Submission to the Productivity Commission

National Water Reform 2026 Inquiry

Interim Water Services Reform Directions

ADVANCING WATER SERVICE DELIVERY IN REGIONAL AND REMOTE AUSTRALIA: A PLACE-BASED, COUNTRY-CENTRED MODEL THROUGH THE CENTRAL DESERT LIVING LAB

Submitted on behalf of the National Remote Water Futures Consortium

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Authors

Dr Paul Satur

Environmental and Social Systems Scientist, Monash University

Alec Rolston

Director, Goyder Institute for Water Research, SA.

Catherine Vero

Principal Water Engineer, Ekistica

Jimmy Cocking

CEO Desert Knowledge Australia

Fraser Goff

Regional Systems Strengthening Technical Lead

Executive Summary

This submission responds to the Productivity Commission's *National Water Reform 2026 Inquiry — Interim Water Services Reform Directions*. It is made by the Remote Water Futures Consortium, a partnership of practitioners, researchers, service providers and community-focused organisations with direct experience across regional, remote and First Nations water contexts. The submission draws on evidence generated through recent national surveys, community consultations, technical reviews, policy forums and applied research programs; the full evidence base is set out in Appendix A.

The Consortium supports the Commission's finding that the National Water Initiative's existing settings have not adequately addressed the needs of regional and remote Australia. The challenges identified are not isolated examples of service failure, but symptoms of structural issues within a water reform framework that has evolved largely around metropolitan utility models. These models do not translate effectively to small, dispersed, workforce-constrained and geographically remote communities, particularly where servicing involves multiple agencies, limited local capacity and complex governance environments.

The evidence presented in this submission highlights four interconnected challenges:

- a fragmented, metropolitan-focused knowledge and planning system that does not adequately translate existing tools and research into remote contexts — more than three-quarters of remote local government areas (LGAs) surveyed nationally are entirely unfamiliar with the Australian Government-funded water research that has transformed urban water management, and over 60 per cent of surveyed LGAs lack an integrated water management plan of any kind.
- persistent workforce and skills shortages that become more severe with remoteness.
- funding arrangements that favour capital investment while insufficiently supporting ongoing operations, maintenance and local capability development; and
- a continuing First Nations water security and governance gap: over 500 remote and very remote First Nations communities do not receive regular water quality testing, and at least 24,245 people across 99 remote locations accessed drinking water that did not comply with health-based guideline values in a single reporting year (Wyrwoll et al. 2022). The Water Services Association of Australia (WSAA) has estimated an investment of at least $2.2 billion is required to ensure remote Australians receive drinking water meeting the Australian Drinking Water Guidelines (Vanweydeveld 2022) — itself a likely underestimate.

What remains largely absent is a durable mechanism capable of translating policy commitments, funding programs, technical expertise and community priorities into long-term, sustained locally embedded capability, while providing a framework for support and accountability in service delivery.

To address this gap, the Consortium proposes the **Central Desert Living Lab** as a practical pilot of an emerging national anchor-institution model for regional and remote water reform. Rather than creating a new regulator or centralised delivery body, the Living Lab would establish a trusted, place-based institution at the Desert Knowledge Precinct in Mparntwe (Alice Springs), connecting communities, Traditional Owners, service providers, researchers, governments and utilities. It is designed around four complementary functions: appropriate technology enablement and

demonstration; community of practice and workforce development; governance and financing support; and development of fit-for-purpose tools and resources. Outcomes generated in the Central Desert — a region spanning Northern Territory, South Australian and Western Australian borders — would be directly applicable across multiple jurisdictions.

The Consortium has already submitted a detailed, costed proposal (approximately $5.5 million over five years) to the Australian Government. The Commission therefore has before it not only a conceptual reform model, but a practical, implementable example of the type of place-based delivery mechanism its Interim Directions identify as necessary.

This submission recommends that the Commission support:

1. establishment of the Central Desert Living Lab as a pilot anchor institution.
2. reform of funding structures to better balance capital and operational expenditure.
3. nationally consistent drinking water reporting, and incorporation of water access within Closing the Gap and SDG 6 reporting frameworks.
4. a dedicated remote water workforce and training strategy.
5. a national linking platform to adapt existing water knowledge and tools for remote and regional contexts; and
6. practical capability development to enable First Nations communities to exercise and benefit from recognised water interests.

