

Compliance and enforcement across the Murray–Darling Basin

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Compliance

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This review took place during a period of travel restrictions and disruptions associated with the COVID pandemic. Many people were working from home. More recently, New South Wales and Queensland have experienced devastating flooding, which has compounded the demands on staff.

I appreciated everyone's co-operation and assistance. Without it, completing the review would have been all the more challenging, if not impossible.

All staff that I dealt with are to be commended for their individual conscientiousness and co-operative approach, in spite of the challenges they already faced with existing workloads and the additional COVID and flooding related imposts.

I also particularly appreciated their patience in helping with my process of reconciling approaches and practices between and across jurisdictions.

Executive summary

The Murray–Darling Basin is a large, complex, diverse and dynamic system that is home to about 2 million people, including more than 40 indigenous nations. It generates 40% of Australia’s agricultural production. The *Basin Plan 2012* (Cth) (Basin Plan) was developed to achieve long term sustainability for industries, communities and the environment of the Basin.

Introduction

The Basin Plan was established in 2012 and the Murray–Darling Basin Compliance Compact (the Compact) was agreed in 2018. Since then there has been improvement in water compliance in many areas. The availability of compliance information to communities has also improved.

However, the improvement has tended to be in the areas of activities and outputs as opposed to outcomes. There remains a challenge to show the extent of improvement in compliance outcomes, both overall and broken down by variables such as the category of water take or the category of compliance activity (such as cyclical and targeted compliance programs).

This review provides a point-in-time stocktake of the way the Basin states administer compliance and enforcement; the way they report on their arrangements; their robustness in carrying out compliance and enforcement activities; and any issues that inhibit compliance and enforcement.

It is hard to reliably compare compliance systems across jurisdictions because of differing geography, terminology and practices. Some jurisdictions can show higher levels of general compliance through established systematic monitoring of take and through cyclical and targeted complementary compliance activities. Others rely more on a risk-based monitoring and compliance program which looks at a range of breach types. As well, some jurisdictions have a relatively short compliance history, which means that reliable data sets over time for benchmarking and comparison to more mature jurisdictions are not available.

Culture and collaboration

The Basin Plan was made under the *Water Act 2007* (Cth) to return extractions of water in the Murray–Darling Basin to sustainable levels over the long term to support the health and viability of communities, businesses and the environment in the Basin. Under the Basin Plan, water resource plans outline how water will be managed at a local (catchment) scale. Basin states’ compliance with and enforcement of state water laws is an integral part of delivering the Basin Plan.

The Compliance Compact is a collaborative, joint commitment by the Commonwealth Government and the Basin states. It aims to ‘restore public confidence in water resource management in the Basin by providing transparency and accountability of surface and groundwater management and regulation’.¹

¹ Murray–Darling Basin Authority, *Murray–Darling Basin compliance compact*, 12 December 2018, p 1.

However, during this review it was not clear that enough attention has yet been given to taking a more collaborative and integrated approach to compliance or to providing more assurance that the jurisdictions' compliance and enforcement functions are effective.

There is an opportunity to identify compliance and enforcement priorities across the Basin more purposefully and collaboratively. In addition, there is an opportunity to communicate better to governments and the community about the extent to which improved compliance outcomes are being achieved.

This requires further cultural change and a more objective, outcomes-focused collaboration across jurisdictions, if the goals of the Compliance Compact are to be fully achieved.

Effectiveness of compliance and enforcement

The review addressed two categories of compliance. The first, which is considered fundamental to compliance, is assuring that licensed water take is within entitlement/allocation and is monitored at a licence-holder and jurisdiction-wide level.

The second category of compliance concerns cyclical routine monitoring and targeted complementary compliance activities. These activities are undertaken to show the overall effectiveness of the water management system by providing assurance about:

- the overall integrity of licensing and monitoring of take
- identification of unlicensed take
- adherence to other licence conditions and works approvals.

These frameworks have historically developed separately to address particular jurisdictional circumstances and priorities.

In consequence, there are institutionalised principles and approaches that individually are appropriate but have not been systematically revisited in the context of the Basin Plan.

This situation is accentuated in the compliance and enforcement context: the need for a consistent approach has only begun to be addressed relatively recently, and that primarily in relation to public reporting on compliance and enforcement actions and the timeliness with which alleged breaches are addressed.

There are differences between the jurisdictions in licensing conditions and in the determination of allocations/entitlements. However, their core compliance task is fundamentally the same: to monitor actual take against approved allocation/entitlement and to guard against unlicensed take and non-approved works.

All jurisdictions have better practice to share, but all jurisdictions also face challenges which generally have already been addressed in other jurisdictions, at least in part.

The Compliance Compact commitment to act in a spirit of continuous improvement, transparency, accountability, collaboration and consistency across the Basin warrants further consideration.²

The review considers that Victoria, South Australian and the Australian Capital Territory have mature and embedded approaches to compliance and enforcement. These jurisdictions

² Murray–Darling Basin Authority, *Murray-Darling Basin Compliance Compact*, 12 December 2018, p 2.

are reporting on the effectiveness of their compliance activities in addition to their compliance and enforcement actions and the timeliness with which alleged breaches are addressed.

It is important to note that these three jurisdictions are relatively smaller geographically and have a very high proportion of take from regulated sources, which are effectively universally metered with at least quarterly meter reads.

These three jurisdictions are addressing compliance obligations in a holistic way. They have integrated their customer-facing operational interactions with water users, focussing on messaging and monitoring to emphasise that allocation accounts should not be overdrawn.

These jurisdictions undertake timely and resolute follow-up action when they identify take in excess of entitlement/allocation. This reinforces a clear zero-tolerance approach to unauthorised take of water.

New South Wales and Queensland, however, have larger, more sparsely populated areas to cover, a lower level of metering coverage, and significant take from unregulated surface water.

Since the Compliance Compact, both of these jurisdictions have taken steps to strengthen compliance.

In New South Wales the Natural Resources Access Regulator (NRAR) has established a comprehensive framework with clear objectives, policies and principles to establish regulatory strategies. The NRAR has started comprehensive and sophisticated spatial and satellite data analytics and integrated database intelligence-gathering to identify and respond to unlawful water take.

Queensland has established a compliance and enforcement framework, strategy and annual plans. Queensland operates a risk-based approach to prioritising meter and measurement rollouts, frequency of meter reads, auditing and surveillance activities. In addition, Queensland's Rural Water Futures program includes initiatives to improve processes, data, technology and telemetry.

Transparency and demonstrating comprehensiveness of approach

Approaches to compliance reporting beyond commitments made under the Compliance Compact vary by jurisdiction. Individually they are at least adequate. However, it would be beneficial if there were greater consistency of structure, coverage and approach, both within and across jurisdictions.

Jurisdictions would benefit from developing more consistent approaches to monitoring take and monitoring compliance by category of water take. They would benefit from adopting a more consistently structured and aligned approach to annual cyclical/routine monitoring and targeted compliance programs. This would help them to communicate better to the Commonwealth Government and the community about the compliance outcomes they are achieving.

There would be merit in establishing core criteria, guidance, checklists and reporting formats to facilitate more objective comparisons and analysis across the Basin. This need not impinge on the autonomy of individual jurisdictions.

A significant proportion of surface water take is determined on the basis of long-term average estimates and modelling.³ This practice warrants review to establish whether there is a compliance aspect to be addressed with respect to sustainable diversion limits (SDLs).

Anecdotally, the risk of growth of these forms of take is thought to be low. However, given their significance overall, an explicit review of the reliability of estimates and their potential for growth is proposed in this report (see recommendation 6).

More applied application of the ‘practical and proportionate’ principle

The Compliance Compact provides that actions are to be implemented in a way that is practical and proportionate to the risk being addressed.⁴ This warrants more attention.

It would be desirable to establish a consensus on appropriate principles and criteria for determining what is ‘practical and proportionate’.

There is also a need for the next step to consider what these actions mean and what further action is needed to achieve the desired outcomes.

All jurisdictions have generally comparable legislative provisions that:

- govern setting allocations/entitlements
- control access to water
- give options for compliance and enforcement actions. These range from advisory letters to formal warnings, formal directions, penalty notices and criminal proceedings.

However, there are different practices in applying these provisions. This can lead to perceptions of inequity.

These differences occur in a number of areas:

Metering: Most jurisdictions have largely grandfathered meters (with certified +/-5% accuracy) because metering was already in place at the time of mandating that new and replacement meters must be AS 4747 compliant. On the other hand, New South Wales is requiring pattern approved meters⁵, installed by a DQP in accordance with AS 4747 in areas not previously metered, as well as having local intelligence devices tamper-evident seals fitted.

Additionally, across the Basin inconsistent thresholds are being used to trigger metering requirements.

There are different approaches to encouraging compliance and addressing non-compliance. South Australia applies a zero-tolerance mandatory administrative penalty for all

³ Take by runoff dams, from watercourses and by commercial plantations was about 57% of total take in 2019–20. This compares with 25% in 2017–18 and 31% in 2018–19, reflecting that this fixed estimate relates to total water resource availability in the relevant year. Murray–Darling Basin Authority, *Annual water take report 2019–20: Report on Basin wide water availability, use and Cap compliance*, November 2021, MDBA publication no. 44/21, p 36.

⁴ Murray–Darling Basin Authority, *Murray–Darling Basin Compliance Compact*, 12 December 2018, p 2.

⁵ Except for open channel meters which are not currently required to be pattern approved

unauthorised water take. Victoria has implemented a zero-tolerance policy with performance indicators (currently 1% of volume and 3% by accounts) against which water corporations are held accountable. Queensland and New South Wales apply a more educative graduated and proportionate approach. However it should be noted that NRAR, in civil proceedings under the NSW Water Management Act (2000) can charge up to five times the value of water taken as a deterrent.

Thresholds and criteria for deciding enforcement action vary without visibility of prioritisation processes. For example, these range from considering volume alone, volume as a proportion of allocation, through to triaging based on volume and incidence of offending.

Approaches to required timing of water trades differ among the jurisdictions without visibility of the reasons why. Approaches vary from trade approval being required before exceeding allocation through to allowing exceedance providing a trade to balance the account occurs within the relevant accounting period.

Understandably the jurisdictions take pride in what they have achieved in addressing their challenges over time. However, it is not clear that there is yet a shared, commonly understood spirit of continuous improvement, transparency, accountability, collaboration and consistency across the Basin, as envisaged by the Compliance Compact.

There is still a tendency to highlight the jurisdictional differences and alleged confidentiality and privacy requirements which inhibit collaboration. There is still a reluctance to consider alternative approaches. This review observed an attitude more of ‘why it can’t be done’ rather than a more purposeful ‘how can we make it work better’.

In Victoria, South Australia and the ACT there was evident operational integration and linkages, combined with progressive monitoring of water take against allocation and complemented by periodic reinforcement of compliance obligations with water users. Timely follow-up to resolve potential breaches is also evident. This shows a permeating compliance culture, especially in relation to take of water.

In New South Wales and Queensland, with lower levels of metered take, it was not as evident that there has been as timely follow-up of potential breaches. Metered water take in these jurisdictions is, however, monitored by monthly or quarterly reads, and in NSW it is complemented by a requirement for licence holders to submit a meter reading when placing an order for water (in the regulated system).

New South Wales however has had a monitoring system in place based on negative account balance reports produced by WaterNSW and provided at regular intervals to NRAR. In 2021-22 this process has been complemented by the development of an automated dashboard to detect overdrawn accounts on a daily basis.

Queensland has a legacy manual accounting process which uses spreadsheets. There is not a universal one-to-one relationship between meters and entitlements, which hinders timely monitoring and enforcement action. This situation is somewhat mitigated by risk assessments and proactive auditing. Queensland is further developing its accounting and reporting systems through the Rural Water Futures program.

Overland flow/ floodplain harvesting

Queensland, in the course of operationalising the overland flow standard as part of the measurement policy, has provided a mechanism for introducing a farm-scale measurement

framework, in addition to using satellite imagery. Queensland reports that a cohesive framework has been developed through the Rural Water Futures program.

New South Wales uses satellite imagery on a campaign basis to assess and quantify volumetric take, at this stage in floodplain harvesting. It is working to automate the quantification of volumetric take into floodplain harvesting dams from Sentinel imagery for use in the NRAR's internal per-property floodplain harvesting dashboard.

These two jurisdictions have adopted a more preventative and educative approach to compliance. They aim to increase voluntary compliance and prevent harm caused by unlawful activity, rather than simply applying punishments.

Conclusions

This review did not identify an established Basin-wide set of key metrics to provide a foundation for transparently and systematically monitoring the effectiveness of compliance and enforcement within and across jurisdictions. This review proposes progressive development so that better analysis is possible to guide setting priorities and reporting on compliance and enforcement. This could start with factual attributes and progressively expand to reflect compliance attributes and outcomes by jurisdictions and by types of water take: groundwater and surface water, take from regulated rivers, watercourses, floodplain harvesting, commercial plantation and runoff dams.

To improve the accuracy and consistency of accounting for water take and to restore public confidence in water resource management, it is important that authorities can:

- report on water take and compliance by jurisdiction and by the category of water take, updated quarterly
- show the effectiveness of complementary cyclical/routine monitoring and targeted compliance programs.

For a staged program of initiatives to be successful, it is essential to develop a collaborative culture that recognises the mutually reinforcing roles of compliance regulators across the Basin, while supporting independence and effective decision-making in the individual jurisdictions.

This Compliance Compact commitment mirrors the public accountability principle that authorities should not only do the right thing but also be seen to do the right thing.

The other test of a true professional is being able to explain to the community, in non-technical terms, the outcomes being achieved. In this regard, jurisdictions should focus on showing the effectiveness of their compliance and enforcement approaches, both within their own jurisdiction and in a Basin-wide context.

A threshold challenge is to establish a more universal and mature commitment to providing understandable compliance information.

It appears that few of the issues inhibiting consistent compliance and enforcement across the Basin relate to legislative provisions. Most of the task ahead is to revisit, from a Basin-wide perspective, the range of approaches that individual jurisdictions have adopted over time, so that similarities and differences are understood; and to reconcile or revise approaches in the context of contemporary standards and circumstances.

Findings

Overall there is a lack of consistent ‘plain English’ reporting on compliance performance and outcomes. This undermines community understanding and the efforts of individual governments to strengthen compliance.

Water take compliance

Metered take compliance rates by volume reported are in the range of 98-100% across jurisdictions; however, care needs to be taken in comparing these compliance rates, as the underlying systems and approaches to deriving them vary across jurisdictions.

Cyclical and targeted/routine monitoring compliance programs

All jurisdictions undertake cyclical/routine monitoring and targeted annual compliance programs to provide assurance about the overall integrity of licensing, take and adherence to other licence conditions and works approvals. However, there is not an evident objective basis on which to demonstrate their effectiveness.

Transparency and building community trust

There is a lack of clear, easily understood and consistent information about compliance efforts. This gives rise to misrepresentations about the state of compliance in the Basin, including misinformation and disinformation by vested interests.

Recommendations

To facilitate more collaboration, consistency and reconcilability

Recommendation 1: That the Inspector-General of Water Compliance (IGWC), in consultation with the Regulatory Leaders Forum, work to improve collegiality of water compliance regulators by leveraging off existing opportunities to drive cultural shift and to recognise that this would deliver benefits to all regulators.

To improve transparency and build community trust

Recommendation 2: That the IGWC develop and require Basin state regulators to report against a consistent set of metrics to provide an overview of water take compliance levels and the extent and reliability of metering and measurement, by category and sub-category of water take across the Basin.

Recommendation 3: That the IGWC, in consultation with Basin states, develop a consistent framework for reporting on compliance programs across the Basin, to enable the Inspector-General to periodically publish a Basin-wide report on compliance with water laws.

To facilitate continuously improving the comprehensiveness and effectiveness of compliance approaches

Recommendation 4: That the IGWC co-ordinate compilation of a Basin-wide better practice compliance and enforcement program planning reference manual to be a resource to facilitate Basin-wide assurance of the comprehensiveness and effectiveness of the coverage and approach of compliance and enforcement activities.

Recommendation 5: That the IGWC progressively review the compliance and enforcement arrangements to identify where a principles-based approach to regulation across the Basin

could be promoted, and issue guidance where appropriate, including through the Inspector-General's guidelines and standards powers.

Recommendation 6: That the IGWC review whether there are gaps in the accounting frameworks that could compromise ensuring that water take remains within sustainable limits, and establish an evidence base to consider whether a risk-informed program of work to address this is warranted.

Methodology

A project plan which summarised the proposed review approach was shared with each jurisdiction at inception.

The review set out to assess:

- the adequacy of compliance and enforcement frameworks and governance arrangements
- the robustness of their implementation
- any issues that inhibit compliance and enforcement management.

An open and transparent approach was adopted which involved (in addition to receiving presentations, submissions, access to relevant documentation and participation in virtual meetings and discussions):

- information gathering using structured questionnaires
- comparison and analysis of responses received
- distillation of similarities and differences in approach
- using judgement to identify better practice, potential gaps and opportunities to deliver discussion drafts progressively for confirmation of facts and context.

Individual jurisdictional summaries and an overview report were then prepared and were shared with jurisdictions for comment before finalisation.

Introduction

The new statutory role of the Inspector-General of Water Compliance (the Inspector-General) brings together the Commonwealth's water compliance responsibilities into a single statutory office. The Inspector-General has regulatory powers under Commonwealth law and can work across the whole Basin to strengthen compliance, increase transparency and improve trust.

The Inspector-General provides independent oversight and monitoring of Commonwealth and Basin state compliance with the Basin Plan. A key priority for the Inspector-General is to encourage greater consistency in guidelines and standards across the Basin, so that all water users are held to the same high bar.

In agreeing the *Murray–Darling Basin Compliance Compact* (the Compliance Compact) in 2018, the Basin governments sought to restore public confidence in water resource management in the Basin by increasing transparency and accountability of surface and groundwater management and regulation.

