A Review of Tasmania's Water Accountability Framework

A report prepared by Aither Pty Ltd for the
Department of Natural Resources and Environment

AITHER

Australian Government

National Water Grid®

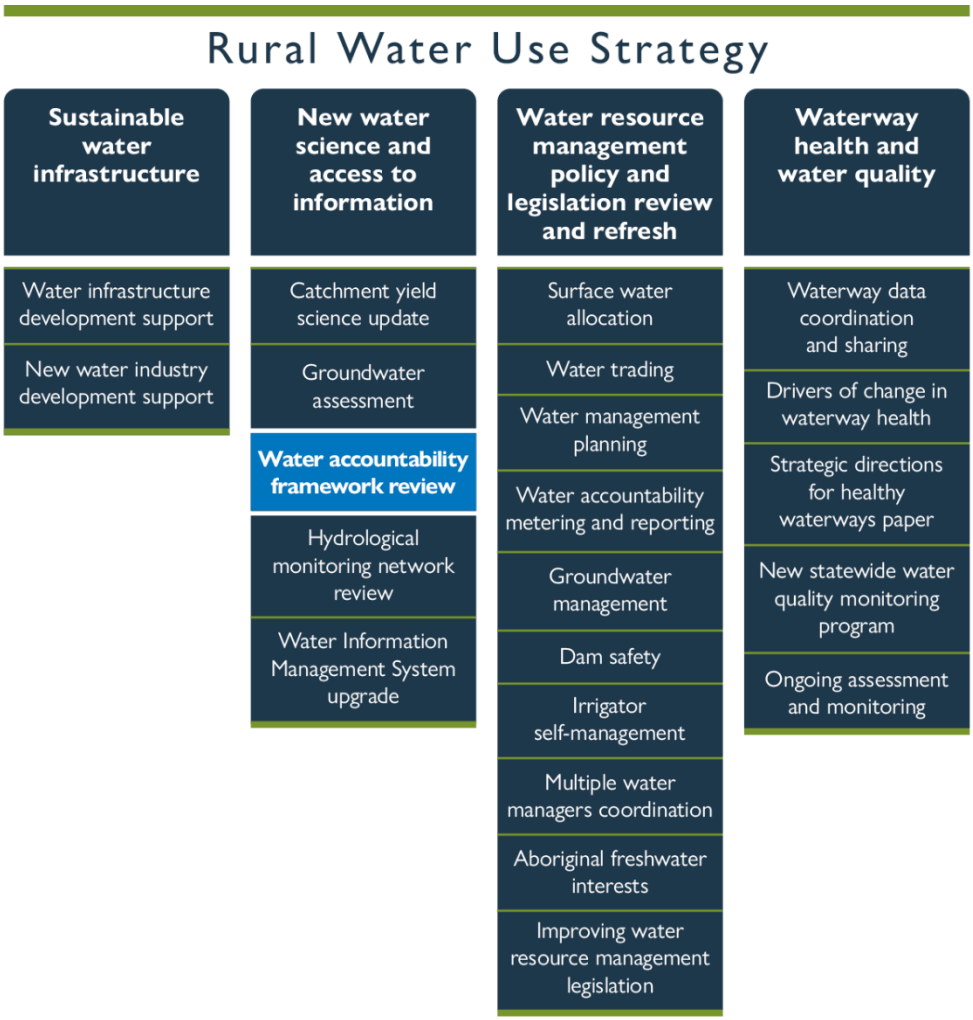
Tasmanian Government

About this report

This document is part of a series of reports prepared for the Rural Water Use Strategy Program.

The Rural Water Use Strategy (RWUS) outlines actions to guide Tasmania's future water management arrangements to ensure water resource use and access is sustainable, supports the wide range of water users that depend on them and protects and promotes freshwater environments.

The **Water Accountability Framework Review Project** is one of several headline activities being implemented under the RWUS. These, together with a range of other activities, will ultimately lead to the review of water management policy and improvements in the functionality of Tasmania's water resource management legislation.



The **Water Accountability Framework Review Project** is being delivered in partnership between the Tasmanian Government and the Australian Government's National Water Grid Authority (NWGA).

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Aither acknowledges First Nations people as the First Peoples of Australia and the Traditional Custodians of its lands and waters. We pay respect to the deep connection First Nations people hold with Country and celebrate the continuing effect of cultural knowledge and practices on Country and communities across Australia.

We pay our respect to Elders past and present, whose knowledge and leadership has protected Country and allowed First Nations spirituality, culture and kinship to endure through the ages.

We recognise the injustices and hardship faced by First Nations communities and reflect on opportunities for all Australians to play a part in reconciliation and the development of mutual understanding and respect across cultures.

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- We're passionate about a better future for our planet.
- We believe we can make a difference through great work.

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- This only works if everyone feels they belong.

We learn through challenge.

- We believe that the best opportunities to learn are through doing.
- We create opportunities to grow and to learn from mistakes.
- Feedback isn't put on the back burner. It's given and received with respect and intent.

We care for one another.

- We invest the time and energy to understand one another.
- We care about our lives outside of work.
- We support each other in the way each person needs.

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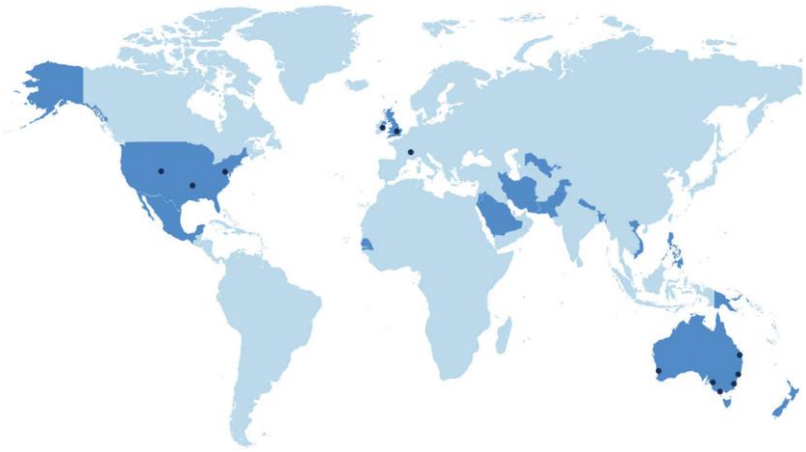

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Executive Summary

Tasmania is facing increasing pressure on its water resources. Surface water resources within many agricultural catchments are nearing full allocation yet demand for water is expected to increase due to increasing agricultural use and other factors. At the same time, climate change is predicted to impact on catchment yields, the reliability of water supply, and the timing of water demand. Water management arrangements are also growing in complexity, with multiple water managers providing access to different water products and responsible for delivering water management outcomes in the same catchment. This presents increased challenges for Tasmania's water management arrangements which may need to be modified or enhanced to deal with current and emerging challenges and opportunities.

Tasmania's Rural Water Use Strategy (2021)[1] sets several goals and associated actions to address these challenges and guide Tasmania's future water management arrangements to ensure water resources are available to support the wide range of water uses and environments that depend on them. Aither was engaged by the Tasmanian Department of Natural Resources and Environment (NRE Tasmania) to deliver on Action 1.7 to review water accountability and reporting frameworks to strengthen water measurement and reporting which addresses Goal 1 in the strategy to ensure the sustainable management of Tasmania's water resources.

Aither's review of Tasmania's water use accountability, metering and reporting framework (water accountability framework) found that it has historically served Tasmania's water management needs, particularly in relatively low-risk, low competition settings. However, the framework is almost a decade into its implementation, in which time the external environment has evolved, in some cases considerably. The review found there is an increasing need in Tasmania for more comprehensive and accurate water use data to be recorded and collected to better support sustainable and equitable water resource management, promote public and investment confidence, and better align with contemporary and national better practices. Business confidence and water security for farm businesses and other water-dependent industries will increasingly depend on effective and transparent water management arrangements, systems and information. Effective metering and reporting will better support effective management of water systems and reduce the risk of overuse or illegal take and third-party impacts or impacts to the environment. Enhanced water accountability will also provide improved information for decision-making (including water planning and allocation decisions) and underpin community confidence in sustainable long-term water resource management interventions.

Lessons from other jurisdictions show that it is much simpler and less costly for Government to intervene and implement sustainable water management practices before resources become overallocated. Given Tasmania's current level of allocation, Tasmania is well placed to pursue improvements to minimise the long-term social and economic impacts of implementing enhanced water accountability measures.

[1] Department of Natural Resources and Environment Tasmania, 2021, Rural Water Use Strategy.

Key findings and recommended areas for improvement

The following findings and recommendations draw on lessons and insights from comparing the Tasmanian water accountability framework with national and state best practice approaches and stakeholders' desired outcomes from the Tasmanian water accountability framework.

Fit-for-purpose water accountability

NRE Tasmania has an opportunity to update the water accountability framework and better tailor water accountability requirements, effort and resources to the specific level of risk to water resources across Tasmania's different catchments. Existing data and information gaps must be addressed to accurately diagnose and prioritise risk and design and implement effective responses. Transparency and accessibility could be improved by integrating the various documents into a single location and making it publicly available.

- Recommendation 1: NRE Tasmania should undertake a state-wide risk assessment of water resources to prioritise water accountability requirements according to the specific level of risk in different catchments. Effort and resources to implement the framework should be prioritised according to the risk assessment. Risk assessments may integrate or build upon existing risk assessments undertaken to inform water planning and should be informed by a clear method and guidelines[2], publicly consulted on and made publicly available to provide confidence in measures taken in response to the risk assessment.
  - Community engagement on risk assessments and subsequent implementation of water accountability measures should occur, so community values inform them, and to build stakeholder support and awareness of requirements.
  - Monitoring and periodic review should occur to understand the effectiveness of implementation and changes to risks to water resources over time.
- Recommendation 2: NRE Tasmania should complete an information audit to collect information needed to inform risk assessments and decision making for future changes to the water accountability framework. Information collected should include:
  - location of different water rights (including where water users have access to multiple water products and time dependent authorisations), allocations and conditions
  - water use in priority catchments
  - location, coverage and quality of existing meter fleet.
- Recommendation 3: NRE Tasmania should update its state-wide water accountability framework to provide clarity about the government's position on the following elements:
  - the fit-for-purpose approach to prioritising water accountability requirements, and resourcing and effort for implementation based on risk
  - metering and measurement requirements
  - recording and reporting requirements
  - requirements and standards for meter selection, installation, validation and maintenance
  - timelines for implementing the framework

[2] For example, see: South Australian Department of Environment, Water and Natural Resources, 2012, Risk Management Policy and Guidelines for Water Allocation Plans.

- requirements for periodic review of the policy.

Documentation of the updated framework should be streamlined through use of a single overarching and integrated document that applies to all non-urban water use in the state (which reflects at least all the elements above in one place). The framework should be made publicly available to support regulatory certainty and stakeholder awareness of the requirements and self-compliance. NRE Tasmania may wish to resolve uncertainty on any matters before consolidating or streamlining documentation.

Requirement(s) to measure or meter water use

Tasmania's current requirements to measure or meter water use fall short of "better practice" national standards that seek to maximise the amount of water measured through meters. Where metering is not required, there is limited clarity regarding or definition of the preferred (or required) measurement methods to account for water use. Inconsistent requirements apply across water managers who apply separate policies or different requirements.