The Consortium's central proposition is that lasting improvement in regional and remote water outcomes requires **both system-level reform and place-based delivery capability**. National policy change alone will not achieve better outcomes without locally trusted institutions capable of coordinating knowledge, funding, governance, technology and community aspirations. The Central Desert Living Lab offers a practical, evidence-informed opportunity to demonstrate how this can be achieved.

1. Introduction

Water and wastewater services in regional and remote Australia are delivered through a diverse and often fragmented mix of arrangements, including state and territory utilities, local governments, community-managed schemes and, in some locations, service models with no single accountable provider (Doble et al. 2023; SACOSS 2020; Vanweydeveld 2022). While the National Water Initiative provided an important foundation for water reform, its settings were developed primarily around metropolitan and irrigation-system contexts and have not been substantially adapted to the realities of small, dispersed, high-cost and workforce-constrained regional and remote communities. These challenges are particularly acute in First Nations communities, where water security, governance, infrastructure and rights-based considerations intersect, and where water outcomes are inseparable from the health, housing, cultural and economic participation outcomes pursued under the National Agreement on Closing the Gap (NIAA 2023).

The Productivity Commission's Interim Water Services Reform Directions correctly identify the need for new approaches to regional and remote water service delivery. This submission argues that effective reform requires **both system-level change and a practical mechanism for implementation**.

National reforms to funding, workforce development, governance, data collection and regulatory settings are essential, but they will not improve outcomes unless they can be translated into locally legitimate, trusted and place-based action. Equally, isolated local projects will struggle to deliver lasting change unless supported by enabling national policy and investment settings.

The central proposition of this submission is that the proposed **Central Desert Living Lab** provides a practical demonstration opportunity for understanding how these two requirements can be brought together. The Living Lab is presented not simply as a Central Australian initiative, but as a pilot application of a broader national reform model. It draws on an emerging anchor-institution framework developed through Commonwealth-funded research (Appendix B) and responds directly to priorities identified through independent consultation, research and review processes across the water sector. Notably, multiple evidence streams — the National Environmental Science Program's *Water Sensitive and Liveable Communities in Regional and Remote Australia* project, the Goyder Institute's *Working Together for Better Drinking Water in the Bush* forum, the Australian Water Association's *Regional and Remote Communities Project*, CSIRO's remote water quality research and the Water Services Association of Australia's review *Closing the Water for People and Communities Gap* — have independently arrived at remarkably similar conclusions regarding the need for locally embedded institutions that can coordinate capability building, knowledge exchange, governance support and service innovation.

The persistence of these challenges is demonstrated not only by recent research, but by lived experience and decades of on-ground service delivery. The Centre for Appropriate Technology (CfAT), established in Alice Springs in 1980, was founded to research, develop and deliver appropriate technologies and technical training for Aboriginal people living in remote communities, and continues to work across water, power, communications, workforce development and infrastructure. More than four decades of practical experience, documented across countless community water projects demonstrate that many of the fundamental barriers identified in this submission, including workforce capability, technology suitability, infrastructure maintenance and access to trusted local support, remain recurring challenges for remote residents today. While important progress has occurred, the experience of organisations such as CfAT illustrates the long-term, systemic nature of these issues and reinforces the need for durable, place-based institutions capable of sustaining capability beyond individual projects, funding cycles and policy reforms.

The submission draws on connected bodies of recent work led by Consortium partners: (i) the 2023 *Working Together for Better Drinking Water in the Bush* forum in Mparntwe (Alice Springs), which brought together 68 First Nations community members, service providers, utilities and policymakers and produced a ranked set of 12 priority actions (Cromar & Ross 2023); (ii) the NESP *Water Sensitive and Liveable Communities in Regional and Remote Australia* project (IP1.02), combining a national survey of 400 LGAs with knowledge-holder workshops (Swapan & Aktar 2024; Satur et al. 2025); (iii) CSIRO's 2023 *Water Quality Review and Treatment Technology Framework for Remote Community Water Supply* prepared for the National Water Grid Authority (-et al. 2023); (iv);(v) WSAA's national review of remote water services (Vanweydeveld 2022), WaterAid's recent workshops with a number of remote homelands service delivery operators throughout the Northern Territory (WaterAid 2026), Ekistica's Water for Homelands Project, which formed part of the Northern Territory Governments Territory Water Plan, AHNT 2024) and a series of consultations with the Australian Water Association's (AWA) remote and regional water servicing membership network (via conference workshops and

consultative processes). Consortium members contributed directly to each of these bodies of work; quotations and data used throughout are drawn from that primary evidence unless otherwise referenced. Taken together, these sources reveal a striking consistency in both diagnosis and proposed solutions — the need for stronger local capability, better coordination, fit-for-purpose technology and training, sustained operational funding, improved data and reporting, and mechanisms enabling First Nations communities to participate meaningfully in the governance and delivery of water services. The Central Desert Living Lab is proposed as a practical response to these findings, and as a vehicle through which nationally significant reform can be tested, refined and scaled.