The 2021 review of the Compliance Compact notes achievements, including improvement in water compliance in many areas and an uplift in the availability of compliance information to governments and communities.⁶

The improvement in water compliance has, however, tended to be in the areas of activities and outputs.

The 2021 review of the Compliance Compact acknowledged that the increase in compliance activity is a step in the right direction. However, it is still hard to compare the compliance approaches in different jurisdictions because of different terminology, practices and lack of consistency in approaches.

This review gives a point-in-time stocktake of the way each of the Basin states administers compliance and enforcement activities. The review reports on the adequacy of their frameworks and arrangements and their robustness in implementation. It identifies issues that inhibit management of compliance and enforcement. This will inform the IGWC in planning and prioritising, as well as supporting Basin states' efforts to strengthen compliance.

The review assessed each jurisdiction's overall compliance activities, extending from operational management of licensee/water user compliance with their entitlement/allocation through to wider cyclical routine monitoring and targeted compliance programs and activities.

Each Basin state remains responsible for compliance and enforcement within its jurisdiction. Jurisdictions generally adopted a conservative approach to making their operational management information available to this review. This made the comparative assessment process more challenging.

The jurisdictions have different geographical circumstances. As well, their regulatory frameworks, approaches and terminology differ. This has led to differences in compliance and enforcement activities. This makes comparative assessment harder. However, the underlying purpose of the legislation is common across jurisdictions. This gives an opportunity for more consistent reporting on compliance and enforcement.

6 Murray–Darling Basin Authority, *Compliance compact review*, May 2021, p 3.

In this review some jurisdictions tended to focus on legislative differences and existing practices to the detriment of being open to considering alternative approaches to managing non-compliance.

Contextual observations

The 2012 Basin Plan was made under the *Water Act 2007* to return extractions of water in the Murray–Darling Basin to sustainable levels over the long term to support the health and viability of communities, businesses and the environment. Under the Basin Plan, water resource plans outline how water will be managed at a local (catchment) scale. Basin states’ compliance with and enforcement of state water laws is an integral part of delivering the Basin Plan.

The 2018 *Murray–Darling Basin Compliance Compact* (the Compliance Compact) is a collaborative, joint commitment by the Australian Government and the Basin states. It aims to ‘restore public confidence in water resource management in the Basin by providing transparency and accountability of surface and groundwater management and regulation’.⁷

There has been productive cross-jurisdictional engagement via periodic community of practice initiatives and most recently by the establishment of a Regulatory Leaders Forum chaired by the Inspector-General of Water Compliance. The forum consists of the chief regulatory officers from each Basin jurisdiction.

Most recently and encouragingly, New South Wales and Queensland have consulted as they have developed their respective floodplain harvesting/overland flow policies. This shows that there is a basis to pursue a more consistent and increasingly outcome-focused approach.

There is an opportunity to identify compliance and enforcement priorities across the Basin more purposefully and collaboratively. There is an opportunity to communicate better to governments and to the community about the extent to which improved compliance outcomes are being achieved.

This requires further cultural change and a more objective, outcomes-focused collaboration across jurisdictions, if the goals of the Compliance Compact are to be achieved.

⁷ Murray–Darling Basin Authority, *Murray–Darling Basin compliance compact*, 12 December 2018, p 1.

Approach

The review tried to rise above the differences and complexities of the jurisdictions' approach to determining water entitlements/allocations. These are rightly a matter for the individual jurisdictions.

The review focused on how, once entitlements/allocations are determined, compliance breaches are identified and addressed. The review aimed to avoid re-inventing the wheel, so it preferred to use information that was already available.

To enable a high level comparison of compliance systems across jurisdictions, the review primarily used the MDBA's 2019–20 annual water take report (the latest available)⁸ to provide a consistent estimate of the groundwater and surface water take by jurisdiction.

Details of licence holders numbers, metering coverage, read frequency and compliance rates were obtained directly from jurisdictions (see Table 1 and the individual jurisdictions summaries at attachments 1 to 5).

Care is needed in using this information, however, as it is a first-pass high-level attempt at comparing compliance systems. The jurisdictions differ in their circumstances and their approaches to compliance and reporting. These differences should be taken into account in making comparisons.

Nevertheless, this summary provides a starting point for high level comparison and identifying priority areas for attention.

This information has acknowledged limitations. However, it should encourage jurisdictions to be more consistent in their approaches to compliance and enforcement and reporting outcomes.

This will be increasingly important as all jurisdictions achieve the planned comprehensive metering and measuring of all water entitlements by June 2025.⁹ Achieving this level of metering and measurement will provide a firmer foundation for better monitoring of users' compliance with their allocations/entitlements.

⁸ Murray–Darling Basin Authority, *Annual water take report 2019–20: Report on Basin wide water availability, use and Cap compliance*, November 2021, MDBA publication no. 44/21, pp 25,36.

⁹ Murray–Darling Basin Authority, *Murray-Darling Basin compliance compact*, 12 December 2018, p 6.

Table 1 High level jurisdictional statistics

	NSW	VIC	QLD	SA	ACT
Overall Basin take (as a % of total volume)¹⁰	50%	25%	17%	8%	>1%
Groundwater take (as a % of total volume)¹¹	71%	15%	10%	4%	>1%
Surface water (as a % of total volume)¹²	44%	29%	18%	8%	>1%
No. licence holders	38,508	32,136	2,730	5,000 (approx.)	182
Proportion of entitlement volume metered	88% ¹³	96%	74%	98.8%	100%

The governance and compliance framework

There are three approaches to the administration of compliance and enforcement across the five jurisdictions.

In Queensland and South Australia a single department is responsible for the water licensing system. These states undertake compliance activities operationally, and most compliance issues are dealt with at the point of identification.

Queensland's accounting process is largely done manually using spreadsheets. Water management rules, such as announcements, trades, seasonal water assignments and multi-year accounting, are factored into the calculations to reconcile water usage against allowances. Meter reads range from annually for unsupplemented take, six-monthly for groundwater and quarterly or monthly for supplemented take. Overland flow harvesting is read during and after each flow event where licensing and measurement is in place – currently this is limited to the Border Rivers, Moonie and Lower Balonne sub-catchments.

¹⁰ 2019–20 data. Source: MDBA Annual Water Take Report (2019-20) [Annual Water Take Report 2019–20 \(mdba.gov.au\)](https://www.mdba.gov.au)

¹¹ 2019–20 data. Source: Ibid.

¹² 2019–20 data. Source: Ibid.

¹³ This figure represents percentage of total entitlements. Percentage of total volume was not available.

Queensland and South Australia undertake annual cyclical routine monitoring and targeted compliance programs. They publish the incidence and type of action taken in relation to breaches.

Queensland operates a risk-based approach to compliance, which has been developed using the National Water Compliance Framework (NWCf). This risk-based approach applies to prioritising meter and measurement rollouts, frequency of meter reads, auditing and surveillance activities. Priorities are identified in an annual compliance plan. Queensland has reported compliance statistics publicly since 2011, with the exception of the 2016–17 and 2017–18 water years. In 2020–21 Queensland reported 99% compliance of water taken against metered entitlements.

Victoria and the ACT operate with a central policy and co-ordinating department or directorate and a separate authority responsible for managing users' water take, including the compliance and enforcement functions.

Both these jurisdictions monitor water take against allocation. The ACT does this monthly, except for some licensees with very low volumes (for example below 0.5ML) and low compliance risk. In Victoria 71% of take is telemetered, and the balance is monitored predominantly quarterly. Both these jurisdictions also have cyclical routine monitoring and targeted compliance programs.

The ACT has reported no detections of non-compliance with licence conditions in recent years (see the Environment Protection Authority's annual reports).

Victoria also reports the outcome of compliance actions in water corporation annual reports, consistent with a Ministerial Reporting Direction.

New South Wales has a distinctly different approach. The compliance and enforcement function is carried out by the Natural Resources Access Regulator (NRAR). The NRAR is a statutory authority separate from both the policy setter – the Department of Planning and Environment – and the customer-facing WaterNSW.

This approach has benefits, including independence in enforcement decision-making and greater assurance in managing probity concerns.

A roles and responsibilities agreement between the three New South Wales bodies documents their commitment to perform their respective roles co-operatively.

In addition, WaterNSW and the NRAR entered into a further memorandum of understanding and data-sharing agreement in 2019. Three protocols support operational needs. Protocol two relates to breach reporting and the obligation for WaterNSW to advise the NRAR of suspected breaches. It clarifies the lines of communication for investigating suspected breaches. The data-sharing agreement has arrangements to give the NRAR access to information to fulfil the compliance function for metering.

WaterNSW provides regular overdrawn account reports to the NRAR. The NRAR also has access to WaterNSW's water accounting system and water licensing system.

In addition, the NRAR has recently developed a systematic means of detecting overdrawn accounts daily to enable assessment and quantification of all overdrawn accounts.

The NRAR employs a whole-of-agency approach, responding to emerging and persistent issues according to its priorities.¹⁴ The NRAR reports the cumulative compliance outcome since October 2020, by region or local government area, in quarterly compliance reports and annual progress reports. These reports cover both compliance rates and enforcement actions taken.

Conclusions

These frameworks have developed separately over time to address particular jurisdictional circumstances and priorities.

However, whilst institutionalised principles and approaches are logical and appropriate individually, they do not seem to have been systematically revisited in the context of the Basin Plan.

This situation is accentuated in the compliance and enforcement context: the need for a consistent approach has only begun to be addressed relatively recently, and that primarily in relation to public reporting on compliance and enforcement actions and the timeliness with which alleged breaches are addressed.

There are differences between the jurisdictions in licensing conditions and in the determination of allocations/entitlements. However, their core compliance task is fundamentally the same: to monitor actual take against approved allocation/entitlement and to guard against unlicensed take and non-approved works.

The Compliance Compact commitment to act in a spirit of continuous improvement, transparency, accountability, collaboration and consistency across the Basin warrants more focussed consideration.

There is value for the Basin as a whole in all regulators working together to ensure that water theft does not occur. As well, there are opportunities for the jurisdictions to cooperate and leverage off each other's experiences to drive efficiencies and innovation. All jurisdictions have better practice to share, while all jurisdictions also face challenges which generally have already been addressed in other jurisdictions, at least in part.

Engaging more systematically in that spirit would be productive. Most practices would not require legislative change, as the jurisdictions already have reasonable discretion in how they carry out compliance and enforcement activities.

¹⁴ Natural Resources Access Regulator (NSW), *Natural Resources Access Regulator regulatory priorities 2021–22*, June 2021, publication INT21/80725, page 4.

Effective delivery of compliance and enforcement

Since the jurisdictions agreed to the Compliance Compact there has been a notable focus on developing compliance programs and publicly reporting on compliance and enforcement actions. All jurisdictions now have cyclical routine monitoring and targeted annual compliance monitoring programs.

However, it is not clear that all jurisdictions have been giving equivalent attention to demonstrating timely monitoring that take is within allocation/entitlement.

The review found that annual compliance programs were being purposefully planned and executed and are being continuously refined based on the jurisdictions' experience and results of previous programs.

However, there are still notable differences between the jurisdictions in the type, frequency and amount of compliance information that is reported.

Victoria, South Australia and the ACT have high levels of metering and high frequency of meter reads, complemented by timely follow-up of potential breaches. They report about 95% or better compliance from their cyclical routine monitoring and targeted compliance programs.

For comparison, in New South Wales and Queensland it is harder to provide assurance about compliance, because:

- a greater proportion of allocations/entitlements are reliant on natural flows that are not regulated by in-stream infrastructure and regulated/supplemented schemes
- floodplain harvesting occurs
- there are larger and more sparsely populated geographic areas
- there are lower levels of metering coverage
- water use is being estimated in some areas
- identification and follow up of potential breaches has not been as timely.

This probably results in a larger number of potential breaches that take time and resources to address.

However, New South Wales now has a comprehensive compliance and enforcement regime. There is significant on-ground presence to encourage voluntary compliance and to identify non-compliance that is not detectable by remote methods. New South Wales uses remote sensing, GIS and database analytics for systematic, intelligence-led compliance campaigns. Overdrawn water accounts and bore extraction limits are 2021–22 regulatory priorities. A systematic means has recently been developed for detecting overdrawn accounts daily.

We may expect that these advanced techniques will identify higher levels of non-compliance.

Queensland, while it is not as advanced in this area as New South Wales, is also exploring and piloting similar approaches.

Take compliance

South Australia, Victoria and the ACT

With respect to monitoring that water take complies with the allocation, the review assessed that Victoria, South Australia and the ACT have more objectively demonstrated the effectiveness of their compliance and enforcement regimes. They present as more closely monitoring water take, and they undertake annual compliance programs which cyclically monitor other aspects of compliance and include targeted compliance activities.

South Australia and the ACT maintain the levels of compliance by water users recognised in the November 2017 compliance review.¹⁵ Victoria has subsequently enhanced its approach and performance following the release of several policies and guidelines:

- 2018 Non-urban water compliance and enforcement – review of framework and governance arrangements¹⁶
- 2019 Non-urban water compliance and enforcement guidelines for water corporations¹⁷
- 2020 Victorian Non-Urban Water Metering Policy.¹⁸

Victoria has also adopted a minister-led zero-tolerance policy on unauthorised take of water. This is being monitored by the Department of Environment, Land, Water and Planning (DELWP) via quarterly reporting which uses the Victorian Water Register as the single ‘source of truth’.

South Australia has an equivalent zero-tolerance approach to unauthorised take. It applies a mandatory financial penalty to all unauthorised take. The ACT has reported 100% take compliance in recent years, indicating that an effective compliance regime is in place.

The common features of these three jurisdictions were:

- the high level of metering coverage: 96% to 100% by both volume and licence-holders
- the high level of meter reading: predominantly quarterly meter reading and accounting for take in South Australia; monthly in the ACT; and 71% telemetered complemented by predominantly quarterly meter reading in Victoria
- clear rules and thresholds for compliance responses applied consistently
- high compliance of water take with entitlements: 99% by volume and 97% plus by number of licence-holders
- their use of annually planned routine monitoring programs, complemented by targeted compliance activities as the need arises.

15 Murray–Darling Basin Authority, *The Murray–Darling Basin water compliance review*, November 2017, MDBA publication No 44/17, pp 12–14.

16 Department of Environment, Land, Water and Planning (Victoria), *Non-urban water compliance and enforcement – Review of framework and governance arrangements*, 2018.

17 Department of Environment, Land, Water and Planning (Victoria), *Non-urban water compliance and enforcement guidelines for water corporations*, 2019.

18 Department of Environment, Land, Water and Planning (Victoria), *Victorian non-urban water metering policy*, March 2020.

However, it should be noted that these are the smaller jurisdictions, and they have low levels of unregulated/unsupplemented take. So for them the compliance task is easier than it is in New South Wales and Queensland.

New South Wales and Queensland

Both New South Wales and Queensland have significant legacy impediments to showing the level of compliance being achieved in other jurisdictions. In particular, in the northern Basin a much greater proportion of allocations/entitlements rely on natural flows without in-stream infrastructure. This creates challenges that are different to those in the southern Basin.

Queensland and New South Wales also have lower levels of meter coverage, estimated at around 74% of entitlement volume and 46% of entitlements in Queensland, and at 82%¹⁹ of assessed take and 88% of entitlements in New South Wales. These jurisdictions, however, consider that their metering coverage and compliance rates for regulated/supplemented take would be comparable to the metering coverage and compliance rates being reported by Victoria, South Australia and the ACT.

As well, in Queensland there is a manual spreadsheet-based accounting system, and there is no universal one-to-one relationship between meters and entitlements: some meters serve more than one entitlement and some entitlements are spread across multiple meters.

In the absence of historical and systematic information to confirm their views and to confirm the indicated level of metered take in the 2019–20 annual water take report, the review assessed that Queensland and New South Wales were not as well placed to show their achievements, as they face greater legacy challenges associated with metering and measurement.

New South Wales Natural Resources Access Regulator (NRAR)

In New South Wales the NRAR has established a comprehensive framework with clear objectives, policies and principles to guide its compliance and enforcement actions.

The NRAR uses a mix of responses to achieve a balanced approach to non-compliance. It aims to promote changes in attitudes and behaviour, rather than simply applying punishments.

The NRAR is well resourced, with a significant on-ground presence. It uses integrated remote sensing, GIS and database analytics and intelligence-gathering.²⁰

The NRAR analyses reports, including WaterNSW's regular negative balance reports, to identify potential non-compliance. Incidents are triaged for investigation using a risk matrix which considers factors including volume and incidence.

Enforcement action is targeted at users who repeatedly go into deficit and those in areas where greater harm is likely to the environment, industry or the community.

19 calculated based on 2019–20 annual water take report, Table 4-2, p 36.

20 Natural Resources Access Regulator (NSW), *Natural Resources Access Regulator regulatory policy*, September 2021, INT21/145826, p 11.

The NRAR publishes its regulatory priorities to show how and where its efforts will be focused.²¹ It intends to publish an annual acquittal reporting on the regulatory priorities and outcomes of the previous year.

The initial January to March 2021 quarterly compliance report noted that, after three years of establishing its presence and dealing with an inherited backlog of cases, the NRAR has changed to a proactive phase.²² It is deriving much more intelligence from remote sensing technologies and it is designing campaigns to tackle the findings.

In October 2020 the NRAR initiated a 12-month program to create a snapshot of how compliant water users are with the water laws. A website provides, by region or local government area, the compliance outcome by quarter since the third quarter of 2019.²³

A positive trend of improving compliance is emerging. The NRAR's first quarter data on its 2021–22 overdrawn accounts annual priority project shows that this project will provide a reliable indication of compliance levels and of the effectiveness of compliance actions in an overall context.

The New South Wales result for this project (1 July 2021 to 30 September 2021) is that only 0.28% or 110 licences are overdrawn and 0.024% of the total volume of water take is allegedly taken unlawfully. New South Wales considers that this is consistent with annually published statistics reported by other basin states.

