

# Rural Water Management Program Progress and Performance Report

October 2020

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## Executive Summary

The Rural Water Management Program (RWMP) was established by the Queensland Government in 2018 as part of the government's response to the [Independent audit of Queensland non-urban water measurement and compliance](#) (Independent Audit.)

Over the past two years the RWMP has set the foundations for more transparent, sustainable and equitable approaches to water management across the state by delivering new projects and initiatives as part of the Department of Natural Resources Mines and Energy (DNRME's) core business.

The RWMP sets out actions to strengthen our non-urban water management, including:

- improved measurement of all types of non-urban water use
- an improved water market so that water trading can create social and economic benefits for Queensland
- transforming water information systems to deliver timely, accessible and responsive water information and services to our customers and the community
- enhanced regulation and compliance to ensure accountability.

This report provides an overview of the RWMP and how it operates; and documents its achievements from its inception in July 2018 up until 31 August 2020. It also details how we are implementing the Queensland Government's response to the Independent Audit as well as progress we have made on our commitments under the [Murray-Darling Basin Compliance Compact](#) for the current reporting period.

The report also outlines work completed over the last 12 months to establish a 'regulatory assurance' (performance excellence) framework to demonstrate the RWMP's public value and report on outcomes.

Over the past two years, the RWMP has set the foundations for a more holistic end-to-end transformation of how we deliver sustainable non-urban water management in Queensland. The Rural Water Futures program is the next step in our business evolution. This report signals our transition from the RWMP to Rural Water Futures.

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## About the program

### Purpose and scope

Water is a precious resource for all Queenslanders: it preserves our environment, sustains our communities and is a vital input for the farming and mining industries which are the backbone of our rural economies.

Maximising the value and availability of our water resources is key to unlocking Queensland's economic development into the future.

However, Queensland is facing ever greater water resource management challenges. Frequency of natural events, changing climatic conditions and ever-increasing demand for water from industry and communities are putting pressure on our water resources.

The **Rural Water Management Program (RWMP)** was established by the Queensland Government to address these challenges affecting our regions. Launched as part of the government's response to the [Independent audit of Queensland non-urban water measurement and compliance](#), the RWMP aims to transform how we deliver sustainable water management in this state.

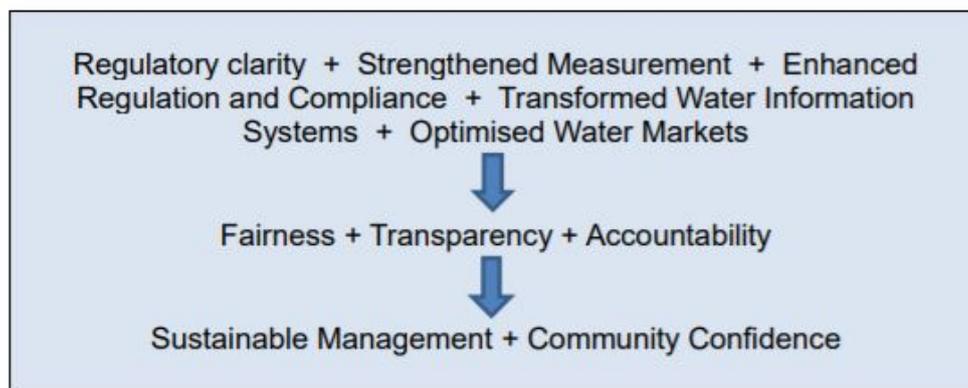
Using the latest technologies, forward-thinking policy and strengthened regulation, the RWMP offers a holistic approach to measuring and managing the 6.4 million megalitres of water which are allocated for use in our regions. The program emphasises fairness, transparency and accountability for everyone, from the Queensland Government to individual water users.

Concern about the sustainability of our water resources is at an all-time high, amongst both users and the wider community. We're working to maintain and strengthen trust in the ways our water system is operated.

As well as helping to meet the Queensland's obligations under the Murray-Darling Basin Compliance Compact, the RWMP addresses how we use and share our water across the state.

The RWMP sets out actions to strengthen our non-urban water management, including:

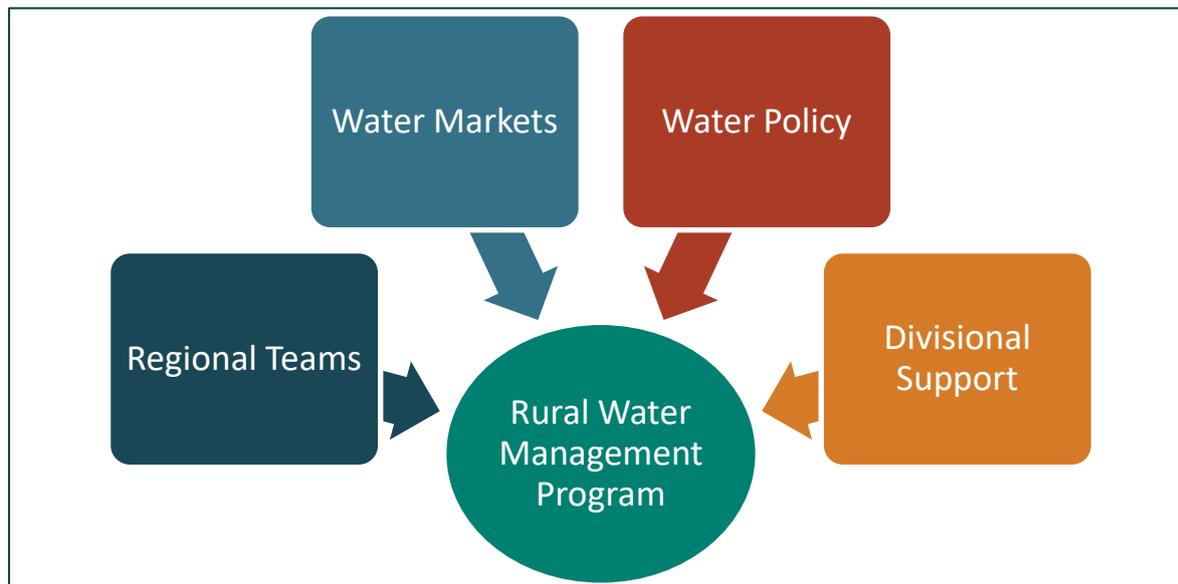
- **improved measurement** of all types of water use, including, individual entitlement holders, dam operators and the Queensland Government's own networks
- an **improved water market** so that water trading can create social and economic benefits for our communities
- **transforming water information systems** to deliver timely, accessible and responsive water information and services to our customers and the community
- **enhanced regulation and compliance** to ensure accountability.



**Figure 1: Rural Water Management Program drivers and outcomes that deliver community confidence**

## Roles and responsibilities

The RWMP has been delivered by the Department of Natural Resources Mines and Energy (DNRME). Within DNRME, the Natural Resources Division and the Policy Division are responsible for developing and implementing the department's water management activities. The RWMP has been delivered through a distributed project delivery model across these two divisions.



**Figure 2: Department of Natural Resources, Mines and Energy business groups responsible for implementing the Rural Water Management Program**

## How we operate

### Program governance

A robust governance framework was established at the outset to guide program management for the RWMP and ensure adherence to strict departmental project management standards. A program board comprising senior leaders and key stakeholders from across the water business has overseen the development, direction and delivery of the program since its inception.

While other government agencies and interest groups across industry and community are regularly engaged, consulted and apprised of planned changes and progress, they do not form part of the governance structure or have decision-making accountabilities.

### Project management

The RWMP is delivering an interdependent and diverse range of projects concurrently. It has been essential to implement robust program and project management principles and methodologies to manage the project complexities and interdependencies and deliver sustainable end to end improvements across the water business. To include the best expertise and knowledge the project teams and advisory groups include staff working in virtual teams from across the water business working in Brisbane and regional locations. This approach ensures that the program delivers practical policy solutions and service delivery models that are customer focussed.

## Our stakeholders

Our key stakeholders come from diverse sectors including agriculture, mining, and environmental.

The Water Engagement Forum is an important mechanism for us to engage with many of our key stakeholders. Eighteen stakeholder groups are represented on this forum, including primary industries, georesources, water service provision, catchment management, environmental and local government sectors. The forum allows targeted representative consultation and information sharing on government water business, policy and planning issues.



**Figure 3: Key stakeholder groups for the Rural Water Management Program**

## Program achievements

Since its inception in June 2018, the RWMP has taken significant steps towards improving the way Queensland's non-urban water resources are managed, measured and reported. The program's achievements are summarised below.

### Strengthened water measurement

Measuring water take is fundamental to improving how we manage this important resource and therefore a central component of the RWMP.

Accurate and timely water measurement:

- helps users improve their water use efficiency and reduce costs
- enables government to make fair and sustainable decisions about access to water and compliance
- reassures the community that water is being managed fairly and sustainably.

### Non-urban water measurement policy

We are improving how we measure water take by strengthening non-urban water measurement policy.

Following a review of our non-urban water metering policy in 2018, [policy proposals](#) were developed and released for state-wide public consultation in late 2019. The significant feedback from community and industry identified complex policy issues requiring further investigation. An [overview of consultation feedback](#) was published February 2020.

Before we can finalise our policy positions, we need to further examine the best ways to:

- capture meter data
- establish practical transitional arrangements for existing meters and meter performance requirements
- apply a risk-based approach.

Our focus is on completing this work to further develop our measurement policy. We will look for opportunities to engage with relevant stakeholders as this progresses.

DNRME remains committed to delivering a water measurement policy that is practical, easy to understand and delivers equitable water sharing and improved management of our non-urban water resources.

### **Overland flow**

The overland flow measurement project now underway will help improve how we measure the take of overland flow water across the Queensland Murray-Darling Basin (QMDB). The Border Rivers and Moonie water plan states that large volume overland flow water take must be measured in high priority areas by 31 December 2022.

DNRME, with the assistance of an expert consultant, is developing a measurement standard and methodology to guide a more robust measurement approach.

Consultation with irrigators and industry bodies has commenced and work is also being undertaken to develop a consultation strategy for the standard and methodology and frame any legislative changes that may be required.

A draft interim standard for overland flow measurement was completed in June 2020, and the project is currently developing a “logic test” proof of concept model for testing the measurement standard and associated methodology.

Measurement of overland flow storages is being implemented, consistent with the Border Rivers and Moonie water plan measures, prior to the release of the improved overland flow measurement policy.

### **Resource Operations Licence holder reporting**

Independent audits of Resource Operation Licence (ROL) holders have been completed to provide an assessment on the condition and quality of their hydrometric monitoring networks.

DNRME has assessed the audit findings and engaged with ROL holders to identify opportunities for improvement to their quality management approaches. Data collection and reporting standards have been reviewed and finalised in August 2020 to provide greater direction for the quality management of hydrometric networks operated by ROL holders.