- Recommendation 4: NRE Tasmania should introduce the following strengthened metering and measurement requirements within the state-wide water accountability framework for all water resources (surface water and groundwater):
  - Mandate licensed water use to be metered subject to defined categories of risk-based exemptions (including for example small volumes of take, take in low-risk zones, inactive infrastructure as well as to address on-ground implementation considerations)..[3]
  - Adopt a preferred approach to accounting for water where a metering requirement does not apply (for example, deemed use based on volume allocated, assessment of theoretical water use requirements, or minimum accepted methods).
  - Require meter implementation plans to be developed with respect to different water catchments and/or water resource plan areas that defines risk-based thresholds for meter coverage and any applicable exemptions and transitional pathways for compliance with the state-wide policy.
  - Require metering to comply with the state-wide policy.
  - Provide clarity on the State's policy position of a user pays approach to metering (for example, new and replacement meters will be privately owned and maintained at owner's expense).
  - Specify order of use or volumetric thresholds for different types of water use where multiple sources are taken through the same water meter.

Standards for meter selection, installation, validation and maintenance

Core elements of the Tasmanian Standard for Non-Urban Water Meters (Tasmanian Standard) (such as requirements for Certified Meter Installers (CMIs) to validate meters) align with national 'better practice' standards. However, current standards permit lower accuracy thresholds, do not mandate records that meters comply with standards be submitted, and no grandfathering arrangements apply for meter upgrade or replacement. The current standards are not user-friendly, as external references to detailed technical specifications in AS4747 are unavailable without purchase.

[3] It is recommended these are based on DAWE 2021, Metrological Assurance Framework 2: rules and guidance for the use and regulation of non-urban water meters, Department of Agriculture, Water and the Environment, Canberra, July. P.28.

- Recommendation 5: NRE Tasmania should amend the Tasmanian Standard to better align it with the rules and guidance in MAF2:
  - Providing an explicit requirement for all meters to be pattern-approved in accordance with AS4747 from a defined date (for example, the date of the policy or date specified in the meter implementation plan).
  - Introducing grandfathering arrangements, for example meters installed prior to the policy may be exempted from the requirement to have pattern approved meters up to a defined date (for example, on replacement or a fixed date) as long as a meter meets minimum accuracy and function requirements defined in the policy.
  - Detailing requirements for the selection, installation, maintenance, testing, replacement and validation of meters, including requirements for records of compliance with standards to be retained and provided to the relevant authority.
  - Clarify any circumstances where telemetry is required, for example under a relevant applicable meter implementation plan.

  The Tasmanian Standard could be integrated as part of the overarching state-wide water accountability framework documents (recommendation 2) or continue to be housed in a separate document.

Compliance and enforcement

NRE Tasmania's centralised compliance approach with a focus on education and engagement and a risk-based audit program aligns with national practices and approaches in other jurisdictions. Opportunities to further strengthen compliance include providing flexible and effective enforcement pathways; aligning resourcing to risk; addressing gaps in roles and responsibilities; improving metering records and water use information, and improving public information on water compliance objectives, strategies and actions.

- Recommendation 6: NRE Tasmania should determine and apply compliance and enforcement strategies and resourcing for different water resources based on the water resource risk assessment.
- Recommendation 7: NRE Tasmania should implement a water management specific compliance and enforcement policy and procedures that: [4]
  - specifies how risk-based and flexible compliance pathways should be applied, including with reference to risk classification of water resources and water-related offences.
  - require compliance strategies and actions to be developed at regular intervals and approved.
  - documents roles and responsibilities for compliance including NRE Tasmania and other water managers to clarify responsibilities for strategic direction and leadership, operational implementation and oversight to check that entities are delivering on their roles and functions.
- Recommendation 8: NRE Tasmania should review and where necessary amend legislative provisions to support enforcement of the State-wide policy and standards. For example, to provide increased flexibility to enforce lower-risk offences.

[4] Victoria's Non-urban Water Compliance and Enforcement Guidelines (2019) provides a useful precedent for a compliance and enforcement system built on five principles: risk-based, responsive, transparent, accountable, and consistent.

- Recommendation 9: NRE Tasmania should establish platforms and procedures to publish compliance information including compliance objectives, strategies and actions taken.

Recording and reporting of water use

Requirements and processes to record and report water use under the Tasmanian Water Accountability and Reporting Policy do not support the adequate collection of water use information.

- Recommendation 10: The state-wide policy framework should specify minimum requirements for recording and reporting water use (for example at least once per year), with additional frequencies able to be specified as a condition of authorisations to take water. Implementation plans should specify further detailed requirements as to the frequency or timing of recording and reporting to be reflected on approval conditions (for example, daily/weekly/monthly in high-risk systems or where time critical authorisations occur). Where meters are required, the policy should specify where validation requirements are needed (for example, annual download of data logger).
- Recommendation 11: The state-wide policy framework should apply to all licensed water users including bulk water users that grant use rights to take water to other users. A bulk water user would be responsible for reporting use against its allocation in accordance with policy requirements and relevant conditions, and liable for breaches of conditions or overuse penalties. If a bulk water user is subject to the requirement to meter water use, it would need to implement individual use metering within the network to effectively comply with metering conditions.
- Recommendation 12: The state-wide policy framework should specify a standard format and process for reporting meter readings, supported by standard forms and platforms to support simplified and accurate reporting. The framework should specify cases where standard reporting format and processes differ based on risk.

Management of water use information

NRE Tasmania's current water information systems are outdated, lack functionality, and do not support reliable, secure and efficient collection and management of water use, metering and compliance information.

- Recommendation 13: NRE Tasmania should consider functionality for water accountability as part of the business case being developed to upgrade the Water Information Management System (WIMS) as outlined in the Rural Water Use Strategy (RWUS) WIMS Upgrade Project..[5] The business case should consider the management systems of other jurisdictions and determine suitable approaches to be applied in Tasmania. Key functionality that should be considered alongside other water register functionality (for example, licences, allocations, conditions) include:
  - Water use against allocations
  - Metering records management
  - Compliance management.

Capability and resourcing

Implementing an updated water use accountability framework could involve changes to NRE Tasmania's operations, and the operation of the Tasmanian rural water sector more broadly. Implementation is likely to add to existing or introduce new needs for capability and resources. NRE

[5] Department of Natural Resources and Environment Tasmania, 2022, Rural Water Use Strategy Implementation Plan (2022–2025), pg. 7.

Tasmania will need to identify and understand specific capability and capacity issues to address in order to deliver different parts of the framework, both inside and outside of government.

- Recommendation 14: NRE Tasmania should consider potential capability and resourcing issues associated with implementing Tasmania's water accountability framework, and work with other areas of government to identify and understand any skills or labour shortages issues.

Costs and cost allocation

Current cost allocation and recovery arrangements do not fully recover the costs of Tasmania's water use accountability framework from water users, which means the current allocation of costs may not be consistent with relevant principles such as user, beneficiary, or impactor pays approaches, which are important to ensuring efficient levels of investment.

There has been significant investment in recent years for water through the RWUS, including $1.5M for initial implementation of the Strategy, an additional $1.95M supporting RWUS projects, an additional $360,000 per year via water fees and $600,000 for further scoping and development of a new Water Information Management System (WIMS). These are important and positive developments but point to the need to clarify or improve the approach to cost allocation and cost recovery, given the scale of past and likely future investment required in the sector.[6]

We understand that NRE Tasmania intends to review the approach to setting water management fees in the future, following implementation of the RWUS. There is also a need for Tasmania to prioritise investments in critical systems or processes to support enhanced water accountability.

- Recommendation 15: NRE Tasmania should, as it has foreshadowed, undertake a thorough review of its cost allocation and cost recovery approach for rural water. This should have regard to relevant economic principles and should reflect the current and future costs of its water management activities (including an enhanced water accountability framework). It should also interrogate the current approach to water user fees and charges and seek to implement changes that are consistent with the NWI pricing principles.[7]
- Recommendation 16: NRE Tasmania should investigate investments made by other jurisdictions in water registers and information management systems to identify opportunities for cost savings and to provide greater confidence in future investments in technology solutions.
- Recommendation 17: NRE Tasmania should investigate opportunities to leverage national funding opportunities for water register enhancements and associated reforms to align Tasmania with national water accountability policy directions. Opportunities may also exist to help manage the costs of enhanced meter or telemetry coverage where this is immediately necessary in Tasmania.

Stakeholder awareness and cooperation

There is a lack of publicly available information about the water accountability approach and requirements that would support stakeholders to understand and comply with requirements.

6 In the absence of appropriate cost allocation and recovery approaches, other sectors of the economy or taxpayers generally will contribute to the costs of water accountability or water management, even where they do not benefit directly or indirectly from these activities.

7 Aither understands that NRE Tasmania is seeking to complete such a review after implementation of the RWUS, based on the view that the design of new approaches and systems should be resolved to determine what funding or cost recovery is needed. A potential risk with this approach is that changes are designed which users cannot afford to pay for, or which are difficult to fund by other means.

- Recommendation 18: NRE Tasmania should build early community engagement into risk assessments, and amendments to and implementation of water accountability measures, based on communications and engagement plans.
- Recommendation 19: NRE Tasmania should publish clear, accessible, user-friendly information about Tasmania's water accountability framework. Information should be appropriately tailored to relevant stakeholders (for example, water users, industry participants, the public). Priority information to be published includes:
  - The Tasmanian water accountability framework
  - The Tasmanian Standard for Non-Urban Water Meters (including reporting forms, certificates and platform for water meter notifications and information on pattern approved meters and approved meter installers/validators)
  - Tailored and accessible information to help water users, industry participants and the public understand water accountability arrangements and requirements
    - contact information for questions on metering and reporting obligations
    - FAQs and user guide to the metering standard (for water users)
    - information for meter installers/validators.
  - Implementation plans and progress reports.
  - Periodic reporting of catchment water use, metering and compliance information.
- Recommendation 20: NRE Tasmania should consider how it can continue to be transparent, open and accountable in order to build public confidence in government delivering Tasmania's enhanced water accountability framework.

Use and transparency of water data and information

Water users and NRE Tasmania have limited access to information about actual water use against various allocations throughout the year and key events. There is also a lack of information and data sharing between water managers to support the delivery of river operations and water management responsibilities. Additionally, transparency about catchment and state-level water use, water accountability implementation progress and compliance activities, is missing.

- Recommendation 21: NRE Tasmania should investigate the feasibility of providing individual water account information to individual water users. This may include providing information about water use against allocations based on reporting or access to raw water data (where possible).[8]
- Recommendation 22: NRE Tasmania should lead a process with Hydro Tasmania, TI, TasWater and other water entities to investigate opportunities to improve coordination and sharing of data between water managers to support efficient water resource management outcomes. This should consider sharing of information on water licensing, allocations, conditions, usage, orders and deliveries and link with surface water monitoring data. The process could be undertaken through the Water Managers and Data Custodian Working Group.[9]

[8] Currently water users subject to regulation by NRE Tasmania do not have any access to their water use information unless they collect and maintain this data themselves. This is in great contrast to other jurisdictions where water users who are required to have meters installed, also have access to their water use via water account and balance information contained on secure information systems managed by their water service provider or water utility.

[9] The Water Managers and Data Custodian Working Group was established under the RWUS to investigate issues and improve data sharing for surface and groundwater including river health and water quality and quantity issues.