2. The Proposal: The Central Desert Living Lab

The Central Desert Living Lab is proposed as an independent, Consortium-led pilot of the national anchor-institution framework set out in Appendix B. It responds directly to the four systemic challenges evidenced in Appendix A of fragmented knowledge translation, workforce shortfall, a capital/operational funding imbalance, and the First Nations water security and governance gap, and to the stated needs of communities, LGAs and remote and regional service providers consulted through NESP, Goyder, CSIRO, AWA, Ekistica, WaterAid and WSAA processes.

The Consortium proposes locating the Living Lab at the Desert Knowledge Precinct in Mparntwe (Alice Springs), an existing, purpose-suited site with established research, training and community infrastructure. The Precinct is itself a place of deep cultural significance, developed in partnership with Arrernte custodians and recognised as a safe space for cultural knowledge sharing, making it uniquely suited to hosting genuinely two-way, Country-centred work. The site would be organised around two linked physical zones: a Technology Incubator Zone for on-Country testing, validation and demonstration of water treatment technologies, and an Education and Demonstration Zone for training, community engagement and co-development activities. Siting the Living Lab within an existing precinct, rather than establishing a new stand-alone facility, minimises establishment cost and risk and draws on the Precinct's existing relationships across Central Australian communities and organisations.

Because the Central Desert region spans Northern Territory, South Australian and Western Australian borders, and its water quality, servicing and governance challenges are shared with remote communities nationally, outcomes generated through the Living Lab would be directly applicable and transferable across multiple jurisdictions. Beyond the immediate site, a national network of remote and regional community water service providers, stakeholders, rightsholders and thought leaders would develop and oversee processes for two-way learning and knowledge exchange, skills building and resource development, supporting an innovation ecosystem within the Living Lab itself and a pathway to scale through the translation of insights between contexts (a critical attribute to the remote and regional systems strengthening approach highlighted in Appendix B).

This nationally significant pilot program seeks to provide a model that can simultaneously address a number of critical core servicing functions for remote and regional communities- those highlighted as critical in various national and state-based evidence and policy forums. These are summarised in the following.

2.1 Function One: Appropriate Technology Enablement to Country and Context

The Technology Incubator Zone will provide a regional focal point for appropriate water system testing, validation and demonstration, targeted at the specific water quality challenges and biophysical conditions documented in Central Australian and comparable remote supplies — including elevated nitrate, uranium and calcium concentrations. These are contaminants that standard metropolitan treatment processes are not typically designed around, and for which CSIRO's remote-supply treatment technology framework identifies a need for further place-based validation (Doble et al. 2023). This function also includes co-developing, with Traditional Owners, place-based and culturally appropriate training materials that combine standard operator competencies with local water knowledge, Country and language.

> *"We need guidance on what is contextually suitable [such as] how arid and semi-arid plant species can support Water Sensitive Design and Greening outcomes for example."*