These standards underpin Quality Assurance for ROL holder data and have now been published on the departmental website.

### **Hydrometric monitoring review**

DNRME routinely undertakes reviews of the surface and groundwater monitoring networks to ensure they remain fit-for-purpose and provide timely and reliable data to support water resource planning and management needs. A review of the surface water monitoring

#### **What is a Resource Operation Licence?**

A Resource Operation Licence may be required to operate existing or proposed water infrastructure. These licences allow the holder to interfere with the flow of water in order to operate water infrastructure to which the licence applies.

network was completed in 2018 and a review of the groundwater monitoring network has commenced in July 2020. It is anticipated the groundwater monitoring network review will be finalised by April 2021

### **State-wide risk assessment**

A state-wide risk assessment based on pressure on the water resource in each Queensland catchment was completed in October 2018. The risk assessment included both supplemented and unsupplemented water. The risk assessment is documented in a formalised and systematic way that can be revisited and updated as required.

A sub-catchment risk assessment was developed to provide more detailed information to support risk-based decision making.

The risk assessment information has been used to support preliminary work to establish metering implementation timeframes in the QMDB. The risk assessment outcomes will be used to develop a state-wide metering implementation plan, once a final measurement policy has been determined.

Recently developed water plans have included specific timeframes for metering and measurement based on resource pressure risks.

### **Other achievements and work underway to strengthen water measurement:**

- A **centralised water resource risk register** has been implemented to be a point of truth for risks relating to water resources, water planning and management. The register records vital information so that it can be readily accessed and updated. It enables risks to the resource to be consistently tracked over time, helping government to prioritise its water activities to have maximum impact.
- The Queensland **interim water meter standard for non-urban metering** has been amended to enhance meter accuracy and provide additional assurance to DNRME that meters are installed correctly. Specific changes have also been made to the validation requirements and the validation certificate to support these amendments.
- In 2009, all Australian states and territories agreed through the Council of Australian Governments (COAG) to implement the National Framework for Non-urban Water Metering. Key components of the agreement included the establishment and implementation of Australian Standard 4747 Meters for non-urban water supply, and the associated **Metrological Assurance Framework (MAF)**. The Murray-Darling Basin Authority (Australian Government) in collaboration with the states and territories is now undertaking a 10-year review of the National Framework. Queensland is actively participating in the process given the synergy with the water measurement reform work already occurring under the RWMP.
- Options and approaches for **managing metering accuracy** are being investigated.

## Optimised water markets

Strong water markets support economic development in regional communities by enabling businesses to thrive, diversify and expand.

The RWMP is pursuing opportunities to optimise water use and improve water trading to support economic development. Building on the measures of the [Queensland Bulk Water Opportunities Statement \(QBWOS\)](#) we are working with the irrigation, resource and local government sectors to make underutilised supplemented and unsupplemented water more readily available and accessible.

### Underutilised Water Partnership Project

During 2019, DNRME consulted with industry stakeholders as part of the Underutilised Water Partnership Project. The project was initiated to facilitate access to significant quantities of water that have remained unused in some Queensland dams, weirs, barrages and metered water management areas even in dry times over the last 10 years.

Recommendations were developed with stakeholders to support better water utilisation through water markets and trading.

In response to these recommendations, the Queensland Water Markets Optimisation is being developed and is planned for release in late 2020. This will set out measures to optimise water markets and trading.

Steps to improve access to market information have already been taken with the trial of the Water Entitlement Viewer in 2019 and the establishment of the [water investor hotline](#) this year.

### Unallocated water

The release of [unallocated water](#) supports irrigated agriculture as well as other businesses in sectors like tourism and can open the way for a wide range of commercial operations.

### Gulf unallocated water release

In June this year, more than 100,000 megalitres of water were made available to support economic development opportunities for irrigated agriculture and other commercial enterprises in the [Gilbert, Norman and Nicholson catchments and the lower Leichardt sub-catchment](#).

#### Legislative changes to support water markets

In 2018, amendments were made to the [Water Act 2000](#) to:

- facilitate publishing of temporary trade sale price information
- allow temporary access to unallocated water held as strategic water infrastructure reserves.

#### Water investor hotline

A [water investor hotline](#) has been set up to support water users considering new development or expansion of existing enterprises in Queensland. This new service is one of the recommendations arising from the Underutilised Water Partnership Project to make it easier for investors to understand opportunities to access water.

The hotline is an initial step towards more responsive and customer-focused services for water users. A dedicated team has been established in DNRME to provide plain English information about water availability and access, together with advice on how new investors can comply with regulatory requirements.

The water investor hotline can be reached through the 13 QGOV directory or by email:

The release will support new irrigated agriculture opportunities such as cotton, sorghum and chickpeas as well as the expansion of some existing farms including the north's mango plantations. The water may also create tourism opportunities for caravan and holiday parks in the region.

### **Granite Belt water – Emu Swamp Dam**

An invitation to access 1740 megalitres of strategic infrastructure reserve from the Border Moonie Water Plan was made to Granite Belt Water Incorporated in June 2020.

This water release is an important component of water requirements for the Emu Swamp Dam Coordinated Project near Stanthorpe. This project will support economic opportunities for the region around Stanthorpe, which is well known for its tourism and mixed horticultural enterprise

### **Great Artesian Basin expressions of interest and release**

An expression of interest (EOI) to assess demand for up to 1275 megalitres of [Great Artesian Basin water in South East Queensland](#) ran from 13 July to 9 August 2020.

The EOI process is to determine demand for GAB water in the Crows Nest and southern Clarence Moreton area where it is understood that high-value horticulture, agriculture and intensive industries have an interest in water to expand their business. The outcome of the EOI process has helped to inform the decision to release water and the method and terms of release.

#### **UAW delivery model**

The trial of a 'virtual hub' delivery model for unallocated water releases, with a dedicated team coordinated through the Water Markets business group, started operating in May 2020.

The team is coordinating and streamlining releases of unallocated water to the market to stimulate economic development in regional communities.

This delivery model allows for complex elements of unallocated water release processes such as product development, pricing and legal advice to be standardised and streamlined.

#### **First release of unallocated water from a strategic water infrastructure reserve**

In 2019, unallocated water was made available from a strategic water infrastructure for the first time in Queensland.

Landholders in the [Dawson Valley Water Management Area](#) were invited to lodge submissions for short term temporary access to 90,000 megalitres of unallocated water to expand or diversify irrigation activity.

Submissions were assessed by DNRME and three-year water licences were offered to 14 water users at a fixed price. Through this process irrigators and irrigation groups along the Dawson River now have access to more than 69,000 megalitres of water annually.

The water is supporting a wide range of agricultural production, including cotton, grains and cereals, trees and small crops, with the aim of strengthening economic development and creating jobs in the region.

## **Information and systems**

The water information systems transformation project was established as a key initiative under the RWMP to identify future information capability requirements for water management within DNRME, including the identification of business needs, a review of capabilities and functionality of existing systems and identification of options for enhancing existing systems or developing new information communication technology (ICT) solutions.

Actions to improve the transparency of information about water take under entitlements have been a central focus for the RWMP.

A comprehensive review of the existing water information and accounting systems has identified a number of shortfalls and areas requiring enhancement.

Projects to improve access to water information or address data quality have also been delivered. Trials of water accounting systems are enabling us to test online capabilities and business processes and to better understand our customer needs.

A **water dashboard** providing water users with easy online access to information about their water entitlements, water availability and usage has been trialled in two water management areas.

A **proof-of-concept water accounting system** has also been developed to trial accounting processes for selected QMDB water management areas. This trial focussed on a number of groundwater areas within the QMDB where the recently finalised water plan set new accounting standards.

These trials have highlighted a number of complexities with the current water accounting framework that have implications for water management across the state.

Moving forward, the program will build on these trials to streamline and simplify water accounting rules and processes, and to develop future state architecture that can accommodate these complexities where simplification is not possible. Together these activities will develop a state-wide solution to improve the way water accounting is managed across the state.

## Enhanced compliance and regulatory framework

Robust compliance underpins fair and sustainable water management. Over the past two years, DNRME has introduced significant measures to strengthen our natural resource compliance approach including:

- a formalised framework and associated governance arrangements for Queensland's water management
- a whole-of-department [compliance framework, strategy](#) and plan to provide confidence that the state's water resources are being managed fairly, consistently and responsibly
- an updated technical training program for authorised officers to support water and compliance staff to undertake their roles
- a market scan and engagement of a supplier to provide a new fit for purpose compliance ICT system to improve recording and monitoring of compliance cases
- development of a comprehensive water compliance document and resource package for staff
- establishment of a DNRME compliance community of practice to share and align knowledge across the department.

## Regulatory changes to support strengthened measurement

We are reviewing existing regulatory frameworks to identify any changes that might be required to support improved compliance and water measurement.

### On-line tools

The [Water Entitlement Viewer](#) was released in January 2019 and the [Natural Resources Inventory](#) for Queensland in March 2019 to provide greater access to water entitlements and availability information in Queensland. The viewer is an interactive mapping tool that allows searches on:

- supplemented and unsupplemented surface and groundwater water allocations
- water licences
- unallocated water reserve volumes
- The viewer is updated quarterly.

The first phase of regulatory improvements came into effect in 2019 through changes to the [Water Regulation 2016](#) and the [Water Act 2000](#).

Water regulation amendments included enhanced [water meter validation](#) provisions and the requirement for water entitlement holders to [report faulty meters](#).

Water Act changes:

- established a new offence for taking more water, or taking water at a greater rate, than authorised by the water entitlement
- increased the penalty for failure to comply with a water compliance notice
- clarified liability for entitlement holders sharing an unsupplemented water meter
- supported additional processes for ensuring unsupplemented water meter faults are identified and repaired.

The next phase of regulatory changes is likely to focus on enhancements to water metering rules and arrangements. This will happen after the measurement policy has been finalised.

## Performance review report

In September 2019 we published a [Performance Review Report](#) to demonstrate how DNRME was performing in delivering the outcomes of the [Independent Audit](#) and the [Queensland Government response](#).

This was the first performance review and implementation progress report for the RWMP.

It documented key RWMP milestones and provided a summary of existing departmental review and reporting mechanisms relating to non-urban water. It also detailed progress on actions being implemented in response to Independent Audit recommendations.