- Recommendation 23: NRE Tasmania should review its approach to publishing water use accountability information with a focus on providing fit-for-purpose, publicly available water use, metering and compliance information. Information should meet the usability and accessibility requirements recommended in recommendation 19. This should include:
  - progress on implementing water accountability reforms (including meter coverage and quality)
  - annual aggregated (for example, catchment scale) water accounts for high-risk catchments and areas of public interest
  - compliance and enforcement activities.

Implementation considerations

Implementing the recommendations would provide solid foundations for strengthening Tasmania's water measurement and reporting systems, provide confidence in the water management framework and support a robust system of water entitlements into the future. Figure 1 presents the recommendations as a starting point to guide staged implementation. The recommendations can be categorised into two broad groups:

- Recommendations that provide a lot of benefits to water accountability. These recommendations are further categorised into:
  - **Relatively easy to implement and higher value benefits to improve water accountability.** This group comprises lower-cost recommendations that are relatively easy to implement and have many benefits.
  - **Medium level of difficulty to implement and higher value benefits to improve water accountability.** This group comprises recommendations that have a higher cost and are more challenging to implement but still provide essential benefits in materially improving water accountability.
  - **Relatively difficult to implement and higher value benefits to improve water accountability.** These recommendations likely required considerable investment in cost and time and would require significant collaboration across other stakeholders and the public and have a high degree of dependency with other recommendations but have substantial benefits commensurate with the costs.
- Recommendations that have a lower level of difficulty to implement and lower value benefits to improve water accountability. Nonetheless, these should be considered to support other recommendations.

Recommendations
Relatively easy to implement and higher value benefits to improve water accountability
1. Undertake a state-wide risk assessment of water resources to prioritise water accountability requirements
2. Complete an audit to collect information needed inform risk assessments and decision-making for future changes to the water accountability framework
6. Determine and apply compliance and enforcement strategies and resourcing for different water resources based on the water resource risk assessment
9. Publish information about compliance objectives, strategies and actions
18. Build genuine and early community engagement
19. Publish clear, accessible, user-friendly information about Tasmania's water accountability framework
Medium level of difficulty to implement and higher value benefits to improve water accountability
3. Update and streamline the water accountability framework into a single, integrated document
8. Review and amend legislative provisions to support enforcement of the State-wide policy and standards
10. Specify minimum frequencies for recording and reporting water use
11. Apply the framework to all licensed water users (inc. bulk water users)
12. Specify a standard format and process for reporting meter readings, supported by standard forms and platforms
Relatively difficult to implement and higher value benefits to improve water accountability
4. Introduce strengthened metering and measurement requirements within the state-wide water accountability framework
5. Amend the Tasmanian Standard to align with MAF2
13. Consider functionality for water accountability through the business case being developed as part of the RWUS WIMS Upgrade Project.
15. Review Tasmania's cost allocation and cost recovery approach for rural water
20. Consider how to continue to be transparent, open and accountable to build public confidence in the new water accountability framework
21. Investigate the feasibility of providing individual water account information to individual water users
22. Investigate opportunities to improve coordination and sharing of data between water managers
23. Provide fit-for-purpose, publicly available water use, metering and compliance information
Lower level of difficulty to implement and lower value benefits to improve water accountability
7. Implement a water management specific compliance and enforcement policy and procedures
14. Consider and address potential capability and resourcing barriers for implementing the water accountability framework
16. Investigate water register investments by other jurisdictions to identify costs savings and provide confidence in future investments in Tasmania
17. Investigate opportunities to leverage national funding opportunities

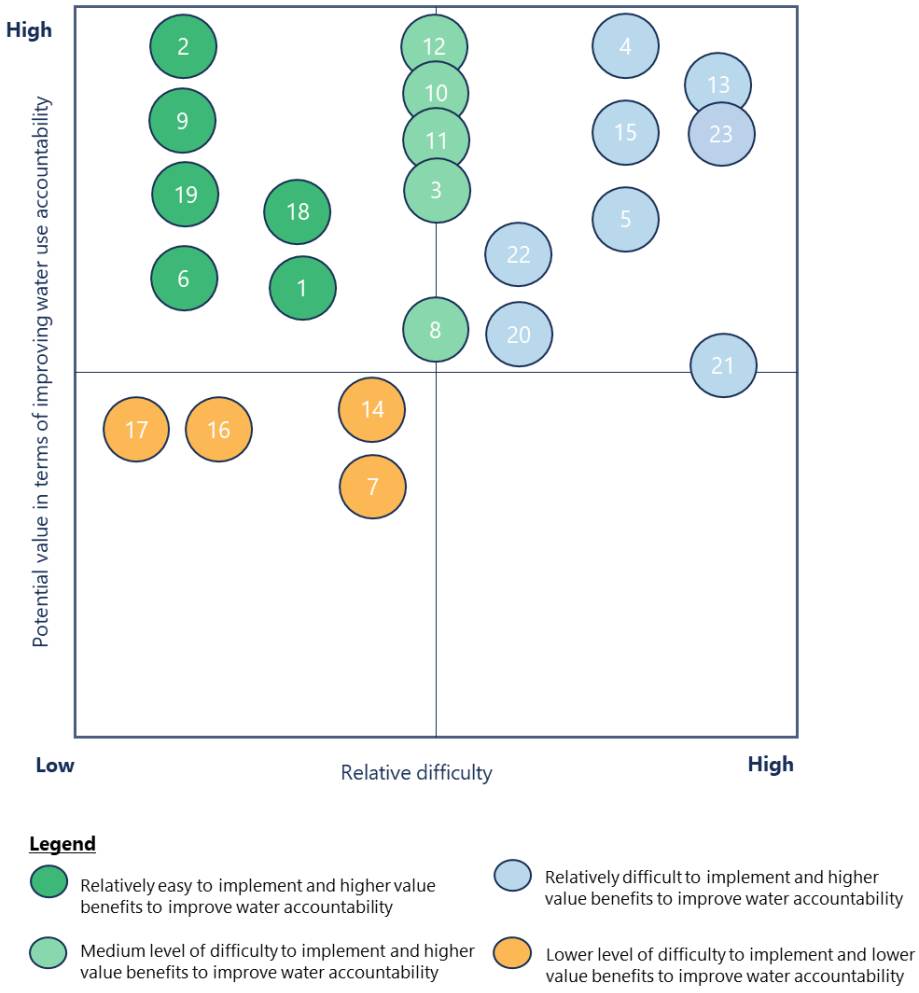


Figure 1 Assessment matrix for potential recommendations to improve water accountability

Progress in strengthening Tasmania's water accountability framework

During the course of the review, NRE Tasmania continued or commenced work on a range of actions to strengthen Tasmania's water use accountability framework. While NRE Tasmania is still in the process of formally responding to the review, it advised Aither that it has already made progress towards 11 out of the 23 recommendations in this report in aspects such as:

- reviewing what data and technology is available to underpin a fit for purpose water accounting system
- ensuring a redesign of the Water Information Management System will accommodate the water accountability requirements outlined in this report
- commencing reviews of Metering Standards and Compliance and Enforcement Policies
- a range of policy related work through the implementation of the Rural Water Use Strategy and working with other jurisdictions towards a refresh of the National Water Initiative
- considering how funding may be leveraged to strengthen the water use accountability framework
- considering how to enhance and build early engagement around risk assessment and implementation of water accountability related actions with data managers and more broadly.

This early progress provides a strong foundation for strengthening water use accountability in Tasmania.

1. Introduction

This part provides project background and context on assessing and recommending changes to Tasmania's existing water use accountability framework.

1.1. Project background

Tasmanian policy and regulatory arrangements impose water accountability and reporting obligations for water licence holders, including requiring all water users to account for water taken under a water allocation and requirements to meter water use in some circumstances. Increasing water development and competition for water resources, complex water management arrangements and climate change impacts on water availability present challenges for managing Tasmania's water resources sustainably. Through the development of the Rural Water Use Strategy (RWUS)[10] in 2021, the Department of Natural Resources and Environment Tasmania (NRE Tasmania) identified that there may be need for improvements to ensure that water rights are not undermined by unauthorised use, and that environmental, social, cultural and other water management objectives are achieved.

NRE Tasmania engaged Aither to review Tasmania's water use accountability, metering and reporting framework (water accountability framework) and recommend changes to address emerging challenges and risks and support improved water resource management outcomes. The review will support the delivery of the RWUS Action 1.7 'Review water accountability and reporting frameworks to strengthen water use and water conveyance measurement and reporting to provide transparency, security and investor certainty'.[11]

This work was jointly funded by the Australian Government, through the National Water Grid Authority, and the Tasmanian State Government.

1.2. Project objective

This project aims to identify opportunities to strengthen Tasmania's water accountability framework to address emerging challenges and risks and support improved water resource management outcomes.

The outcomes of this review will inform the revision and update of Tasmania's Water Accountability and Reporting Policy[12], Rural Water Meter Policy[13], and Rural Water Meter Decision Framework[14]. This work will support key activities and actions of the Tasmanian RWUS. The RWUS guides how Tasmania uses, regulates and allocates freshwater over the next decade and towards 2050. This includes sustainable management of Tasmania's water resources, effective regulation, strong

[10] Department of Natural Resources and Environment Tasmania, 2021, Rural Water Use Strategy.

[11] Department of Natural Resources and Environment Tasmania, 2021, Rural Water Use Strategy.

[12] Department of Natural Resources and Environment, 2014, Tasmania's Water Accountability and Reporting Policy

[13] Department of Natural Resources and Environment, 2014, Rural Water Meter Policy

[14] Department of Natural Resources and Environment, 2014, Rural Water Meter Decision Framework

entitlements and planning, strategic development to maximise opportunities from water resources, and optimising services.

1.3. Purpose and scope of this report

This report presents analysis and recommendations for changes to Tasmania's water accountability framework and suggested prioritisation and implementation of recommendations. The report:

1. Presents the results of analysing current water accountability arrangements in Tasmania and other contemporary policy and practices in other jurisdictions, and issues and possible solutions.
2. Provides justification and objectives for future policy directions of Tasmania's water accountability framework drawing on learnings and insights from Tasmanian stakeholders.
3. Recommends future directions for fit-for-purpose changes to Tasmania's water accountability framework.
4. Recommends an approach to prioritise implementation of the recommended policy direction for Tasmania's water use accountability framework and next steps.

