35,212 ML/year in the Larrimah water management zone. The plan proposes to prohibit any increase to the total licensed volume of water that may be taken from the North and South Mataranka water management zones in order to preserve dry season flows to the Roper River and sustain environmental values of the Rainbow and Bitter Springs. However, the plan also proposes to allow development in the Larrimah zone where groundwater resources are increasing and not reliant on the Tindall Limestone aquifer and there is considered likely to be less environmental impact.

It is important for proposed developers of the NT's water resources to not only understand the current regulatory provisions and constraints described in this report, but also to be aware that NT's water planning processes, policies and plans are likely to continue to evolve and change over time.

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# 1 Introduction

The key question that this activity seeks to address is:

- What are the water planning arrangements and provisions that apply to the allocation and management of surface and groundwater resources, within the NT (excluding fracking and mining) and specifically to the Victoria and Roper river catchments?

## 1.1 Purpose of this report

The objective of this report was to summarise the NT's current water planning arrangements for the use of people and entities with an interest in water resource development in the NT (the Victoria and Roper catchments in particular).

The report presents and describes the NT's:

- water planning arrangements applicable to surface water and groundwater in the NT, with a focus on the Victoria and Roper catchments
- volumes of water available for strategic, general, Indigenous, agricultural and/or other uses and associated constraints and process-related requirements
- various types of (and associated water management rules and specifications applicable to) existing and potential licensed water entitlements within the Victoria and Roper catchments
- current allocation and utilisation of existing licensed water entitlements in the Victoria and Roper catchments.

## 1.2 Report structure

This report consists of the following chapters:

- Chapter 2 introduces the NT's *Water Act 1992* (NT Water Act), key water allocation policies and guidelines, and water allocation plans (WAPs), which collectively embody the NT's water planning arrangements.
- Chapter 3 introduces and explores two WAPs that will intersect the Roper catchment:
  - the Georgina Wiso WAP
  - a WAP for the Mataranka Tindall Limestone Aquifer (currently in progress).
- Chapter 4 provides a brief commentary relating to the future of the NT's water planning and how it is continuing to evolve.

## 2 The Northern Territory's water planning arrangements

### 2.1 Overview

This section introduces the key components of the NT's water planning arrangements, starting with the NT Water Act and then describing a number of key water allocation policies and guidelines. WAPs (which also form an important part of these arrangements) are discussed in Chapter 3. The various components are depicted in Figure 2-1.

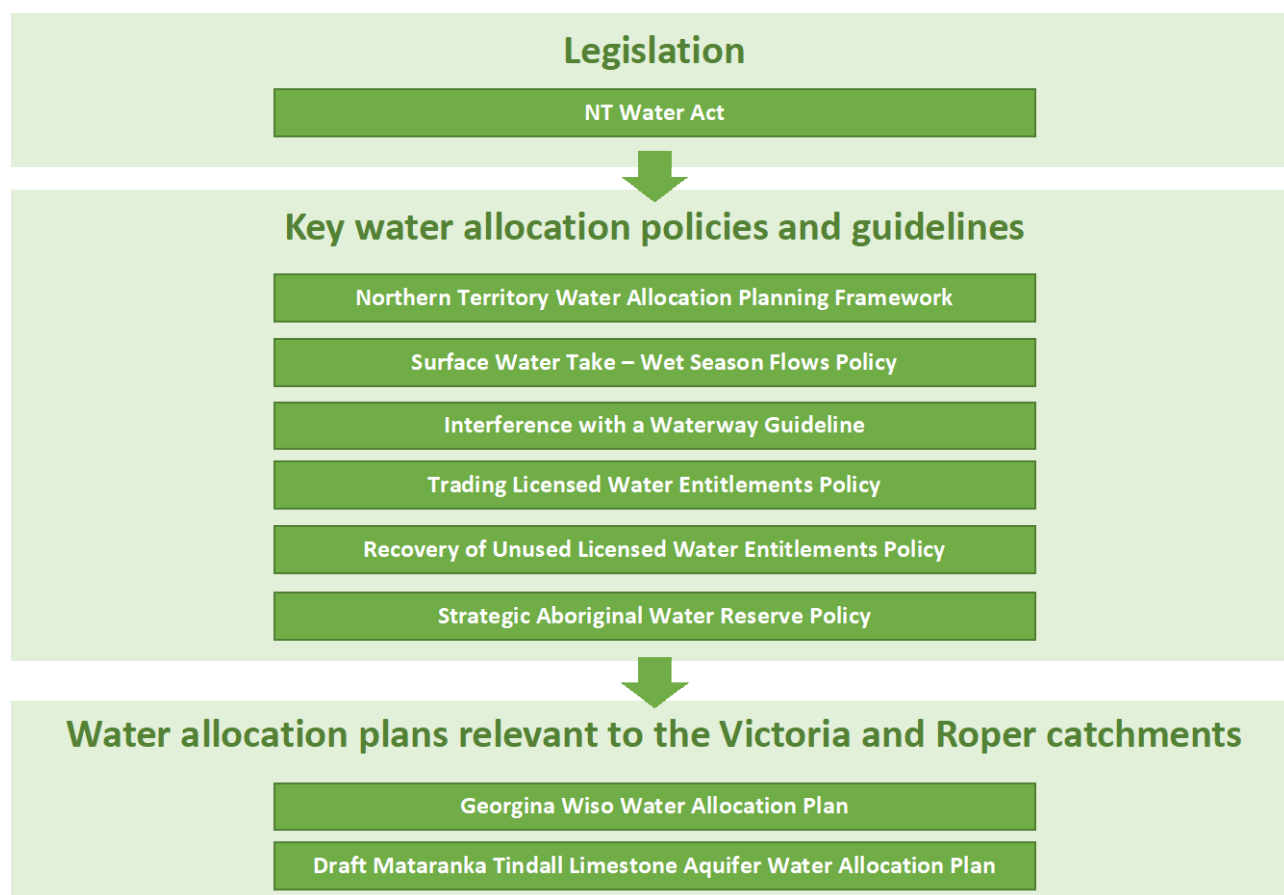


Figure 2-1 Key components of the Northern Territory's water planning arrangements

### 2.2 The NT Water Act

#### 2.2.1 A basis for decision making

The allocation, licensing and management of the NT's water resources are subject to the provisions of the *Water Act 1992* (NT) 'the Act'. It provides the legal and decision-making basis for



allocating water to a range of beneficial uses<sup>1</sup> (such as agriculture, industrial uses, public water supply, etc.) as well as providing for cultural and environmental water requirements (DEPWS, 2020a).