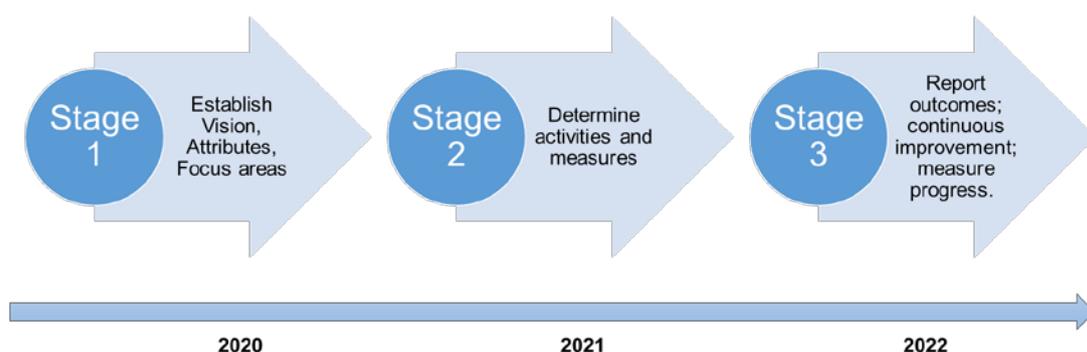
## Performance excellence framework

In last year's [Rural Water Management Program performance review report](#) we introduced our commitment to establishing a 'regulatory assurance' framework. Over the last 12 months our water business groups have been working together to articulate how 'assurance' can be incorporated into a reporting mechanism that demonstrates our public value.

We are now focussed on developing a performance excellence framework for DNRME's non-urban water management that aligns with and supports our strategic plan and has a focus on creating and measuring community confidence and trust. Through this framework we will publicly report on outcomes, and continuously improve our performance and measure our progress.

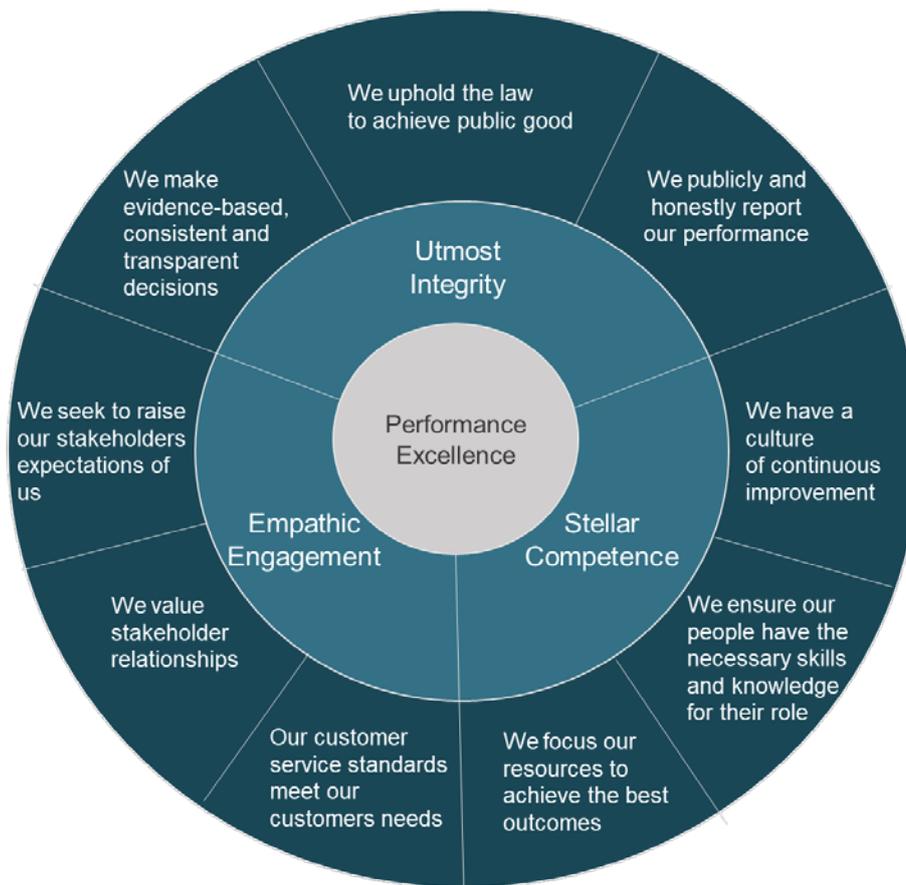
Through research and staff engagement we have established what performance excellence means for DNRME's water business. This groundwork has led us to adopt a regulatory (performance) excellence framework developed by Pennsylvania University. The university study identified three attributes organisations should aspire to in achieving excellence - **Utmost Integrity, Empathic Engagement and Stellar Competence**. These attributes align well with DNRME's strategic plan and values and provide a strong basis for our performance excellence framework.

We have developed a three-stage process to deliver a framework that reports on our outcomes, continuously improves our performance and measures our progress.



**Figure 4: Three-stage process for delivering on the Rural Water Management Program's performance excellence framework.**

We have completed Stage 1 – introducing our vision for performance excellence, establishing who we are (attributes) and where we want to be (focus areas).



**Figure 5: The department's non-urban water resource manager performance excellence framework - attributes and focus areas**

Stage 2, to be completed in 2021, will establish how we will measure our progress towards attaining excellence. Stage 3, to be completed in 2022, will report the first round of results following implementation of our performance excellence framework.

Over time, we anticipate being able to:

- show the public value we create through the important role we play in managing Queensland's precious water resources
- demonstrate how our work makes a difference for the economic, social, environmental and cultural wellbeing of Queenslanders.

The Building confidence in managing non-urban water resources report (**Attachment 1**) outlines in more detail the drivers and process for developing our performance excellence framework.

## Looking forward – our transition to Rural Water Futures

Over the past two years the RWMP has set the foundations for more transparent, sustainable and equitable approaches to water management across the state by delivering a range of new projects and initiatives as part of the DNRME's core business.

In a world of emerging technological advances, it is vital that Queensland continues to evolve its approach to water management to ensure modern expectations, opportunities and pressures are accommodated. Since the launch of the RWMP, the need for a holistic, end-to-end transformation of how we deliver sustainable water management has become apparent.

The Rural Water Futures program is the next step in our business evolution. Rural Water Futures builds on the foundations set by the RWMP to deliver a comprehensive and integrated program of work that enables better access to high quality water data, more visible and consistent decisions about water management, and improved customer experience.

Rural Water Futures is implementing a range of projects that collectively will deliver:

- A policy to strengthen measurement of all types of non-urban water use
- Robust water accounting
- Efficient and defensible compliance actions using fit for purpose tools
- Systems and tools to proactively manage our water in 'real time'
- Efficient and consistent customer-focussed processes to manage entitlements
- Transparent publication of water resource management information
- Optimised trading in suitable locations
- Legislation that is simple to interpret and supports our business and our customers
- Simplified water plans for consistent application across the state.

Rural Water Futures is about establishing a “new normal”, where Queenslanders can be confident that our water resources are being managed sustainably and fairly.

We will continue to strengthen partnerships between government, industry, our customers and the community to implement these changes manageably – in some cases, over the course of several years.

Rural Water Futures is intended to bring about long-term transformational change to unlock the potential of our valuable water resources – the lifeblood of our communities, industries and environment. Through collaboration and enduring partnerships, Rural Water Futures will help to grow vibrant regional economies and ensure sustainable environmental outcomes across Queensland.

To find out more about the program, go to the DNRME website: [www.dnrme.qld.gov.au](http://www.dnrme.qld.gov.au) and search 'rural water futures'.

## Implementing the Government's response to the Independent Audit

The RWMP was established to lead and implement the Queensland Government's response to the Independent Audit.

The RWMP's achievements over the last two years demonstrate the significant progress DNRME has made in implementing the government's response.

**Attachment 2** maps out in detail the progress that has been made against each of the commitments made in the government's response to the Independent Audit's recommendations.

In August 2017, the Queensland Government appointed an independent panel to audit non-urban water measurement and compliance. Their report the [Independent Audit of Queensland Non-Urban Water Measurement Compliance](#) was published in March 2018.

The Queensland Government accepted, or accepted in principle the majority of the recommendations of the panel and in July 2018 published the Queensland Government Response.

## Progress on Queensland Murray-Darling Basin Compliance Compact Commitments

Queensland has committed to meeting its requirements under the [Murray-Darling Basin Compliance Compact](#) (the Compact). Many key actions to meet these commitments are being delivered through the RWMP.

Annual reports to the Murray-Darling Basin Authority are provided on the progress DNRME is making on each of its commitments. The last reporting period ran from 1 September 2019 to 31 August 2020.

DNRME has continued to make significant progress against its outstanding Compact commitments, including the review of existing water-related compliance legislation and identification of enhancements to be delivered through the RWMP. This was acknowledged in the Murray–Darling Basin (MDB) compliance compact assurance report (December 2019). However, the continuation of drought conditions and issues associated with the impacts of COVID-19 have resulted in some commitments not being progressed at a pace as originally planned. DNRME however remains committed to the completion and implementation of the Compact commitments.

### Progress during the 2019/2020 reporting year

#### Compliance and Enforcement framework:

- Implemented a new, whole-of-department Compliance framework 2020–24 and Compliance strategy 2020–24 and published the framework and strategy on its website to support increased transparency about DNRME’s role as a regulator.
- Progressed legislative amendments to strengthen and clarify compliance and enforcement provisions for water users in meeting their obligations under a water entitlement.

#### Transparency and Accountability

- Progressed actions towards improving the quality, transparency of water related information.
- Reviewed existing water information and accounting systems and identified the need for improvements and future investments to support water management and compliance.
- A proof-of-concept water accounting system has been developed to trial accounting processes for selected QMDB water management areas. This trial focussed on a number of groundwater areas within the QMDB where the recently finalised water plan set new accounting standards.
- A water dashboard providing water users with easy online access to information about their water entitlements, water availability and usage has been trialled in two water management areas.

#### Metering and Measurement

- Publicly released a consultation paper on proposals for strengthening non-urban water measurement.
- Undertaken consultation on measurement policy proposals and standard across the state.
- Published a ‘Consultation Feedback Overview’ on measurement policy proposals outlining the process and key issues identified.

- Developed improved water level measurement standard (draft) for proposed inclusion in the 'Queensland Non-urban Metering Standard (Interim Standard)'.
- Finalised reviews into DNRME's surface and groundwater quality networks.
- Facilitated independent reporting on the condition and quality of hydrometric monitoring networks by the Resource Operations Licence (ROL) holders and actions for continuous improvements.
- Finalised the ROL Holder Quality Assurance Framework (data collection and reporting standards).

**Attachment 1:****Building confidence in managing non-urban water resources.****Performance Excellence Report**

September 2020

**Summary**

Water is a precious resource for all Queenslanders. We all share a responsibility for using it fairly and equitably and protecting it for future generations. The Department of Natural Resources, Mines and Energy (DNRME) has a responsibility to sustainably manage our non-urban water resources and we want Queenslanders to have confidence that we are doing this well and delivering public value.