1.4. Report structure

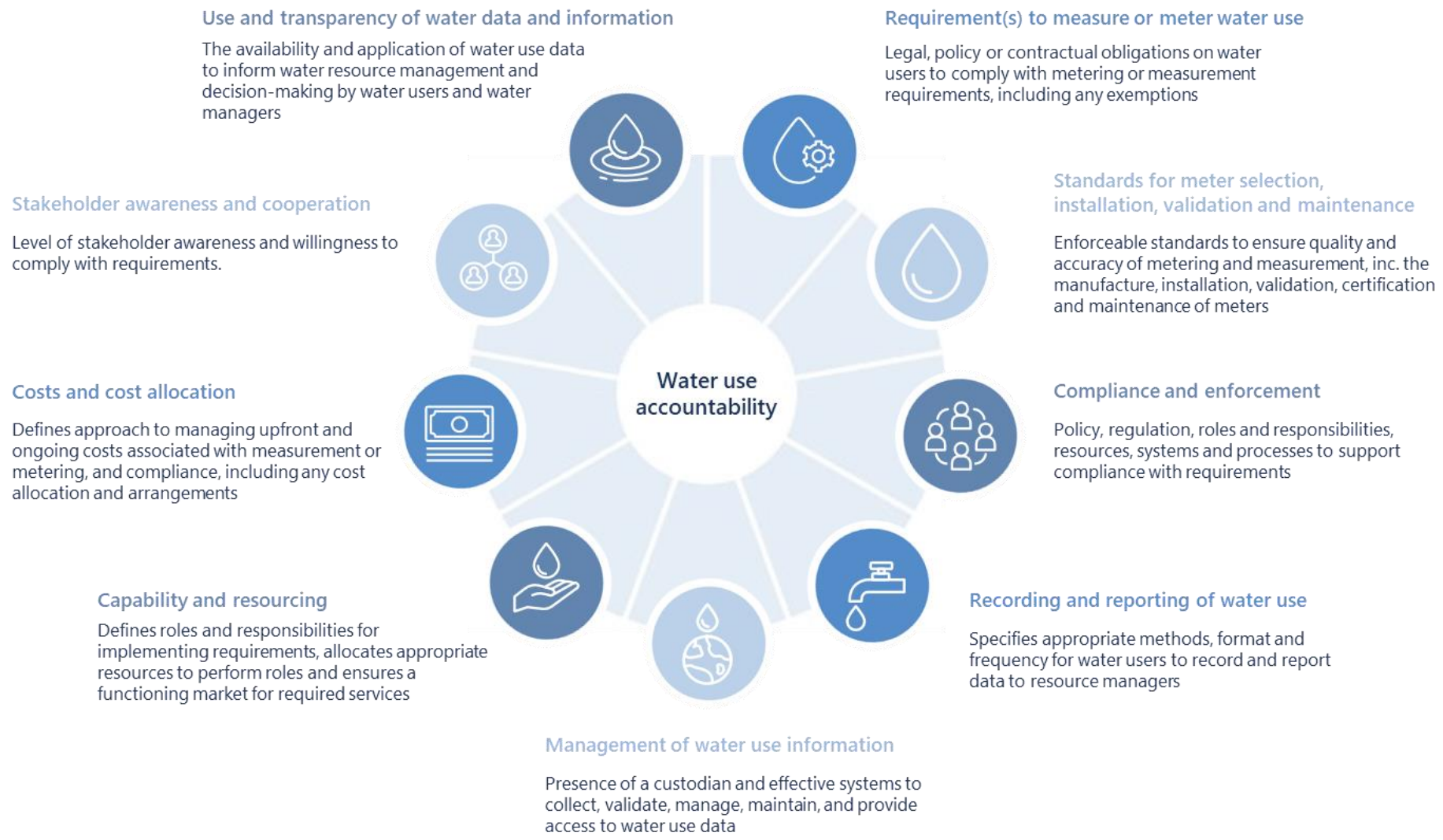
This report is structured as follows:

- Part 2: Outlines objectives and justifications for change drawing on stakeholder views and Tasmania's objectives for water management.
- Part 3: Presents key findings, recommendations and rationale for a fit-for-purpose water accountability policy approach and practical measures to improve Tasmania's water accountability framework based on stakeholder perspectives and review and research undertaken as part of the project.
- Part 4: Provides initial prioritisation of recommendations to inform consideration and implementation.

1.5. Definition of water accountability

Aither developed a definition of water accountability to inform the review. In the context of this project and this report, water accountability is the requirement for all water users, who are authorised to take water under the *Water Management Act 1999* (Tasmania) (WM Act), to measure and report on the amount of water taken and any other conditions related to their water use, such as timing.

Figure 2 identifies critical features of effective water accountability frameworks based on a high-level review of how water use accountability is implemented in various settings (including an assessment of national and interstate experience and best practice approaches). These features have been used to assess features of Tasmania's current water accountability framework and those of other jurisdictions. Recommendations of this report also draw on these features in recommending a fit-for-purpose water accountability policy approach for Tasmania.



Source: Aither 2022.

Figure 2 Features of effective water use accountability frameworks

2. Drivers and objectives for improvements to Tasmania's water accountability framework

This part outlines the case for changes to Tasmania's water accountability framework, insights from other jurisdictions and future objectives for change based on better practice principles, learnings from stakeholder engagement.

2.1. The case for change

Tasmania's water accountability framework has historically served water management needs in relatively low-risk, low-competition settings. However, demand and competition for available water resources are increasing, and some catchments are approaching full allocation or are at risk of overallocation. Water management arrangements are also growing in complexity, with multiple water managers providing access to different water products and responsible for delivering water management outcomes in the same catchment. These pressures are projected to intensify as Tasmania pursues the objectives of the Tasmanian Government's Cultivating Prosperity: A 2050 Vision for Agriculture Strategy, including agricultural sector growth.

Lessons from other jurisdictions show that it is much simpler and less costly for Government to intervene and implement sustainable water management practices before resources become overallocated. Given its current level of allocation, Tasmania is well placed to pursue improvements to minimise the long-term social and economic implications of implementing enhanced water accountability measures.

Water metering provides the most comprehensive and quality source of water use information to understand the status of demand on water resources. Water accountability measures, including water metering, are essential to sustainable water resource management. Water accountability provides credible information for evidence-based decision-making (including water planning and allocation decisions) and underpins community confidence in sustainable long-term water resource management interventions. Quality and comprehensive water data and information are necessary, as "if you can't measure it, you can't manage it."

Water metering information enables effective monitoring to ensure water users are using water in line with their defined rights and provides a basis of evidence for compliance measures to be taken.

Water markets are crucial in fully allocated water systems to support the reallocation of capped water rights between water users. However, successful further development of water markets cannot occur without effective water registers that provide secure, robust records of water rights and transactions and defined water allocation balances based on water metering.

2.2. Insights from other jurisdiction's policies, practices and procedures

Aither reviewed water accountability policy and practices in other jurisdictions and relevant national better practice policy principles. It is important to note that water accountability arrangements in other states have developed in the context of overallocation, water scarcity and inter-jurisdictional sharing, which is different from the context for most Tasmanian catchments. Nonetheless, they provide important insights about potential settings that may be required in some Tasmanian contexts. Lessons and insights about the strengths and weaknesses of different water accountability measures pertinent to Tasmania's context are summarised below.

- Meter requirements are generally mandated for all water licence/approval holders, with limited exemptions that align exemption criteria defined in MAF2 and related guidelines resulting in high rates of metered water take (in jurisdictions assessed, exceptions apply to 2.6 per cent or less of water users, and rates of metered take are generally above 96 per cent).[15]
- Where exemptions from metering apply (such as for stock and domestic and smaller volume uses), take is generally calculated on bases including take limits, determined volume or infrastructure size for water accounting and planning purposes.
- Most states have adopted water measurement and other standards aligned with the National Metrological Assurance Framework 2 (MAF2).
- Most states have low percentages of meters that comply with the State's metering policy (to AS4747 standards); however, transitional deadlines or grandfathering arrangements have been adopted for replacement meters to comply with AS4747 standards.
- Risk-based and staged role out of metering requirements with a strong focus on stakeholder engagement and information has generally been applied in jurisdictions to implement water accountability reform programs.
- Compliance programs involving engagement, tailored user-friendly information, risk-based investigations and monitoring, mandatory financial penalties for excess or unauthorised use, and compliance escalation pathways have been vital measures used to implement effective metering policies and reforms.
- Most jurisdictions apply a user pays approach to metering; however, subsidies have been used to promote upgrades in high-risk settings for example, Queensland telemetry subsidy for high-risk entitlement holders.
- Risk-based considerations generally drive requirements for the frequency of reporting meter reading data where telemetry is not used (for example, monthly intervals for at or overallocated resources, 6-month or annual intervals for lower-risk water resources). Usage breaches may also be grounds for more frequent meter data reporting requirements.
- Telemetry on meters is generally required in high-risk settings. Water register capability is necessary for telemetry coverage and water resource risk management. States without water register capability to receive telemetry data have not generally mandated telemetry-enabled meters. In these cases, states typically rely on approval holders submitting meter readings and risk-based compliance to validate reporting.

[15] Inspector General of Water Compliance 2022, MDB – Metering and Measurement 2021-22 Report Card.

- An increasing number of pattern-approved meter products are available on the market.
- The availability of qualified meter installers has affected some jurisdictions' timely implementation of metering programs. The private sector generally supports metering installation, maintenance and validation in other jurisdictions. Rural water utilities may deliver these services where they deliver metering.
- Accountability measures generally provide for comprehensive reporting of water use information to a central water manager; however, this may be at a bulk level, for example, an infrastructure operator reporting use at a network scale where it supplies irrigators in a network.
- System capabilities of water registers and information systems are varied across states. All states have been required or have chosen to substantially upgrade their water information systems including to capture and better manage water use data, trade information, ownership information and other categories of information and provide enhanced functionality. This has occurred over time to meet government, water user and public needs for water information and support water accountability. There may be opportunities to leverage platforms or learnings from recent and ongoing upgrades conducted by South Australia, Queensland and Victoria.
- Accountability of Governments to comply with national standards and commitments through measures such as the Murray-Darling Basin Compliance Compact (with oversight by the Inspector General of Water Compliance) has significantly improved compliance with national standards and transparency of information relating to State progress. This has supported water user confidence and policy momentum in governments to progress improvements to accountability arrangements.

2.3. Desired future policy directions

The following outcomes and desired future policy directions for the Tasmanian water accountability framework have been synthesised from stakeholder feedback during the project and insights from national and state best practice approaches:

- Water accountability arrangements are consistent across water managers and with national arrangements (for example, MAF2), and are clear, and equitable.
- Water accountability requirements and implementation are prioritised based on risks to water resources (environmental, economic, social and cultural).
- The benefits of the water accountability framework outweigh the costs (as far as practical).
- There is credible, reliable, and accurate water use information at the individual and catchment level to inform evidence-based decisions by water users and water resource managers.
- There is transparency and confidence that water use complies with individual allocations and conditions and catchment level limits, and that water resource managers are managing water resources sustainably and equitably.
- Confidence and certainty about the availability and reliability of water allocations (which supports individual business management, planning and investment as well as the sustainable development of water resources).
- Water information sharing and water use accounting across different water products and shared responsibility for water management.

3. Recommendations for a fit-for-purpose approach and improvements to Tasmania's water use accountability framework

This part outlines recommendations for improvements to Tasmania's water use accountability framework based on the desired policy directions identified in the previous part.

The following recommendations are designed to address the identified water accountability issues in Tasmania. The recommendations draw on lessons and insights from national and state best practice approaches and the desired outcomes from the Tasmanian water accountability framework.

3.1. Fit-for-purpose water use accountability

Key findings

Tasmania's current water accountability framework is now almost a decade into implementation. Over this time, water management arrangements have evolved significantly, and competition for water has grown. Contemporary national better practices represented in the MAF2 (2022) and policy directions for National Water Initiative renewal in the Productivity Commission's National Water Reform Assessment report (2020) emphasise a fit-for-purpose approach to water measurement and metering specific to the characteristics and level of risk to water resources in different catchments.

Tasmania already adopts a risk-based approach to water planning, with statutory management plans in higher-risk catchments. In reviewing its water accountability framework, Tasmania has an opportunity to ensure the framework remains up to date and requirements, effort and resources for water accountability are appropriately tailored to the specific level of risk to water resources across Tasmania's different catchments into the future.