Under the Act, a landholder may only extract groundwater or surface water if authorised by a licence that is attached to their land, other than for stock and domestic use, or for irrigating a house garden not exceeding 0.5 ha (DEPWS, 2023b). Ten years is the standard maximum term. Where criteria are declared or special circumstances apply, a longer term may be granted. Licences are usually subject to conditions that specify the minimum and maximum volumes of water that can be extracted in a given season and/or year (DEPWS, 2023d). Licence conditions may also require a landholder to measure and report the amount of water taken over time (DEPWS, 2022).

Water control districts can be declared for a part of the NT, under the Act, by the Minister for Water Resources through the Government Gazette. Bore work permits and water extraction licences are required within a water control district.

The NT Water Act also provides for the formal declaration of WAPs within a water control district (NT Govt, 2023e). As discussed in Chapter 3, WAPs set how much water can be taken from the groundwater and surface water, and how much must be set aside to protect the resource.

Water control districts and WAPs are the primary means of establishing an increased level of regulation and management of water resources in areas that are considered to have significant existing or potential water demands, and where is a risk of over-extraction from groundwater aquifers, river flows, or wetlands (NT Govt, 2023e). The Roper catchment is one such area and is contained within the Daly Roper Beetaloo water control district, as shown in Figure 2-2.

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<sup>1</sup> Beneficial uses are defined under the NT Water Act in Part 1 Section 4 Subsection 3.

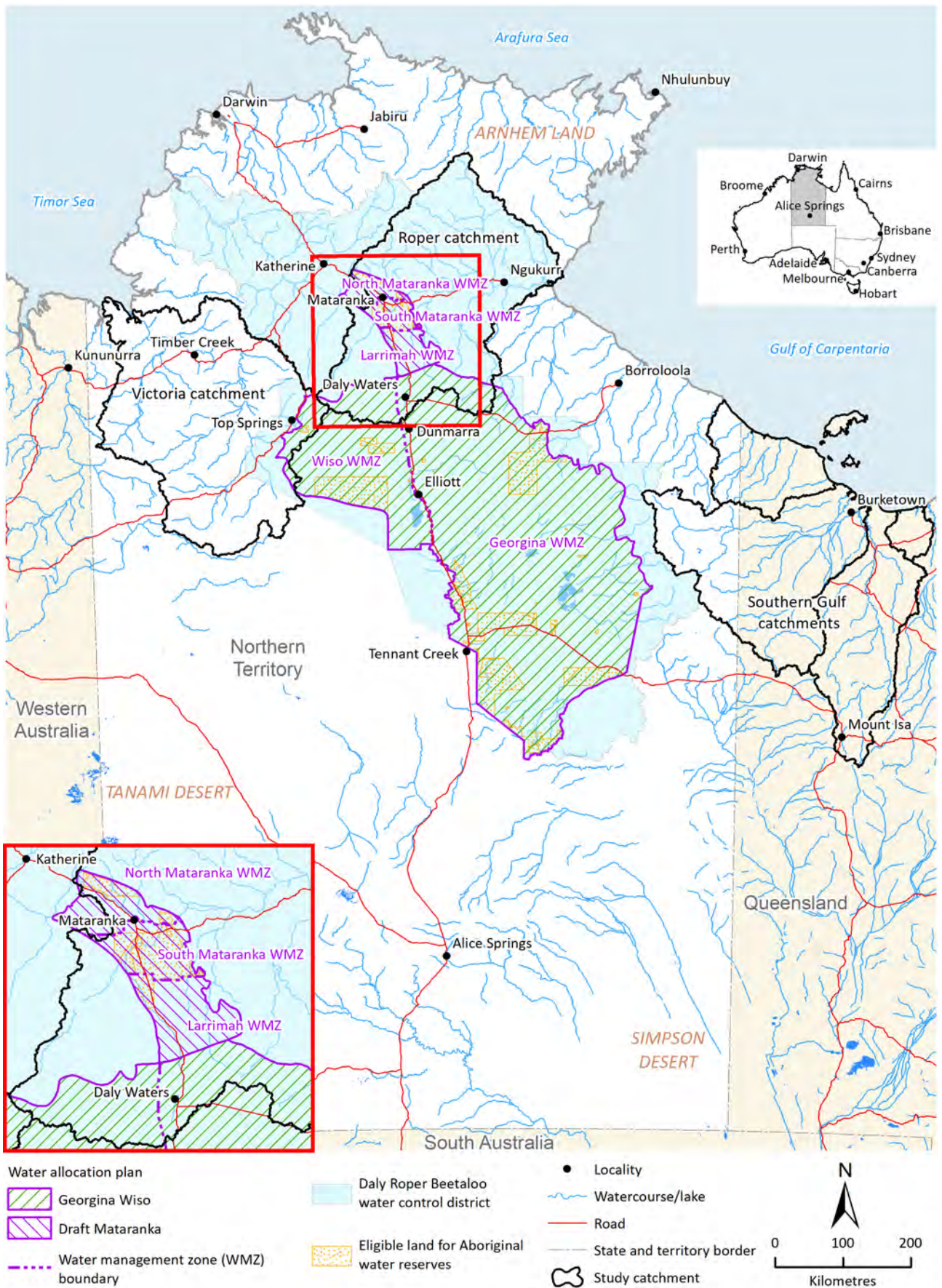


Figure 2-2 Location of study catchment assessment areas relative to key management boundaries

### **2.2.2 Application process for a water licence**

In the NT, a water licence allows its holder to take surface water or groundwater using a bore or river pump system. Water licences specify where water can be used. Through conditions of the licence a licence is linked to land and further water licences are automatically transferred with the transfer of interest in land. Licence applications that are submitted with the required supporting information can take at least 3 to 4 months to process. A guide to the application process, associated templates, and other information is available on the NT Government website (NT Govt, 2024a).

Table 2-1 summarises the key steps in the water licence application process.