The NRAR considers that unlawful take of water is probably broadly in line with the rates that are being achieved in other jurisdictions. This conclusion is based on NRAR analysis of individual account data as at 8 December 2021 and via a custom-built database view of individual accounts. This shows the level of water take against entitlements for take from regulated surface water sources.

The NRAR now has an automated dashboard and reporting functionality which allows it to audit all New South Wales water access licenses for overdrawn accounts daily from 1 July 2022, with targeted six-monthly compliance reporting.

The acquittal of the pilot bore extraction limits (BEL) campaign²⁴ also showed that 90% of water access licences were fully compliant. Four per cent had minor compliance issues addressed by advisory or warning letters. The remaining 6% had major breaches where owners were given penalty notices or are the subject of further investigation. In four instances of major breach the licence-holders were prosecuted. As an extension of this campaign, a BEL compliance dashboard and reporting functionality has been developed to enable the NRAR to audit all groundwater bores against their extraction limits annually.

The NRAR's 2020–21 progress report reported a compliance rate across New South Wales of 72.9%.²⁵ The quarterly compliance report for January to March 2021 reported on the routine monitoring program, where officers check on farm that water users are recording their water take in a log book or with a meter, have correctly sized pumps or bores, and are ordering

21 Natural Resources Access Regulator (NSW), *Natural Resources Access Regulator regulatory priorities 2021–22*, June 2021, publication INT21/80725, p 4.

22 Natural Resources Access Regulator (NSW), *NRAR quarterly compliance report Jan–Mar 2021*, June 2021, INT 21/80726, p 13.

23 nrar.nsw.gov.au/reports-and-registers/quarterly-compliance-reports

24 Natural Resources Access Regulator (NSW), *Progress Report 2020–21*, p 17.

25 Natural Resources Access Regulator (NSW), *Progress Report 2020–21*, p 26.

water before they pump.²⁶ The fully compliant rates ranged from 61% (Lachlan) to 85% (Barwon-Darling) across the 8 areas relevant to the Murray–Darling Basin. This report also noted that the bulk of non-compliance was roughly evenly divided between water take/metering (38.5%); controlled activities – works on waterfront land (29.2%); and works (27.6%).²⁷

New South Wales new non-urban water metering rollout

New South Wales is implementing a new non-urban water metering rollout in 4 tranches. Tranches 1, 2 and 3 cover the Murray–Darling Basin related areas. The last of these is scheduled for completion by 1 December 2022.²⁸ The planned rollout is challenging, and the NRAR is playing a significant role in supporting implementation by increasing water users’ understanding of the metering rules and designing a program to verify compliance, which will run annually until 2024.²⁹ This will achieve the Compliance Compact commitment of metering all water entitlements before June 2025.³⁰

The NRAR acquittal of the Tranche 1 compliance program in relation to implementation of the non-urban water metering framework reported that 23% of 364 active pumps above 500 millimetres inspected were fully compliant and a significant number of water users had made a reasonable effort to comply.³¹ It also reported that in the 3 months since 30 June 2021 a further 210 pumps had been inspected and the compliance rate had increased to 54%. By 30 December 2021 the compliance rate had increased to 69%.³²

New South Wales floodplain harvesting policy

New South Wales is also continuing its water reforms to require measurement standards for floodplain harvesting. New South Wales is implementing the floodplain harvesting policy which sets out the process for bringing floodplain harvesting into its water licensing framework.³³ The subsequent *NSW Floodplain Harvesting Measurement Policy* sets out the objectives, methods and rules for floodplain harvesting in the northern New South Wales Murray–Darling Basin. It specifically sets out the rules and requirements to support measurement. Floodplain harvesting is estimated to be about 25% of irrigation water in 3 of the 5 northern valleys in New South Wales.³⁴

The rollout of this policy was to be in 2 stages to be completed by 1 July 2022. However, on 24 February 2022 the New South Wales Legislative Council disallowed the relevant

26 Natural Resources Access Regulator (NSW), *NRAR quarterly compliance report Jan–Mar 2021*, June 2021, INT 21/80726, p 9.

27 Natural Resources Access Regulator (NSW), *NRAR quarterly compliance report Jan–Mar 2021*, June 2021, INT 21/80726, p 5.

28 New South Wales Department of Planning, Industry and Environment, *Non-urban water metering framework in NSW – What water users need to know*, April 2021, pp 4–5.

29 Natural Resources Access Regulator (NSW), *Progress Report 2020–21* p 31.

30 Murray–Darling Basin Authority (MDBA), *Murray–Darling Basin compliance compact*, 12 December 2018 p 6.

31 Natural Resources Access Regulator (NSW), *Progress Report 2020–21*, p 31.

32 <https://www.nrar.nsw.gov.au/news/almost-three-quarters-of-2020-group-comply-with-new-metering-rules>

33 New South Wales Department of Planning, Industry and Environment, *NSW floodplain harvesting measurement policy*, July 2020, PUB20/5, p 1.

34 New South Wales Department of Planning, Industry and Environment, *Floodplain Harvesting – why is reform vital*, PUB21/473 p 1.

amendments to the Water Management (General) Regulation 2018. This followed an inquiry into the matter which reported in December 2021. On 24 May 2022, the NSW Government published its response to the Select Committee's inquiry into floodplain harvesting. The NSW Government agrees or partially agrees with 20 of the 25 recommendations made by the Select Committee. More than half of these are already broadly consistent with existing floodplain harvesting policy. Delivery of these reforms is still underway however, the New South Wales Government is committed to implementing floodplain harvesting reform to bring this form of take into the licensing system.

Notwithstanding the maturing coverage and effectiveness of the NRAR approach, it is likely that the current challenges regarding measurement and monitoring will continue until after the metering and measurement rollouts are finalised and a clear baseline can be established to enable the planned more comprehensive compliance regime.

Queensland's compliance and enforcement approach

Queensland's approach to compliance and enforcement is broadly consistent with all the other jurisdictions except New South Wales. Its application is more complicated than in Victoria, South Australia and the ACT, where take is predominantly from regulated/supplemented sources and where there is more regular and objective compliance reporting in place. Queensland advises, however, that around 90% of entitlements supplied through a supplemented/regulated system are metered.

Queensland acknowledges it has less sophisticated accounting and reporting systems, but these are currently being further developed through the Rural Water Futures program.

Queensland first established meters in the early 2000s (including developing a metering policy and a standard for metering rollout). It has used the National Water Compliance Framework since 2007 as its foundation for managing compliance. It has reported compliance related activities in the Queensland Murray–Darling Basin publicly since 2011, and it has regulated overland flow harvesting since the early 2000s. Overland flow in Queensland is not limited to floodplain management and includes upland farm dams as well as floodplain interception.

The complexity of managing Queensland's unsupplemented/unregulated water, when compared with supplemented/regulated schemes, means that getting accurate data is very difficult.

Queensland's Rural Water Futures Program

In 2018 the Rural Water Management Program was established as part of the government's response to the independent audit of Queensland's non-urban water measurement and compliance.³⁵

This program has since evolved into the Rural Water Futures program. It now involves \$22.8 million of Commonwealth funding in addition to limited-life funding and departmental funding. It comprises two streams:³⁶

35 Department of Natural Resources, Mines and Energy (Queensland), *Rural Water Management Program Progress and Performance Report*, October 2020, p 1.

36 Department of Natural Resources, Mines and Energy (Queensland), *Rural Water Management Program Progress and Performance Report*, October 2020, p 5.

- frameworks, policies and standards (Queensland Government funding)
- improved processes, data, technology and telemetry (Australian Government funding)

In relation to the Queensland government's actions in response to the 2017–18 independent audit of Queensland non-urban water measurement and compliance,³⁷ the status at August 2021³⁸ was that:

- five actions relating to frameworks, role and structure, risk assessment process, meter ownership and regulatory instruments (1, 2, 3, 13 and 14) were completed
- two actions relating to culture and water harvesting (4 and 15) were on track
- eight actions relating to compliance arrangements, transparency, 4 aspects of metering policy, and 2 aspects of information systems and resourcing (5 to 12) were significantly advanced.

These achievements show a commitment to improvement and achievement of tangible results.

Queensland's management of compliance

Queensland undertakes a range of activities to identify and address non-compliance. Entitlement holders are required to self-report their meter readings. These are then audited against allocated volumes. As already noted, meter read frequency ranges from annually for some unsupplemented take; during and after each flow event for water harvesting; six-monthly for groundwater; and quarterly or monthly for supplemented take. Event-based overland flow measurement is currently in place in the Border Rivers, Moonie and Lower Balonne sub-catchments.

Some licence-holders are subject to additional checks on a risk basis, with exceptions addressed case by case.

Queensland's accounting process

The accounting process in Queensland is done manually using spreadsheets. Water management rules such as announcements, trades, seasonal water assignments and multi-year accounting must be factored into calculations to reconcile water usage against entitlement.

The accounting process is further complicated by complex on-farm water take infrastructure and the mix of entitlement types and meters serving these enterprises. Sometimes more than one entitlement may be taken through a single meter, and sometimes one entitlement may be taken through multiple meters.

Reconciliation of water use against entitlements is generally undertaken at the end of each water year (after 30 June). Consequently, there is greater risk through the manual accounting process of less timely identification of unauthorised take. This situation is mitigated by risk assessments and the risk-based approach to compliance, proactive auditing, and mid-year accounting following flow events. Despite manual accounting and the reliance on other mechanisms, the department is responsive in its investigation of potential non-compliance

37 Independent Expert Panel, *Independent audit of Queensland non-urban water measurement and compliance final report*, 23 March 2018.

38 Department of Natural Resources, Mines and Energy (Queensland), *Rural Water Management Program Progress and Performance Report*, October 2020, pp 21–26.

cases. It has a system of categorising cases and standard actions and timeframes for responding to potential offences.

Compliance of water take against entitlement in 2020–21, in respect of the 74% of take that is metered, was reported in January 2022 as being 99.08% by volume and 96% by entitlement.

For the 26% of water take that is not metered, which is predominantly smaller volume, groundwater entitlements, a risk-based approach to monitoring is adopted.

An annual compliance program is developed using 3 years of auditing and compliance data. This program indicates that compliance in southern Queensland, which includes the Queensland Murray–Darling Basin, as measured by compliance actions taken as a proportion of entitlements, is about 80%.³⁹ Queensland advises, however, that 99% of water users in the Queensland Murray–Darling Basin are compliant in terms of their metered entitlement.

Queensland’s interim water meter standard

Queensland has recently updated its interim water meter standard for non-urban water metering. An implementation plan is being developed to provide a clear and transparent understanding of how the standard will be implemented. This includes priorities and timeframes for requiring new water meters. The rollout has started and includes enhanced capabilities for meter read data collection and reporting.

The standard is currently in use. In mid-2022 a regulation change is planned to remove the term ‘interim’. This standard will be reviewed and updated periodically to ensure it continues to align with the national framework for metering.

Queensland’s overland flow measurement

Overland flow measurement is a component of Queensland’s measurement policy. The metering standards require storage height measuring devices. These have been in place in the Lower Balonne since 2014 and are now being rolled out systematically in other priority areas of the Queensland Murray–Darling Basin.

Overland flow harvesting in the Queensland Murray–Darling Basin did not require an authorisation to take water before 2000. A moratorium on further construction of overland flow storages was implemented in the mid-2000s. This meant that no growth in overland flow take has been permitted since that time. More recently, a process for licensing overland flow take has been implemented in the Border Rivers and Moonie floodplain. Licensing of historical overland flow take is ongoing; once this is finalised the process for rolling out measuring of overland flow take will start. Queensland intends to achieve metering coverage across Queensland Murray–Darling Basin catchments of about 95% of take by volume and 83% of entitlements by June 2025 to meet Compliance Compact commitments.

Reporting on compliance and enforcement

Public reporting on compliance occurs at least annually in all jurisdictions.

New South Wales publishes an annual progress report and also reports via quarterly reports, proactive campaign reports and an interactive website reporting on its routine monitoring

39 Queensland Government, *Water compliance in Southern Queensland factsheet*, 2021.

campaign. In addition, the NRAR intends to publish its efforts relating to the regulatory priorities of the previous year and the outcomes that have been achieved.

(<https://www.nrar.nsw.gov.au/progress-and-outcomes>)

New South Wales is notable for the level of transparency in its approach to compliance and public reporting. The NRAR is committed to being future-focused, confident and collaborative by:

- increasing voluntary compliance
- using data intelligently to increase reach and impact
- embracing learning and innovation
- engaging effectively with stakeholders to improve transparency and accountability.⁴⁰

The NRAR reports by six categories of compliance:

- water take/metering
- works/dams
- controlled activities
- flood works
- complying with notices/directions
- licences
- groundwater bores

This is informative and worthy of consideration by other jurisdictions.

Long-term average estimates

In New South Wales and Queensland, compared to the other jurisdictions, a higher proportion of take is from unregulated/unsupplemented sources which have a lower level of metered coverage. As a result a higher proportion of take is estimated, based on long-term average estimates and modelling. In New South Wales in 2019–20, 62% of take was determined this way (29% in 2017–18 and 42% in 2018–19). In Queensland in 2019–20, 33% of take was determined this way (61% in 2017–18 and 42% in 2018–19).⁴¹ The variation from year to year reflects that this fixed estimate relates to total water resource availability in the relevant year.

For comparison, in Victoria, South Australia and the ACT in 2019–20, 17%, 1.5% and 28% respectively of take was determined by long-term average estimates.⁴²

Across the Basin in 2019–20, 58% of take was determined this way. This is a significant proportion of take. It warrants review of the continuing appropriateness of determining these forms of take on the basis of long-term averages in the context of improving the accuracy of estimates of unmetered diversions.

40 Natural Resources Access Regulator (NSW), *Progress Report 2020–21*, p 12.

⁴¹ Murray–Darling Basin Authority, *Annual water take report 2019–20: Report on Basin wide water availability, use and Cap compliance*, November 2021, MDBA publication no. 44/2, p 36.

⁴² Murray–Darling Basin Authority, *Annual water take report 2019–20: Report on Basin wide water availability, use and Cap compliance*, November 2021, MDBA publication no. 44/21, p 36.

Conclusions

Victoria, South Australia and the ACT have mature and embedded approaches to the compliance and enforcement function.

They are the smaller jurisdictions, and they have a very high proportion of take from regulated sources (or in the case of the ACT, from unregulated water sources which account for less than 5% of ACT water take). Entitlements/allocations are effectively universally metered.

They have an established record of addressing compliance obligations by integrating a permeating compliance focus in their interactions with water users, their customer service charters and their website messaging about compliance obligations

These jurisdictions undertake ongoing, timely and resolute follow-up action when they identify take in excess of entitlement/allocation.

Such a tight approach was not as clearly evident in the New South Wales and Queensland, because of the lower level of meter coverage and the complications of having more sparsely populated geography and larger proportions of unregulated/unsupplemented take. Both these jurisdictions, however, are developing their approaches – through the Rural Water Futures program in Queensland, and through the recent development of a systematic means of detecting overdrawn accounts daily by the New South Wales NRAR.

In Queensland there was evident an appropriately differentiated approach to monitoring take between metered and unmetered entitlements. However, the largely manual annual accounting process used in relation to the metered take, combined with the lack of one-to-one relationship between meters and entitlements, means that timely identification of potential breaches was not as evident. This has the consequence that the compliance response is more likely to be after the event.

The current challenges regarding measurement and monitoring in Queensland will continue until the metering standard is implemented and until proposed system enhancements under the Rural Water Futures program are implemented. It will then be possible to show compliance with entitlements more comprehensively.

The review found that Victoria, South Australia and the ACT were notable for addressing compliance obligations in a holistic way. They had a focus on messaging that allocation accounts should not be overdrawn – for example, banners on invoices and notice that usage is approaching allocation limits. This approach is complemented by a firm and timely response when breaches are identified.

New South Wales and Queensland are promoting voluntary compliance through a range of educational activities. New South Wales takes a risk-based approach to responding to breaches in a graduated and proportionate way. Queensland notes that its compliance planning is risk-based, consistent with the definition of a best-practice regulator.

New South Wales has, however, signalled in the September 2021 revision of the NRAR's regulatory policy (page 29) a commitment to increasing use of directions, enforceable undertakings, section 60G of the *Water Management Act 2000* and licence action.

In New South Wales the NRAR operates separately from the customer-facing WaterNSW. There is a memorandum of understanding between the NRAR, WaterNSW and other New

South Wales parties, with associated protocols. One of the protocols relates specifically to breach reporting.

The NRAR is well resourced and has adopted a whole-of-agency, integrated remote sensing, GIS and database analytics and intelligence gathering approach.⁴³

The NRAR has matured and is now more proactive in its approach. Bore extraction limits and overdrawn accounts are 2 of 4 priority projects for 2021–22. These projects have automated the assessment of metered water take against entitlements. They enable a view of all water accounts daily. This provides a systematic means of detecting excess water use, and it will allow more timely compliance action.

Opportunity for greater collaboration

There is opportunity for jurisdictions to engage with each other more systematically to benefit from pooled intelligence and sharing of compliance approaches, tools and techniques. This review proposes establishing a collegiate culture that recognises the mutually reinforcing roles of compliance regulators across the Basin.

Approaches to compliance reporting beyond commitments made under the Compliance Compact vary by jurisdiction. Individually they are at least adequate; however, there would be benefit if there were more consistency of structure, coverage and approach, both within and between jurisdictions.

There would be benefit in jurisdictions developing more consistent approaches to monitoring take compliance by category of water take and adopting a more structured approach to annual/cyclical and targeted compliance programs. This would also enable more authoritative reporting of compliance outcomes.

There would be merit in establishing core criteria, guidance, checklists, templates and reporting formats to facilitate more meaningful consultation, comparisons and analysis across the Basin. This need not impinge on the autonomy of individual jurisdictions.