Assessments of risk and current arrangements require a range of information, including the status and location of available water rights, allocations, conditions, water use and meter coverage and quality. Current information gaps will need to be addressed to accurately diagnose and prioritise risk and design and implement effective responses, particularly to understand the extent of issues, and potential benefits and costs associated with addressing them. For example, more comprehensive data is needed to understand the magnitude of water users with access to multiple water products and time-dependent authorisations, for whom accurate metering and telemetry is required for effective water accountability. Preliminary mapping of areas with access to multiple water products based on offtake data from NRE Tasmania, Hydro Tasmania and Tasmanian Irrigation is in Appendix A.

Tasmania's water accountability framework, including the Water Accountability and Reporting Policy, Rural Water Meter Decision Framework Rural Water Meter Policy, and Tasmanian Standard for Non-Urban Water Meters is fragmented across separate documents and not publicly available.

Recommendations

Recommendation 1: NRE Tasmania should undertake a state-wide risk assessment of water resources to prioritise water accountability requirements according to the specific level of risk in different catchments. Effort and resources to implement the framework should be prioritised according to the risk assessment. Risk assessments may integrate or build upon existing risk assessments undertaken to inform water planning and should be informed by a clear method and guidelines,[16] publicly consulted on and made publicly available to provide confidence in measures taken in response to the risk assessment.

- Community engagement on risk assessments and subsequent implementation of water accountability measures should occur early in a genuine manner so they are informed by community values, and to build stakeholder support and awareness of requirements.
- Monitoring and periodic review should occur to understand the effectiveness of implementation and changes to risks to water resources over time.

Recommendation 2: NRE Tasmania should complete an information audit to collect information needed to inform risk assessments and decision making for future changes to the water accountability framework. Information collected should include:

- location of different water rights (including where water users have access to multiple water products and time dependent authorisations), allocations and conditions
- water use in priority catchments
- location, coverage and quality of existing meter fleet.

Recommendation 3: NRE Tasmania should update its state-wide water accountability framework to provide clarity about the government's position on the following elements:

- the fit-for-purpose approach to prioritising water accountability requirements, and resourcing and effort for implementation based on risk
- metering and measurement requirements
- recording and reporting requirements
- requirements and standards for meter selection, installation, validation and maintenance
- timelines for implementing the framework
- requirements for periodic review of the policy.

Documentation of the updated framework should be streamlined through use of a single overarching and integrated document that applies to all non-urban water use in the state (which reflects at least all the elements above in one place). The framework should be made publicly available to support regulatory certainty and stakeholder awareness of the requirements and self-compliance. NRE

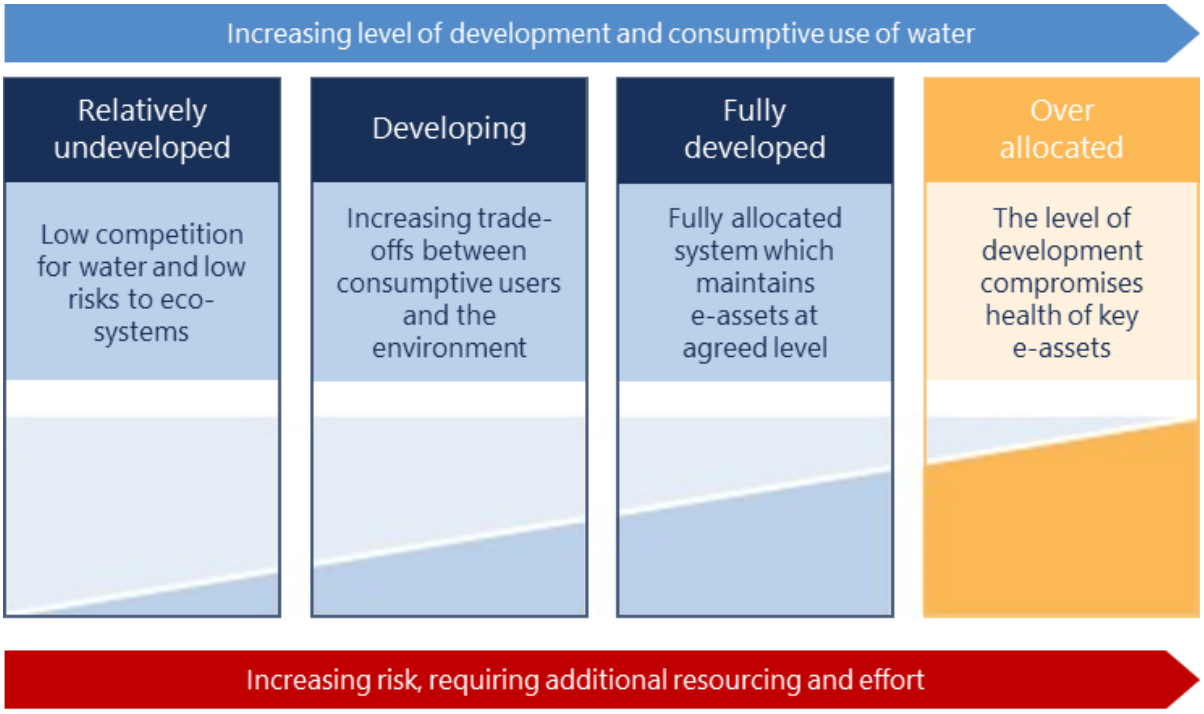
[16] For example, see South Australian Government, 2012, Risk Management Policy and Guidelines for Water Allocation Plans.

Tasmania may wish to resolve uncertainty on any matters before consolidating or streamlining documentation.

Rationale

Adopting a fit-for-purpose approach to water accountability means adapting the approach in different contexts. This provides a robust and transparent way to align the level of resources and effort to water accountability measures with the level of risk and competition for water resources in a specific catchment or water plan area, and other relevant considerations. Adopting a risk-based approach to water use accountability ensures that strengthened water accountability requirements are implemented in areas with the greatest risks and where it is important to have a higher degree of understanding about how (including how much) water is being used. It can also help to guide implementation by focusing on areas with the greatest risk and recognising that time is needed to adjust Tasmania's current systems and processes and engage stakeholders concerning water accountability policy directions as risks evolve.

A starting point for applying a fit-for-purpose approach to water accountability is to assess the level of development of water resources. Figure 3 sets out a framework for how the level of effort and resources for a range of water resource management measures can align to the level of competition for water, with the highest resource commitment made to address overallocated or stressed systems.



Source Productivity Commission 2020. National Water Reform Assessment.

Figure 3 A conceptual framework for fit-for-purpose water accountability

Other considerations may warrant resources to be committed to manage levels of risk to water resources, such as the economic or environmental significance of water resources. These factors may mean that, even though there are lower levels of water resource development, greater effort and resources applied to water accountability measures are warranted. Examples of relevant considerations include projected future overallocation, and the need to protect vulnerable or highly valued ecosystems and community values. Considerations relating to on-ground implementation,

practical considerations, community perceptions, and willingness to change also form practical considerations that need to shape the approach to implementing risk management measures.

Risks may be broadly grouped according to categories in Table 1.

Table 1 Types of water resource management risks and examples

Risk	Examples of risks
Risks to resource	Amount of water use relative to total allocations Level of competition for existing water, or unallocated / new water Complexity of water management arrangements Compliance breaches Adverse impacts to water quantity/flow rate/availability (for example, end of system flows and base flows) Adverse impacts to water quality (including salinity) Deteriorating health of water dependent ecosystems
Risk to community and economic values	Adverse impacts to: • water for irrigated agriculture • water for human consumption • water for other industrial/mining/forestry purposes • recreational opportunities for example, fishing • amenity • water for spiritual/cultural or religious use
Risk to water accountability policy implementation	Policy unable to be implemented by stakeholders (for example, due to high costs or administrative burden) Policy unable to be implemented (for example, due to lack of resources or system capability) Policy leads to unintended or adverse impacts Poor public perceptions (for example, unfairness, lack of confidence)

Addressing information gaps is essential to understand current issues and properly design and implement effective responses. This is particularly important in implementing potential metering and telemetry-related changes, which have significant cost implications. Accurate information about the extent of issues can help to build the investment case and provide confidence around cost estimates.

3.2. Requirement(s) to measure or meter water use

Key findings

Tasmania's current requirements to measure or meter water use are contained in the Water Accountability and Reporting Policy, Rural Water Meter Policy and Rural Water Meter Decision Framework. These policies and supporting regulations require water use to be recorded against approved allocations and guard against unlicensed take and non-approved works.

However, they are falling short of "better practice" national standards that seek to maximise the amount of water measured through meters. Under the Rural Water Meter Policy, metering is only required in 'high-risk' situations defined within the Rural Water Meter Decision Framework. Currently, 29 per cent of water users have a metering condition on their water licence or allocation[17] lower than target meter coverage in other states.

Where metering is not required, there is limited definition of the preferred (or required) measurement methods that should be used to account for water use. In addition, in some cases, inconsistent requirements may apply across different water managers who apply separate policies or different requirements (including NRE Tasmania, Hydro Tasmania, Tasmanian Irrigation and other water entities).

Recommendations

Recommendation 4: NRE Tasmania should introduce the following strengthened metering and measurement requirements within the state-wide water accountability framework for all water resources (surface water and groundwater):

- Mandate licensed water use to be metered subject to defined categories of risk-based exemptions (including for example small volumes of take, take in low-risk zones, inactive infrastructure as well as to address on-ground implementation considerations).[18]
- Adopt a preferred approach to accounting for water where a metering requirement does not apply (for example, deemed use based on volume allocated, assessment of theoretical water use requirements, or minimum accepted methods).
- Require meter implementation plans to be developed with respect to different water catchments and/or water resource plan areas that defines risk-based thresholds for meter coverage and any applicable exemptions and transitional pathways for compliance with the state-wide policy.[19]
- Require metering to comply with the state-wide policy.
- Provide clarity on the state's policy position of a user pays approach to metering (for example, new and replacement meters will be privately owned and maintained at owner's expense).
- Specify order of use or volumetric thresholds for different types of water use where multiple sources are taken through the same water meter.

Rationale

Metering is the most effective method to account for water use accurately. Application of the policy framework to surface water and groundwater resources provides consistency and provides the ability to implement appropriate water accountability measures in response to risk over time. A State-wide metering mandate subject to defined categories of exemptions will provide regulatory certainty, align Tasmania's water accountability framework with national "better practice" and provide a higher level

[17] NRE Tasmania, 2022. Extract from Water Information Management System 17-08-2022.

[18] It is recommended these are based on 1) DAWE 2021, Metrological Assurance Framework 2: rules and guidance for the use and regulation of non-urban water meters, Department of Agriculture, Water and the Environment, Canberra, July. P28 and 2) MDBA 2019, Best practice guidelines for minimum metering thresholds.

[19] Meter implementation plans could be developed by different infrastructure operators in line with guidelines developed by NRE Tasmania. In some circumstances such as high risk settings, NRE Tasmania could have a role in approving and ensuring accountability of such operators with the implementation plan through monitoring and/or compliance.

of fairness and equity between water users. Given that transition pathways may be needed to facilitate on-ground implementation, exemptions defined in meter implementation plans can provide flexibility for appropriate measures to apply in response to regional circumstances.