**Table 2-1 Water licence application process**

STEP	DESCRIPTION	INDICATIVE TIME FRAME
<b>Check application tier</b>	<p>Applications are aligned with one of three tiers (NT Govt, 2024f):</p> <ul style="list-style-type: none"> <li>• tier 1: simple applications for less than 500 ML/y within a water allocation plan (WAP) area, a local-scale aquifer, or the Darwin rural water control district</li> <li>• tier 2 – application for more than 500 ML/y within a WAP area, a local-scale aquifer, or the Darwin rural water control district, less than 500 ML/y from surface water or from an intermediate or regional-scale aquifer outside of a plan area, or for any volume for a simple mining or petroleum exploration operation</li> <li>• tier 3 – a significant application for more than 500 ML/y of surface water or from intermediate or regional-scale water sources outside a WAP area, for significant mining or petroleum activities, or for activities that need an environmental impact statement or equivalent.</li> </ul>	<p>A pre-lodgement meeting with the department may be advisable to ensure the correct tier is selected at the outset and to confirm the process (and other approvals) applicable to the specific development being proposed.</p> <p>This step may take from days to several weeks to complete.</p>
<b>Complete application form</b>	<p>Application form templates are available from the NT Government website (NT Govt, 2024a).</p> <p>The application forms provide useful checklists of other approvals that may be required.</p>	<p>Completion of the form might be expected to take from days to weeks once the supporting documents and material have been collected.</p>
<b>Prepare supporting documents</b>	<p>Reporting requirements are dependent on the applicable tier identified above.</p> <p>Tier 2 applications require additional information to tier 1 applications, and tier 3 applications require even more information than tier 2 applications.</p> <p>Detailed lists of the required information are available from the NT Government website (NT Govt, 2024f).</p>	<p>The time frame depends on the extent of information required for the tier.</p> <p>Tier 1 information could take weeks to months to collect.</p> <p>Tier 2 and 3 information could take months or even years to collect.</p>
<b>Submit application</b>	<p>Applications and supporting documents may be emailed or posted.</p>	<p>Not applicable.</p>
<b>Assess and approve or reject application</b>	<p>The assessment process involves the following steps:</p> <ul style="list-style-type: none"> <li>• confirmation of receipt of the application</li> <li>• assessment of whether the application and supporting materials are complete (and appropriate for the tier)</li> <li>• acceptance of the application and confirmation of whether the proponent wishes to continue with the application</li> <li>• publishing of a notice of intention to make a water licence decision in the newspaper and communication to owners and occupants of all land near where the water is proposed to be taken from and/or used</li> <li>• issuing of a statement of decision by the Water Controller, taking into account all comments received plus matters set out in the Act, and (if applicable) issuing of a licence with terms and conditions</li> <li>• publishing of a notice of water licence decision in the newspaper in which the initial notice of intention was published. The notice includes a brief statement of the reasons for the decision plus where a copy of the full statement of the decision may be accessed.</li> </ul>	<p>The time from submission to acceptance can take from 10 to 60 business days, depending on the application tier.</p> <p>An advertisement giving notice of intention to make a water licence decision must include an invitation to make written comments about the application within 30 days of the notice being published.</p> <p>The time to make a decision after close of the advertising period is not specified and is likely to be dependent on the complexity of the proposal and the extent of the comments received.</p> <p>A notice of a decision must be published within 20 days of the decision being made.</p>
<b>Appeal process</b>	<p>A review of certain decisions may be requested under section 105D of the Water Act 1992.</p> <p>Requests for a review may be made to the NT Civil and Administrative Tribunal (NTCAT) which is a non-judicial body that aims to resolve disputes.</p>	<p>The NTCAT website provides information about how the review application process.</p> <p>NTCAT suggest obtaining legal advice about the timeframe limits that may relate to a specific matter</p>

Source: extracted from NT Govt (2024a, f).

### **2.2.3 Other approvals potentially required by proponents of water resource developments**

A water extraction licence is only one of the requirements for progressing a water resource development. The requirements are discussed in more detail in the report 'Regulatory requirements for land and water development in Queensland and the NT' (CSIRO, 2024) and include:

- securing a water licence to take water from a watercourse and/or from a groundwater aquifer (discussed above)
- the acquisition of suitable tenure over the development site
- the construction of new water infrastructure, such as a dam, either in a watercourse or offstream
- the construction of ancillary infrastructure, such as roads or pipelines for distributing water
- the clearing of vegetation to allow for agriculture or other development opportunities
- undertaking earthworks to make the land suitable for farming and/or irrigation (e.g. through laser levelling of the ground)
- planning and conducting farming activities, such as the growing of crops and the use of fertilisers and pesticides, or aquaculture activities.

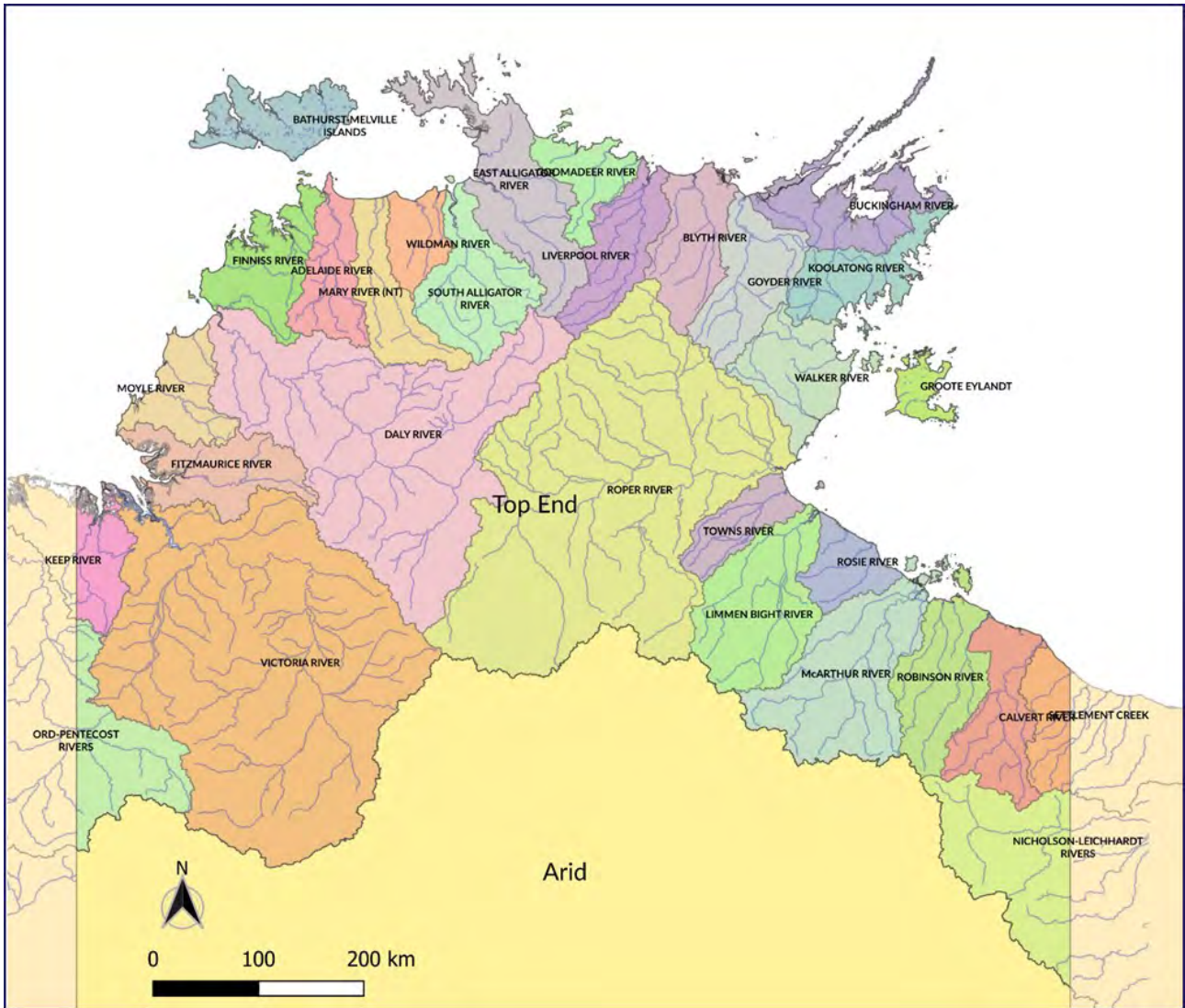
## **2.3 Key water allocation policies and guidelines**