Use of long-term average estimates

An issue that needs addressing to see whether there is a compliance aspect is the proportion of surface water take that is determined on the basis of long-term average estimates. Take by runoff dams, from watercourses and by commercial plantations accounted for about 57% of total take in 2019–20.⁴⁴ This figure was 25% in 2017–18 and 31% in 2018.

Anecdotally, the risk of growth of these forms of take is considered low. However, given their significance overall, this review would propose an explicit review of the continuing reliability of the estimates and their potential for growth.

43 Natural Resources Access Regulator (NSW), *Natural Resources Access Regulator regulatory policy*, September 2021, publication INT21/145826, p 11.

44 Murray–Darling Basin Authority, *Annual water take report 2019–20: Report on Basin wide water availability, use and Cap compliance*, November 2021, MDBA publication no. 44/21, p 36.

Issues for compliance and enforcement

Since the establishment of the Basin Plan in 2012 there has been improvement in compliance in many areas and an uplift in the availability of compliance information to communities.

However, there are still significant differences in the approach to compliance and enforcement across jurisdictions. This warrants a co-ordinated review.

The Compliance Compact provision that actions are to be implemented in a way that is practical and proportionate to the risk being addressed⁴⁵ warrants more attention to establish a consensus on the principles and criteria for determining what is ‘practical and proportionate’.

There is currently a range of approaches and practices across jurisdictions, without an evident regard for their consistency with those in other jurisdictions. Even so, there has been progress on particular activities in relation to Compliance Compact commitments.

However, there is a need to take the next step to consider what further action is needed.

All jurisdictions have generally comparable legislative frameworks and basic settings for compliance including:

- rules and conditions for allowing access to water
- compliance and enforcement provisions, ranging from advisory letters to formal warnings, formal directions, penalty notices and criminal proceedings.

However, there are differences in practices in the exercise of these provisions. This can lead to perceptions of inequity.

These differences occur in a number of areas:

Metering: Most jurisdictions have largely grandfathered meters (with certified +/-5% accuracy) because metering was already in place at the time of mandating that new and replacement meters must be AS 4747 compliant. On the other hand, New South Wales is effectively universally requiring pattern approved meters, installed by a duly qualified person in accordance with AS 4747 in areas not previously metered, to have a local intelligence devices fitted and tamper-evident seals,

Additionally, across the Basin inconsistent thresholds are being used to trigger metering requirements.

There are different approaches to encouraging compliance and addressing non-compliance. South Australia applies a zero-tolerance mandatory administrative penalty for all unauthorised water take. Victoria has implemented a zero-tolerance policy with performance indicators (currently 1% of volume and 3% by accounts) against which water corporations are held accountable. Queensland and New South Wales apply a more educative graduated and proportionate approach. However it should be noted that NRAR, in civil proceedings under the NSW Water Management Act (2000) can charge up to five times the value of water taken as a deterrent where the severity of non-compliance increases.

⁴⁵ Murray–Darling Basin Authority, *Murray–Darling Basin compliance compact*, 12 December 2018, p 2.

Thresholds and criteria for deciding enforcement action vary without visibility of prioritisation processes. For example, these range from considering volume alone, volume as a proportion of allocation, through to triaging based on volume and incidence of offending.

Approaches to required timing of water trades differ among the jurisdictions without visibility of the reasons why. Approaches vary from trade approval being required before exceeding allocation through to allowing exceedance providing a trade to balance the account occurs within the relevant accounting period.

Understandably the jurisdictions take pride in what they have achieved in addressing their particular challenges over time. However, it is not clear that there is yet a shared, commonly understood spirit of continuous improvement, transparency, accountability, collaboration and consistency across the Basin as envisaged by the Compliance Compact.

There is still a tendency to highlight the jurisdictional differences and alleged confidentiality and privacy requirements which inhibit collaboration. There is still a reluctance to consider alternative approaches. This review observed an attitude more of ‘why it can’t be done’ rather than a more purposeful ‘how can we make it work better’.

Additionally, there are issues self-identified by jurisdictions that affect management of compliance and enforcement. These issues largely revolve around metering coverage and measurement; residual challenges associated with overland flow/floodplain harvesting; out of date Lot/DP information within licensing systems relating to location of works; use of approvals for water taken; and re-developing water accounting systems.

There was limited information available to this review in the form of regular management reports on compliance and enforcement. The review relied primarily on published information and higher-level water management plans and general purpose water accounting reports, rather than information specific to compliance and enforcement.

In Victoria, South Australia and the ACT, which report high levels of compliance, there was clear integration of the administrative and compliance approaches. Monitoring of water take against allocation from the customer-facing engagement with water users is complemented by periodic reinforcement of compliance obligations. There is also timely follow-up to resolve potential breaches. This is combined with cyclical routine monitoring and targeted compliance programs to provide assurance about the overall integrity of monitoring take and adherence to other licence conditions and works approvals etc. This shows a clear compliance culture, especially in relation to take of water.

In New South Wales and Queensland, which have lower proportions of measured take, there did not seem to be as much emphasis on holding water users to account in relation to their take against allocation. It was likewise not as evident that there was as fully an integrated system of monitoring take and timely follow up of potential breaches. Overall, these jurisdictions seems to rely more on the broader monitoring and targeted compliance programs. This is a legitimate approach but a more reactive one.

New South Wales, however, has recently developed the capability to detect overdrawn accounts daily. It proposes to report results six-monthly for regulated take and annually for bore extraction limits. New South Wales is actively working on data, systems access and integration, uptake of telemetry and delivery of improved water information and intelligence systems, to support metering reforms.

Queensland has embarked on the Rural Water Futures program. It has recently updated its standard for non-urban water metering. It intends to achieve metering coverage in the order of 95% of volume by 2025.

Lack of core metrics

This review did not identify a Basin-wide set of key metrics for monitoring the effectiveness of compliance and enforcement.

To enable informed priority setting, management oversight and risk management, it is important to have an overview of the water resource, the sources of water take and how that take is monitored. This would facilitate more informed cross-jurisdictional understanding and comparisons.

The review recommends Table 1 above as a basis for development, starting by establishing the core factual attributes of levels of take and the extent of metering, and progressively being expanded to reflect key performance indicators for compliance outcomes by category of water take. The sub-categories of surface water take in the MDBA annual water take reports are a useful approach to consider.

Recognising the current lack of consistency in systems and terminology across the Basin, a prototyping approach should be considered to provide greater detail by category of take, so an overview dashboard can be developed.

The successive evolutions of the overview dashboard should be made publicly available one cycle in arrears of each cycle of development so that jurisdictions can provide explanations and outline their actions to address gaps and anomalies.

Improving transparency

This approach would facilitate setting compliance and enforcement priorities more transparently and objectively.

For example, it should be possible to provide comparable information across jurisdictions for groundwater and regulated/supplemented surface water take in the first cycle; for overland flow/floodplain harvesting within two years; and after that for residual unregulated/unsupplemented take from watercourses, by commercial plantations and by runoff dams.

Thus by June 2025 the planned Compliance Compact commitment will be achieved and all take other than stock and domestic will be licensed and metered.

The dashboard is intended to provide an overview that is understandable by the average member of the community. This would build public confidence in the management of Basin water resources. It should be complemented by concise notes to explain context and significant issues, but these should be kept to a minimum.

Overall conclusions

There has been improvement in water compliance in many areas and improved availability of compliance information to communities.

The improvement, however, has tended to be in the areas of activities and outputs. There is still a challenge to show the extent of improvement in the effectiveness of compliance outcomes, both overall and broken down by variables such as the category of water take or the category of compliance activity (such as annual programs or targeted compliance programs).

These improvements are a step in the right direction; however, it is still hard to compare the compliance systems across jurisdictions because of different terminology and practices and lack of consistent approaches.

As noted in the May 2021 review of the Compliance Compact, some users and community representatives identified complex and impenetrable water compliance arrangements as an impediment to building trust and confidence in water management.⁴⁶ This review similarly found that it is hard to assess the effectiveness of compliance and enforcement across the Basin.

Combined with the annual compliance plans in place across all jurisdictions, there is an opportunity to provide greater clarity about the effectiveness of compliance and enforcement over the next 2 to 3 years.

A range of other initiatives are underway within jurisdictions and with planned cross-jurisdiction reviews and benchmarking exercises by the Inspector-General of Water Compliance.

These, however, will take time, and by themselves they will not be enough to address the gaps in the ability to provide better transparency and accountability of managing water take.

Developing more outcome-focused indicators

There is a need to move the focus from inputs and activities to achieving better compliance outcomes.

Key to this is adopting a more collaborative approach and establishing key indicators of compliance levels to show the effectiveness of compliance activities by jurisdiction, by type of water take and by nature of other breaches identified.

This review concluded that Victoria, South Australia and the ACT jurisdictions have effective and understandable compliance and enforcement regimes. These jurisdictions were using mature systems for collecting, storing and reporting information.

In these jurisdictions water take is predominantly from groundwater and regulated surface water sources. There are long-standing high levels of metering and meter reading, complemented by timely follow-up of potential breaches.

These jurisdictions were readily able to report their level of water take compliance, with compliance rates of 99%+ of volume and 97%+ in terms of the number of water users. In

46 Murray–Darling Basin Authority, *Compliance compact review*, May 2021, p 3.

addition, these three jurisdictions were reporting higher – 94% to 100% – compliance rates from their complementary cyclical and targeted annual compliance programs.

New South Wales and Queensland did not present as being as well placed to show how well they were monitoring take of water within allocation, in light of their:

- higher proportions of unregulated/unsupplemented water
- larger and more sparsely populated areas
- lower levels of metering coverage
- less evident timely identification of potential breaches.

New South Wales and Queensland also reported lower indicative compliance rates from their cyclical and targeted/routine monitoring compliance programs, noting that available rates were state-wide and not specific to the Murray–Darling Basin.

In New South Wales’s case, the NRAR considers that this higher rate of non-compliance is partly attributable to the broad range of non-compliance categories that are monitored compared to other jurisdictions, the level of resources employed, and the more extensive use of technology tools and analytic approaches, including integrated databases, spatial and satellite data analytics and intelligence gathering.

Queensland’s annual compliance plan is developed from risk assessments that consider water demand, entitlement activity, previous compliance actions and water resource pressure. Queensland is also piloting technology tools to complement its established proactive and reactive compliance activities, and it is further developing its accounting and reporting systems through the Rural Water Futures program.

Advice from Queensland and New South Wales indicates that where take is metered the water take compliance rates appear comparable with those reported by Victoria, South Australia and the ACT. However, there were not as established management information systems and public reporting on their metered take compliance.

As noted above, New South Wales is progressing a new non-urban water metering framework to improve the standard and coverage of non-urban water meters. In 2021–22 it has begun daily monitoring of take. Queensland has established the Rural Water Futures program. This has two streams: to improve frameworks, policies and standards, funded by the Queensland Government; and processes, data, technology and telemetry, funded by the Australian Government.

At present there is no minimum Basin-wide threshold for when a meter is required.⁴⁷ However, progress to date, and plans for enhanced metering and measurement in New South Wales and Queensland, means that there is about to be a reasonable foundation on which to develop a more consistent Basin-wide approach to reporting compliance.

Collaboration, consistency and reconcilability

There is more to be done to win the trust and confidence of communities across the Basin. There is a need to be more consistent about the ‘water theft’ message, to avoid the perceptions that can arise when:

- enforcement is not predictable and visible

47 Murray–Darling Basin Authority, *Compliance compact review*, May 2021, p 3.

- tolerance thresholds are applied which have not considered cross-jurisdictional harm and which could be perceived as not consistent
- criteria for enforcement are not clear and consistent, such as ‘zero tolerance’ in some jurisdictions while a ‘graduated and proportionate’ approach is adopted in others.

This situation warrants collaborative Basin-wide attention. It would also help jurisdictions with exploring more nuanced options for initiating compliance responses, for example:

- using thresholds of both absolute volume and proportion of allocation/entitlement, when deciding whether breaches are significant
- incidence of breaches within timeframes
- timeliness of water trades so accounts are not overdrawn.

More applied application of risk-based approaches

The concepts of ‘risk-based’ and ‘graduated and proportionate’ responses, which are frequently asserted, also warrant more transparent explanation.

The review therefore recommends a structured program of initiatives to facilitate more evident consistency of approach to compliance and enforcement practices across the Basin. This, in addition to progressively providing a more comprehensive overview of compliance standards, should give added assurance of the effectiveness of compliance and enforcement regimes and assist with restoring public confidence in water resource management.

Improving transparency

To improve the accuracy and consistency of accounting for water take and to restore public confidence in water resource management, it is important that authorities can:

- report on water take and compliance by jurisdiction and by the category of water take, updated quarterly
- show the effectiveness of complementary cyclical/routine monitoring and targeted compliance programs.

This would enable more objective demonstration of the effectiveness of compliance activities. It would improve cost-effectiveness through shared intelligence, investment, expertise and more purposeful continuous improvement.

Advancing collaboration

For a staged program of initiatives to be successful, it is essential to develop a collaborative culture that recognises the mutually reinforcing roles of compliance regulators across the Basin, while supporting independence and effective decision-making in the individual jurisdictions.

This Compliance Compact commitment mirrors the public accountability principle that authorities should not only do the right thing but also be seen to do the right thing.

The other test of a true professional is being able to explain to the community, in non-technical terms, the outcomes being achieved. In this regard, jurisdictions should focus on showing the effectiveness of their compliance and enforcement approaches, both within their own jurisdiction and in a Basin-wide context.

The jurisdictions' responses to this review did not indicate that this principle was universally embraced. At one level jurisdictions indicated a 'review fatigue' attitude, while some raised issues about the impost of the review.

This latter response is particularly concerning, as the review sought basic management information relevant to the compliance and enforcement function. This is a basic public sector accountability obligation, all the more so for regulators who occupy a position of particular trust in regulating fair access to a limited resource.

Not having such information readily available raises a further query regarding the level of operational effectiveness and the quality of management oversight. It is reasonable to expect that jurisdictions should be able to explain their approach and outline their compliance priorities, challenges and performance.

More purposeful reforms will be needed to show compliance performance levels and to win the confidence of communities across the Basin.

A threshold challenge is to establish a more universal and mature commitment to providing understandable compliance information. Basin states can provide assurance about compliance standards to the Inspector-General, and the Inspector-General can work to strengthen compliance and improve trust across the Basin.

It appears that few of the issues inhibiting consistent compliance and enforcement across the Basin relate to legislative provisions. Most of the task ahead is to revisit the range of approaches that individual jurisdictions have adopted over time, so that similarities and differences are understood; and to reconcile or revise approaches in the context of contemporary standards and circumstances.

Differences will mostly relate to the legacy of lack of agreed standards and benchmarks. This has resulted from jurisdictions over time adopting different risk approaches to unauthorised take and other compliance breaches, which have become entrenched over time.

The process will undoubtedly identify significant similarity in the core areas and probably some gaps.

This would provide greater assurance about the completeness of the jurisdictions' compliance programs and a firmer basis for analysis of reported compliance levels. This would be beneficial for improving public confidence in water resource management.

In time a broader quality assurance approach across jurisdictions should be considered, such as a program of quality assurance and peer reviews, as is increasingly practiced across professional review and investigatory functions more broadly.

Across jurisdictions there are many examples of better practice, but all jurisdictions have room for improvement.

A collaborative approach to re-visiting core principles and criteria and their application across the Basin offers benefits that will undoubtedly outweigh the investment required. This will also deliver a more effective compliance and enforcement function overall.

Better understanding of the role of the various players – the Inspector-General of Water Compliance enforcing compliance with the Water Act, Basin Plan and water resource plans, while Basin states remain responsible for enforcing compliance with their state water laws – would also result in a more effective compliance regime.

Findings

Overall there is a lack of consistent plain English reporting on compliance outcomes. This undermines community understanding and the jurisdictions' efforts to strengthen compliance.

Water take compliance

Reported rates of compliance by volume of take are in the range of 98% to 100% across jurisdictions. However, the derivation of these compliance rates is not directly comparable. Victoria, South Australia and the ACT (reporting in the range of 96% to 100%) have had more comprehensive metering and more frequent accounting for water take for some years. New South Wales (reporting 99.98% compliance in the first quarter of 2021–22) has recently developed the capability to monitor all water access licences for overdrawn accounts daily. Queensland, reporting 99.08% compliance (2019–20), reconciles meter readings against allocated volumes annually; however, some are subject to mid-year check (usually in March), with exceptions and potential exceptions addressed on a case by case basis.

Overall, metered take as a proportion of total take ranges from 74% in Queensland to 88% in New South Wales, 100% in the ACT, 96% in Victoria and 98.8% in South Australia. New South Wales is scheduled to complete rolling out its non-urban water metering framework across its Murray–Darling Basin area by December 2022. Queensland has embarked on the Rural Water Futures program to address frameworks, policies and standards and to improve processes, data, technology and telemetry. Queensland also recently updated its water meter standard for non-urban water metering. Queensland intends to achieve metering coverage of about 95% of volume by 2025.

Cyclical and targeted compliance programs

All the jurisdictions undertake cyclical and targeted annual compliance programs; however, there is not an evident objective basis to show their effectiveness.

These programs are hard to compare as there is not a structured approach to reporting compliance across the Basin. The need for more consistency has only recently begun to be addressed, primarily in relation to public reporting on compliance and enforcement actions and the timeliness with which alleged breaches are addressed.

Reported compliance rates range from 94% to 100% in Victoria, South Australia and the ACT, which are the jurisdictions that report in a way that enables this category of compliance to be identified.

New South Wales and Queensland reported indicative compliance rates of around 80%, although these rates do not relate only to the Murray–Darling Basin. Queensland advised that in 2020–21 95% of metered entitlements in the Queensland Murray–Darling Basin were compliant. New South Wales considered that their significant on-ground presence and integrated remote sensing, GIS and data base analytics and intelligence gathering are more than likely to find additional non-compliance.