DNRME's role as a non-urban water resource manager is a significant one – when we do our job well, we contribute to economic, social, environmental and cultural benefits for Queenslanders. We need to be able to measure and report on our outcomes and how we create public value for the community, water users and industry.

Implementing a performance excellence framework will provide a mechanism for us to do this, and in turn achieve community confidence that our water resources are being managed fairly and sustainably.

Achieving performance excellence is a long-term commitment. However, we already have a great foundation in place through our clear vision and strategic focus; our strong water planning framework, our well-established stakeholder networks and our committed DNRME water staff.

Through research, learning from others and engaging staff from across the DNRME's water business, we have established what performance excellence means for DNRME. Using this knowledge we have developed the foundations of a future performance excellence framework.

We have developed a strong and simply stated vision for our framework for excellence:

***DNRME is recognised for excellence in sustainable water resource management service and performance.***

The core of our framework is based on three attributes for excellence, identified in a study by Pennsylvania University - **Utmost Integrity, Empathic Engagement and Stellar Competence.**

DNRME's performance excellence framework for non-urban water resource management will be developed and implemented in three stages. This report documents progress through Stage 1 and outlines our next steps for Stage 2 which involves establishing performance measures for the focus areas and ensure we are able to commence monitoring and reporting on these measures for Stage 3.

## Introduction

Water is a precious resource for all Queenslanders. We all share responsibility for using it fairly and equitably and protecting it for future generations of Queenslanders. DNRME has a responsibility to sustainably manage our non-urban water resources. We do this by using a framework that encompasses long-term equitable and transparent water planning and the development and implementation of water management policies and regulations.

We want Queenslanders to have confidence that we are doing our job well and our activities and programs are delivering public value. One way to achieve this is by publicly reporting on how we are performing in our role.

In September 2019 we published our first Performance Review Report, which outlined our progress in implementing the independent audit commitments.

We are now focussed on developing a performance excellence framework for DNRME's non-urban water management that aligns with and supports our strategic plan but has a focus on creating and measuring community confidence and trust. Through this framework we will publicly report on outcomes, continuously improve our performance and measure our progress.

'Performance' reporting is not a new concept, it is however a complex process that needs time to mature. Its success relies on all aspects of our organisation including culture, behaviours, governance and planning.

### Queensland's water management framework

The *Water Act 2000* provides the legislative basis for DNRME's non-urban water functions and responsibilities. This legislation gives DNRME significant powers to develop policy, develop and implement water plans, manage water rights and usage, monitor compliance and undertake enforcement. These powers enable us to plan for the sustainability of our water resources provide for fair water sharing and hold people to account when they break the rules.

DNRME has a vision and strategic plan that clearly identifies our commitment to delivering sustainable benefits in how we manage Queensland's land, water, mineral and energy resources. We report our achievements against our strategic plan objectives each year and this reporting highlights the hard work of DNRME in realising our vision.

### Drivers for performance reporting

The non-urban water business areas within DNRME have had the benefit of recent review and audit processes which has provided us the opportunity to reflect on our operations and performance and what the future may look like for us as a non-urban water resource manager.

Most significantly, the findings of the 2018 Independent Audit of Water Management and Compliance in Queensland (independent audit) and the 2017 Queensland Murray-Darling Basin Water Compliance Review (compliance review), both told us that we can do better across several areas.

Striving towards performance excellence will help address the matters raised in the independent audit which also suggested that DNRME:

*Conduct performance assessment separately from operational activities to provide oversight and consistency across the state.*

### **Developing a performance excellence framework**

DNRME's role as a non-urban water resource manager is a significant one – when we do our job well, we contribute to economic, social, environmental and cultural benefits for Queenslanders.

It is reasonable for stakeholders and the community to expect that the powers we exercise and the decisions that we make are consistent, transparent and fair and that we are focussing our resources on the highest risks. When we do this well, we are not only managing non-urban water resources effectively, we are supporting economic activity and demonstrating sound financial performance, service delivery, efficiency and effectiveness.

This report delivers on Stage 1 – introducing our vision for performance excellence and establishing who we are (attributes) and where we want to be (focus areas). Stage 2 (2021) will deliver how we will measure our progress towards attaining excellence and Stage 3 (2022) will report the first round of results following implementation of our performance excellence framework. Over time, we anticipate being able to:

- a) show the public value we create through the important role we play in managing Queensland's precious water resources, and
- b) demonstrate how our work makes a difference for the economic, social, environmental and cultural wellbeing of Queenslanders.

We are committed to developing a performance excellence framework that allows reporting of our outcomes, continuously improves our performance and measures our progress.

## **Stage 1 - Establishing a foundation**

Aspiring to performance excellence is not a new concept and we researched and accepted learning from other organisations and agencies in how they deliver and report on their performance.

DNRME believes a framework for excellence delivers continuously improving public value to the community and stakeholders, contributes to organisational sustainability and improves organisational effectiveness and capabilities. In this context, “excellence” is about being outstanding and striving to do better. It is not about achieving perfection. Striving for excellence allows us to accept when things don't go quite right and learn from mistakes.

### **Our vision**

DNRME is recognised for excellence in sustainable water resource management service and performance.

DNRME has established a strong and simply stated vision for what we are aiming to achieve through our performance excellence framework. It reflects DNRME’s role in delivering sustainable water resource management across Queensland and the delivery of water related services to our customers, industry and the community. Our performance excellence vision and framework aligns with and compliments delivery of our work established under DNRME’s Strategic Plan, **see Figure 1**.



**Figure 1: How performance excellence supports the Department of Natural Resources, Mines and Energy strategic plan**

### Our attributes and focus areas

For our performance excellence framework, we have adopted the three attributes for excellence from the Pennsylvania University study - Utmost Integrity, Empathic Engagement and Stellar Competence.

Using this model, we have established what these three attributes mean for DNRME’s non-urban water resource manager role. Across DNRME’s water business a range of values were identified as important to us such as transparency, fairness, trust, honesty, accuracy, consistency, authenticity, courage and respect. These values have been aligned into ‘focus areas’ across the three attributes as outlined below. The focus areas are deliberately broad to allow long-term measurement of our performance under the framework. **Figure 2** shows the foundations of DNRME’s Performance Excellence Framework. How the focus areas align to the attributes is outlined below.

**Utmost integrity** – we believe in holding ourselves to the highest standards of integrity. We serve the people of Queensland and strive for their confidence in our ability to deliver an honest and trustworthy performance. Our focus areas for utmost integrity are:



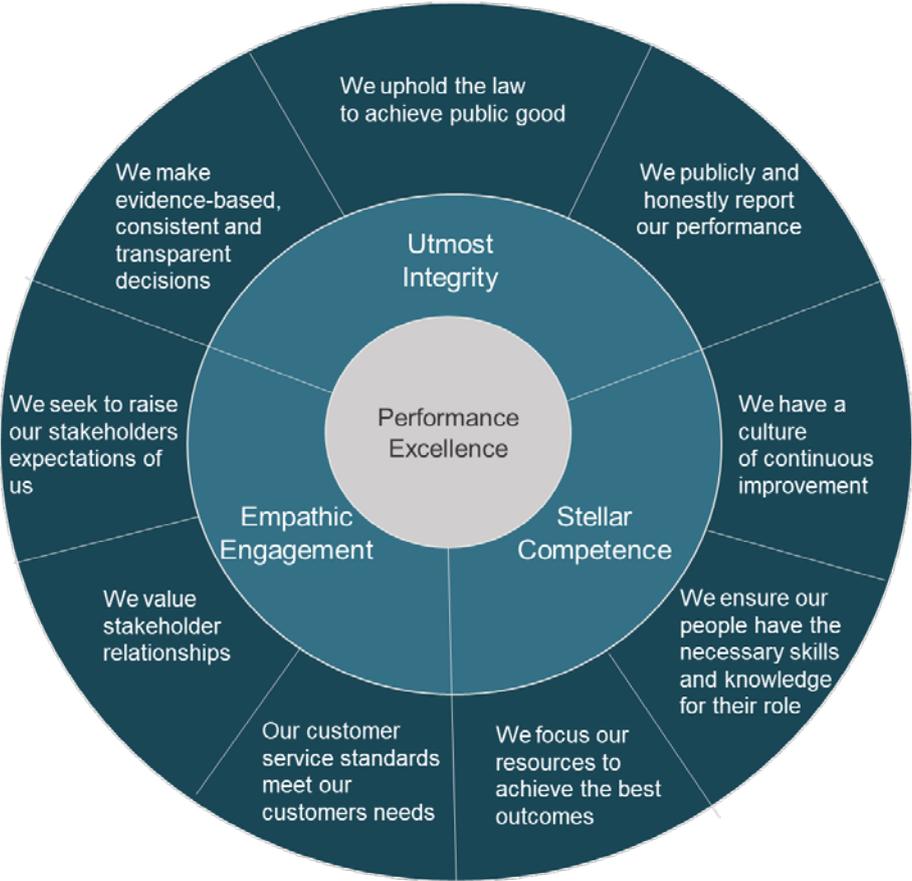
- We are committed to upholding the law to achieve public good.
- We will make evidence-based, consistent and transparent decisions.
- We will be transparent through public reporting of our performance.

**Empathic Engagement** – We strive to engage with all our stakeholders regularly to build relationships based on trust and respect. We also ensure we specifically engage when making decisions and exercising authority. It is important to us to hear what everyone has to say and provide a response that is meaningful, concise and explanatory. Our focus areas for empathic engagement are:

- We value stakeholder relationships
- We seek to raise our stakeholders’ expectations of us
- Our customer service standards meet our customers’ needs.

**Stellar Competence** – we endeavour to maximise public value by utilising our available resources. Working for the people of Queensland, we believe in delivering public value and continuous improvement. Our focus areas for stellar competence are:

- We have a culture of continuous improvement
- We ensure our people have the necessary skills and knowledge for their role
- We focus our resources to achieve the best outcomes.



**Figure 2: DNRME non-urban water resource manager performance excellence framework.**



## Stage 2 – Building measures

It is in this stage, that we will establish performance measures for the focus areas and ensure we are able to commence monitoring and reporting on these measures for Stage 3. It is also important to us to ensure that we explore measures that genuinely demonstrate performance – not just accountability. Demonstrating that we are accountable, that we did what we committed to and met our targets and timeframes, is vital - but this type of measurement only provides part of the story about how we contribute to public value.

Measuring our performance - how we have made a difference for our stakeholders and community and their level of trust and confidence in us - provides a more fulsome picture of our public value.

In the future we also want to engage with our stakeholders – they will be vital in helping us to measure our performance in relation to trust and confidence. We will need to provide education and information on what we are trying to achieve and the vital role they can play.

A set of measures developed by Nous group (**Figure 3**) provides the ideal baseline from which we can start to differentiate between accountability and performance measures - which together describe our public value.