### **2.3.1 Northern Territory Water Allocation Planning Framework**

The Northern Territory Water Allocation Planning Framework (Framework) sets out allocation rules that apply to water resources both within and outside WAP areas. The Framework prioritises the allocation of water to non-consumptive beneficial uses (i.e. environmental and cultural values) (NT Govt, 2023d). The remaining water may be made available as a 'consumptive pool' for beneficial uses (e.g. agriculture, mining, etc. (DEPWS, 2023g)). These rules are particularly important where there is limited scientific information about environmental and cultural water requirements (DEPWS, 2021).

The NT is divided into two zones: the Top End Zone, in which surface water catchments generally drain northwards into the Timor Sea or the Gulf of Carpentaria, and the Arid Zone, which has inland-flowing catchments (Figure 2-3). The characteristics of the two zones and the contingent allocations established by the Framework for them are summarised in Table 2-2.

Under the Framework, the water allocation rules and contingent allocations that apply in the NT's Top End Zone are different from those that apply in the Arid Zone. Protecting discharges to rivers and springs is a priority in the Top End Zone, whereas managing stored water and groundwater-dependent resources is the focus in the Arid Zone (DEPWS, 2021).



**Figure 2-3 Top End and Arid zones in the Northern Territory**

Source: NT Govt (2023d). Creative Commons licence.

**Table 2-2 Contingent allocations applicable to the Northern Territory's Top End and Arid zones**

NT ZONE	CHARACTERISTICS OF ZONE	CONTINGENT ALLOCATIONS FOR RIVERS	CONTINGENT ALLOCATIONS FOR AQUIFERS
<b>Top End Zone</b>	<p>distinct wet and dry season, with over 95% of rainfall occurring between October to April</p> <p>rainfall greater than 600 mm in most years</p> <p>seasonal runoff of greater than 0.5 ML/ha in most years</p> <p>streamflow with daily peak flows more than ten times the mean daily wet-season flows</p> <p>seasonal (wet-season) groundwater recharge in most years</p>	<p>at least 80% of the flow at any time in any part of a river is allocated as water for environmental and other public benefit water provision, and extraction for consumptive uses will not exceed the threshold level, equivalent to 20% of the flow at any time in any part of a river</p> <p>in the event that current and/or projected consumptive use exceeds the 20% threshold level, new surface water licences will not be granted unless supported by directly related scientific research into environmental and other public benefit requirements</p>	<p>at least 80% of the annual recharge is allocated as water for environmental and other public benefit water provision, and extraction for consumptive uses will not exceed the threshold level, equivalent to 20% of annual recharge</p> <p>in the event that current and/or projected consumptive use exceeds the 20% threshold level, new groundwater licences will not be granted unless supported by (i) directly related scientific research into groundwater-dependent ecosystem and cultural requirements, or (ii) in the absence of such research, hydrological modelling confirming that total groundwater discharge will not be reduced by more than 20%</p>
<b>Arid Zone</b>	<p>no distinct wet season, with less than 95% of rainfall occurring between October to April</p> <p>variable and episodic rainfall, with less than 600 mm occurring in most years</p> <p>runoff of less than 0.5 ML/ha/year, commonly with consecutive years of no streamflow</p> <p>groundwater recharge occurs rarely or not at all</p>	<p>at least 95% of the flow at any time in any part of a river is allocated as environmental and other public benefit water provision, and extraction for consumptive uses will not exceed the threshold level equivalent to 5% of the flow at any time in any part of a river</p> <p>in the event that current and/or projected consumptive use exceeds the threshold level of 5% for river flow, new surface water licences will not be granted unless supported by directly related scientific research into environmental and other public benefit requirements</p>	<p>there is to be no deleterious change in groundwater discharges to dependent ecosystems, and total extraction over a period of at least 100 y will not exceed 80% of the total aquifer storage at the start of extraction</p> <p>in the event that current and/or projected consumptive use exceeds the threshold level of 80% of the consumptive pool for aquifers, or there is impact on groundwater discharges to groundwater-dependent ecosystems, new groundwater licences will not be granted unless supported by directly related scientific research into groundwater-dependent ecosystem and cultural requirements</p>

Source: Extracted from DENR (2020) and NT Govt (2023d). Creative Commons licence.

### 2.3.2 Surface Water Take – Wet Season Flows Policy

A Surface Water Take – Wet Season Flows Policy (NT Govt, 2024d), which commenced in February 2024, supplants the rules in the Framework in relation to the taking of water from rivers in the Top End Zone during the wet season.

The policy states that ‘The volume of water available from wet season water flows to consumptive uses will be 5% of the 25th percentile of total flows for the three highest flow months of the year based on the previous 50 years flow or modelled rainfall data of the river basin (5% of 25th percentile).’ However, the Policy provides for a WAP to allow a greater volume of water than this to be taken from wet-season flows.

Table 2-3 presents the default principles that are to be applied in establishing the water availability from wet-season flows. A WAP may establish an alternative set of principles to these.