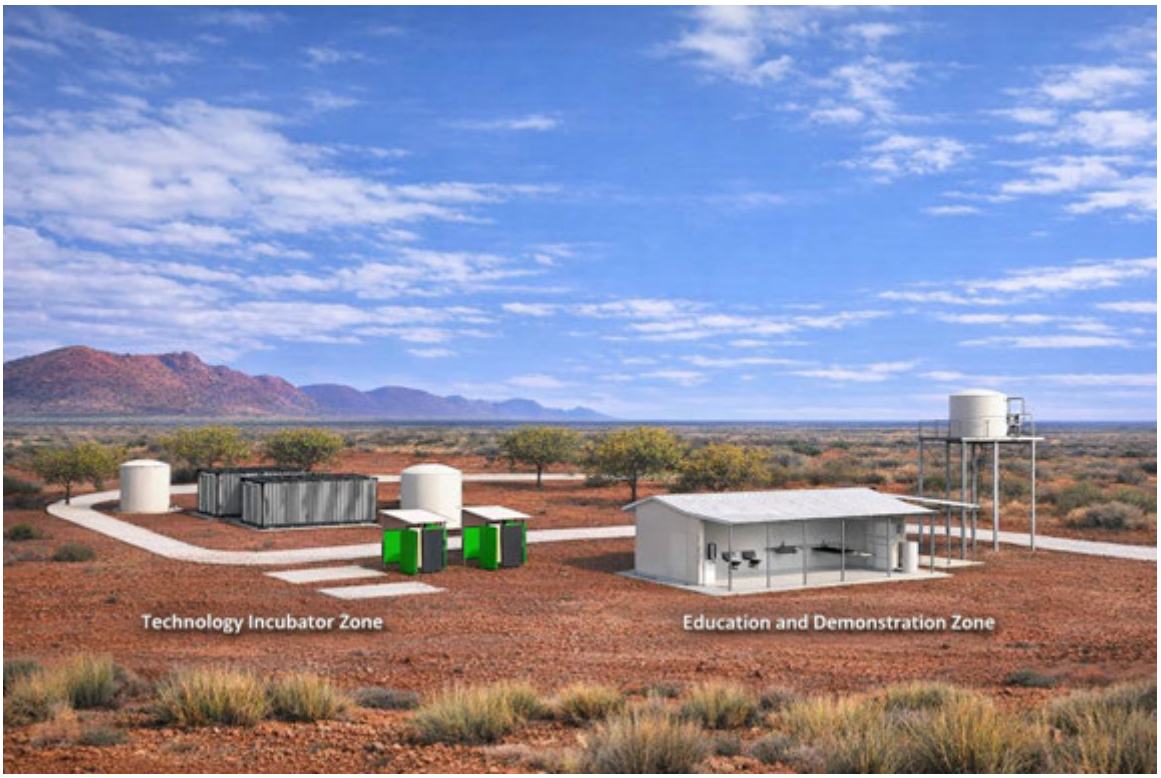

Figure 1. The Desert Knowledge Precinct, Mparntwe (Alice Springs) — proposed Living Lab site.

2.2 Function Two: Networked Capacity Building through a Community of Practice

The Living Lab's second function is to build and sustain the human networks that consultation participants, across every stream of evidence gathered for this submission, identified as the single most valued and lowest-cost intervention available: connecting people who are solving the same problems in isolation across jurisdictions and organisations. In practice this means convening a cross-regional community of practice modelled on existing successful examples, such as the National Water Sensitive and Urban Design (WSUD) Capacity Building Network (in operation for over six years), the Central West Regional Organisation of Councils, the Queensland Water Regional Alliance Program (QWRAP) of regional council alliances, and AWA's NSW Regional Water Champions Network, adapted

to bring together remote and regional LGAs, First Nations water organisations, service providers, utilities, policymakers and researchers on a standing, resourced basis rather than through episodic, unfunded or volunteer effort.

Workforce development is central to this function. Priorities identified through the evidence base include accredited, place-relevant service provider training pathways; inter-regional skills acquisition and sharing; graduate placements, twinning and mentorship connecting metropolitan utilities to remote services; and, as repeatedly emphasised in consultation capability in monitoring, testing, reporting and data interpretation so that remote communities can know when their water is safe to drink, not only when it is not.

> *"Just having the chance to talk to each other and learn is the best. It's enough. Just do that."*