3.3. Standards for meter selection, installation, validation and maintenance

Key findings

Core elements of the Tasmanian Standard for Non-Urban Water Meters (Tasmanian Standard) (such as requirements for CMIs to validate meters) align with national 'better practice' standards. However, current standards permit lower accuracy thresholds, do not mandate records that meters comply with standards be submitted, and no grandfathering arrangements apply for meter upgrade or replacement. The current standards contain external references to detailed technical specifications in AS4747 (which are unavailable without purchase) which can diminish clarity about what requirements apply.

Recommendations

Recommendation 5: NRE Tasmania should amend the Tasmanian Standard to better align it with the rules and guidance in MAF2:

- Providing an explicit requirement for all meters to be pattern-approved in accordance with AS4747 from a defined date (for example, the date of the policy or date specified in the meter implementation plan).
- Introducing grandfathering arrangements, for example meters installed prior to the policy may be exempted from the requirement to have pattern approved meters up to a defined date (for example, on replacement or a fixed date) as long as a meter meets minimum accuracy and function requirements defined in the policy.
- Detailing requirements for the selection, installation, maintenance, testing, replacement and validation of meters, including requirements for records of compliance with standards to be retained and provided to the relevant authority.[20]
- Clarify any circumstances where telemetry is required, for example under a relevant applicable meter implementation plan.

The Tasmanian Standard could be integrated as part of the overarching state-wide water accountability framework documents (recommendation 2) or continue to be housed in a separate document.

Rationale

Accurate and functioning meters ensure good quality data is available to inform and support decision-making and water management outcomes, including providing a reliable source of evidence against which to assess compliance with water take limits. Alignment of meter standards with national 'better practice' standards is desirable because it ensures achievement of or continued progression towards

[20] It is recommended that this content is based on the NSW Non-Urban Water Metering Policy Part 2 and the South Australian Licenced Water Use Metering Specification.

these outcomes. Metering standards should be accessible and provide clarity to water users as to how they can effectively comply with requirements. Efficient processes should enable the resource manager to verify compliance with meter standards.

3.4. Compliance and enforcement

Key findings

NRE Tasmania's centralised compliance approach with a focus on education and engagement and a risk-based audit program aligns with national practices and approaches in other jurisdictions. However, there are several areas for strengthening:

- Existing compliance tools may not facilitate flexible and effective pathways for enforcement, particularly for lower-level offences.
- While compliance activity under the Water Licence Audit Program is targeted based on a risk assessment, resourcing levels appear to be based on available resources rather than being set proportionate to the resources needed to address the level of risk.
- There are potential gaps in roles and responsibilities for compliance between NRE Tasmania, Hydro Tasmania, TI and other water entities (particularly in 'run-of-river' schemes where water users have access to multiple water products).
- The current Tasmanian Compliance and Enforcement Policy and Procedures lack specificity concerning determining compliance and enforcement in water management settings.
- While NRE Tasmania has improved its understanding of metering installations, limited metering records and water use information undermines effective compliance.
- There is a lack of public information and reporting on water compliance objectives, strategies and actions.

Recommendations

Recommendation 6: NRE Tasmania should determine and apply compliance and enforcement strategies and resourcing for different water resources based on the water resource risk assessment.

Recommendation 7: NRE Tasmania should implement a water management specific compliance and enforcement policy and procedures that: [21]

- specifies how risk-based and flexible compliance pathways should be applied, including with reference to risk classification of water resources and water-related offences.
- require compliance strategies and actions to be developed at regular intervals and approved.
- documents roles and responsibilities for compliance including NRE Tasmania and other water managers to clarify responsibilities for strategic direction and leadership, operational implementation and oversight to check that entities are delivering on their roles and functions.

[21] Victoria's Non-urban Water Compliance and Enforcement Guidelines provides a useful precedent for a compliance and enforcement system built on five principles: risk-based, responsive, transparent, accountable, and consistent.

Recommendation 8: NRE Tasmania should review and amend legislative provisions to support enforcement of the State-wide policy and standards. For example, to provide increased flexibility to enforce lower-risk offences.

Recommendation 9: NRE Tasmania should establish platforms and procedures to publish compliance information including compliance objectives, strategies and actions taken.

Rationale

A robust and clear system for compliance is vital to support community confidence that the same rules apply to everyone and to deter people from illegally taking and using water. A risk-based approach enables limited resources to be used efficiently and targeted to the most significant compliance risk areas. Having flexible options for compliance and enforcement supports the efficient use of resources, deterrence and cooperative problem-solving. Transparent information on compliance objectives, management strategies and actions support deterrence and confidence that the compliance system is working. Accountable governance clarifies roles and responsibilities and helps avoid potential conflicts in compliance responsibilities with other functions. Comprehensive metering and reporting on use, and compliance with meter standards, provide safeguards against water theft and provide credible evidence on which to take enforcement action.

3.5. Recording and reporting of water use

Key findings

Requirements and processes to record and report water use under the Tasmanian Water Accountability and Reporting Policy do not support the adequate collection of water use information:

- While licence holders must keep records of water use for five years and report in an agreed format when requested, NRE Tasmania has not required reporting, except on limited occasions.
- The frequency of record keeping and reporting makes it difficult to assess water use and compliance with conditions on a suitable timestep, particularly around time-critical events such as low flow periods or flood take events. This makes accounting for water use in areas with different water products challenging.
- Record-keeping and reporting requirements do not provide sufficient information about the timing of water use or whether water use occurred per licence conditions.
- Requirements do not define a standard format for reporting. NRE Tasmania lacks appropriate processes and systems to collect water use reporting from water users (as well as manage, validate, store and use water use information, explored further below).
- Record-keeping and reporting requirements across water managers are inconsistent.
- There is a lack of credible information on which to assess compliance and evidence on which to take enforcement action due to a lack of reporting of data (for example, meter readings and compliance with standards).

Recommendations

Recommendation 10: The state-wide policy framework should specify minimum requirements for recording and reporting water use (for example at least once per year), with additional frequencies

able to be specified as a condition of authorisations to take water. Implementation plans should specify further detailed requirements as to the frequency or timing of recording and reporting to be reflected on approval conditions (for example, daily/weekly/monthly in high-risk systems or where time critical authorisations occur). Where meters are required, the policy should specify where validation requirements are needed (for example, annual download of data logger).

Recommendation 11: The state-wide policy framework should apply to all licensed water users including bulk water users that grant use rights to take water to other users. A bulk water user would be responsible for reporting use against its allocation in accordance with policy requirements and relevant conditions, and liable for breaches of conditions or overuse penalties. If a bulk water user is subject to the requirement to meter water use, it would need to implement individual use metering within the network to effectively comply with metering conditions.

Recommendation 12: The state-wide policy framework should specify a standard format and process for reporting meter readings, supported by standard forms and platforms to support simplified and accurate reporting. The framework should specify cases where standard reporting format and processes differ based on risk.

Rationale

Credible and comprehensive reporting of use data supports water resource management outcomes, including resource monitoring and demand management and deters water users from using water beyond their water allocation limits. Record keeping and reporting should be prioritised according to risk. In catchments, with high levels of allocation and complex water management and access arrangements (including multiple water products, time-dependent authorisations, managing bulk water deliveries, and meeting minimum flow obligations) near-real-time data on water use and improved bulk water monitoring and accounting is needed to manage the system effectively. Conversely, in catchments with comparatively lower levels of development, fewer allocations, and simpler management arrangements, less frequent reporting may be adequate.

Telemetry, data loggers and online reporting forms and platforms allow water users to meet reporting requirements efficiently and support the efficient sharing and use of information by water managers. Noting water information system upgrades are required to effectively capture and generate value from data collected from telemetered meters, a manual or online reporting platform would be sufficient until register capability is developed.

3.6. Management of water use information

Key findings

NRE Tasmania's current water information systems (including the WIMS and other related information record-keeping platforms) are outdated. They do not support efficient and effective collection, management, validation and use of licensing, water use, metering and compliance information required to support Tasmania's water accountability framework. Manual record-keeping processes create risks to data quality. Water use data and information quality issues hinder effective water planning and management.

Recommendations

Recommendation 13: NRE Tasmania should consider functionality for water accountability, as part of the business case being developed to upgrade the Water Information Management System (WIMS) as outlined in the Rural Water Use Strategy (RWUS) WIMS Upgrade Project.[22] The business case should consider the management systems of other jurisdictions and determine suitable approaches to be applied in Tasmania. Key functionality that should be considered alongside other water register functionality (for example, licences, allocations, conditions) include:

- Water use against allocations
- Metering records management
- Compliance management.

Rationale

A fit-for-purpose information system that is secure, accurate and centralised is a critical step to ensure NRE Tasmania, water managers and water users have access to relevant water information on a timely basis. NRE Tasmania is exploring upgrades to WIMS through the RWUS. It should ensure that water accountability functionality is addressed as part of these upgrades.

3.7. Capability and resourcing

Key findings

Implementing an updated water use accountability framework could involve changes to NRE Tasmania's operations and the operation of Tasmanian rural water sector more broadly. Implementation is likely to add to existing or introduce new needs for capability and resources. NRE Tasmania will need to identify and understand specific capability issues to address in order to deliver different parts of the framework, both inside and outside of government. Within government, increased capability and resourcing are likely to be required for:

- policy development
- policy implementation
- compliance
- data and information collection, management, validation and sharing
- water use accounting
- reporting.

It will also be important to consider capability and resourcing for parts of the framework that will be delivered outside of government. For example, meter installation, validation, and maintenance services which are necessary to effectively implement the framework, but which are delivered by the private sector.[23] NRE Tasmania may need to consider whether there is sufficient supply of these services to

[22] Department of Natural Resources and Environment Tasmania, 2022, Rural Water Use Strategy Implementation Plan (2022–2025), p. 7.

[23] Except for water users who receive water from piped schemes in Irrigation Tasmania's irrigation districts, who receive these services from Irrigation Tasmania.

support the implementation of Tasmania's water accountability framework. It may need to determine whether there is a role for government in supporting adequate supply of these services.

Recommendations

Recommendation 14: NRE Tasmania should consider potential capability and resourcing issues associated with implementing Tasmania's water accountability framework, and work with other areas of government to identify and understand any skills or labour shortages issues.

Rationale

Adequate capability and resourcing will be critical for the success of the framework. Without sufficient capability and resourcing within government and the private sector, it will be challenging to develop and implement an updated framework. NRE Tasmania should identify and consider these needs early and work to address them, including as needs evolve over time.

3.8. Costs and cost allocation

Key findings

High upfront and ongoing costs are associated with potential accountability framework changes. Water users are currently responsible for meeting costs associated with stronger metering requirements and would likely face increased costs under new proposed arrangements (noting if implemented, risk assessments could influence where and when). Current cost allocation and recovery arrangements do not fully recover the costs of Tasmania's water use accountability framework from water users, which means the current allocation of costs may not be consistent with relevant principles such as user, beneficiary, or impactor pays approaches, which are important to ensuring efficient levels of investment.

Aither acknowledges that there has been a significant investment in recent years for water through the RWUS, including $1.5M for initial implementation of the Strategy, an additional $1.95M supporting RWUS projects and an additional $360,000 per year via water fees. In addition, the 2023/24 Tasmanian State Budget allocated $600,000 for further scoping and development of a new Water Information Management System (WIMS). These are important and positive developments but point to the need to clarify or improve the approach to cost allocation and cost recovery, given the scale of past and likely future investment required in the sector.[24] Aither also understands that NRE Tasmania intends to review the approach to setting water management fees in the future, following implementation of the RWUS.