**Table 2-3 Principles associated with the Surface Water Take – Wet Season Flows Policy**

PRINCIPLES ASSOCIATED WITH THE SURFACE WATER TAKE – WET SEASON FLOWS POLICY
The total wet-season consumptive pool will be determined for the river basin, based on the flows at a location upstream of tidal influence.
The total wet-season consumptive pool will exclude transitional flows, during the transitions from dry to wet seasons (generally November to December) and wet to dry seasons (generally April to May).
The total flows will be determined using the historical data (typically over 50 years), based on the available data from relevant department gauging stations. If there are no available data, the total flows will be calculated using the department’s surface water models.
The proportion of the total wet-season consumptive pool available to take under a licence will be determined as a proportion of the total catchment flow. Generally, this means the further downstream the point of take, the greater the portion of the wet-season consumptive pool that would be available.

Source: extracted from NT Govt (2024d). Creative Commons licence.

### **2.3.3 Interference with a Waterway Guideline**

A permit to interfere with a waterway may also be required in situations where it is proposed to use infrastructure to take and store a large quantity of water. The Interference with a Waterway Guideline sets out requirements regarding the information that may be required to support an application for such a permit (NT Govt, 2024c).

### **2.3.4 Trading Licensed Water Entitlements Policy**

The Trading Licensed Water Entitlements Policy establishes general principles that apply to the transfer of all or part of a licensed entitlement from one licence to another existing licence or to a new licence, but only within a WAP area. A temporary trade refers to a licensed entitlement being transferred for a period less than its remaining term. An ongoing trade refers to a licensed entitlement being transferred for the whole of the remainder of its term. Specific trading rules are defined within WAPs. Ongoing trades that would result in the removal of a licence from a SAWR are not allowed (DEPWS, 2020b).

### **2.3.5 Recovery of Unused Licensed Water Entitlements Policy**

Holders of surface water or groundwater licences issued under the NT Water Act may be required to use a minimum volume of water at least once within a defined period (e.g. 3 years).

The Recovery of Unused Licensed Water Entitlements Policy (DEPWS, 2023f) and the associated Procedure (DEPWS, 2023e) outline the triggers and the process for calculating and recovering unused licensed water entitlements (DEPWS, 2023h). The Policy defines an unused licensed entitlement as the difference between the minimum extraction requirement (defined on the licence) and the actual extraction volume of water extracted by the licence holder in any one water accounting year (where the actual extraction volume is less than the minimum extraction requirement).

### **2.3.6 Aboriginal Water Reserve**

Under the Water Act Aboriginal Water Reserves (AWRs) are incorporated into current and future WAPs. An AWR is set aside within a WAP as a specific volume of water for use, partnership or



trade (if within a WAP area and allowed by that WAP) by Aboriginal people. AWRs aim to be managed exclusively for future economic development by, and for the benefit of, eligible Indigenous Peoples and are in addition to cultural and/or environmental flow provisions.

Strategic Aboriginal Water Reserves Policy Framework (October 2017) guides the implementation of the AWR. Under the Policy 'water extraction licences that access the AWR may be temporarily traded or on-traded in accordance with trading rules specified in the water allocation plan; however permanent trading is prohibited. Applicants seeking a licence to access water from a AWR, or seeking to trade or on-trade water sourced from a AWR, must demonstrate they have negotiated in good faith and provide evidence of consent from the eligible Aboriginal rights holders or their authorised representatives' (NT Govt, 2017).

SAWRs are determined based on the proportion of eligible Aboriginal land in the plan area. Under the policy, WAPs must designate a portion of the consumptive pool as a AWR. The portion may be divisible where multiple eligible Indigenous entities exist (NT Govt, 2017).

## 3 Water allocation plans

### 3.1 Overview

WAPs aim to equitably manage surface water and groundwater resources to preserve quality of life and the integrity of the water-dependent ecosystems in the region.

The NT Water Act provides for prioritisation of public water supply and stock and domestic uses, then non-consumptive purposes (e.g. environmental and cultural values), and lastly consumptive beneficial uses (industrial, agricultural, aquaculture and cultural uses) (NT Govt, 2023d).

An estimated sustainable yield (ESY) is the amount of water that can be allocated from the water resource to support declared beneficial uses that is sustainable. An ESY primarily refers to the amount in the consumptive pool. The 'non-consumptive pool required to preserve environmental and cultural assets' is not part of the ESY.

WAPs are developed in consultation with the community, Indigenous Peoples, industry, and environmental organisations. They are also informed by detailed technical and scientific assessments.

The extent to which water is made available for consumptive purposes in each WAP is based on the specific attributes of the surface water and/or groundwater systems in the plan area, such as:

- groundwater – depth, flow rate (transmissivity), water quality (salinity), proximity to groundwater-dependent ecosystems, recharge rate
- surface water – seasonality and unpredictability of streamflow (DEPWS, 2023a).

A WAP is declared by the Minister for Water Resources for up to 10 years and is reviewed at least every 5 years (DEPWS, 2023a).

#### 3.1.1 WAPs applicable to the Victoria and Roper catchments

As shown in Figure 2-2, within the Top End Zone:

- the Victoria catchment is located in the north-west of the NT, with surface water flowing to the Timor Sea
- the Roper catchment is located in the north-east of the NT, with surface water flowing to the Gulf of Carpentaria.

Two WAP areas intersect with the Roper catchment, as shown in Figure 2-2:

- the Georgina Wiso WAP area intersects with the southern edge of the Roper catchment
- the Mataranka Tindall Limestone Aquifer area (for which the draft Mataranka WAP is under preparation) intersects with a key horticultural section of the Roper catchment. It is located in an area from near Larrimah, along the Stuart Highway, to north of Mataranka.

These WAPs are discussed in the following two sections.

## 3.2 Georgina Wiso water allocation plan

### 3.2.1 Overview

The Georgina Wiso WAP commenced on 10 November 2023 and has a life of 8 years, after which it will be reviewed and updated (DEPWS, 2023c). The plan area (shown in Figure 3-1) covers around 155,000 km<sup>2</sup>, which equates to about 12% of the NT.

The Georgina and Wiso basins are sparsely populated, with around 1300 people mainly living in townships, small communities, homelands, or family outstations (NT Govt, 2023a).

Approximately 13% of the plan area is recognised as Indigenous land (DEPWS, 2023c), shown as Freehold tenure type in Figure 3-1.

The WAP identifies the pastoral industry as being the major land use, with 65 pastoral leases intersecting the plan area (Figure 3.3). Interest in diversifying pastoral land use is strong, and mining and petroleum exploration is occurring in the area. In addition, the plan area is underlain by a substantial gas resource that is the focus of exploration and potential production interest (NT Govt, 2023a).

Currently, applied irrigation water is limited to rural stock and domestic purposes (estimated at 13,587 ML/year), public water supply (460 ML/year), and petroleum activities (948 ML/year). No licences exist for other consumptive uses (i.e. agriculture, aquaculture, cultural, industry or mining activities). However, the agricultural, mining and petroleum industries are expected to experience growth in water demands over the next decade, as shown in Table 3-1 (NT Govt, 2023a).