**Figure 3: Different measures for accountability and performance (Nous Group, date unknown)**

## Case studies

### Case study 1: Business improvement – recording risk and tracking risk over time

One of the recommendations of the 'Independent Audit of non-urban measurement and compliance' was to *"Implement a documented, formalised and systematic catchment risk assessment process and apply the outcomes to decision-making on water measurement and monitoring."*

In response to this recommendation, and as a business improvement initiative, the Department has developed a central repository for all risk assessments of water resources completed to date to ensure assessments are documented in a systematic way and provide ease of access to this information to all water staff to inform decision making.

In July 2020 the Department launched the 'Water Resource Risk Register'. The Water Resource Risk Register is for internal departmental use and is a discovery tool for staff working in water to view, search and report on previous assessments completed of risks to water resources.

As well as the risk assessment completed in response to the audit recommendation, risk assessments are also completed for each water plan area at least every five years and the results reported in the Minister's Performance Report for each water plan. This provides transparency for our stakeholders on the risks identified and how they are being managed.

The Water Resource Risk Register delivers an important record keeping function, providing a point of truth for assessment of risk to water resources to ensure future discoverability of information and ease of update. This allows for risks to be tracked over time, helping government to better water planning and management decision, understand the effectiveness of management actions and prioritise activities to deliver sustainable water management across the Queensland.

### Case study 2: Meter reads: a water use requirement

Compliance monitoring and enforcement is an important part of DNRME business. Feedback and results from surveys, consultation, workshops and audits have highlighted a need for better engagement and outcomes when it comes to compliance. Our regional business centres have been looking at what works well and where improvements can be made. We've started with streamlining our processes relating to meter reads so that we are more efficient and effective. This includes reviewing data collection, validation of data and compliance processes. We also recognise compliance starts with a good education program. We're developing informative material for our customers to help improve on-time self-reporting of meter reads and preparing a program to deliver this information to our customers.

We envisage these improvements will result in better internal operations that are efficient and effective, providing a quicker turnaround in responses for our customers to see the value in meter reads.

### Case study 3: Monitoring, evaluation and reporting for water plans

Monitoring, evaluation and reporting on a water plan's performance is an important step in the adaptive management cycle. A well thought out monitoring, evaluation and reporting strategy (MERS) can help ensure water management improves over time. DNRME has developed an approach to do just that.

A MERS sets out the evaluation questions, monitoring objectives and information to be collected over the life of a water plan. This informs its evaluation, including whether the plan's outcomes have been achieved. By having a consistent approach to developing and implementing MERS, DNRME will be able to prioritise and allocate resources to collect information (e.g. monitoring, research, survey, plan implementation), evaluate plan implementation and report to meet requirements in a way that acknowledges risk to water resources, both within a water plan area and at a state-wide scale.

Documentation of the evaluation questions provides a clear pathway to the five- and ten-year evaluation points and ensures continuity of approach over time. Finally, documentation of the evaluation approach will enable the department to share the information needs with other government departments, research institutions and science providers to leverage resourcing and facilitate collaboration as opportunities arise over the life of a plan.

The approach is currently being implemented through the development of MERS for 4 plans: The Cape, Border Rivers and Moonie, Condamine Balonne and Great Artesian Basin and other regional aquifers (GABORA) water plans. The future aim will be to develop draft MERS alongside draft water plans and finalise these new MERS as part of water plan implementation planning. Public facing MERS documents are in development and once available will increase community awareness and understanding of the monitoring activities being undertaken in water plan areas across the state.

### Case study 4: Resource Operations Licence holder's reports on their hydrometric networks is complete

A key project examining quality assurance of Resource Operations Licence (ROL) holders is now complete with all ROL holder's having lodged their independent reports. These reports have now been reviewed and assessed by DNRME. This work will contribute to understanding the gaps and mitigation strategies required to maintain and improve the quality and condition of ROL holder hydrometric networks.

DNRME is developing a framework for data and reporting standards that will include ROL holders documenting their progress in improving the accuracy and reliability of data that provides valuable information for water resource management.

Face-to-face meetings were held with the ROL holders in early 2020 to identify and confirm appropriate strategies to improve data quality, including mechanisms to track and report on progress through future annual reporting. This will enable a collaborative approach to continuous improvement and help to maintain regional and head-office relationships with the ROL holder representatives.

### Case Study 5: Auditing (water monitoring)

DNRME has a culture of auditing to ensure continual business improvement. Regular auditing of business and statutory processes is a feature of good governance and is critical to ensuring best practice and service to our clients and stakeholders.

In 2019, our department focused on four key areas: water licence amendments, associated water licences, seasonal assignment of a water licence and the collection and analysis of water data review. Each of the audits found no major non-conformance with our business and statutory processes. Areas where minor non-conformances were found has informed the department's work in improving our practices and processes including staff engagement and training.

## References

Australian Government (2014) - Regulator Performance Framework Department of Prime Minister and Cabinet

Australian National Audit Office (2020) - Auditor-General Report No 47 2019-20: Referrals, Assessments and Approvals of Controlled Actions under the Environmental Protection and Biodiversity Conservation Act 1999. Commonwealth of Australia

Natural Resource Access Regulator (2019) Natural Resource Access Regulatory Progress Report 2018-19 The State of New South Wales

*Coglianesse, Cary (2015) Listening, Learning, Leading – A framework for regulatory excellence* Penn Program on Regulation Pennsylvania University

## Attachment 2: Detailed Independent Audit implementation review

### Governance

Independent Audit recommendations	Government response	Progress update
<p>1. A Compliance Management and Review Group is established to review and report regularly to senior management on the:</p> <p>a. Implementation of a formalised management system to manage and monitor the water metering and measurement activities including compliance and new or changed obligations arising from legislation and Intergovernmental Agreements.</p> <p>b. Implementation of a documented, formalised and systematic approach to water compliance to apply across all regions to ensure a consistent and robust conduct of investigations and compliance actions.</p> <p>The Group must allow performance assessment to be conducted separately from operational activities to provide oversight and consistency across the state.</p> <p>An independent audit must be conducted within two years of all water measurement and compliance programs including the performance of the Compliance Management and Review Group.</p>	<p><b>Accepted in principle</b></p> <ul style="list-style-type: none"> <li>The Queensland Government has recently established a new Water Markets and Supply Division in DNRME to improve the transparency of water management, allocation and use. The new division will provide greater separation between operational and compliance responsibilities in DNRME and provide a regulatory framework assurance role.</li> <li>The Queensland Government will publish an annual review of water regulatory activities, governance and achievements and set regulatory strategies for the coming business year, with the first review published in mid-2019.</li> </ul> <p>As part of delivering the Queensland Government's response, DNRME will develop and implement a formalised management framework and associated governance arrangements for its rural water management water business by December 2018. This framework will include assurance and audit processes.</p>	<p><b>Regulatory assurance</b></p> <p>The Rural Water Management Program (RWMP) was established in July 2018.</p> <p>The RWMP is responsible for ensuring the implementation of the Government response, including regulatory assurance. Recent organisational changes have established a single point of responsibility for water management compliance and operations and the transformational aspects being delivered through the RWMP. This change continues to allow for performance assessment to be conducted separately from operational activities, while strengthening links between the RWMP and the water businesses responsible for implementation of the RWMP outcomes</p> <p><b>Annual review</b></p> <p>One of the functions of the RWMP is to develop and implement an assurance framework to enable DNRME to measure and report against their performance as a non-urban water resource manager. A performance review report will be published annually.</p> <p>The initial report was published in September 2019, focussed on providing an account of progress against the independent audit, and provided an introduction to the assurance project and the work to be undertaken in the following year.</p> <p>Continued work in 2019 – 2020 initially focussed on identifying a key group of staff from across the water business and ensuring they were given sufficient time and information to understand how performance measurement and reporting was differed from existing reporting on activity and effort. The time invested in this process was vital to ensure the group could engage confidently in the development of the framework.</p>

Independent Audit recommendations	Government response	Progress update
		<p>Since this initial work, the group has gone on to establish a framework to achieve performance excellence, resulting in the development of a clear performance excellence vision for non-urban water management, the adoption of 3 performance excellence traits (stellar competence, utmost integrity and empathic engagement) and the identification and definition of long term focus areas for each trait. Future work will identify key activities for each focus area (linked to business plans) and performance measures to enable reporting on our progress. This work will be finalised by June 2021</p> <p><b>Water Management Framework</b></p> <p>The DNRME Water Management Framework, including governance arrangements, a high-level overview of Departmental water activities and detailed roles and responsibilities of each DNRME water business was published in December 2018. The Water Management Framework was reviewed in February 2020 taking into account the recent realignment of water functions within the Department. It is anticipated that the framework will be reviewed on an as needed basis to reflect DNRME's strategic water priorities, water management functions and responsibilities, governance arrangements and support systems.</p>
<p>2. The future role and structure of the Natural Resource Compliance Committee (NRCC) should be reviewed in light of the revised governance and management arrangements</p>	<p><b>Accepted</b></p> <p><b>DNRME will review the role and structure of the NRCC as part of its development of a formalised management framework and associated governance arrangements.</b></p>	<p>The Natural Resource Compliance Committee has been replaced with the Compliance Review Group (CRG) and Major Investigation Group (MIG). Under this group there is an increasing focus on regulatory outcomes and increased executive oversight of performance.</p> <p>The CRG leads the implementation of the Natural Resources Compliance Framework and ensures compliance focus and activities are strategic, aligned to risk, consistent, transparent, accountable and adequately resourced.</p> <p>The MIG is responsible for overseeing the timely management of major compliance investigations, key milestones and investigation strategy.</p> <p>Established DNRME compliance community of practice to share and align knowledge across the department.</p>

Independent Audit recommendations	Government response	Progress update
<p>3. Implement a documented, formalised and systematic catchment risk assessment process and apply the outcomes to decision-making on water measurement and monitoring. The risk assessment process must be consistent with any relevant intergovernmental agreements and the community and stakeholders must be consulted in undertaking these risk assessments</p>	<p><b>Accepted</b></p> <ul style="list-style-type: none"> <li>As part of managing the water planning framework for the Queensland Government, DNRME currently undertakes detailed risk assessments as part of its water planning processes with community and stakeholder consultation an integral component of the planning process.</li> <li>Based on the pressure on the water resource in each catchment, DNRME will undertake a state-wide risk assessment of its water measurement (including metering) and monitoring activities by October 2018. Future compliance and metering activities will focus on highest priorities identified.</li> </ul> <p>In future, water plans will consider on a risk basis appropriate metering and measurement priorities as they are developed or updated.</p>	<p>A state-wide risk assessment based on pressure on the water resource in each Queensland catchment was completed in October 2018. The risk assessment included both supplemented and unsupplemented water. The risk assessment is documented in a formalised and systematic way that can be revisited and updated as required.</p> <p>A sub-catchment risk assessment was developed to provide more detailed information to support risk-based decision making.</p> <p>The risk associated with pressure on water resources has been used to support preliminary work to establish metering implementation timeframes in the QMDB. The same risk assessment information is also considered as one of the criteria in developing the annual compliance plan. The risk assessment outcomes will be used to develop a State-wide metering implementation plan, once a final measurement policy has been determined (see Recommendation 5).</p> <p>Recently developed water plans have included specific timeframes for metering and measurement based on resource pressure risks.</p> <p>A centralised water resources risk register has been implemented to be a point of truth for risks relating to water resources, water planning and management and provide an ability to consistently track risks over time.</p>