Transparency and building community trust

There is a lack of clear and consistent information about compliance efforts. This gives rise to misrepresentations about the state of compliance, including misinformation by vested interests.

There are unjustified claims that differences in regulatory frameworks are the underlying reason for not engaging with other water compliance regulators and it is not clear that Basin states have reviewed their regulatory arrangements in light of the Basin Plan.

Recommendations

To facilitate more collaboration, consistency and reconcilability

Recommendation 1 - That the Inspector-General of Water Compliance (IGWC), in consultation with the Regulatory Leaders Forum, work to improve collegiality of water compliance regulators by leveraging off existing opportunities to drive cultural shift and to recognise that this would deliver benefits to all regulators.

This will require:

- achieving a consensus about principles and protocols for increased sharing of compliance management approaches and information, and
- establishing core performance indicators, progressive alignment of data definitions and formulas used to report compliance outcomes by category and sub category of take and of other compliance categories addressed through annual and targeted compliance programs.

To improve transparency and build community trust

Recommendation 2 - That the IGWC develop and require Basin state regulators to report against a consistent set of metrics to provide an overview of water take compliance levels and the extent and reliability of metering and measurement, by category and sub-category of water take across the Basin.

This will require provision of an overall context in terms of water take by:

- jurisdiction and by categories and sub-categories of take,
- the comprehensiveness and reliability of metering and measurement in place and
- headline take compliance rates in terms of volume and water user/account numbers.

Recommendation 3 - That the IGWC, in consultation with Basin states, develop a consistent framework for reporting on compliance programs across the Basin, to enable the Inspector-General to periodically publish a Basin-wide report on compliance with water laws.

This will require categorising the range of compliance activities by nature (for example by sub-categories of take, works/dams, controlled activities and other, and in turn identifying sub-elements such as meter reliability and meter tampering within the water take category) and by proactive monitoring and reactive responses.

To facilitate continuously improving the comprehensiveness and effectiveness of compliance approaches

Recommendation 4 - That the IGWC co-ordinate compilation of a Basin-wide better practice compliance and enforcement program planning reference manual to be a resource to facilitate Basin-wide assurance of the comprehensiveness and effectiveness of the coverage and approach of compliance and enforcement activities.

This would primarily involve building on the jurisdictions' current approaches by:

- distilling core Basin-wide compliance and enforcement objectives

- establishing a consistent and reconcilable education and communication agenda/resource
- defining categories and related elements of compliance activities, by nature (for example water take, works etc.) and whether proactive or reactive
- developing checklists for common compliance elements
- providing protocols for cross-jurisdictional access to tools and expertise.

Recommendation 5 - That the IGWC progressively review the compliance and enforcement arrangements to identify where a principles-based approach to regulation across the Basin could be promoted, and issue guidance where appropriate, including through the Inspector-General's guidelines and standards powers.

This would primarily involve the IGWC reviewing jurisdictional approaches to:

- monitoring core take within allocation/entitlements, by category of water take
- monitoring compliance with approvals and other licence conditions
- responding to breaches by category of breach, for example excess take, unlicensed take, illegal works
- establishing thresholds for requiring meters by type of water take
- assuring that meters remain serviceable and fit for purpose
- determining the frequency of meter reads
- deciding criteria and tolerances for decisions about enforcement responses by type of breach, for unauthorised take, illegal works etc.
- determining what mitigating or exceptional circumstances warrant waiving penalties
- developing guidelines and standards to achieve greater consistency across jurisdictions.

Recommendation 6 - That the IGWC review whether there are gaps in the accounting frameworks that could compromise ensuring that water take remains within sustainable limits, and establish an evidence base to consider whether a risk-informed program of work to address this is warranted.

This would involve establishing whether there has been growth in take that is currently estimated using modelling (such as take by runoff dams) which could impact assessments of water allocations, and whether there are particular compliance aspects that warrant attention relative to these forms of take.

Attachments

Attachment 1: Queensland jurisdiction summary

Headline statistics

Water take compliance

- 99.08% by volume (2020–21)
- 96% by licence holder (2020–21)

Meter coverage

- 74% (by volume)
- 46% (by total entitlements)

Meter reading frequency (non-telemetered meters)

- Supplemented = monthly or quarterly
- Unsupplemented = annually (daily during flow events)
- Groundwater = biannually

Annual Actual Take (2019–20)

- Surface water = 1339.6GL
- Groundwater = 161.99GL

Water Resource Plans

- 3 combined surface and groundwater

Overview of framework

Queensland has three accredited water resource plans in the Murray–Darling Basin. These describe outcomes and water management strategies and rules. The Minister undertakes reviews every 5 years to determine the effectiveness of the water plan strategies. This includes performance monitoring, for example of environmental flows, water take, ecological assets and cultural values.

There are also some interactions with Queensland's *Planning Act 2016*. This Act provides the framework for development approval for the construction of works, including those compatible with the water plans for taking water (pumps and diversions) and interfering with water (dams, weirs). The Department of Regional Development, Manufacturing and Water (DRDMW) is the delegated enforcement authority to address and monitor compliance with conditions under this Act, for example construction of works to take or interfere with water.

DRDMW's regulatory approach includes informing, guiding, monitoring and responding/enforcing. DRDMW engages with water users early to help them comply with the law. The aim is to promote voluntary compliance through a range of activities, including:

- providing information, resources and tools about the obligations for Queensland's regulated water community
- engaging to promote awareness and build capacity through site visits, meetings, workshops and events

- promoting good regulatory and business practices, including promoting the benefits of compliance and the consequences of non-compliance

A risk-based approach is taken to identify and respond to potential non-compliance.

This work is guided by the following principles:

- consistent and fair: we have a consistent and fair approach to how we manage compliance.
- outcomes and risk-based: we use a proactive, outcomes-focused, targeted, risk-based approach for our compliance activities.
- supportive: we encourage the community to do the right thing and we empower staff to make decisions within our regulatory and governance framework.
- adaptive: we monitor our progress and adjust our actions as needed according to assessed risk.
- accountable and transparent: we do what we say we are going to do. We are transparent in our decision making and talk openly about priorities, activities and the results of our work.
- safe and well: we support the safety and wellbeing of our staff and communities.
- responsive: we are timely in how we communicate about compliance and in responding to non-compliance.

A compliance governance group has been established to guide the strategic direction of the department's regulatory approach and to monitor the effectiveness of implementation. This group is supported by a statewide strategic compliance support team, which leads the department's strategic approach through the annual compliance plan.

The DRDMW compliance framework includes the planning and development of the statewide annual compliance plan using a risk assessment matrix that is applied to each catchment. Risk factors include:

- the number and type of complaints (increasing trends/potential severity)
- repeated / historical non-compliance
- catchment allocation details: for example, volume of water committed, level of water resource development within the catchment
- competition for the resource amongst industries and by water user priority/type, for example town water supplies
- trading activity (indicative of increased risk of water use)
- entitlement security – risk of serious impact to water users
- environmental requirements – high-value assets
- public interest
- audit/metering frequency
- value adding – water user education
- findings from other water planning risk assessments.

Regional teams are responsible for delivering the proactive compliance activities prioritised in the annual compliance plan. Staff also carry out reactive compliance activities into alleged breaches. They are supported by the strategic compliance support team through documentation, training and reporting/analytics, as well as specialist investigative support. These investigators investigate serious non-compliances and support regional staff with advice and guidance.

South region is responsible for compliance in the Murray–Darling Basin catchments. The region has established a compliance hub to manage proactive and reactive compliance activities. These include:

- managing compliance plan deliverables such as water take audits, works inspections, meter read returns, water use accounting, meter validations
- responding to notifications from third parties about potential non-compliance
- investigating potential breaches
- tracking timeframes and resourcing.

This group manages the resourcing of prioritised work under the annual compliance plan to target the highest risk. It also prioritises and resources reactive compliance activities as these arise.

South Region has also established a regular compliance moderation forum to provide assurance that compliance actions are consistent, timely, proportionate and appropriate.

Conclusions

The Queensland compliance framework is broadly consistent with that in all but one of the other jurisdictions. In three jurisdictions there is more universal metering, with real time and/or quarterly frequency of reads, combined with a zero-tolerance approach to enforcement. These jurisdictions, however, comprise largely supplemented/regulated supply schemes, whereas the Queensland Murray–Darling Basin also includes significant unsupplemented take, which is measured by means other than metering.

Queensland has provided statistics which indicate that meter reading frequency and compliance rates within Queensland Murray–Darling Basin supplemented systems are comparable with these other jurisdictions.

Queensland's current approach is facilitating greater monitoring of compliance and earlier identification of potential and actual non-compliance. It is providing a firmer foundation for planning the proactive risk-based annual compliance plan.

The Rural Water Futures (RWF) initiative includes an outcome of providing timely high quality data and consistent decision making.⁴⁸ The RWF initiative is designed to deliver a comprehensive and integrated program of work⁴⁹ in response to:

- the independent audit of Queensland non-urban water measurement and compliance
- commitments under the Compliance Compact
- the Queensland Bulk Water Opportunities Statement.

The existing metering framework allows for grandfathering of existing meters that are within a +/- 55 tolerance. It requires new meters to meet AS4747 standards and it provides for re-validations, which are being systematically rolled out at 5-year intervals, to ensure meters are compliant with standards. A revised measurement policy has been developed and is expected

48 Department of Regional Development, Manufacturing & Water (Queensland), *Progress and Performance Report, Rural Water Futures*, October 2021, Figure 1, p 3.

49 Department of Regional Development, Manufacturing & Water (Queensland), *Progress and Performance Report, Rural Water Futures*, October 2021, p 1.

to achieve greater consistency with Compliance Compact commitments. The improved measurement program has commenced and is to be rolled out by 2025.

Effectiveness of delivery of compliance and enforcement

Queensland first established meters in the early 2000s, including a metering policy and standard for metering rollout. It has used the National Water Compliance Framework since 2007 as its foundation for managing compliance. It has reported compliance-related activities in the Queensland Murray–Darling Basin publicly since 2011, and it has regulated overland flow harvesting since the early 2000s. Overland flow in Queensland is not limited to floodplain management and includes upland farm dams as well as floodplain interception.

The catchment size, geography and the scale and complexity of managing unsupplemented water means that getting accurate data is very difficult.

In 2018 the Rural Water Management Program was established as part of the government's response to the independent audit of Queensland's non-urban water measurement and compliance.⁵⁰ Actions were set out to strengthen non-urban water management by improved measurement, transforming water information systems and enhanced regulation and compliance to ensure accountability.

This Program has since evolved into the Rural Water Futures program, which now involves \$22.8 million Commonwealth funding in addition to limited-life funding and departmental funding. It comprises two streams:⁵¹

- frameworks, policies and standards (Queensland Government funding)
- improved processes, data, technology and telemetry (Australian Government funding).

The status of Queensland's response to the 2017–18 independent audit of measurement and compliance, at August 2021,⁵² was that:

- five actions relating to frameworks, role and structure, risk assessment process, meter ownership and regulatory instruments (1, 2, 3, 13 and 14) were completed
- two actions relating to culture and water harvesting (4 and 15) were on track
- eight actions relating to compliance arrangements, transparency, 4 aspects of metering policy, and 2 aspects of information systems and resourcing (5 to 12) were significantly advanced.

These achievements show a commitment to improvement and achievement of tangible results.

The report⁵³ advises that over the next 12 months data will continue to be gathered about the pilot projects; excellence will continue to be instilled through all facets of the business; and

50 Department of Natural Resources, Mines and Energy (Queensland), *Rural Water Management Program Progress and Performance Report*, October 2020, p 1.

51 Department of Natural Resources, Mines and Energy (Queensland), *Rural Water Management Program Progress and Performance Report*, October 2020, p 5.

52 Department of Natural Resources, Mines and Energy (Queensland), *Rural Water Management Program Progress and Performance Report*, October 2020, pp 21–26

53 Department of Natural Resources, Mines and Energy (Queensland), *Rural Water Management Program Progress and Performance Report*, October 2020, p 17.

there is a commitment to using the performance excellence framework. Independent advice from specialists and experts as well as feedback from stakeholders will be used.

Queensland has also recently updated its interim water meter standard for non-urban water metering. This follows concerns raised by stakeholders during consultation on metering policy proposals in late 2019.⁵⁴ An implementation plan for improved measurement is being developed, including priorities and time frames for new water metering, alignment of measurement standards with the national framework, and enhanced capabilities for meter read data collection.

This standard is currently in use. A regulation change is planned in mid-2022 to update the wording by removing the term ‘interim’. This standard will be reviewed and updated periodically to ensure it continues to align with the national framework for metering.

Current intentions are that by 2025 Queensland will achieve metering coverage of about 95% of take volume and 83% of active entitlements. This would meet Compliance Compact commitments.

The overland flow standard for storage meters is finalised and operational. The overland flow policy is a part of the measurement policy. This policy provides the mechanism to introduce a farm-scale measurement framework.⁵⁵ These storages have been authorised to take water for decades. No growth in take of overland flow is allowed.

Before 2000 overland flow was not regulated in the Queensland Murray–Darling Basin. Licensing of authorised overland flow take started in these areas in the mid-2000s. It has been completed in the Lower Balonne floodplain. In the Border Rivers floodplain 60% of entitlements are currently licensed.

The overland flow water measurement policy was developed to provide assurance that there is no growth in overland flow take. This included consultation with New South Wales (where it is referred to as floodplain harvesting), where a similar challenge is being addressed. It appears that both jurisdictions are adopting a consistent approach to measurement, the storage measurement method. The proposed policy was made available for consultation with affected water users and stakeholders on 20 September 2021.

DRDMW is committed to continuous improvement. It has identified shortcomings in the current approach to measuring taken and stored overland flow water. It has published a program to address these shortcomings. The first phase of this is to implement standardised water level measurement for on-farm storage water level stations, which are now in use. The second and final phase will be to introduce a property measurement plan.

The requirements for measuring take of overland flow will continue to be rolled out systematically across the Queensland Murray–Darling Basin sub-catchments under the measurement implementation plan due to be delivered by 2025.

54 Department of Natural Resources, Mines and Energy (Queensland), *Rural Water Management Program Progress and Performance Report*, October 2020, p 6.

55 Department of Regional Development, Manufacturing & Water (Queensland), *Program to improve the measurement of overland flow* [<https://www.rdmw.qld.gov.au/water/consultations-initiatives/rural-water-futures/projects/measurement-overland-flow>], accessed 13/2/2022

Approach to compliance

Currently the department uses a range of tools and activities, published in its annual compliance plan, to address non-compliance.

Entitlement holders are required to provide their periodic meter readings. These are then assessed as:

- supplied
- non-supplied
- late (received within 15 business days after the due date), or
- having identified faults with their meter.

Throughout the year meters are read on a risk-based basis.

In the Queensland Murray–Darling Basin:

- Overland flow and water harvesting: 505 meters are read and reported by 364 customers throughout announced periods, including during and after each flow event.
- Groundwater: 504 meters are read and reported by 243 customers twice yearly (March and June) for groundwater.
- Unsupplemented water: 535 meters are read and reported by 339 clients once a year.
- Supplemented water: 414 meters are read and reported by the resource operations licence-holder monthly to measure 460 supplemented water allocations.
- Supplemented water: 409 meters are used to measure 455 supplemented water allocations, which are read and reported by the resource operations licence-holder quarterly.

Meter readings received are audited against the allocated volumes. On a risk basis, these readings are subject to either annual, or mid-year checks (usually in March), with exceptions addressed case by case.

The accounting process is done manually using spreadsheets. Water management rules such as announcements, trades, seasonal water assignments and multi-year accounting must be factored into the calculations. This is further complicated by the absence of one-to-one relationships between meters and entitlements: sometimes a meter serves more than one entitlement, and sometimes an entitlement is measured by a number of meters.

Reconciliation of water use against entitlements is generally done at the end of each water year (after 30 June). Consequently the manual accounting process creates a greater risk of less timely identification of unauthorised use of water. This situation is mitigated by risk assessments and the risk-based approach to compliance, proactive auditing and mid-year accounting following flow events. Despite manual accounting and the reliance on other mechanisms, the department is responsive in its investigation of potential non-compliance. It has a system of categorising cases and standard actions and timeframes for responding to potential offences.

In the Queensland Murray–Darling Basin there are 5,945 entitlements, of which 2,730 representing 74% of volume are metered.

Performance information in relation to the metered take (2,730 entitlements, which cover large volume take), provided in January 2022, indicated 99.08% compliance by volume and 96% by numbers of entitlements.

For the 26% of take that is not metered (3,215 entitlements) a risk-based approach to monitoring is adopted across 16 water management areas. These entitlements are mostly smaller volume, groundwater entitlements.

Nine water management areas are assessed as low risk, 6 are medium risk and one is high risk. Considering the Murray–Darling Basin area as a whole, the priority risk per cent of non-metered water management areas is 5.1% high, 19.3% medium and 1.6% low risk.

The annual compliance plan⁵⁶ consolidates compliance priorities and identifies activities, including compliance outcomes, performance measures, focus areas, activities, targets and measures. The annual compliance plan has been developed from the foundation of the National Compliance Framework from 2007. It is developed from risk assessments that consider water demand, entitlement activity (trading, announcements, restrictions and use), previous compliance action/audits, water resource pressure etc. This forms the basis for targets and measures.

The plan is published online. The results are reported publicly after the program is implemented. Compliance actions are also analysed to determine the effectiveness of the program.

The 2021–22 plan sets out outcomes, performance measures, focus areas, activities and targets for each business area. Comparing this plan and the latest available Queensland Murray–Darling Basin compliance and enforcement actions report (2020–21) shows continuing refinement, with provision for performance measures in the 2021–2022 plan. This includes the addition of commentary and tabular information on the time frames of compliance investigations, as well as tables reporting compliance and enforcement actions by type and reasons for no further action, by water resource plan location. This is consistent with the requirement under paragraph 1.2(c) of the Compliance Compact.⁵⁷

In the Queensland Murray–Darling Basin, in addition to periodic meter read requirements, 285 property audits were undertaken under the proactive compliance program in the 2020–21 water year. DRDMW also conducted 1,734 audits against meter readings.