There is also a need for Tasmania to prioritise investments in critical systems or processes to support enhanced water accountability (for example, state water register and other information management systems).

Recommendations

Recommendation 15: NRE Tasmania should, as it has foreshadowed, undertake a thorough review of its cost allocation and cost recovery approach for rural water. This should have regard to relevant

[24] In the absence of appropriate cost allocation and recovery approaches, other sectors of the economy or taxpayers generally will contribute to the costs of water accountability or water management, even where they do not benefit directly or indirectly from these activities.

economic principles and should reflect the current and future costs of its water management activities (including an enhanced water accountability framework). It should also interrogate the current approach to water user fees and charges and seek to implement changes that are consistent with the NWI pricing principles.[25]

Recommendation 16: NRE Tasmania should investigate investments made by other jurisdictions in water register and information management systems to identify opportunities for costs savings and provide greater confidence in future investments in technology solutions. This will contribute to the business case development for Tasmania's WIMS upgrade which is to be delivered under the RWUS.

Recommendation 17: NRE Tasmania should investigate opportunities to leverage national funding opportunities for water register enhancements and associated reforms to align Tasmania with national water accountability policy directions. Opportunities may also exist to help manage the costs of enhanced meter or telemetry coverage where this is immediately necessary in Tasmania.

Rationale

A full assessment of current cost allocation and recovery approaches for Tasmania's current water accountability framework was not within the scope of this project; however, cost recovery is generally sought in relation to water planning and management by the government. For water planning and management (including water accountability), cost recovery may occur via service or transaction fees, or other ongoing charges (such as levies).

The NWI pricing principles agreed upon by all jurisdictions embed user pays principles to ensure water users cover the costs of managing the water resources they use and directly benefit from (including water planning and management and accountability measures). Tasmania needs to move to greater levels of cost recovery to fund the water management activities it critically needs (such as addressing the findings and recommendations in this report). Not doing so means having an ineffective and unsustainable water management approach or cross-subsidisation from other areas of government. This need is reinforced by (but is also made further possible to achieve) Tasmania's desire to further develop and leverage its water resources to achieve enhanced economic outcomes (such as achieving agricultural production or value targets in relevant strategies).[26]

The user-pays principle is reflected in the recommendations above, that Tasmania's state-wide policy clarifies the state's policy position of a user-pays approach to metering (for example, new and replacement meters will be privately owned and at the owner's expense, as well as costs associated with validation and meeting meter standards).[27] The risk-based process recommended above (for example, for implementing metering requirements under meter implementation plans) can also

[25] Aither understands that NRE Tasmania is seeking to complete such a review after implementation of the RWUS, based on the view that the design of new approaches and systems should be resolved to determine what funding or cost recovery is needed. A potential risk with this approach is that changes are designed which users cannot afford to pay for, or which are difficult to fund by other means.

[26] That is, enhanced economic outcomes from increased irrigated agricultural production will provide increasing means for water users to pay.

[27] Regardless of the approach taken, in almost all other jurisdictions users pay – whether by purchasing and owning their water meter, or where their water service provider owns and installs the devices but recovers the costs of this from the water user through full cost recovery based user fees and charges. In addition, other accountability measure costs can be recovered through fees and charges (for example, costs of running a compliance regime, costs of running an effective water register, etc.)

address water user cost considerations where needed, including providing transitional timeframes for compliance and potential Government financial support where warranted.[28]

Opportunities to leverage water register and information management system investments already made in other jurisdictions are being investigated as part of the business case for Tasmania's WIMS upgrade. This may provide upfront cost savings to support Tasmania's water accountability framework. Importantly, leveraging a technology solution that has been successfully implemented elsewhere would provide greater confidence in the investment.

Demonstrating how and when the Tasmanian accountability framework intends to meet national standards and new commitments, such as a renewed National Water Initiative, can support policy momentum and may provide funding opportunities to progress improvements to accountability arrangements.

3.9. Stakeholder awareness and cooperation

Key findings

There is a lack of publicly available information about the water accountability approach and requirements that would support stakeholders to understand and comply with requirements. In addition, a strong social licence for enhanced water accountability measures may not currently exist, which presents risks for implementing any policy changes.

Recommendations

Recommendation 18: NRE Tasmania should build genuine and early community engagement into risk assessments and amendments to, and implementation of water accountability measures based on communications and engagement plans.

Recommendation 19: NRE Tasmania should publish clear, accessible, user-friendly information about Tasmania's water accountability framework. Information should be appropriately tailored to relevant stakeholders (for example, water users, industry participants, the public). Priority information to be published includes:

- The Tasmanian water accountability framework
- The Tasmanian Standard for Non-Urban Water Meters (including reporting forms, certificates and platform for water meter notifications and information on pattern approved meters and approved meter installers/validators)
- Tailored and accessible information to help water users, industry participants and the public understand water accountability arrangements and requirements
  - contact information for questions on metering and reporting obligations
  - FAQs and user guide to the metering standard (for water users)
  - information for meter installers/validators.
- Implementation plans and progress reports.

[28] The NWI pricing principles provide further guidance on circumstances where this may be warranted, and approaches for addressing this issue.

- Periodic reporting of catchment water use, metering and compliance information.

Recommendation 20: NRE Tasmania should consider how it can continue to be transparent, open and accountable in order to build public confidence in government delivering Tasmania's enhanced water accountability framework.

Rationale

Genuine and early community engagement on risk assessments and modifications to water accountability measures can help ensure such measures are informed by community values, support buy-in and encourage long term participation and compliance. User-friendly accessible information supports water users in understanding and complying with requirements that apply to them. Robust water governance, transparency, accountability and openness in the way government acts can nurture the social licence to implement enhanced water accountability measures. A lack of confidence in the actions of government or an institution's performance can undermine its ability to act. Measures may include disseminating key information on planned actions, performance and resource decisions. For example, the Murray-Darling Basin Compliance Compact provides transparency and accountability on the commitments and progress of jurisdictions to implement compliance measures including metering arrangements. Effective arrangements to monitor performance provides accountability and momentum to deliver outcomes over time.

3.10. Use and transparency of water data and information

Key findings

Water users and NRE Tasmania have limited access to information about actual water use against various allocations throughout the year and key events. Increased reporting and management of water use information would support the government's delivery of water management functions. While water users should already understand their individual water use due to the requirement to account for water use, providing formal account reconciliations to individuals based on reporting can support self-compliance and on-farm management decisions and represents an essential benefit for water users from water accountability reforms.

Current water data sharing arrangements do not provide comprehensive, accurate, timely and accessible sharing of information and data between water managers to support the delivery of river operations and water management responsibilities in catchments with shared responsibilities.

Public reporting of water use and metering could be improved to support the community's desire for increased transparency. Key water information products that are not currently reported publicly include catchment and state-level water use, water accountability implementation progress and compliance activities.

Recommendations

Recommendation 21: NRE Tasmania should investigate the feasibility of providing individual water account information to individual water users. This may include providing information about water use against allocations based on reporting or access to raw water data (where possible).[29]

Recommendation 22: NRE Tasmania should lead a process with Hydro Tasmania, TI, TasWater and other water entities to investigate opportunities to improve coordination and sharing of data between water managers to support efficient water resource management outcomes. This should consider sharing of information on water licensing, allocations, conditions, usage, orders and deliveries and link with surface water monitoring data. The process could be undertaken through the Water Managers and Data Custodian Working Group.[30] The group was recently established under the RWUS to investigate and improve a range of data sharing issues for surface and groundwater including river health and water quality and quantity issues.

Recommendation 23: NRE Tasmania should review its approach to publishing water information with a focus on providing fit-for-purpose, publicly available water use, metering and compliance information. Information should meet the usability and accessibility requirements recommended in recommendation 19. This should include:

- progress on implementing water accountability reforms (including meter coverage and quality)
- annual aggregated (for example, catchment scale) water accounts for high-risk catchments and areas of public interest
- compliance and enforcement activities.

Rationale

Making information about individual water use against allocations available to the same individual water users provides them with a range of benefits, including enabling water trade, supporting the ability to improve water use efficiency, providing confidence that actual water use complies with allocation limits, and providing certainty to inform on-farm water management decisions.[31]

A greater level of information sharing, communication and cooperation is needed in light of current water management settings and the co-management approach. Without this, water management outcomes cannot be delivered effectively.

Easily understandable and accessible public information about water use, metering and compliance supports public confidence that Tasmania's water resources are being managed effectively and that water users are complying with the rules. Transparency should be prioritised towards areas of high-risk and those with a higher degree of public interest. Providing individual water accounts to water users is currently being investigated by Tasmania as part of the business base for the WIMS upgrade.

[29] Currently water users subject to regulation by NRE Tasmania do not have any access to their water use information unless they collect and maintain this data themselves. This in great contrast to other jurisdictions where water users who are required to have meters installed, also have access to their water use via water account and balance information contained on secure information systems managed by their water service provider or water utility.

[30] The Water Managers and Data Custodian Working Group was established under the RWUS to investigate issues and improve data sharing for surface and groundwater including river health and water quality and quantity issues.

[31] Note that individual water use against individual allocations is not publicly provided elsewhere and is a privacy concern, however regulators and water managers do have access to this information to ensure compliance.

4. Implementation and next steps

This part prioritises recommendations based on their relative value for improving water accountability and the feasibility of implementation.

4.1. Recommendations summary

Figure 4 plots the recommendations from section 3 on a two-by-two matrix to guide the staged implementation of the recommendations:

- The vertical axis captures the relative value that each recommendation could provide in terms of improving water accountability.
- The horizontal axis shows the relative difficulty of implementing each recommendation.

The visualisation should be considered a preliminary assessment and intended as a starting point for considering each recommendation's merit to inform the next steps.

The recommendations in Figure 4 can be categorised into the two following groups:

- Recommendations that provide a lot of benefits to water accountability are presented in Table 3, Table 4 and Table 5. They can be further categorised into:
  - **Relatively easy to implement and higher value benefits to improve water accountability.** This group comprises lower-cost recommendations that are relatively easy to implement and have many benefits.
  - **Medium level of difficulty to implement and higher value benefits to improve water accountability.** This group comprises recommendations that have a higher cost and are more challenging to implement but still provide essential benefits in materially improving water accountability.
  - **Relatively difficult to implement and higher value benefits to improve water accountability.** These recommendations likely required considerable investment in cost and time and would require significant collaboration across other stakeholders and the public and have a high degree of dependency with other recommendations but have substantial benefits commensurate with the costs.
- Recommendations that have a lower level of difficulty to implement and lower value benefits to improve water accountability. Nonetheless, these should be considered to support other recommendations (Table 6).