## Compliance actions and culture

Independent Audit recommendations	Government response	Progress update
<p>4. The leadership of DNRME establish a stronger culture towards compliance enforcement and empower the organisation to achieve the compliance objectives through:</p> <p>a. ensuring that the Compliance Management and Review Group has</p>	<p><b>Accepted in principle</b></p> <p>As a priority, DNRME is already building on existing systems and processes to deliver a robust approach to water plan implementation and compliance that is consistent with other natural resource operational activities undertaken by</p>	<p>In mid-2020, DNRME developed, implemented and published its '<a href="#">Our role as a regulator</a>' webpage, providing transparency about our approach to compliance. The web page includes public links to the following documents:</p> <p><b><u>Compliance Framework 2020-24</u></b></p>

Independent Audit recommendations	Government response	Progress update
<p>adequate levels of well-trained regional staff to complete the activities required in the compliance plan</p> <p>b. having compliance targets included in the performance plans of responsible officers</p> <p>c. establishing systems to ensure that the standard of evidence meets judiciary scrutiny</p> <p>d. implementing action plans to address the timely closure of compliance cases</p> <p>e. placing a greater focus on ensuring that the recording and monitoring of compliance cases are maintained in a timely, consistent and accurate basis</p> <p>f. ensuring a compliance officer who is familiar with the region makes regular on ground inspections/audits.</p>	<p>DNRME. This will include finalising compliance policies, procedures and guidelines to support compliance activity. Government Responses to Recommendation 1 will also support delivery against this recommendation by providing enhanced leadership and focus on compliance activities within DNRME.</p>	<p>The compliance framework guides how we consistently and professionally deliver compliance across the department.</p> <p><b><u>Compliance Strategy 2020-24</u></b></p> <p>The strategy details how the department approaches and communicates our compliance activities ensuring we continue to build upon and deliver robust compliance approaches that deliver strategic objectives and support community confidence in the department as a regulator.</p> <p><b><u>Compliance Plan 2020-21</u></b></p> <p>The plan consolidates each regulatory division's business-area plans, identifying activities that support each business area to implement the compliance approach, including compliance outcomes, performance measures, focus areas, activities, targets and measures. This plan supports the department to take a risk-based, transparent and consistent approach to how we regulate Queensland's land, water, mineral and energy resources</p> <p>The department has internal technical training programs in place and completed development of an updated technical training program for authorised officers to support water and compliance staff to undertake their roles. Training programs use a blended learning approach which combines online, face to face and experiential learning. Programs currently in place include the Water Technical Capability program and the Authorised Officer program.</p> <p>See also progress against recommendation 2.</p>
<p>5. Steps are taken to address the following elements of the compliance arrangements:</p> <p>a. Develop a strategy to educate and raise awareness of entitlement holder's rights and obligations and the penalties associated with any breaches and send stronger deterrence messages to the community.</p>	<p><b>Recommendations 5a–d accepted in principle</b></p> <ul style="list-style-type: none"> <li>By July 2018, the Queensland Government will review existing legislation and policies and identify enhancements in relation to its water compliance arrangements.</li> <li>By February 2019, DNRME, as the lead agency with responsibility for water measurement and metering,</li> </ul>	<p><b>Regulatory enhancements</b></p> <p>In February 2019, amendments to the Water Regulation 2016 took effect to enhance compliance arrangements and responsibilities. These include:</p> <ul style="list-style-type: none"> <li>requiring entitlement holders to report faulty meters</li> <li>providing the department powers to suspend or cancel the appointment of an authorised meter validator</li> </ul>

Independent Audit recommendations	Government response	Progress update
<p>b. Review the penalties and sanctions available for breaches to ensure that adequate deterrence is achieved.</p> <p>c. Review the statute of limitations period to ensure the time frame is appropriate and allows sufficient time to complete all the steps required to prepare cases i.e. complete investigations, gather facts/evidence and prepare briefs.</p> <p>d. Place an obligation on the resource operations licence (ROL) holder to report any take above entitlement and provide details of recurring non-compliance to allow prosecution. Require ROL holders to undertake pro-active management of compliance against volumetric limits.</p> <p>e. Prohibit water users from forward drawing on water accounts that are overdrawn at the end of the water year.</p>	<p>will review its metering policy and, where necessary, provide recommendations to Government for improved measurement and metering arrangements.</p> <ul style="list-style-type: none"> <li>DNRME will also further develop a comprehensive entitlement holder education and awareness program to improve understanding of existing and any new regulatory requirements.</li> </ul> <p><b>Recommendation 5e is not accepted.</b></p> <p>Queensland's strong water planning framework accommodates the 'boom-bust' cycle of water availability in river systems that may cease to flow for years at a time. Some water plans may specify multi-year accounting.</p> <p>This water management approach enables certain water users to take more than the annual volume of their water entitlement in an individual year. Under multi-year accounting, this is offset by an equivalent reduction of water access in the subsequent water years.</p> <p>This flexibility for water users is rigorously tested in developing the water plan. The risks are explored and examined through public engagement, submission and hydrologic model testing, and managed through defined water sharing rules.</p>	<ul style="list-style-type: none"> <li>prohibiting an authorised meter validator from validating a meter for their own water entitlement</li> <li>enabling a new validation certificate to be required where false or misleading information was provided, or the certificate was issued by an unauthorised person</li> <li>shortening the timeframe from when a meter cessation notice is issued to when a meter stops being approved to 20 business days (from 60 business days)</li> </ul> <p>In May 2019, amendments to the <i>Water Act 2000</i> took effect to strengthen and clarify compliance and enforcement provisions for water users in meeting their obligations under a water entitlement. The key changes included:</p> <ul style="list-style-type: none"> <li>amendments to clarify joint and several liability for an offence where there is more than one person listed on a water entitlement, or where multiple entitlement holders share a water meter</li> <li>new offences for taking water in excess volume or rate of take</li> <li>a new penalty for non-compliance with a compliance notice.</li> </ul> <p><b>Review of existing metering policy and recommendations for Government</b></p> <p>DNRME completed a review of the existing metering policy in February 2019 and informed the development of new measurement policy proposals that were considered by Government in July 2019. Consultation on these proposals commenced on 9 September 2019. Consultation closed on 13 December 2019.</p> <p><b>Education and awareness</b></p> <p>A State-wide metering implementation plan will be finalised by late 2021. An education package will be developed to support entitlement holders to understand their obligations and timeframes.</p>

## Transparency

Independent Audit recommendations	Government response	Progress update
<p>6. More information relating to water resource management, water use and compliance is made public by DNRME to improve transparency. This should include the development and publication of state-wide and catchment-level compliance objectives and management strategies aligned with risks and issues. In particular:</p> <p>a. DNRME makes an accountable commitment to achieving its compliance objectives and targets in its corporate plan. DNRME to report annually on performance.</p> <p>b. DNRME publishes its compliance plan or guidelines on how it manages and enforces compliance (Natural Resources Compliance Response Guidelines, (May 2017)).</p> <p>c. DNRME makes available to each water user their water entitlement, water used to date and any restrictions on taking water.</p> <p>d. DNRME releases information on a catchment basis on water availability, water use and water traded, to increase transparency and information available to the community and stakeholders.</p> <p>e. DNRME develops a holistic water balance for Queensland that is suitable for reporting all water in</p>	<p><b>Accepted in principle</b></p> <ul style="list-style-type: none"> <li>The Queensland Government will improve its public reporting on compliance planning, objectives and targets.</li> <li>The Queensland Government will review existing systems to identify information needs and enhancements that can deliver increased transparency of water information for the community and entitlement holders and a platform for enhanced water sales and trading.</li> <li>As part of this commitment, in March 2018, DNRME released a trial version of its new water dashboard for two water management areas to provide water users with information on their entitlements, water availability and their usage.</li> <li>In addition, and by December 2018, DNRME will also release an online tool to help the community identify available water throughout Queensland. Also see recommendation 1.</li> </ul> <p>DNRME has identified that recommendation 6e is contingent on the outcomes of system reviews and the development of any enhanced water accounting systems.</p>	<p>The DNRME Compliance Framework 2020-24, DNRME Compliance Strategy 2020-24 and DNRME Compliance Plan 2020-21 developed, implemented and published on the department's 'Our role as a regulator' webpage in August/September 2020.</p> <p>The department publicly reports compliance and enforcement actions undertaken in the MDBA. The 2018 -19 and 2019-20 reports are available on the department's website under 'QMDB'.</p> <p><b>Online tool</b></p> <p>The <a href="#">Water Entitlement Viewer</a> Water Entitlement Viewer (WEV) was released in January 2019 and the <a href="#">Natural Resources Inventory</a> for Queensland in March 2019 to provide greater access to water entitlements and availability of information in Queensland. The WEV is an interactive mapping tool that allows searches of and displays information on:</p> <ul style="list-style-type: none"> <li>supplemented and un-supplemented surface and groundwater water allocations</li> <li>water licences</li> <li>unallocated water reserve volumes</li> <li>The viewer is updated quarterly.</li> </ul> <p><b>Water dashboard Trial</b></p> <p>A water dashboard providing water users with easy online access to information about their water entitlements, water availability and usage has been trialled in two water management areas</p> <p>A proof-of-concept water accounting system has also been developed to trial accounting processes for selected QMDB water management areas. This trial focussed on a number of groundwater areas within the QMDB where the recently finalised water plan set new accounting standards.</p> <p>These trials have highlighted a number of complexities with the current water accounting framework that have implications for water management across the state. Moving forward, the program will build on these trials to streamline and simplify water accounting rules and</p>

Independent Audit recommendations	Government response	Progress update
<p>Queensland and its regions and for separately water managed areas.</p>		<p>processes, and to develop future state architecture that can accommodate these complexities where simplification is not possible. Together these activities will develop a state-wide solution to improve the way water accounting is managed across the state.</p> <p><b>Visibility of Available Water</b></p> <p>Whilst development of online tools to assist the community identify available water throughout Queensland continues, the Department has implemented organisational and resource changes to deliver:</p> <ul style="list-style-type: none"> <li>the <a href="#">first release of unallocated water from a strategic water infrastructure reserve</a> - temporary access to this water stimulated additional high value irrigation.</li> <li>an unallocated water delivery team pilot established, demonstrating a coordinated delivery model for high priority releases using a state-wide virtual hub.</li> </ul> <p>DNRME has also established <a href="#">a water investor hotline</a> providing responsive, customer focussed services to support business and investors with information about accessing the water they need to establish and expand their enterprise.</p> <p>See also progress against recommendation 11.</p>