In the 2020–2021 water year in the Queensland Murray–Darling Basin:

- 95% of metered entitlements were compliant
- 68% of meter readings were submitted by the due date
- 25% of meter readings were provided after the due date
- 2% of meter readings were not supplied
- 1% notified the department there was a fault with their meter
- 1% were investigated for alleged excess take following review of submitted readings.

The 25% late submission rate of meter reads was largely attributed to transitional technical errors with the online portal. Ultimate non-supply of readings is noted as 2%.

56 Department of Regional Development, Manufacturing & Water (Queensland), *Annual compliance plan 2021–22*, 2021, p 2.

57 Department of Regional Development, Manufacturing & Water (Queensland), *Queensland Murray–Darling Basin Compliance and enforcement actions 2020–2021*, [https://www.rdmw.qld.gov.au/__data/assets/pdf_file/0005/1581422/qmdb-compliance-enforcement-2021.pdf] p 3.

Comparison with other jurisdictions is difficult, as there is not a structured approach to reporting compliance rates across the Basin.

Conclusions

There has been progressive development of the annual compliance plan and the actions report.

Compliance information, though it is improving, is largely of an activity nature and is not related to a clear baseline of core compliance with allocations and licence conditions. There would be merit in developing a more objective basis for showing trends in the effectiveness of compliance activities.

Queensland focuses on promoting proactive voluntary compliance through a range of educational activities. Recent studies have shown that an approach of shared responsibility has benefits. This is a legitimate transitional approach; however, it warrants further development to:

- reinforce the core message that water theft is not a victimless crime
- show equitable, consistent and transparent compliance actions.

As well as being more overt about the water theft message, it would be desirable to have clearer ground rules and tolerance thresholds for enforcement, to avoid the perceptions that can arise when there is significant exercise of discretion.

For example, South Australia has codified exceptional circumstances when considering requests for waiver of penalties for unauthorised or unlawful use of water. This specifically excludes administrative error by the licence-holder; financial hardship; and cases where the user knowingly took water above allocation and was unable to secure the allocation within the accounting period.

The use of satellite imagery and desktop auditing is positive. A cohesive framework has been developed through the Rural Water Futures program to enable comprehensive and reliable measurement of take and active monitoring of usage allowing timely action. This is complemented by a compliance plan based on more comprehensive and objective data, analysis and risk assessments.

Issues for compliance and enforcement

For historical and geographical reasons, there is a lower level of metering coverage and complex water management arrangements.

Several compliance compact commitments are being addressed through Rural Water Futures initiatives over time. These include:

- telemetry to remotely supply real-time water take information
- replacement of manual processes involving periodic self-read meters and less sophisticated spreadsheet-based record keeping.

The Rural Water Futures program is designed to drive better rural water management across Queensland by improving measurement, data and systems. The program promises better policies and processes to give Queenslanders confidence that water resources are being managed fairly and responsibly.

Jurisdiction comments

This jurisdiction summary was compiled in consultation with the jurisdiction. Feedback and comments have been considered and incorporated where considered appropriate.

No further comment has been received.

Attachment 2: New South Wales jurisdiction summary

Headline statistics

Water take compliance

- 99.8% by volume (First quarter 2021–22 overdrawn accounts priority project - 1 July 2021 – 30 September 2021)
- 99.7% by licence holder (First quarter 2021–22 overdrawn accounts priority project - 1 July 2021 – 30 September 2021)

Meter coverage

- 88% of entitlements are metered
 - 100% of regulated entitlements metered
 - 69% of unregulated entitlements metered
 - 67% of groundwater entitlements metered

Meter reading frequency (non-telemetered meters)

- Meters read manually by WaterNSW staff quarterly (regulated systems) and annually (unregulated systems)⁵⁸
- Licence holders in the regulated system must submit a meter reading when ordering water

Annual Actual Take (2019/20)

- Surface water = 3337GL
- Groundwater = 1210GL

Water Resource Plans

- 9 surface water
- 11 groundwater

Overview of framework

The current New South Wales framework and governance arrangements stem from the December 2017 report *Securing our water: NSW Government water reform action plan*.⁵⁹ This sets 4 goals:

- introducing best practice for water management
- ensuring transparency in how we share, allocate and manage water
- building a compliance and enforcement regime that ensures strong and certain regulation

⁵⁸ The meter reading cycle is a default approximation as actual meter reading cycles differ depending on water type (regulated, unregulated or groundwater).

⁵⁹ New South Wales Department of Industry, *Securing our water NSW Government water reform action plan*, December 2017, PUB17/895.

- building capability to support implementation of water reforms.

The Department of Planning and Environment is responsible for policy advice and making the rules; WaterNSW is responsible for implementing the rules; and the Natural Resources Access Regulator (NRAR) is responsible for enforcing the rules.

A roles and responsibilities agreement has been established between DPE, the NRAR, WaterNSW and the Water Administration Ministerial Council (responsible for functions relating to planning and managing water resources in New South Wales).⁶⁰ In addition, WaterNSW and the NRAR entered into a memorandum of understanding in 2019. This has three protocols. Protocol 2 relates to breach reporting and the obligation for WaterNSW to advise the NRAR of suspected breaches, and it clarifies the lines of communication for investigating suspected breaches.

The NRAR has adopted the Modern Regulator Improvement Tool (MRIT) developed by AELERT. The tool is being used to drive continuous improvement in the compliance and enforcement program, in combination with internal NRAR strategies such as the 3-year capability development plan. The MRIT assessments and progressive maturity results are externally verified biennially.

The NRAR has implemented a quality management system in accordance with ISO 9001 in relation to its investigation and enforcement functions.⁶¹ This requires a process approach based on the ‘plan-do-check-act’ cycle and risk based thinking to plan and document processes, their interactions, resourcing review and continuous improvement.

The NRAR has also undertaken annual community benchmarking surveys to better understand the needs of water users, key stakeholders and the general community. The 2020 survey provided a baseline to help track high-level community views on the enforcement of water laws and the regulator.⁶²

Conclusions

In New South Wales the compliance and enforcement arrangements for non-urban water are notably different to those in other jurisdictions. The NRAR is responsible for the compliance and enforcement function. It is independent of both the policy setter, DPE, and the customer-facing administrator, WaterNSW. Although it is independent, NRAR has live access to WaterNSW’s water accounting system, data acquisition service, duly qualified person portal and water licensing system. Effective linking variables across these systems, and from these systems to cadastral land parcels, however, are poor. This hampers the NRAR’s ability for statewide automated compliance reporting, monitoring and auditing.

The NRAR’s independence is reported as proving valuable to government, water users and the water sector. There has been significant focus on the comprehensiveness and transparency of NRAR’s processes, assuring progress to becoming a mature, modern regulator and engaging with stakeholders.

⁶⁰ Agreement clause 2.3(a).

⁶¹ Natural Resources Access Regulator (NSW), *Progress Report 2020–21*, p 13.

⁶² Natural Resources Access Regulator (NSW), *Progress Report 2020–21*, p 24.

Effectiveness of delivery of compliance and enforcement

Among the jurisdictions New South Wales has the largest Murray–Darling Basin area, the largest water take (currently estimated at about 49% of the total⁶³). New South Wales also has a significant volume of unmetered unregulated water take, currently including floodplain harvesting. This makes it hard to determine where there has been a compliance breach.

All approval holders within the scope of the Non-Urban Water Metering Policy, irrespective of whether they are in regulated, unregulated or groundwater systems, are now required to install a meter.

Licensing of floodplain harvesting, however, is currently a matter before the New South Wales Parliament. At this stage it is not within the control of the NRAR or other administrative bodies.

The review noted that before the establishment of NRAR in 2018 there was an absence of a compliance culture, organisational instability, and limited resourcing. This meant that compliance has relied heavily on custom and practice, resulting in a lack of effectiveness, consistency and transparency.

The role of the Natural Resources Access Regulator (NRAR)

This has since been addressed by significantly increased resourcing provided to the NRAR. The NRAR has established an orderly, risk based compliance program. It communicates this program through a range of channels, including the website, performance reporting, budget estimates, public enquiries, pricing enquiries, media, and extensive stakeholder engagement.

The NRAR's compliance program is built on best practice regulatory approaches, including sophisticated integrated databases, spatial and satellite data analytics and intelligence-gathering. Regulatory priorities are published annually. They aim to use available resources for maximum effect, so that the NRAR can monitor compliance proactively and deter unlawful activities.⁶⁴

The NRAR has also established clear decision factors to guide a graduated and proportionate approach to non-compliance based on the severity of the breach.⁶⁵ Decision factors are degree of harm, culpability of person, public interest and attitude to compliance. Responses to non-compliance range from advisory letters through to criminal proceedings.

The NRAR has a comprehensive reporting regime to monitor progress against strategic goals⁶⁶ of:

- outcomes and benefits to the people, environment and economy of New South Wales
- people and culture
- regulatory systems and information
- leadership

63 Based on MDB 2020 annual water take report data.

64 Natural Resources Access Regulator (NSW), *Natural Resources Access Regulator regulatory priorities 2021–22*, June 2021, publication INT21/80725, p 25.

65 Natural Resources Access Regulator (NSW), *Regulatory Policy*, PUB 19/251, pp12–13.

66 Natural Resources Access Regulator (NSW), *NRAR Strategic Plan 2021–23*.

- external relationships.

Clear targets and timeframes have been set and are being monitored.

Supporting monthly reports consider:

- the categorisation and prioritisation of alleged breach notices and the timeliness of actioning and finalising them
- analysis of the outcomes by priority category, inspections status, breach status and enforcement action taken.

Key performance measures of workloads, priority categorisation and timelines have been established and are being monitored.

In October 2020 the NRAR initiated a 12-month program to create a snapshot of how compliant water users are. A website provides by region or local government area the cumulative compliance outcome since October 2020. Results are updated to present cumulative results of audits completed.

A positive trend of improving compliance is evident. First quarter data provided by the NRAR on its 2021–22 overdrawn accounts annual priority shows that this program will provide a reliable indication of core compliance levels of take in terms of volume and licence holders, and of the effectiveness of compliance actions in an overall context.

Analysis of individual account data at 8 December 2021 via a custom-built database shows that the level of breaches is not excessive and is probably broadly be in line with that being achieved in other jurisdictions.

Acquittal of the first quarter overdrawn accounts annual priority project provides further assurance. Only 0.28% of licences (1210 licences) were identified as overdrawn, and only 0.024% of total take assessed was allegedly unlawful. Of the 38,655 water licences assessed, 43 were identified as potentially non-compliant. Of these, 5 were identified as not requiring action as no breach was detected; 17 were issued with a warning or advisory letter; and the rest are currently under further investigation.

The development of an automated dashboard and reporting functionality now enables the NRAR to audit all New South Wales licences daily, with a targeted six-monthly compliance reporting cadence.

The acquittal of the pilot Bore Extraction Limits (BEL) campaign⁶⁷ provides assurance that 90% of water access licences were fully compliant. Four per cent had minor compliance issues addressed by advisory or warning letters. The remaining 6% were found to have major breaches, where owners were given penalty notices or continue to be the subject of further investigation. In 4 instances where a major breach was identified owners were prosecuted. The development of a BEL compliance dashboard and reporting functionality now enables NRAR to audit all groundwater bores annually.

For comparison, the acquittal of the Tranche 1 compliance program in relation to implementation of the non-urban water metering framework⁶⁸ reported that 23% of 364 active pumps above 500 millimetres inspected were fully compliant and a significant number of water users had made a reasonable effort to comply. It was also reported that in the three

67 Natural Resources Access Regulator (NSW), *Progress Report 2020–21*, p 17.

68 Natural Resources Access Regulator (NSW), *Progress Report 2020–21*, p 31.

months since 30 June 2021 a further 210 pumps had been inspected and the compliance rate had increased to 54%.

This shows improving compliance; however, the messaging would be improved by providing contextual information about the significance of breaches and actions taken or proposed, such as the total number of pumps in this category and how the residual non-compliant pumps will be monitored.

Criteria for initiating compliance actions and thresholds for addressing non-compliance and subsequent escalation have been developed and are in use.

These initiatives will provide transparency of the water take compliance rates for metered take.

The NRAR started publishing quarterly compliance reports in June 2021.⁶⁹ These will give an ongoing overview of compliance and enforcement activities.

In the initial January to March 2021 quarterly compliance report the NRAR noted a change in direction, after three years of establishing its presence and dealing with a backlog of reported breaches, to a proactive phase in which it is deriving much more intelligence from remote sensing technologies and designing campaigns to tackle the findings.⁷⁰

The emphasis remains on encouraging water users to comply voluntarily. However, the NRAR will still enforce the law, both as a deterrent and to ensure fairness. In its September 2021 policy revision the NRAR signalled a commitment to increasing the use of directions, enforceable undertakings, section 60G of the *Water Management Act 2000* and licence action.⁷¹

The quarterly report notes that most non-compliance was roughly evenly divided between water take/metering (38.5%), controlled activities-works on waterfront land (29.2%), and works/dams (27.6%).⁷²

In the routine monitoring program officers check on farm that water users are recording their water take in a log book or with a meter, and that they have correctly sized pumps or bores and are ordering water before they pump. The fully compliant rates ranged from a high of 85% in the Barwon-Darling to 61% in the Lachlan:

- Barwon-Darling 85%
- Gwydir 79%
- Border Rivers 78%
- Macquarie 77%
- Murrumbidgee 76%
- Murray 69%
- Namoi 68%

69 NSW water regulation, NRAR quarterly compliance report Jan-Mar 2021, June 2021, INT 21/80726

70 Natural Resources Access Regulator (NSW), *NRAR quarterly compliance report Jan-Mar 2021*, June 2021, INT 21/80726 p 13.

71 Natural Resources Access Regulator (NSW), *Natural Resources Access Regulator regulatory policy*, September 2021, publication INT21/145826, p 10.

72 Natural Resources Access Regulator (NSW), *NRAR quarterly compliance report Jan-Mar 2021*, June 2021, INT 21/80726, p 5.

- Lachlan 61%.⁷³

It should be noted these percentages are an amalgamation of three separate compliance issues: logbooks/meters; water orders; and installed pumps/bores compliant with the approval. So the figures need to be treated with caution. The remaining challenge is to provide a context to improve understanding of the significance of these compliance figures, and to provide a more detailed analysis according to water type – regulated, unregulated, and groundwater.

These reported compliance rates are lower than the rates of around 95% (also an amalgamation of separate compliance issues) that are reported from jurisdictions which have a higher level of metering, a higher frequency of meter reads (in two jurisdictions), and direct engagement with users when their take is approaching or exceeds their allocation.

However, those jurisdictions do not have compliance programs that are as sophisticated and analytically based. They are also geographically more compact and have a lower proportion of unregulated water. In terms of take above account limits (overdrawn accounts), the New South Wales statistic of only 0.28% non-compliance reported above, while it reflects one quarter, is consistent with trends reported by other basin states.

Two further initiatives should be noted.

Firstly, in December 2018 New South Wales introduced a new non-urban water metering framework which will significantly improve the standard and coverage of meters. This framework provides guidance on metering requirements and sets deadlines for compliance for areas in the Murray–Darling Basin:

- 1 December 2020 for all surface water pumps 500mm and above
- 1 December 2021 for Northern Inland
- 1 December 2022 for Southern Inland.⁷⁴

New rules come into effect on the relevant rollout dates. Users must have new and replacement meters installed by a duly qualified person (DQP) and submit documentation via the DQP portal to show compliance. As well, they must report use monthly and notify if metering equipment is not working properly. There is ongoing validation of metering equipment.

Second, in July 2020 the *NSW Floodplain Harvesting Measurement Policy* was released.⁷⁵ It sets out the objectives, methods and rules for measuring floodplain harvesting in the northern Murray–Darling Basin.

From a Murray–Darling Basin perspective it is encouraging that this policy has been developed in consultation with Queensland, which faces a similar challenge. It is encouraging that both jurisdictions have adopted a consistent approach to measurement – the storage measurement method.

73 Natural Resources Access Regulator (NSW), *NRAR quarterly compliance report Jan–Mar 2021*, June 2021, INT 21/80726, p 9.

74 New South Wales Department of Planning, Industry and Environment, *Non-urban water metering framework in NSW – What water users need to know*, April 2021, pp 4–5.

75 New South Wales Department of Planning, Industry and Environment, *NSW floodplain harvesting measurement policy*, July 2020, PUB20/5, p 1.

The rollout of this New South Wales policy was to be in two stages with compliance dates of July 2021 and July 2022, depending on storage capacity and the frequency of filling on-farm storages listed on a landholder's work approval.⁷⁶

A Select Committee of the New South Wales parliament was established to report on the management of floodplain harvesting. It published its report on 15 December 2021. While good progress was being made with this initiative, the Legislative Council disallowed the amendments made to the Water Management (General) Regulation 2018 associated with floodplain harvesting on 24 February 2022.

This has required re-visiting what this means for implementation in 2022. On 24 May 2022, the NSW Government published its response to the Select Committee's inquiry into floodplain harvesting.

It is important to address this implementation issue in a timely way. DPE has advised that while the timeline for implementation has been delayed by the disallowance of the regulations, the New South Wales Government is committed to implementing the floodplain harvesting reform.

The role of WaterNSW

The customer-facing administrator is WaterNSW, a state-owned corporation established under the *Water NSW Act 2014*. It operates under an operating licence from the Independent Pricing and Regulatory Tribunal. Water NSW operates the state's rivers and water supply systems in accordance with the rules set out by regulation. It operates more than 40 dams across the state and it owns and operates the surface and groundwater monitoring network.⁷⁷

WaterNSW is designated in the Roles and Responsibilities Agreement as establishing and maintaining water allocation accounts (1.2.2, p. 40) effecting day-to-day administration and maintenance of retail water accounts (1.2.2, p. 39–40), customer transactions and service (1.2.7, p. 44) and determining water take to update accounts (5.1, p. 59). WaterNSW advises the NRAR of suspected breaches and clarifies lines of communication for investigating suspected breaches. WaterNSW also provides regular negative balance reports to the NRAR, which analyses and triages them for investigation.