**Table 3-1 Projected growth in agricultural, mining and petroleum water demands in the Georgina Wiso water allocation plan area (ML/year) for the next decade**

BENEFICIAL USES (CONSUMPTIVE)	GEORGINA BASIN	WISO BASIN	TOTAL
<b>Agriculture</b>	128,160	20,000	148,160
<b>Industry</b>	600	400	1,000
<b>Mining activity</b>	8,000	2,000	10,000
<b>Petroleum activity</b>	8,000	2,000	10,000
<b>Total</b>	<b>144,760</b>	<b>24,400</b>	<b>169,160</b>

Source: DEPWS (2023d). Creative Commons licence.

### 3.2.2 Key plan provisions

The WAP only applies to groundwater in the Cambrian Limestone Aquifer. It recognises that this resource is likely to come under pressure from further development in the future, given that surface water supplies in the region are ephemeral in nature and unreliable for consumptive purposes, and therefore not allocated. In addition, most surface water features in the WAP area are considered to recharge the underlying groundwater (NT Govt, 2023a).

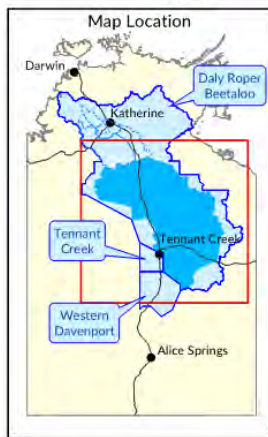
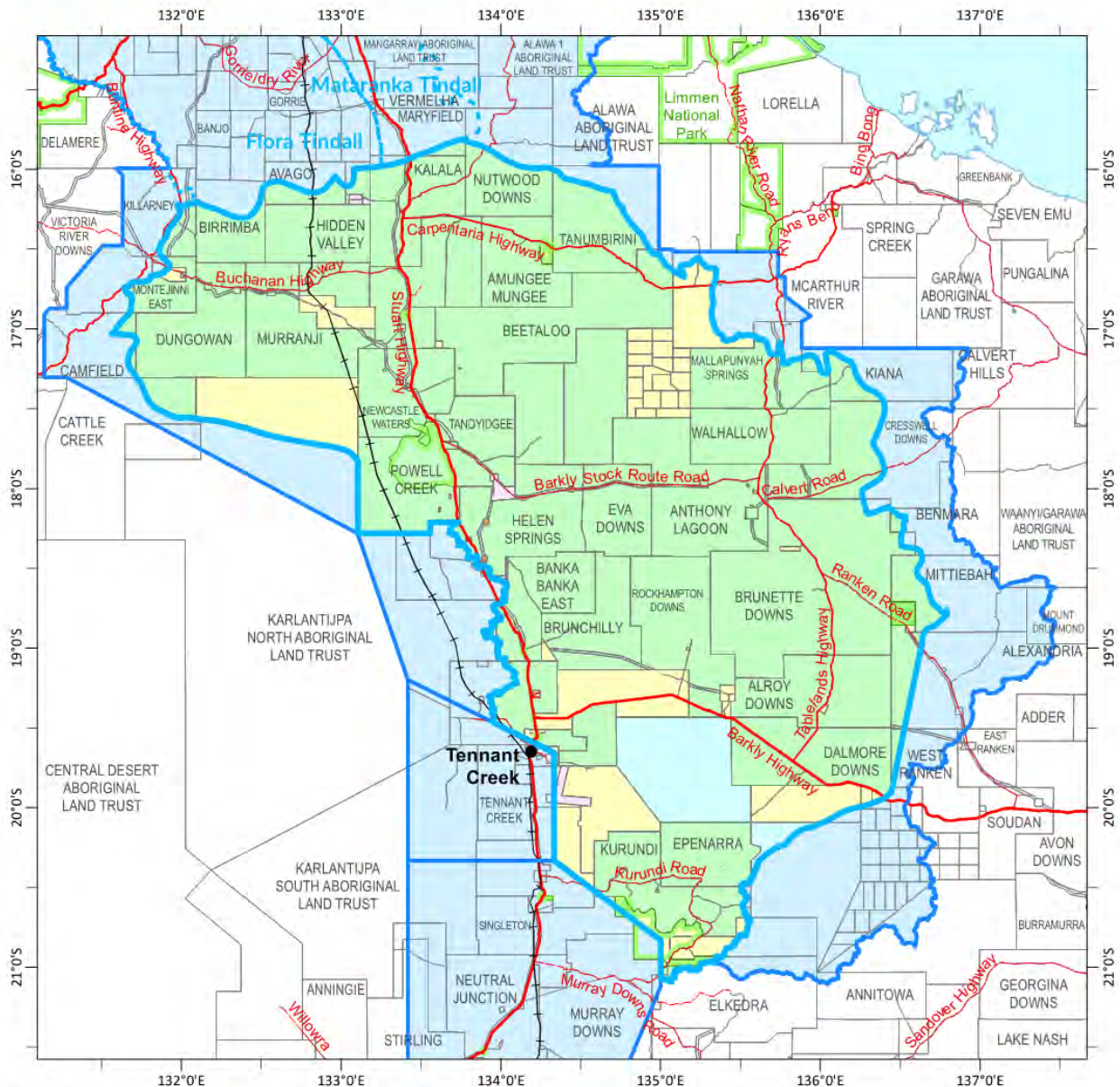
### The Georgina Wiso WAP:

- establishes two water management zones (the Georgina and Wiso basins), as shown in Figure 2-2
- provides for a total ESY of 210 GL/year from the groundwater resources of the Cambrian Limestone Aquifer. This represents a small proportion of its estimated volume of water storage of 740,000 GL. The remaining water is retained in the environment for ecological and cultural purposes
- allocates 10 GL/year of the ESY for petroleum-related activities in the plan area (noting that the Act prohibits surface water being used for petroleum activities)
- provides for a SAWR of just over 20 GL/year from the ESY for Indigenous economic development in the plan area (NT Govt, 2023b). This represents 10% of the available consumptive pool (of 171,090 ML/year) for the Georgina Basin water management zone, plus around 17% of the available consumptive pool (of 18,320 ML/year) for the Wiso Basin water management zone.<sup>2</sup> The NT Government is currently preparing reports for the Central Land Council and the Northern Land Council that will outline how eligible landholders will be identified and how the volumes of SAWRs will be allocated
- identifies the areas of eligible land to which the SAWR applies, as shown in Figure 2-2
- establishes rules for the trading of water licences within each of the two water management zones
- prioritises current and projected future public water supply needs over other beneficial uses. Licences may only be granted from the Cambrian Limestone Aquifer if total levels of allocations are within specified volumes for each water management zone and beneficial use (NT Govt, 2023b).