## Metering policy

Independent Audit recommendations	Government response	Progress update
<p>7. Introduce a metering policy for supplemented and unsupplemented water extractions, which includes a stronger validation, verification and maintenance oversight regime and an assessment system to ensure the meter chosen and installed is fit for purpose. It should be consistent with the principles of AS4747 and allow a transition period for grandfathering arrangements of the existing meter fleet.</p>	<p><b>Accepted</b></p> <ul style="list-style-type: none"> <li>DNRME already has a metering policy which is consistent with AS4747. DNRME will focus resources on implementing this policy in high-risk areas.</li> </ul> <p>DNRME will review its existing metering policy by February 2019 to ensure it delivers a comprehensive validation, maintenance and assurance regime, consistent with Australian Standard 4747.</p>	<p><b>Amendments to existing metering standard</b></p> <p>The existing DNRME metering standard was amended to ensure that any new or replacement metering works would be of a suitable standard to transition to any new policy framework aligned with national standards (AS4747) and to provide clarity for requirements for data recording and storage devices for meters (data loggers). Key industry bodies were consulted on these changes and the updated requirements commenced on 1 August 2019.</p> <p>This activity was particularly important to support business as usual metering activities and provide confidence for water users any replacement or new meters would be eligible for consideration under</p>

Independent Audit recommendations	Government response	Progress update
		<p>any future transitional arrangements defined in a new measurement policy.</p> <p><b>Policy metering standards</b></p> <p>DNRME reviewed its existing metering policy and developed new policy proposals for consultation (refer recommendation 5) in late 2019. The policy proposals for meters include stronger alignment of metering standards to AS47474 and a focus on ensuring ongoing meter accuracy through appropriate meter selection and installation, validation and maintenance requirements. The proposals also outlined transitional arrangements for existing meters. Consultation with industry stakeholders on the policy proposals occurred between September and December 2019.</p> <p>Comprehensive feedback was received from Industry bodies, water entitlement holders and community members through analysis of 324 written submissions and at the 22 stakeholder meetings held across the state. This feedback has been collated and analysed in detail.</p> <p>In considering the outcomes of this analysis and the identified complexities associated with a number of the proposals, Queensland is focussed on addressing these complexities and will not finalise a new water measurement policy until there is sufficient evidence to enable policy decisions to be made in relation to the capture, recording and transmission of meter data to benefit DNRME and water users, practical transitional arrangements for existing meters and meter performance requirements to provide confidence in ongoing meter accuracy.</p> <p>A letter was provided to everyone that provided a submission on the measurement proposals, to provide and update on progress. An overview of the consultation and the issues identified was also published on DNRME's website.</p> <p>An implementation approach will be developed for consideration by the government along with the final water measurement policy.</p>
<p>8. Specify and introduce a stronger meter validation and maintenance oversight regime which includes auditing of meters, DNRME validation</p>	<p><b>Accepted</b></p> <p>DNRME will include this recommendation as part of its review</p>	<p>DNRME will determine an appropriate meter auditing and compliance approach as part of finalisation of the new measurement policy.</p>



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<p>and verification of meters. DNRME should engage the accredited meter validators directly to ensure consistent practices and remove any potential conflicts of interests. A prerequisite knowledge and experience of water meters, or appropriate training should be required for validators.</p>	<p>and proposed amendment of the existing metering policy for government consideration by February 2019.</p>	<p>Under the existing regulatory requirements, meter validation must be undertaken by Certified Meter Installers (CMIs). Irrigation Australia certifies and provides oversight of the competency and capability of CMI's.</p> <p>The future approach to validation and maintenance will be considered in the development of the new measurement policy. The update to DNRME's existing metering standard (refer recommendation 7.) included updates to meter validation certificates to improve the information collected by CMIs during meter validation. DNRME continues to engage closely with Irrigation Australia to identify and action improvements for validation, management of complaint and communication pathways between IAL and DNRME</p>
<p>9. The appropriate powers or policies should be provided to DNRME:</p> <ul style="list-style-type: none"> <li>a. to compel the repair of a faulty water meter owned by the landholder (not working or inaccurate)</li> <li>b. to require ROL holders and meter-owners to keep systematic records of meter maintenance and of audits completed</li> <li>c. to introduce penalties/sanctions for validators providing certificates that are inconsistent with the Queensland meter standard to ensure that the application of the metering standard forms part of a quality management system.</li> </ul>	<p><b>Accepted</b></p> <p>DNRME will deliver on this recommendation as part of its review of its existing metering policy and through the actions it takes in response to reviewing compliance legislation and policies for government consideration (Responses to Recommendations 5, 7 and 8).</p>	<p>Implementation of this recommendation will occur through the development of the new measurement policy – refer to recommendations 5, 7 and 8.</p> <p>Independent audits of the Resource Operation Licence (ROL) have been completed to provide an assessment on the condition and quality of their hydrometric monitoring networks. The department have completed an assessment of independent audits and engaged with ROL holders to identify agreed improvement actions. A Quality Assurance Framework has been completed in August 2020 and has been externally published to provide transparency of guideline and standards.</p>
<p>10. DNRME investigate further to identify why a large number of entitlements are not metered. If any of the entitlements should be metered, an</p>	<p><b>Accepted</b></p> <p>As per Recommendations 3, 7 and 8.</p>	<p>The review of the existing metering policy identified the current numbers of meters installed and options for increasing the coverage of meters.</p>

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<p>action plan should be established to have meters installed.</p>		<p>The measurement policy proposals identified which entitlements would be metered and sought feedback on how thresholds could be applied to metering requirements. The final policy will make clear which entitlements will be required to be metered and a state-wide implementation plan will identify the timeframes for when these entitlement holders will be required to install meters.</p> <p>Further work on establishing a metering threshold has identified an approach that may enable a Statewide threshold to be introduced which supports appropriate exemptions for low risk activities and enables in excess of 90% of the volume of water take across the State to be metered..</p>

## Information systems and resourcing

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<p>11. DNRME invests additional resourcing in management systems, information systems and people to deliver sustainable metering and compliance arrangements to support Queensland's water management framework state-wide. In particular:</p> <p>a. Increase the investment in its staff with knowledge and skill capacity in water measurement and monitoring fields.</p> <p>b. Invest in fit-for-purpose information systems and technologies to provide a water accounting system for supplemented and unsupplemented water which stores the information required to manage and monitor; a compliance information reporting and management system [Review if the existing system (CIRaM) remains</p>	<p><b>Recommendations 11a–d accepted in principle</b></p> <ul style="list-style-type: none"> <li>DNRME will realign internal staff and resources to deliver on the recommendations.</li> <li>As per Recommendation 6, DNRME will consider the need for investment in water information and accounting systems once it has completed its review of its existing systems.</li> <li>DNRME is currently undertaking a state-wide review and audit of Queensland's hydrometric network and the development of a risk-based program to implement corrective actions and ensure the state's monitoring networks are fit for purpose.</li> </ul>	<p><b>Internal staff and resource realignment</b></p> <p>Refer to Recommendation 1</p> <p><b>Investment in staff capability</b></p> <p>The department has developed water management and water monitoring technical curriculums which identify the range of skills needed in these business areas and guide the training needed. Internal technical training programs are in place and under development to support staff to undertake their roles. Training programs use a blended learning approach which combines online, face to face and experiential learning. The Water use and metering course includes five modules covering:</p> <ul style="list-style-type: none"> <li>Legislation and policy of non-urban water meters</li> <li>The types of water meters used in non-urban environments</li> <li>How to read water meters</li> </ul>

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<p>the most appropriate and efficient system]; and, remote-read technology and supporting systems to improve timeliness and accuracy of meter reading data.</p> <p>c. Review the existing hydrometric network and investigate alternative technologies that may be available to enhance the network, such as satellite imagery and drones.</p> <p>d. Review the ownership of groundwater and stream measurement devices to transfer those gauges which are required for resource management or compliance purposes to DNRME from ROL holders. The remaining groundwater and stream measurement devices, which serve an operational role to ROL holders, would remain in ROL holder ownership and be managed to a standard determined by the ROL holder.</p> <p>e. Establish a scientific and technical committee with appropriate technical experts within and outside DNRME to focus on researching and advising on water measurement standards, policies and technologies. The committee would report to the senior DNRME officer responsible for water policy.</p>	<ul style="list-style-type: none"> <li>DNRME’s Water Monitoring Network is quality-assured to ISO 9001 and is widely recognised as best practice. Annual reviews will continue to assess the adequacy and scope of the network and innovation opportunities.</li> <li>By December 2019, DNRME will require Resource Operations Licence (ROL) holders to provide an independent report on the condition and quality of the hydrometric monitoring networks.</li> </ul> <p><b>DNRME does not accept recommendation 11e.</b></p> <ul style="list-style-type: none"> <li>DNRME has extensive processes in place to engage in best practice water science and policy including:             <ul style="list-style-type: none"> <li>in Queensland via MOU partnership with Department of Environment and Science</li> </ul> </li> </ul> <p>nationally via existing forums with MDBA, CSIRO and Standards Australia.</p>	<ul style="list-style-type: none"> <li>How to audit water meter installations and water use for compliance.</li> </ul> <p><b>Water information and accounting system</b></p> <p>Under the Rural Water Management Program (RWMP), DNRME has continued to develop and progress actions to improve the transparency of information about water take under entitlements.</p> <p>DNRME has undertaken a review of the existing water information and accounting systems and has identified a number of shortfalls and areas requiring further enhancement.</p> <p>Trials of water accounting systems have also been undertaken:</p> <ul style="list-style-type: none"> <li>A water dashboard providing water users with easy online access to information about their water entitlements, water availability and usage has been trialled in two water management areas.</li> <li>A proof-of-concept water accounting system has also been developed to trial accounting processes for selected QMDB water management areas. This trial focussed on a number of groundwater areas within the QMDB where the recently finalised water plan set new accounting standards.</li> </ul> <p>These trials have highlighted a number of complexities with the current water accounting framework that have implications for water management across the state. Moving forward, the program will build on these trials to streamline and simplify water accounting rules and processes, and to develop future state architecture that can accommodate these complexities where simplification is not possible. Together these activities will develop a state-wide solution to improve the way water accounting is managed across the state.</p> <p>In the interim, for the FY 2020-21, internal DNRME resourcing has been aligned to facilitate progress with priority business improvement program activities, support program-planning and initiation activities and to develop a workplan for the next 12 months of the program.</p> <p>The work plan will focus on business related activities such as policy and regulation, business process mapping and design, and robust</p>