WaterNSW's legacy water licensing database is variously reported as being out of date and in some cases incorrect. This has impacted the implementation of the new metering framework. Improvements to the database are being driven as part of the rollout of the non-urban metering reforms.

WaterNSW has since been acting to increase customers' awareness of the need to keep their details up to date, using social media and traditional mail. A measurable response to these activities has been reported in recent months.

Conclusions

There has clearly been a significant investment in the compliance and enforcement function, with the NRAR's level of resourcing and the adoption of sophisticated approaches,

⁷⁶ New South Wales Department of Planning, Industry and Environment, *NSW floodplain harvesting measurement policy*, July 2020, PUB20/5, pp 2–3.

⁷⁷ WaterNSW, *Annual Report 2020–21*, p 10.

intelligence gathering and analysis. This addresses the 2017 review report's concern about organisational instability, limited resourcing and the absence of a compliance culture.

Reporting on compliance and enforcement is ongoing via dashboards and web pages. There is progress toward providing clearer insight to rates of compliance by both volume and water users numbers.

A more user-friendly indication of the overall effectiveness of compliance activities should be available once current initiatives are finalised, particularly the development of baseline rates of compliance regarding whether the right approvals and licences exist, whether the water user is measuring and recording against approval/licence conditions etc.

The categorisation of compliance issues and baseline metrics in the January to March 2021 quarterly compliance report provides a sound foundation for monitoring developments going forward.

Such a categorisation warrants consideration across the Basin to provide a foundation for showing greater consistency and more meaningful compliance reporting.

However, implementing the NSW Non-Urban Water Metering Policy and the Floodplain Harvesting Action Plan is a prerequisite for achieving comprehensive and aligned compliance and enforcement.

The rollout of the Non-Urban Water Metering Framework is underway, including new rules and funding programs to support uptake of telemetry across New South Wales. There has also been progress in addressing floodplain management, although this has been delayed by the 24 February 2022 disallowance of the enabling regulations.

The New South Wales structure – having the NRAR as a statutory regulator separate from the customer-facing WaterNSW – has benefits, including greater independence in decision-making about enforcement and fewer potential probity concerns.

In New South Wales, generally in regulated systems (48% of water access licences and 79% by volume) licence-holders are required to order water. Orders are not allowed if the proposed volume exceeds the balance of the account. Routine management reports/metrics to illustrate the effectiveness of this approach in practice were not provided. The NRAR subsequently provided an analysis that concluded that most of the Murray–Darling Basin water sharing plans are ordering most or all of the water used.

In New South Wales the compliance program comprises annual priorities for proactive work and a risk-based reactive approach to allegations or intelligence about non-compliance. Overdrawn water accounts is a 2021–22 priority.

Rigorous and timely monitoring of take against allocation/entitlement is, however, a core compliance issue for ongoing attention. In November 2021 a custom-built database to underpin a dashboard that enables assessment and quantification of all overdrawn accounts was finalised. This is a positive development. It complements WaterNSW's regular negative balance reports. Being able to act on accounts that overdraw at any time, rather than at predefined intervals, is a significant advance.

Encouragingly, the NRAR has a program to build on the non-urban water metering framework rollout over the next one to 2 years. This is an opportunity to address water take compliance levels and to further refine education and compliance activities.

Issues for compliance and enforcement

The significant volume of hard-to-measure unregulated water and floodplain harvesting in New South Wales continues to make it hard to know whether there have been compliance breaches for a significant proportion of water take.

Approximately 62% of surface water take in 2019–20 was estimated based on long-term averages based on the Basin Plan 2012, or as part of the development of water resource plans.⁷⁸ The NRAR's risk-based approach is addressing this challenge. The 2021–22 water use for irrigated agriculture annual priority shows this approach.

In this respect the NRAR's enduring priorities 'water take is accurately accounted for' and 'unauthorised structures that prevent water from getting to where it should on the flood plain' are relevant and appropriate. They should serve to progressively address this issue as the NRAR continues to deliver on its innovative compliance measures.

Progress with the rollout of the Non-Urban Water Metering Policy is on course. In relation to the Murray–Darling Basin, it is scheduled for completion by December 2022. As noted above, the acquittal of the Tranche 1 compliance program reported that 23% of 364 active pumps above 500 millimetres inspected were fully compliant and that in the 3 months since 30 June 2021 a further 210 pumps had been inspected, with the compliance rate increasing to 54%.⁷⁹ This indicates an ongoing challenge that will likely impact the achievement of intended timelines. It will require timely and consistent interpretation of the rules.

WaterNSW is driving improvements in its database as part of the rollout of the non-urban metering reforms. WaterNSW is aware of the limitations and ageing of customer data, and it has been using social media and traditional mail to remind customers of the need to keep their details up to date. A measurable response to these activities has been reported in recent months.

The current legacy challenges regarding measurement and monitoring are being actively addressed and should be largely resolved over the next 2 to 3 years as the rollout is finalised, the floodplain harvesting reforms are resolved and a clear baseline can be established.

Implementation of the Floodplain Harvesting Action Plan, a responsibility of DPE, is an important initiative in the drive to restore public confidence in water resource management in the Basin.

Licensing floodplain harvesting, however, is currently a matter for the New South Wales Parliament. At this stage it is not within the control of NRAR or other administrative bodies.

Floodplain harvesting is said to account for approximately 25% of irrigation water (long-term surface water take in the northern Basin based on three of the five valleys – a more refined estimate is expected in 2022).⁸⁰ So it represents a significant proportion of water use in those valleys. It needs to be reliably measured and monitored.

78 Murray–Darling Basin Authority, *Annual water take report 2019–20: Report on Basin wide water availability, use and Cap compliance*, November 2021, MDBA publication no. 44/21, pp 35–36.

79 Natural Resources Access Regulator (NSW), *Progress Report 2020–21*, p 31.

80 New South Wales Department of Planning, Industry and Environment, *Floodplain Harvesting – why is reform vital*, PUB21/473, p 1.

The NRAR is already working to identify suspicious water activity. It has prioritised monitoring and auditing compliance of development on regulated floodplains that could significantly affect flow distribution.⁸¹ This is a sound initiative. However, there is still a need for a reliable system of floodplain harvesting measurement to facilitate compliance activities.

It is recognised that the NRAR is maturing as a best-practice regulator. Significant progress has been demonstrated, but there is still a challenge to show the practical impact. In this respect, provision of more contextual information and clearer articulation of intended compliance objectives is recommended. This would help with further refining the approach to priority setting and being able to show the extent to which compliance objectives are being achieved.

Jurisdiction comments

This jurisdiction summary was compiled in consultation with the jurisdiction. Feedback and comments have been considered and have been incorporated where considered appropriate.

No further comment has been received.

81 Natural Resources Access Regulator (NSW), *Progress Report 2020–21*, p 18.

Attachment 3: Australian Capital Territory jurisdiction summary

Headline statistics

Water take compliance

- 100% by volume (2020–21)
- 100% by licence holder (2020–21)

Meter coverage

- 100% (by volume)
- 100% (by total entitlements)

Meter reading frequency (non-telemetered meters)

- Monthly – self-reported reads
- Data analysed annually

Annual Actual Take (2019–20)

- Surface water = 31.4GL
- Groundwater = 0.34GL

Water Resource Plans

- 1 surface water
- 1 groundwater

Overview of framework

In the ACT the Environment Protection Authority is responsible for administering the Act, including the function of water compliance and enforcement. Water policy and planning is done by the ACT Environment, Planning and Sustainable Development Directorate.

The EPA's regulatory approach is outlined in:

- Access Canberra Accountability Commitment Policy – Regulatory compliance and enforcement
- Environment Protection Compliance Framework.

The approach of the EPA to enforce licensed water usage follows 'Compliance and Enforcement Work Flow – Meter Readings and Water Usage', an internal guideline (2014).

The EPA reports on its compliance activities in an annex to the Treasury and Economic Development Directorate's Annual Report.

The Murray–Darling Basin Water Compliance Review (2017) reviewed ACT water metering and compliance. The review concluded that staff were able to audit meters regularly and monitor compliance effectively (page 13). This review concluded similarly.

The Murray–Darling Basin Compliance Compact Assurance Report 2020 noted that the ACT has not published a metering policy and implementation plan consistent with Compliance Compact commitment 3.1. In response, the ACT highlighted that the ACT Water Meter

Installation, Maintenance and Replacement Guideline (2015)⁸² has a dual purpose: setting out the ACT's policy on water metering; and the regulatory position for installation, maintenance and replacement of water meters consistent with Compliance Compact commitments. The published guidelines set out a risk-based approach to implementing the national framework for non-urban water metering (Metrological Assurance Framework 2) and the Australian Standard: Meters for Non-Urban Water Supply (AS4747).

A review of ACT water metering will start in 2021–22, funded under the Commonwealth program for implementing water reforms in the Murray–Darling Basin.

Conclusions

The ACT compliance and enforcement framework and governance arrangements are assessed as effective overall and fit for purpose in practical terms, taking into account the size of the jurisdiction and the scale of non-urban water allocations and use.

Effectiveness of delivery of compliance and enforcement

The administration of the *Water Resources Act 2007* is done by the EPA, which derives no monetary benefit from the water resource. The EPA does not perform operational functions related to water use (supply, releases, delivery etc).

The EPA administers around 238 licences, comprising 182 licences to take water, 1 recharge licence, 43 drillers licences, 6 bore works licences and 6 waterway works licences. There are 320 water access entitlements.⁸³

The November 2017 Murray–Darling Basin Water Compliance Review report⁸⁴ noted that, as a small jurisdiction, the ACT had the most manageable compliance task in the Basin and staff can audit meters regularly and monitor compliance effectively.

Holders of a licence to take water are typically required to record water meter readings monthly (self-read). There may be reasonable circumstances for less frequent meter reads due to low licence volume (for example, 1 to 5 ML), actual volume of water use, compliance history and the water use activity.

Water use by licensees is analysed annually via the accounting process, and compliance with licence conditions (supply of data, amount of water used) is checked during the accounting process.

Information provided by licensees is validated by an inspection program that aims to check a licensee's meter once every three years, or more frequently if a higher risk has been identified.

82 https://www.mdba.gov.au/sites/default/files/pubs/act-water-meter-installation-maintenance-and-replacement-guideline-march-2015_0.pdf

83 ACT Government, Chief Minister, Treasury and Economic Development Directorate, 2020–21 *Annual Report*, p 272.

84 Murray–Darling Basin Authority, *The Murray–Darling Basin Water Compliance Review*, November 2017, MDBA publication no. 44/17, p 13.

The annual ACT water take compliance priorities are derived from the annual billing process for licences to take water. Water meter readings are collated for each licence after 30 June. Water use is determined from the meter readings and an invoice is issued.

During the determination of water use a check is made against the licenced volume and to see that meter readings have been recorded as per the frequency specified in the licence. Use higher than the volume, or irregular meter readings, places the licence on the priority list for assessment and on-site inspection.

The EPA recruits staff with appropriate skills. It provides further training and accreditation to ensure that a full range of qualifications and skills are maintained within the EPA.

The EPA has participated in the Australasian Environmental Law Enforcement and Regulators neTwork (AELERT) since 2005.

The EPA reported that it assesses water use to ensure that use does not exceed a licence-holder's annual limit. In recent years water use by licence-holders was below the volume held in entitlements, and no non-compliance was detected.

Conclusions

An effective compliance and enforcement regime has been established and is operating satisfactorily.

Issues for compliance and enforcement

There are deficiencies with current database systems. Possible improvements may include:

- allow licensees to input water meter information (semi-controlled write access)
- enhance compliance/audit functions for water meter information
- enable spatial mapping linked to water use (meter locations, licence and entitlement volumes, water usage)
- enable real-time compatibility with <https://actmapi.act.gov.au/>
- enable automatic calculation of water usage for individual licenses, including fee/invoicing linked to usage
- allow reporting access (read-only access for approved government stakeholders)
- auto-generate regular reporting outputs for the MDBA and the Commonwealth
- link into whole-of-government ACT Wellbeing Framework reporting

Enhancements to publicly accessible data could include:

- provide easy online access to annual water use versus rainfall data, and comparative change over time (both surface water and groundwater).
- provide easy online access to annual compliance of water pollution-generating activities
- provide future allocation advice with respect to annual allocations and water trade.

There are barriers for the EPA to deliver effectively on multi-jurisdictional compliance activity. Improvements on collaboration and reporting could include:

- review compliance requirement overlap of the ACT, MDBA and the Commonwealth
- review resourcing capacity to deliver on multi-jurisdictional compliance/audit activity.

Conclusions

Challenges are predominantly in the area of enhancement and automation. Improvements would be desirable, but present systems are not impeding management of compliance.

Jurisdiction comment

This jurisdiction summary was compiled in consultation with the jurisdiction. Feedback and comments have been considered and have been incorporated where appropriate.

The following further comment was provided:

‘The conclusions in the ACT jurisdictional snapshot are supported.

‘Future ACT policy development intentions will support progressive risk-based and proportional measures to transition to AS4747 water metering requirements. The Environment Protection Authority has noted the areas where enhancements could be made to streamline compliance efforts and provide publicly available information.’

Attachment 4: Victoria jurisdiction summary

Headline statistics

Water take compliance

- 99% by volume (2020–21)
- 99.6% by licence holder (2020–21)

Meter coverage

- Overall 96% (by volume)
- 71% telemetered (by volume)

Meter reading frequency (non-telemetered meters)

- Generally quarterly – some low risk accounts read annually

Annual Actual Take (2019–20)

- Surface water = 2177.8GL
- Groundwater = 262.7GL

Water Resource Plans

- 3 surface water
- 2 groundwater

Overview of framework

The Department of Environment, Land, Water and Planning (DELWP) is responsible for policy advising, facilitation and co-ordination and monitoring. Four water corporations are responsible for managing service delivery: Goulburn Murray Water, Lower Murray Water, Grampians Wimmera Mallee Water and Coliban Water. Their roles include the compliance and enforcement function as delegated to them by the Minister for Water.

Victoria has a range of policies and guidance relevant to compliance and enforcement, as follows (those that are in italics are under development):

- Statement of Obligations
- Corporate Plan Guidelines and Letters of Expectation
- Ministerial Reporting Directions –specifically MRD04 and MRD04 guidelines
- Non-Urban Water Compliance and Enforcement Guidelines for Water corporations (DELWP 2019)
 - Water corporations' compliance and enforcement strategies
 - Water corporations' annual work plans
 - Water corporation prosecution policies
 - Water corporation risk assessments
 - *Water corporations escalation pathways*
- *Victoria's Zero Tolerance Approach to Unauthorised Take of Non-Urban Water*
 - Water corporations' Communication Action Plans
- Water Compliance Communications Plan and *Action Plans (for example PINs)*

- *Compliance and Enforcement Training and Appointment Framework*
 - Compliance and Enforcement Training Guide (2020)
- Victorian Non-Urban Water Metering Policy (DELWP, March 2020)
 - Appendix B Implementation Program
 - Water corporations' Metering Action Plans
- Compliance Reporting Protocol and annual reports required under the Compliance Compact

DELWP maintains the Victorian Water Register and monitors the use of water via quarterly reports to the minister on the water corporations' compliance and enforcement functions. This quarterly report focuses on unauthorised take.

DELWP issued Non-Urban Water Compliance and Enforcement Guidelines for Water Corporations in 2019. It convened community of practice workshops to harmonise interpretations of the 'zero tolerance' policy, approaches to managing compliance, criteria for escalation and rectification arrangements, and ways of achieving more consistency in managing and reporting on outstanding unauthorised take.

Conclusions

The Victorian compliance and enforcement arrangements are clear and appear to be operating satisfactorily.

A notable better practice initiative is the quarterly reporting regime, which provides rigorous and timely monitoring of compliance.

Community of practice and associated working group processes are in place to further align approaches, leverage limited resources and refine compliance and enforcement functions across the four water corporations.

Effectiveness of delivery of compliance and enforcement

The Water and Catchments Group within DELWP is responsible for policies on compliance and enforcement.

Approximately 30,000 licences, involving approximately 46,000 service points, are managed in the Murray–Darling Basin in Victoria.

The November 2017 Murray–Darling Basin Water Compliance Review report⁸⁵ noted that in Victoria, with its networked system, the interdependence of irrigators created a culture of compliance. It noted that a specific issue was the lack of a full suite of penalties and sanctions. This meant that enforcement action could only occur administratively, with limited penalties and sanctions, or by criminal prosecution of serious breaches, which would need a very high standard of proof.

This report also noted that the Goulburn Murray is a largely regulated system, served by modern, remote sensed meters which provide accurate, real time data on take.

⁸⁵ Murray–Darling Basin Authority, *The Murray–Darling Basin Water Compliance Review*, November 2017, MDBA publication no. 44/17, p 13.

Victoria has been an early adopter of non-urban water metering and claims to be a national leader in telemetry and automated control systems.⁸⁶

The Victorian Non-Urban Metering Policy (2020)⁸⁷ guides the management of meters by water corporations consistent with Compliance Compact commitments. It requires that metering action plans be reviewed at least once every four-year economic regulation cycle and that corporations report on their meter assets annually.

In 2020–21 96% of water taken via customer service points in the Murray–Darling Basin area was metered. 87% of total take occurred through meters that met the $\pm 5\%$ target accuracy set by the national framework for non-urban metering, including 20% via AS 4747 compliant meters. 71% of take in Northern Victoria was telemetered.⁸⁸

Complementing the high level of metering, the water corporations have operationalised their compliance strategies via strategic compliance and enforcement plans and annual compliance work programs. In 2020–21, 1,376 (about 4.6%) of licensees had enforcement actions taken against them.⁸⁹

DELWP works collaboratively with the 4 water corporations to set annual priorities and track compliance and enforcement through :

- the Compliance and Enforcement Community of Practice
- the Authorised Water Officer Working Group
- the Compliance Communications Working Group
- the Non-Urban Metering Working Group.