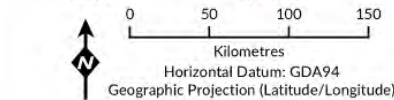
Table 3-2 presents the volumes of groundwater allocated to beneficial uses within the WAP area.

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<sup>2</sup> The WAP states that the available consumptive pool is the ESY less the allocation to public water supply, environment, and rural stock and domestic use.



Map compiled: 12/12/2023  
 Department of Environment,  
 Parks and Water Security  
 Geospatial Services  
 Drawing No. DEPWS2023026



- Legend**
- Georgina Wiso Water Allocation Plan Area
  - Other Water Allocation Plan Areas
  - Water Control District**
  - Water Control Districts
  - Conservation Areas**
  - NT Parks and Reserves
  - Aboriginal Land (Tenure - Freehold)**
  - Aboriginal Land (Scheduled under ALRA)
  - Aboriginal Land (NT Freehold)
  - Tenure Types within WAP area**
  - Freehold
  - Pastoral Lease
  - Crown Lease Perpetual
  - Crown Lease Term
  - Crown Land
  - Government Use
  - Special Purposes Lease
  - Reserve

**DATA SOURCES:**  
 Water Resource Information, Parks:  
 Department of Environment, Parks and Water Security  
 Cadastre/Roads/Placenames:  
 Department of Infrastructure, Planning and Logistics  
 Drainage:  
 250K © Commonwealth of Australia (BoM) 2015

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**Declared  
 Georgina Wiso  
 Water Allocation Plan  
 2023 - 2031**

**Figure 3-1 Declared Georgina Wiso water allocation plan area**

Source: DEPWS (2023b). Creative Commons licence.

**Table 3-2 Groundwater allocated to beneficial uses within the Georgina Wiso water allocation plan area (ML/year)**

BENEFICIAL USES	GEORGINA BASIN	WISO BASIN	TOTAL
Rural stock and domestic use	14,250	5,300	19,550
Public water supply	800	216	1,016
Strategic Aboriginal Water Reserve for Indigenous economic development	17,109	3,142	20,251
Petroleum activity	8,000	2,000	10,000
Other consumptive uses (agriculture, aquaculture, cultural, industry, mining)	145,985	13,178	159,163
Consumptive environmental allocations	10	10	20
<b>Total</b>	<b>186,154</b>	<b>23,846</b>	<b>210,000</b>

Source: DEPWS (2023d). Creative Commons licence.

### 3.3 Mataranka Tindall Limestone Aquifer water allocation plan

A WAP for the Mataranka Tindall Limestone Aquifer area is currently being prepared for an area that extends from north of Mataranka, along the Stuart Highway, to south-east of Larrimah (see Figure 2-2).

A draft WAP was released for public review and comment in March 2024 (NT Govt, 2024e).

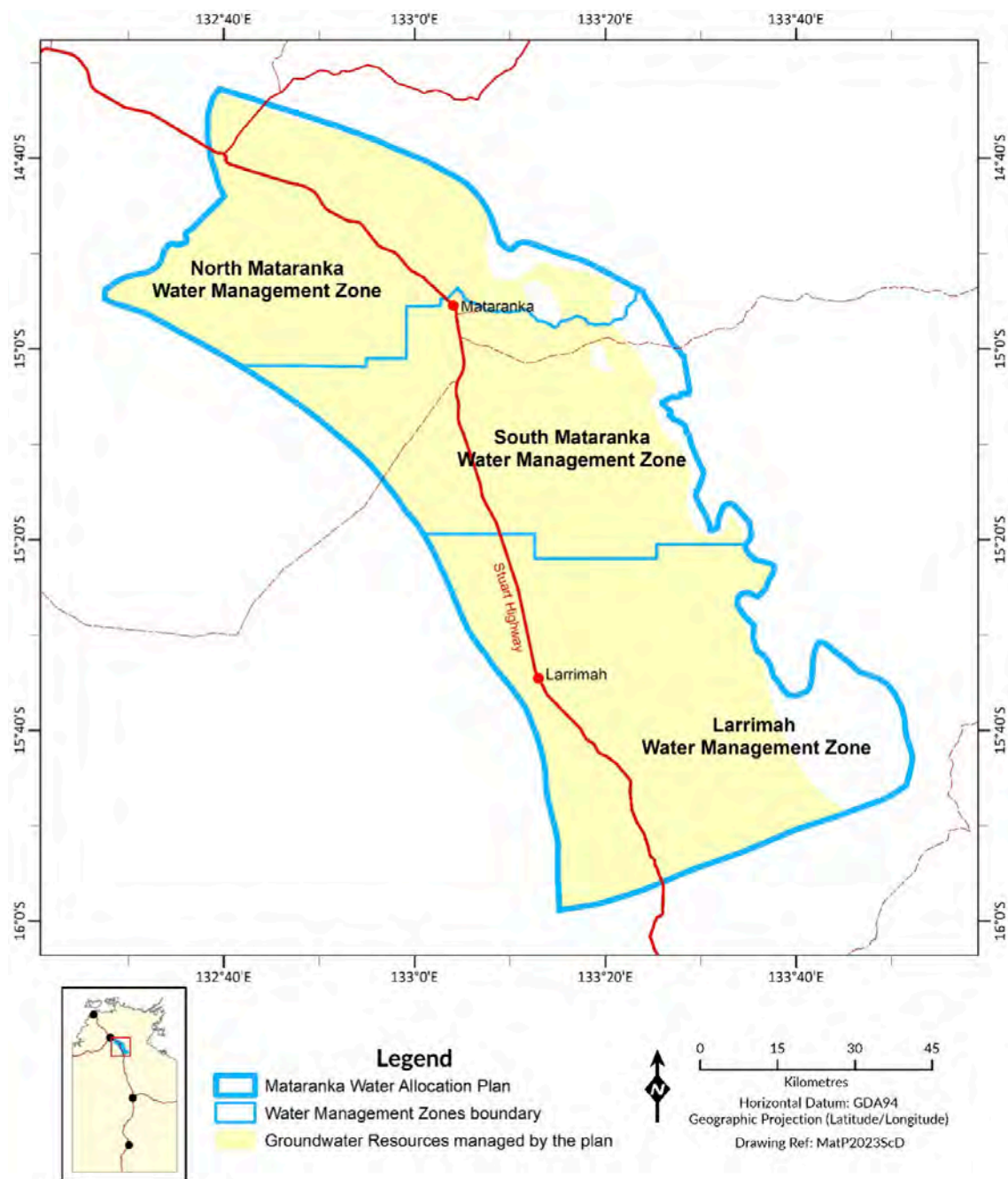
The WAP (NT Govt, 2024b) proposes to:

- apply to groundwater resources in the Tindall Limestone Aquifer categorised in terms of three water management zones being North Mataranka, South Mataranka and Larrimah (as shown in Figure 3-2)
- provide for a total ESY of 62,429 ML/year in the plan area comprised of 2,769 ML/year in the North Mataranka water management zone, 24,447 ML/year in the South Mataranka water management zone, and 35,212 ML/year in the Larrimah water management zone
- preserve more than 90 per cent of dry season flows to the Roper River to sustain environmental values of the Rainbow and Bitter Springs. This means that no increase will be allowed to the total licensed volume of water that may be taken from the North and South Mataranka water management zones. In addition, access by existing licence holders in this area may be subject to climate-dependent environmental flow requirements first being met
- allow development in the Larrimah zone where groundwater resources are increasing and there is considered likely to be minimal impact on the flows of the Roper River or terrestrial groundwater dependent ecosystems
- support Aboriginal economic development in the plan area by allocating 4,574 ML/year to the Aboriginal Water Reserve from within the ESY and providing for this to increase to 11,171ML/year subject to water being unused water entitlements being recovered and returned to the ESY.

Table 3-3 presents the volumes of groundwater allocated to beneficial uses within the WAP area.

Groundwater licences that authorise the taking of water from the Tindall Limestone Aquifer via bores in the North and South Mataranka water management zones are subject to announced allocations. The licences limit how much water may be taken within a set period (i.e. licence

holders can only use up to their announced allocation percentage, which could be less than 100%, in a particular allocation period). For this WAP area, the allocation period extends from 1 May to 30 April in the following year (Controller of Water Resources, 2021)<sup>3</sup>. In April 2022, all licence holders were permitted to extract up to 100% of their maximum licensed entitlement for the 2022–23 water accounting year (Controller of Water Resources, 2022). However, the announced allocation rules mean that licence holders may not be able to use 100% of the volume specified on their licence in 100% of years.



**Figure 3-2 Mataranka Tindall Limestone Aquifer water allocation plan area**

Source: NT Govt (2024b). Creative Commons licence.

<sup>3</sup> Water years are selected to match the hydrologic availability of water sources to the growing season considered relevant to each area that is subject to the announced allocations.

**Table 3-3 Groundwater proposed to be allocated to beneficial uses within the Mataranka water allocation plan area (ML/year)**

BENEFICIAL USES	NORTH MATARANKA	SOUTH MATARANKA	LARRMAH	TOTAL
Rural stock and domestic use	221	311	200	732
Public water supply	103	390	20	513
Aboriginal water reserve for Aboriginal economic development	47	935	3,592	4,574
Other consumptive uses (agriculture, aquaculture, cultural, industry, mining and petroleum activities)	2,363	22,801	31,416	56,580
Consumptive environmental allocations	10	10	10	30
<b>Total</b>	<b>2,744</b>	<b>24,447</b>	<b>35,238</b>	<b>62,429</b>

Source: NT Govt (2024b). Creative Commons licence.



## 4 Concluding remarks

Sustainable regional development is clearly a priority for the Australian and NT governments. This is evidenced by:

- the NT Government's commitment to the implementation of a new Territory Water Plan in 2023, which seeks to 'maintain its enviable position in being protective of water for the environment and ensuring water is available and managed for the future, including future growth and a changing economy' (NT Govt, 2023c). To this end, NT agencies are currently working on a program of regulatory process efficiency improvements and policy reforms and offer development coordination assistance to proponents to support them through the environmental regulatory approvals required for project development
- the Territory Economic Reconstruction Commission (TERC) final report, which in 2020 made recommendations that aimed to 'create jobs in the near, medium and long term, attract private investment, support current and emerging industries, build on the Territory's competitive advantages and unlock the potential of the Territory's regions' (TERC, 2020)
- the Australian Government's investment in the Cooperative Research Centre for Developing Northern Australia (CRCNA) to 'drive and support the long-term, sustainable economic development of Northern Australia' (CRCNA, 2024). This includes, for example activities aimed at de-risking, brokering and prioritising agricultural development in the NT, in order to 'improve planning and assessment practice for sustainable development precincts across the NT' (CRCNA, 2023)
- the Australian Government's investment in the National Water Infrastructure Development Fund to facilitate CSIRO's completion of the Northern Australia Water Resource Assessments, which aim to provide a comprehensive and integrated evaluation of the feasibility, economic viability, and sustainability of water and agricultural development in priority regions. The Indigenous sub-project of the most recent Assessment highlights local Indigenous relationships to water, and key conceptual issues and principles for understanding and engaging with Indigenous Peoples in the generation of a representative set of Indigenous water values, rights and interests. It contributes significant additional material to the relatively small amount of knowledge that currently exists about Indigenous perspectives on agricultural development. The Assessment has also explicitly considered water reform, as evidenced, for example, by the Australian National University (ANU) 2018 assessment of the legal, regulatory and policy environment relevant to the development of water resources in northern Australia (Macintosh et al., 2018).

The NT's water planning arrangements will continue to evolve as regional development evolves, water demands increase, existing water planning processes mature and more research is conducted, including into the implications of, and possible responses to, climate change.

A review of the NT's implementation of the water planning provisions of the National Water Initiative (NWI) was completed in July 2023 (Badu Advisory, 2023) for the NT Government. While the review concluded that the NT's water planning is consistent with the NWI, it identified seven

areas for future improvement that the NT Government has committed to acting on. These included:

- ensuring early and ongoing stakeholder engagement in plan development
- providing an increased focus on the water interests of Indigenous Peoples
- building in enough time in the consultation stages to allow for meaningful stakeholder engagement
- taking a precautionary stance to decision making outside of WAP areas, particularly in relation to allocation of groundwater storages in the Arid Zone
- ensuring water licences are well specified and that licensed water entitlements and trading systems are fit for purpose
- ensuring science is aligned with and supports the desired water allocation planning outcomes in WAP areas
- properly assessing and clearly articulating the potential opportunities and risks of using groundwater storage in the Arid Zone (Badu Advisory, 2023).

It is important for potential developers of the NT's water resources to not only understand the current regulatory provisions and constraints described in this report, but to also be aware that the NT's water planning processes, policies and plans are likely to continue to evolve and change over time.

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