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		<p>business requirements gathering. These activities will help to inform any future ICT initiatives required to enable the business transformation program.</p> <p><b>Commonwealth funding</b></p> <p>DNRME's discussions with the Commonwealth Government regarding funding for both hydrometric activities and water information system development are well progressed including scope of works.</p> <p><b>Hydrometric network audit</b></p> <p>The management of DNRME's hydrometric network is conducted under a certified ISO quality management system. The hydrometric system is reviewed annually for operational purposes and every three to five years to ensure the networks continue to meet customer needs. A methodology is applied to each review and a review report with recommendations is tabled with the Water and Ecological Coordination Team to consider the recommendations and approve implementation actions.</p> <p>QLD's water monitoring quality management system is externally audited annually and undergoes a recertification audit every three years (or beforehand where Australian Standard 9001 is updated).</p> <p>QLD is currently certified as complying with the requirements of ISO 9001:2015 by BSI under certificate number FS 605172.</p> <p><b>ROL Holder Reporting and Quality Assurance Framework</b></p> <p>ROL Holders across Queensland have completed and provided a report on the quality and condition of their water supply schemes hydrometric networks to DNRME. This was a new requirement for ROL Holders, introduced in response to the audit recommendations.</p> <p>The reports have been assessed by an internal DNRME expert panel to make recommendations / provide input into the ROL Holder Quality Assurance Framework and support negotiations with ROL holders to on agreed improvement actions. Based on reports and engagement post review, ROL holders have provided DNRME with improvement plans which will be reviewed annually. The ROL Holder Quality</p>



Independent Audit recommendations	Government response	Progress update
		Assurance Framework (data collection and reporting standards) have been published on the department's website. ROL Holders will be required to have annual statements in their end of year reports regarding quality management for their hydrometric networks.
12. DNRME should review the indicative resourcing requirements and costings for modelled scenarios provided in this report to produce more detailed financial assessments that can be used as a basis for development of investment programs for defined periods to implement the recommendations of the Audit.	<b>Accepted in principle</b>  As per response to recommendation 7.	

## Meter ownership

Independent Audit recommendations	Government response	Progress update
<p>13. A series of actions take place over the next 18 months to assist DNRME gather the required information to make a long-term decision on meter ownership:</p> <ul style="list-style-type: none"> <li>a. Seek expressions of interest from third-party providers to explore the potential of a delivery option model, including to supply, maintain and read meters, and identify any necessary meter charges required under such a model.</li> <li>b. Within 18 months, start a review to compare the success of whether the stronger oversight has had desired impacts, against the merits of changing the meter ownership model with either the government or a third-</li> </ul>	<p><b>Accepted in principle</b></p> <p>As per response to recommendation 7. Prior to government's consideration of DNRME's review of its existing metering policy (in February 2019) DNRME will undertake an assessment of the most effective delivery model, including the merits of a third-party provider option. Stakeholder and industry views will be sought as part of the review.</p>	<p>The review of the existing metering policy included a review of options for meter ownership under a new policy framework. The existing user pays model has been identified as the most appropriate, where the right to take water comes with certain obligations. This model also ensures that DNRME can focus on and resource its role as a regulator.</p>

Independent Audit recommendations	Government response	Progress update
<p>party provider owning the meters and taking into account stakeholder views.</p> <p>c. Resolve the meter ownership model within 24 months.</p>		

## Water plans and Water Regulation 2016

Independent Audit recommendations	Government response	Progress update
<p>14. Ensure greater consistency across the various water planning and regulatory instruments and increase transparency by:</p> <p>a. as part of reviews required under legislation, giving a greater focus to water plan operational rules and implementation plans to ensure rules and limits remain relevant and consistent with overall water management objectives and compliance outcomes. The community and stakeholders should be consulted about these reviews.</p> <p>b. conducting regular reviews of DNRME's decision framework for metering to ensure it remains relevant and appropriate. DNRME also investigates making metering programs more transparent by including them in the water management protocols for each</p>	<p><b>Accepted in principle</b></p> <ul style="list-style-type: none"> <li>• Water plans have a life of 10 years and the Minister reports on their performance every five years. The regulatory framework provides for transparency and the opportunity for public submission. Risk assessments are undertaken as part of these processes.</li> <li>• DNRME has already undertaken risk assessments of the stock and domestic pressures on water resources in the MDB and has: <ul style="list-style-type: none"> <li>a. commissioned independent reviews in the Stanthorpe area</li> <li>b. introduced regulatory provisions to exclude the taking of stock and domestic groundwater supplies in key at-risk peri-urban areas.</li> </ul> </li> </ul>	<p>DNRME continues to improve its delivery of water plans and provide better support for the implementation of those plans</p> <p>Queensland had the first MDBA accredited water resource plan in the Basin through the finalisation of the <a href="#">Warrego, Paroo, Bulloo and Nebine water plans</a>. Queensland now has accredited new <a href="#">water plans</a> for all Queensland Murray-Darling Basin catchments.</p> <p>These new water plans along with the <a href="#">Cape York water plan</a> are informed by new science and unprecedented engagement with local and Aboriginal communities. In an Australian first, responsibility for 485,000 megalitres of water will be handed to Traditional Owners on the Cape York to allocate and manage, protecting the environment while supporting local communities and bringing with it cultural and employment opportunities.</p> <p>See recommendations 3, 6 and 7 and Section 5.1 of this report.</p>

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<p>catchment rather than the Water Regulation 2016. DNRME publicly releases the metering programs.</p> <p>c. including assessments for stock and domestic use in catchment-based risk assessments. If there is increased competition for water in an area which includes impacts of increased stock and domestic use, further controls on stock and domestic water use should be imposed.</p> <p>d. completing the review of overland flow to ensure take is consistent with the relevant water plans.</p> <p>e. reviewing the time frames associated with the meter roll-out program and shorten the two-year time frame from when a decision is made to meter an area to when meters are actually installed.</p> <p>f. publicly releasing timely reports on the status of water plans and the decisions made (whether to rollover, amend or replace a plan). The community and stakeholders are consulted during this process and the performance assessments of water plans are publicly released.</p>	<ul style="list-style-type: none"> <li>All future water plans will adopt the enhanced risk assessment processes to ensure they provide formalised and systematic assessments (Refer Recommendation 3).</li> <li>Regarding Recommendation 14f, DNRME and the Minister comply with the <i>Water Act 2000 (Qld)</i>, which contains detailed obligations and transparency provisions regarding changes, amendments and expiry of water plans. DNRME considers this as an area of strength for the Queensland water legislation.</li> </ul> <p>As per response to recommendations 6 and 7.</p>	

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g. making ROL compliance with respect to environmental flow obligations transparent, with reports by ROL holders to be made publicly available.		

## Measurement of overland flow and water harvesting

Independent Audit recommendations	Government response	Progress update
<p>15. The reliability and accuracy of water harvesting and overland flow measurement and monitoring is improved by:</p> <p>a. adopting data logger and remote read technology</p> <p>b. establishing an overland flow measurement methodology for inclusion in the meter policy which extends to the Border Rivers and other parts of the state and takes into account the methodology for measurement of overland flow in the Lower Balonne. The technical and scientific committee (see recommendation 12) should develop the proposed methodology. DNRME should publicly release the overland flow assessment methods to the community and stakeholders</p> <p>c. reviewing the water licence conditions in the Queensland Murray–Darling Basin catchments against the sustainable diversion limits to identify if any conflicts arise,</p>	<p><b>Accepted in principle</b></p> <ul style="list-style-type: none"> <li>DNRME will develop an overland flow measurement standard and risk-based overland flow measurement program. The program will be informed by the existing Lower Balonne overland flow measurement trials, approaches used in other jurisdictions and the opportunities presented by emerging technologies.</li> <li>The draft Border Rivers and Moonie Water Plan proposes that large-volume overland flow water take is measured in high priority areas by 30 June 2020.</li> </ul> <p>As per response to recommendation 5, 7 and 8.</p>	<p>The overland flow measurement project will help improve how we measure the take of overland flow water across the Queensland Murray-Darling Basin (QMDB). The Border Rivers and Moonie Water Plans state that large volume overland flow water take is measurement in high priority areas by 31 December 2022.</p> <p>An improved water level measurement standard for storages has been drafted for inclusion in the ‘Queensland Non-urban Metering Standard (Interim Standard)’. It is likely this will form a separate chapter or section within the current document and necessary amendments will be made to the –</p> <ul style="list-style-type: none"> <li>Meter validation certificate form</li> <li>‘Queensland Non-urban Water Metering Policy for Unsupplemented Water Extractions 2019’</li> <li>‘Water meter installer and validator guide for non-urban water meters’</li> </ul> <p>The objective of the new water level measurement section is to provide a robust framework for the revalidation of existing water level devices installed in the Lower Balonne and validation of new water level devices in the Border Rivers and Moonie catchment.</p> <p>The standard will ensure that the measurement device installation and validation will be compatible and transferable to the ‘Overland Flow Measurement Standard’ currently in development.</p>

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<p>particularly in relation to carry-over rules and assess how best any conflicts can be resolved or managed. The community and stakeholders should be consulted during this process</p> <p>d. establishing a system to manage overland flow works authorisations including the conversion of these authorisations to volumetric entitlements. DNRME publicly release the authorisation conversion information to the community and stakeholders. A risk-based audit program should involve site visits to confirm that all works are authorised</p> <p>e. implementing a fit-for-purpose water accounting system linked to information management systems that provides all the information required to perform the water measurement and monitoring of water harvesting and the take of overland flow.</p>		<p>The key difference between the interim standard and the 'Overland Flow Measurement Standard' is the water licence holder requirement to submit a measurement plan. As part of the overland flow measurement project, it is proposed that a measurement plan will be a certified document that is to accompany storage water level device validation certificate to provide a modular measurement device for the take of overland flow on a property.</p> <p>A measurement plan will capture the necessary detail to derive the take of overland flow using storage level measurement devices such as –</p> <ul style="list-style-type: none"> <li>• Detailed storage survey requirements to derive a height-volume curve</li> <li>• Water operation details to exclude other water in storage such as – <ul style="list-style-type: none"> <li>○ Supplemented and unsupplemented entitlement take volumes,</li> <li>○ Volumes of take from water plan authorisations e.g. stock and domestic, contaminated agricultural runoff</li> <li>○ Tail water return</li> <li>○ Direct rainfall onto storage</li> </ul> </li> </ul> <p>In the QMDB, measurement of overland flow storages is being implemented, consistent with Border Rivers and Moonie water plan measures, prior to the release of the improved overland flow measurement policy.</p>