DELWP also oversees unauthorised take through a robust reporting framework linked to data provided by the water corporations on the Victorian Water Register. This is supplemented by quarterly data provided by water corporations. This monitoring data is used to track performance.

Reporting allows for effective monitoring for emerging risks. It gives assurance that water corporations are implementing their policies. Reports are provided quarterly to the Minister for Water.

Key performance indicators for unauthorised take have been established (currently less than 1% by volume and less than 3% of accounts). Water corporations are required to report on compliance and enforcement through their boards to monitor and manage emerging risks, as well as in their annual reports, in accordance with ministerial reporting directions.

In addition to improvements made under the Compliance Compact, in May 2020 the Hon Lisa Neville MP, Minister for Water, commissioned a review of the compliance and enforcement frameworks of DELWP and water corporations with non-urban customers, to ensure they are aligned to the Victorian Government's zero-tolerance approach to unauthorised take.

86 Department of Environment, Land, Water and Planning (Victoria), *Non-urban water metering in northern Victoria annual implementation report 2021*, 2021, p 1

87 Department of Environment, Land, Water and Planning (Victoria), *Victorian non-urban water metering policy*, March 2020, pp 6, 20, 23.

88 Department of Environment, Land, Water and Planning (Victoria), *Victorian non-urban water metering policy*, March 2020, p 2.

89 Department of Environment, Land, Water and Planning (Victoria), *Compliance and Enforcement Report Card 2020–21*, p 3.

The review considered policies, procedures and frameworks that govern compliance and enforcement, including monitoring and reporting for early identification of risks.

The review found that rates of unauthorised take are not excessive and that the key elements of a robust compliance and enforcement framework are in place. The review highlighted opportunities to better align practices across water corporations. It also found that DELWP could enhance its oversight of water corporation compliance functions by increasing monitoring and reporting.

DELWP has been working with the water corporations to implement the recommendations across the state by mid-2021, through the Compliance and Enforcement Community of Practice and associated working groups.

The following table summarises unauthorised take performance across the water corporations, as reported in their 2020–21 annual reports. This indicates a satisfactory situation.

Unauthorised Take 2020–21 (2019–20)

KPI Target	Goulburn Murray Water	Lower Murray Water	Coliban Water	Grampians Wimmera Mallee Water
< 3% accounts with unauthorised take	2.3% (4.9%)**	3.5% (4.4%)#	0.1% (0.6%)**	0.4% (1.8%)
<1% volume of authorised take	0.27% (0.73%)	0.2% (0.3%)	0.1% (0.7%)	0.7% (2.8%)

** adjusted to exclude UT <1ML for both GMW and Coliban, and for GMW also excluding deemed usage (stock and domestic – S&D) where there is no meter.

within threshold for most of 2020–21; however, a significant number (90% of the 220 non-compliant customers, ~198 out of 221 with UT) of S&D went into negative at end-of-season meter reads, which have since returned to positive when new allocations were announced. They note accessing and acquiring small parcels of water (under 5 ML) is a challenge for S&D customers, and that they are investigating how to better support S&D customers to be compliant.

Overall, unauthorised take in the Murray–Darling Basin area of Victoria represented 0.1% of all water taken under entitlements recorded in the Victorian Water Register. 2.4% of allocation accounts had a negative balance⁹⁰

Since January 2020, Goulburn Murray Water and Lower Murray Water have implemented penalty infringement notices for small volume unauthorised take (less than 10 ML or less than 2% to 20%, depending on the offence,⁹¹ of authorised take amount). It is being observed that customers are now being more careful to ensure they have positive balances before irrigating and are quickly addressing small negative balances.

90 Department of Environment, Land, Water and Planning (Victoria), *Compliance and Enforcement Report Card 2020–21*, p 2.

91 Water (Infringements) Regulations 2020 S.R. No. 67/2020, Victoria.

It has also been observed that the importance of not taking water without authority is more broadly understood and that magistrates are now more likely to issue higher fines.

Conclusions

Victoria has established an effective compliance and enforcement regime and is continuing to refine it. There are procedures to detect unauthorised take quickly and to act so that the benefits of risk-based telemetering are realised.

The minister-led zero tolerance policy has been effective in drawing attention to the need to keep water take within allocation.

The community of practice and associated working group have harmonised responses and expedited improvements.

Issues for compliance and enforcement

Most issues relate to the legislation, penalties and outcomes at Court. For example:

- ensuring that penalties reflect the economic benefit gained at the time the offence occurred, noting that application of final penalty is a matter for the Court.
- using enforcement actions effectively to address persistent low-level unlawful take of water. From early 2022, penalty infringement notices will be used to change these behaviours.
- showing the impact of illegal take on environmental values or other water users. This can be challenging unless the volume is very high.

Conclusions

Challenges predominantly relate to enforcement. Appropriate mitigating strategies are in place.

Jurisdiction comments

This jurisdiction summary was compiled in consultation with the jurisdiction. Feedback and comments have been considered and have been incorporated where appropriate.

Victoria provided the following further comment:

‘The Victorian targets for unauthorised take in Victoria for no more than 3% of accounts and 1% by volume set performance expectations for water corporations managing water theft. Victoria has a strong zero-tolerance approach to water theft which means that all possible unauthorised take is actively monitored through an extensive metering network and resolutely dealt with. Fines have started to be applied in 2022 as an additional enforcement tool. Victoria transparently reports on compliance and monitoring results annually.’

Attachment 5: South Australia jurisdiction summary

Headline statistics

Water take compliance

- 99% by volume (2020–21)
- 98.6% by licence holder (2020-21)

Meter coverage

- 98.8% (by volume)
- 52.5% (by total entitlements)

Meter reading frequency (non-telemetered meters)

- 87% of meters (by volume) read quarterly
- 13% read annually

Annual Actual Take (2019/20)

- Surface water = 1339.6GL
- Groundwater = 161.99GL

Water Resource Plans

- 1 surface water
- 2 combined surface and groundwater

Overview of framework

The South Australian Department for Environment and Water (DEW) is responsible for managing the state's water resources through a water licensing and permitting system and compliance framework, in accordance with the *Landscape South Australia Act 2019* (this Act replaced the *Natural Resources Management Act 2004*).

Prescribed water resources are managed through a water licensing framework.

In South Australia there is a default meter policy where all licensed take must be metered. Exemptions are made only in low-risk scenarios, which account for about 1.2% of take in the Murray–Darling Basin area. Exemptions to the requirements are defined in meter implementation plans for each water resource area and are published on the department's website.

Although all water licensing and compliance functions are within DEW, there is a separation of functions for appropriate governance. Most compliance issues are dealt with in the Water Licensing Branch (the customer-facing branch that administers water management authorisations and permits). This branch also undertakes compliance education and monitoring programs.

Complex, protracted and/or high level compliance issues are referred to the Department's Compliance Unit (a separate central area of DEW) for formal investigation and advice on what compliance action to take, including whether or not to prosecute.

The South Australia governance arrangements are the result of purposeful evolution over many years, and show a mature approach.

South Australia aims to educate customers about their water licensing obligations and to give them the tools to comply with these obligations. DEW encourages voluntary compliance in the first instance. DEW considers this has been achieved with the vast majority of water user for many years.

DEW also runs advertised targeted compliance monitoring programs each year, as well as ad hoc and targeted compliance programs as the need arises. This operates within a documented framework which sets out the underlying principles, steps and staff involvement. These compliance activities have disclosed low levels of non-compliance over many years.

At the end of each water year (in approximately October) DEW publishes information on its 'Water compliance reporting' web page about compliance activities in the previous year and plans for the current year. This has occurred since at least 2013–14.

Conclusions

South Australia's compliance and enforcement arrangements are comprehensive and mature. They are assessed as overall effective and operating purposefully.

Effectiveness of delivery of compliance and enforcement

In 2020–21 DEW managed over 14,000 water licences and conducted water compliance operations and educational programs to achieve voluntary compliance in the first instance.

About 5,000 of these water licences are within the Murray–Darling Basin.

The Murray–Darling Basin in South Australia includes the following prescribed water resources:

- River Murray Prescribed Watercourse
- Mallee Prescribed Wells Area (underground water)
- Marne Saunders Prescribed Water Resources Area (underground water, surface water and watercourse water)
- Peake, Roby & Sherlock Prescribed Wells Areas (underground water)
- Angas Bremer Prescribed Wells Area (underground water)
- Eastern Mt Lofty Ranges Prescribed Water Resources Area (underground water, surface water and watercourse water).

The November 2017 Murray–Darling Basin Water Compliance Review report⁹² noted that South Australia has had a long commitment to a compliance culture. Licenced take has been metered since 1994. It noted that the compliance framework was the most extensively codified by way of guidelines for staff, and transparent, with detailed annual reports on compliance activity and outcomes. Accountabilities and decision-making responsibilities are clear.

92 Murray–Darling Basin Authority, *The Murray–Darling Basin Water Compliance Review*, November 2017, MDBA publication no. 44/17, p 12.

The robustness of South Australia's compliance and enforcement is shown by the low level of non-compliance, both in terms of licensees' adherence to allocations and more generally as shown by targeted compliance activities.

The use of the South Australian water register as the single source of truth is essential to developing informed, appropriately focused and targeted compliance activities.

Supporting the water register is South Australia's policy that all licensed water use should be metered, and all meters must have the capability to be retrofitted with a data logger/telemetry device in preparation for a future rollout. Exemptions are approved for small-volume and low-risk extractions. A significant number of stock and domestic extractions are unmetered, as reflected in the 52.5% metered take by licensee. These exemptions, however, only relate to about 1.2% of take.

Overall there are 2,009 (36%) low risk extraction points (for example stock and domestic, unused sources, small dams) that are not metered and where water usage (approximately 1.2% of volume in the Murray–Darling Basin area) is instead deemed or estimated, though it is still accounted for.

Murray–Darling Basin related take is primarily managed by self-reported quarterly meter reads. This accounts for 97% of volume and 72% of licences. The balance is managed by annual reads.

There is a publicly available Unauthorised or Unlawful Take or Use of Water policy (DEW-D0011097).

A notable element of South Australia's approach is the use of administrative penalties when licensees exceed their allocation. In 2020–21, 72 (about 1.4% of) licensees were subject to this penalty charge.

This charge has been in place since 2006. It is regarded as a successful deterrent. Penalty rates are published in the Government Gazette in the first half of the accounting period for which they apply. Penalties may be waived in exceptional circumstances. Criteria for exceptional circumstances are set out in a fact sheet. No waiver is allowed for administrative error made by the account holder, financial hardship, or where the user knowingly took excess water and was unable to secure the commensurate water allocation within the accounting period .

South Australia has additional statutory controls to cover meter failure. Where there is a meter fail or a metering exemption, there is a method for calculating the take, approved by the Minister for Environment and Water and published in the Government Gazette.

Conclusions

In recent years non-compliance has been about 1% by volume and licensee numbers for take, and 5% to 6% for broader targeted compliance activities. In 2020–2021, 21% (2,964) of the 14,029 licences in South Australia were visited⁹³ as part of the annually revised, targeted compliance monitoring program. Of these, 375 were in the Murray–Darling Basin related prescribed areas, representing 7.5% of all Murray–Darling Basin licensees.

93 Department for Environment and Water (South Australia), *Water Compliance Reporting and Planning 2020–2021* Ref DEW-D0009868, pp 1–2.

Issues for compliance and enforcement

South Australia is assessed as operating efficiently and effectively in managing water compliance activities, subject to limitations imposed by periodic, though predominantly quarterly, self-read meter readings and the reliability of meters in use.

While not specifically inhibiting compliance and enforcement, self-read meters are an area where greater scrutiny may be warranted in areas such as water trades within accounting periods and more rigour by requiring photographic evidence for self-reads.

South Australia has also been pursuing opportunities to trial telemetry. Throughout the Compliance Compact South Australia's position has been that a telemetry rollout is subject to Commonwealth funding. South Australia has sought funding through a number of sources but has been unsuccessful to date.

Conclusions

South Australia is appropriately considering potential opportunities for improving compliance and enforcement management.

Jurisdiction comments

This jurisdiction summary was compiled in consultation with the jurisdiction. Feedback and comments have been considered and have been incorporated where appropriate.

No further comment has been received.

Attachment 6: terms of reference

Background

Water compliance is essential to the Murray–Darling Basin Plans success and essential to all stakeholders including irrigators, water users, community members and statutory bodies.

The states of the Murray–Darling Basin are responsible for compliance and enforcement within their jurisdiction. Each state has differing frameworks and approaches for conducting compliance and enforcement activities within their jurisdiction.

Ensuring that compliance and enforcement governance and activities are based on the best available data, the best available practices, is vital in ensuring public confidence in the management of water throughout the Basin.

Objective

This review sets out to:

1. report on the adequacy of Basin state compliance and enforcement frameworks and governance arrangements for non-urban water within the Murray–Darling Basin including both ground water and surface water.
2. report on the robustness of implementation of each jurisdiction’s compliance and enforcement functions in accordance with its compliance and enforcement framework and governance arrangements.
3. identify any issues that inhibit compliance and enforcement management, including effectiveness of current legislation, penalties imposed by court, adequacy of operational resources etc.

Approach

1. Obtain an understanding of the legislative and administrative framework operating within each jurisdiction
2. Review approaches to metering and monitoring of usage against allocations, reliability and appropriateness of operational, management and external reporting of compliance and delivery of enforcement action
3. Seek to identify better practice for highlighting and to facilitate appropriate sharing of experience and of lessons learned

Project timeline

Phase	Anticipated completion
Fieldwork	December 2021
Draft Report	March 2022
Final Report	May 2022

Glossary

Allocation	The volume of water allocated to a water access entitlement or licence in a given water accounting period.
Australasian Environmental Law Enforcement and Regulators neTwork (AELERT)	An internationally recognised professional network for environmental regulators across Australasia.
Basic rights	Right to take water for domestic and stock purposes, a native title right to water, and, in NSW, a harvestable right under the <i>Water Management Act 2000</i> . A licence is not required to exercise a basic right.
Murray-Darling Basin Compliance Compact	A collaborative, joint commitment by the Australian Government and Basin states that aims to restore public confidence in water resource management in the Basin by providing transparency and accountability of surface and groundwater management and regulation and a consistent approach to compliance and enforcement practices by governments across the Basin.
Basin Plan	The plan made by the responsible Commonwealth minister under section 44 of the <i>Water Act 2007</i> . It sets standards for the management of the Murray–Darling Basin’s water resources in a coordinated and sustainable way in collaboration with the community. Officially known as the Basin Plan 2012
Data logger	Unit which records and stores water take data.
Duly Qualified Person (DQP)	In New South Wales: a duly qualified person possessing the prescribed qualifications, skills and experience to carry out work in connection with metering equipment.
Floodplain harvesting	The collection, extraction or impoundment of water flowing across floodplains, including rainfall run-off and overbank flow but excluding the taking of: <ul style="list-style-type: none"> • water taken under a water access licence that is not a floodplain harvesting access licence; • water under a basic landholder right including water taken under a harvestable right; • water under an applicable licence exemption or • used irrigation water.
Flow event	A rainfall event resulting in a flow of water through a distributory system, resulting in increased storage volumes and announcements for water harvesting.
Gigalitre (GL)	One billion litres

Grandfathered meter arrangements	Non-pattern-approved meters installed before a pattern approved meter was required, available or to interim standards approved by the relevant regulator for continued use until the end of its operational life
Local intelligence device (LID)	Local intelligence device. Means a device that is able to connect to a meter, log data and, where applicable, telemeter data to a central location.
Megalitre (ML)	One million litres
Northern Basin	The Darling River and tributaries above Menindee Lakes, including the Barwon-Darling, Macquarie-Castlereagh, Gwydir, Namoi, New South Wales Border Rivers, Queensland Border Rivers, Moonie, Condamine-Balonne and Warrego-Paroo-Bulloo-Nebine systems as well as the groundwater systems (not including the Great Artesian Basin) underlying these surface water systems
Overland flow	Overland flow refers to water that runs across the land after rainfall, either before it enters a watercourse, after it leaves a watercourse as floodwater, or after it rises to the surface naturally from underground.
Pattern approved meter	A meter compliant with the requirements for closed conduit meters (NMI-M10) or with the requirements for open channel meters (NMI-M11), or with the requirements of equivalent overseas standards as checked by the Australian National Measurement Institute.
Regulated system	A system in which water can be stored, or flow levels are controlled, through the use of structures such as dams and weirs.
Sustainable Diversion Limit (SDL)	The maximum long-term annual average quantity of water that can be taken, on a sustainable basis, from the Basin water resources as a whole, and the water resources, or particular parts of the water resources, of each water resource plan area.
Section 71 report	An annual water use and availability report provided by the Basin states to the MDBA under section 71 of the <i>Water Act 2007</i> . The report includes information on water trades and SDL compliance.
Southern Basin	The Murray River and tributaries including the Darling River up to Menindee Lakes, as well as the groundwater systems underlying these surface water systems.
Stock and domestic	Use of water for normal household purposes in domestic premises which are situated on the land. Stock watering means watering of stock animals being raised on the land. Termed basic rights in some jurisdictions.
Supplemented water	A term used in Queensland to describe entitlements where reliability is enhanced by infrastructure such as a dam or weir, which is managed under a resource operations licence.
Unregulated water	Water that is not controlled or regulated by releases from major storages

Unsupplemented water	In Queensland, unsupplemented surface water allocations are water entitlements representing a share of the access to natural run-of-the-river flows or groundwater resource. They may or may not have flow conditions applied.
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