Recommendations
Relatively easy to implement and higher value benefits to improve water accountability
1. Undertake a state-wide risk assessment of water resources to prioritise water accountability requirements
2. Complete an audit to collect information needed inform risk assessments and decision-making for future changes to the water accountability framework
6. Determine and apply compliance and enforcement strategies and resourcing for different water resources based on the water resource risk assessment
9. Publish information about compliance objectives, strategies and actions
18. Build genuine and early community engagement
19. Publish clear, accessible, user-friendly information about Tasmania's water accountability framework
Medium level of difficulty to implement and higher value benefits to improve water accountability
3. Update and streamline the water accountability framework into a single, integrated document
8. Review and amend legislative provisions to support enforcement of the State-wide policy and standards
10. Specify minimum frequencies for recording and reporting water use
11. Apply the framework to all licensed water users (inc. bulk water users)
12. Specify a standard format and process for reporting meter readings, supported by standard forms and platforms
Relatively difficult to implement and higher value benefits to improve water accountability
4. Introduce strengthened metering and measurement requirements within the state-wide water accountability framework
5. Amend the Tasmanian Standard to align with MAF2
13. Consider functionality for water accountability through the business case being developed as part of the RWUS WIMS Upgrade Project.
15. Review Tasmania's cost allocation and cost recovery approach for rural water
20. Consider how to continue to be transparent, open and accountable to build public confidence in the new water accountability framework
21. Investigate the feasibility of providing individual water account information to individual water users
22. Investigate opportunities to improve coordination and sharing of data between water managers
23. Provide fit-for-purpose, publicly available water use, metering and compliance information
Lower level of difficulty to implement and lower value benefits to improve water accountability
7. Implement a water management specific compliance and enforcement policy and procedures
14. Consider and address potential capability and resourcing barriers for implementing the water accountability framework
16. Investigate water register investments by other jurisdictions to identify costs savings and provide confidence in future investments in Tasmania
17. Investigate opportunities to leverage national funding opportunities

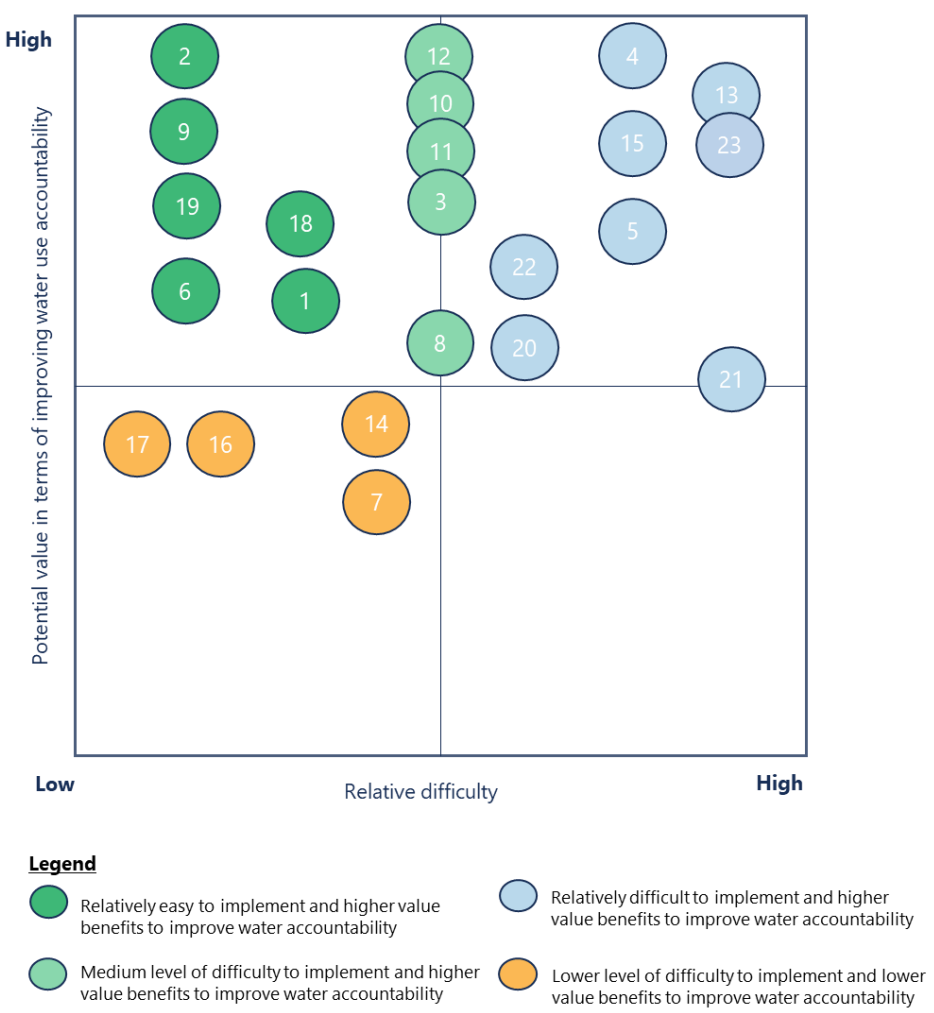


Figure 4 Assessment matrix for potential recommendations to improve water accountability

4.2. Recommendations that provide a lot of benefits to water accountability

4.2.1. Relatively easy to implement

Table 3 presents a summary of recommendations considered relatively easy to implement.

Table 2 Recommendation summary - relatively easy to implement

Recommendation
Rec 1: Undertake a state-wide risk assessment of water resources to prioritise water accountability requirements
Rec 2: Complete an audit to collect information needed inform risk assessments and decision-making for future changes to the water accountability framework
Rec 6: Determine and apply compliance and enforcement strategies and resourcing for different water resources based on the water resource risk assessment
Rec 9: Publish information about compliance objectives, strategies and actions
Rec 18: Build genuine and early community engagement into risk assessments, and changes to water accountability measures
Rec 19: Publish clear, accessible, user-friendly information about Tasmania's water accountability framework

4.2.2. Medium level of difficulty to implement

Table 4 presents a summary of recommendations that are considered to have a medium level of difficulty to implement.

Table 3 Recommendation summary - medium level of difficulty to implement

Recommendation
Rec 3: Update and streamline the water accountability framework into a single, integrated document
Rec 8: Review and amend legislative provisions to support enforcement of the State-wide policy and standards
Rec 10: Specify minimum frequencies for recording and reporting water use
Rec 11: The state-wide policy framework should apply to all licensed water users including bulk water users that grant use rights to take water to other users
Rec 12: Specify a standard format and process for reporting meter readings, supported by standard forms and platforms

4.2.3. Relatively difficult to implement

Table 5 presents a summary of recommendations that are considered relatively difficult to implement.

Table 4 Recommendation summary - relatively difficult to implement

Recommendation
Rec 4: Introduce strengthened metering and measurement requirements within the state-wide water accountability framework
Rec 5: Amend the Tasmanian Standard to align with MAF2
Rec 13: Consider functionality for water accountability through the business case being developed as part of the RWUS WIMS Upgrade Project
Rec 15: Review of Tasmania's cost allocation and cost recovery approach for rural water
Rec 20: Consider how to continue to be transparent, open and accountable in order to build public confidence in government delivering Tasmania's enhanced water accountability framework
Rec 21: Investigate the feasibility of providing individual water account information to individual water users
Rec 22: Investigate opportunities to improve coordination and sharing of data between water managers
Rec 23: Provide fit-for-purpose, publicly available water use, metering and compliance information

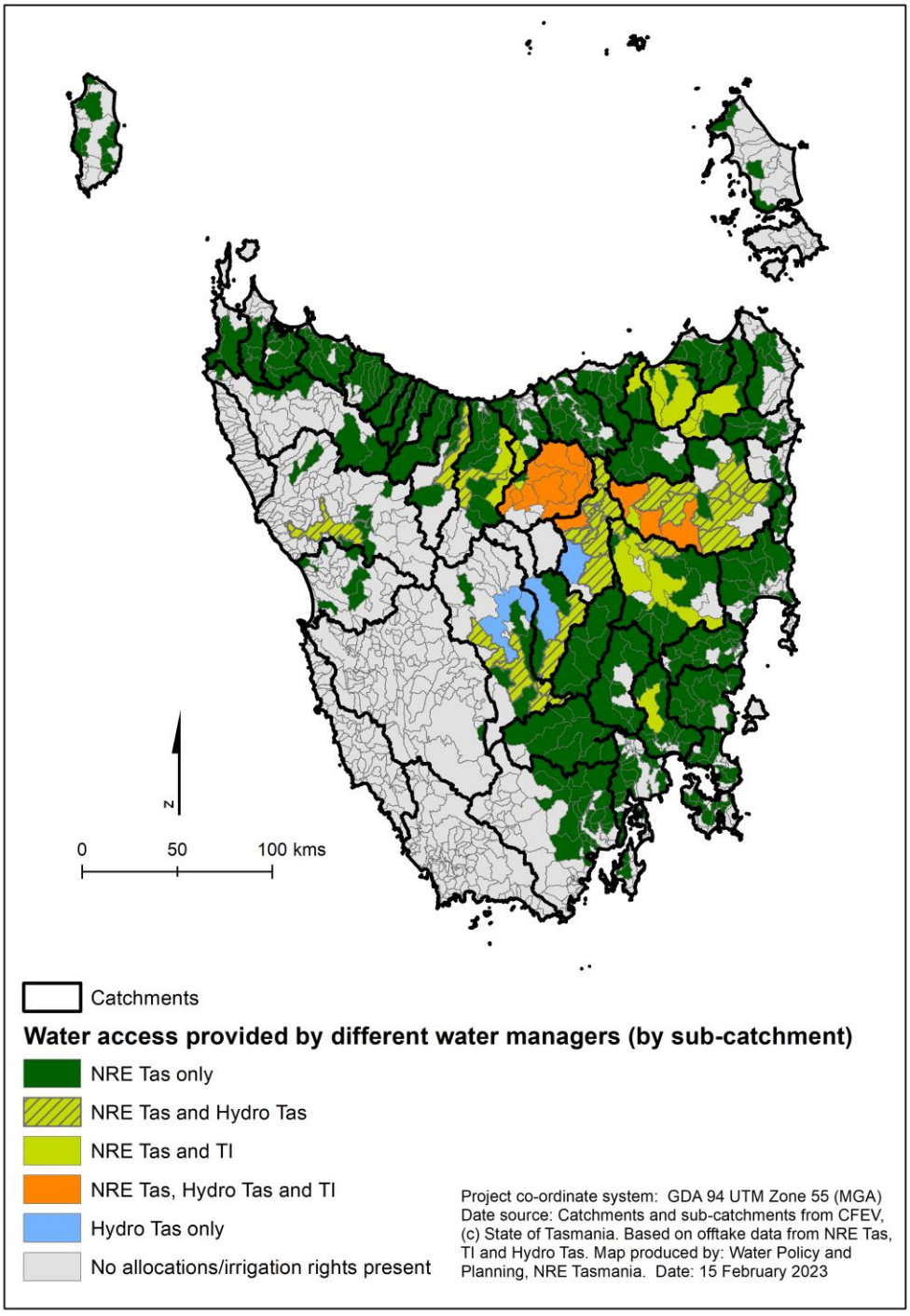
4.3. Recommendations that are likely to provide fewer benefits but should be considered to support other recommendations

Table 6 presents recommendations that are likely to provide fewer benefits but should be considered to support other recommendations.

Table 5 Recommendation summary - relatively difficult to implement

Recommendation
Rec 7: Implement a water management specific compliance and enforcement policy and procedures
Rec 14: Consider and address potential capability and resourcing barriers for implementing the water accountability framework
Rec 16: Investigate water register and information management investments by other jurisdictions to identify costs savings and provide confidence in future investments in Tasmania
Rec 17: Investigate opportunities to leverage national funding opportunities

Appendix A - Overlapping water products



Source: NRE Tasmania 2023.

Note: In addition to the water managers depicted above, the *Water Management Act 1999* provides for the management of water resources by non-government bodies called water entities, within declared areas of the state. These are not depicted in the figure.

Figure 5 Water access provided by different water managers

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