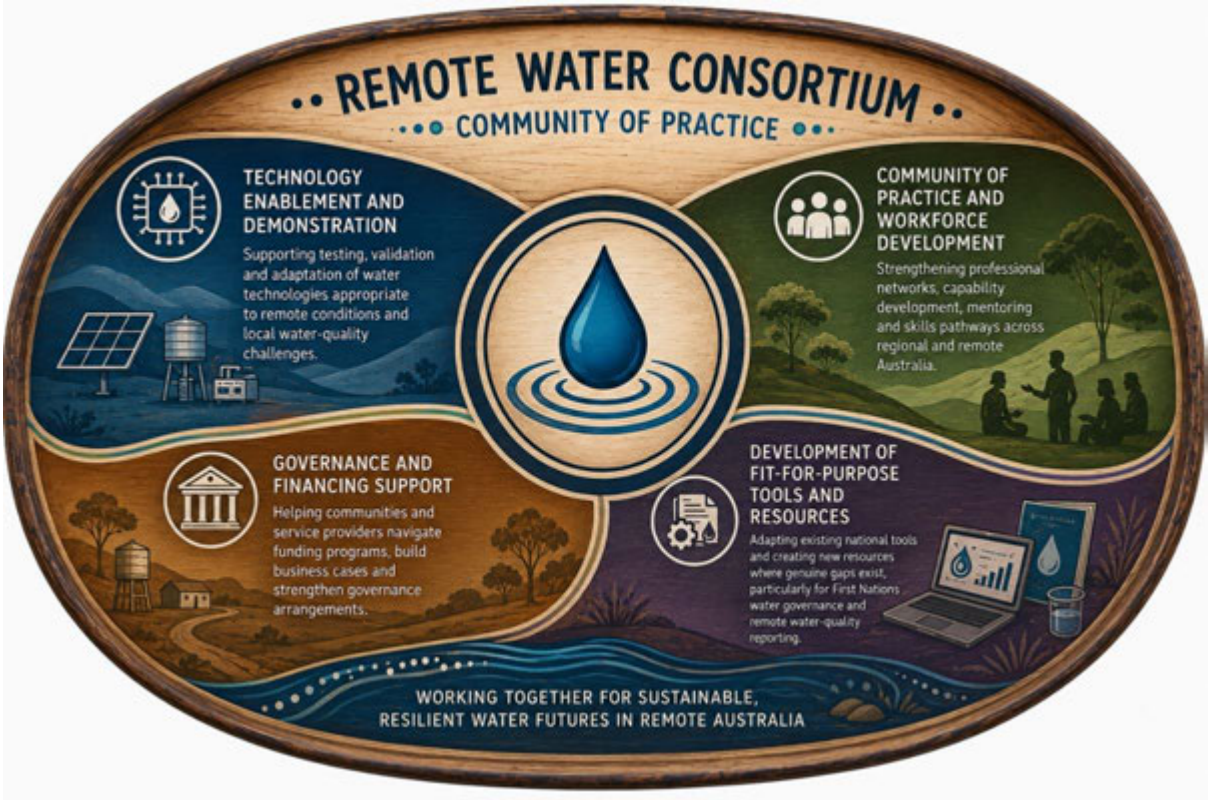

Figure 2. A Remote Water Community of Practice. 'Like a coolamon – used for carrying babies, water and many other things' – the Community of Practice will hold the space and strengthen the remote water sector providing organisational infrastructure to support the Living Lab.

2.3 Function Three: Governance and Financing Guidance and Support

This function has two distinct but connected elements. First, the Consortium advocates for long-term, sustainable funding arrangements for the Living Lab itself, so that the institution can endure beyond individual projects and grant cycles. This is a durability that the anchor-institution evidence base identifies as essential to trust and effectiveness (Satur et al 2025). Second, the Living Lab would in turn provide standing, place-based support to help Central Desert communities and service providers identify, navigate, combine and secure federal, state and philanthropic funding streams, turning the

current reliance on one-off, competitive grant applications into a coordinated, multi-year funding pipeline.

In practice this means: maintaining a live map of relevant funding programs (National Water Grid Fund, DCCEEW programs, NIAA community infrastructure funding, state government water and Closing the Gap funding) matched against Central Desert community needs; providing business-case development support so operational and maintenance funding can be argued for with the same rigour as capital works; and supporting specific governance tasks — including building the practical capability of Traditional Owners and native title holders to activate water interests where these are formally recognised, but not yet practically actionable (see Recommendation 6).

2.4 Function Four: Developing and Endorsing Fit-for-Purpose Tools, Products and Capability Building Initiatives

Where genuine gaps exist, the Living Lab and its Community of Practice would develop new, purpose-built resources and endorse them through a credible, nationally recognised process so they can be adopted with confidence by other remote and regional communities beyond Central Australia. Priority development areas identified through the evidence base include: an Indigenous water literacy and rights-navigation toolkit to help First Nations organisations understand and exercise their standing under current water planning frameworks; a national water quality data and reporting register for remote communities, designed to complement and build on, rather than duplicate, the Water Justice Hub's Australian Drinking Water Record to strengthen place-based routinisation of water quality testing; and a Water and Sanitation Policy and Regulators Forum model, harmonising health, housing and water regulation so that 'safe drinking water' has a single, publicly reportable meaning in a remote Australian context.

Through its Community of Practice network, the Living Lab would also draw on and adapt the substantial existing national knowledge base for arid, remote and Country-centred application, which could include the CRC for Water Sensitive Cities' Index, Scenario and Benefit-Cost Analysis tools; the Australian Drinking Water Guidelines and Water Safety Planning framework; CSIRO's 2023 remote treatment technology framework; CfAT's Community Water Planner Field Guide and resources; and state-based programs such as Ekistica’s Water For Homelands Framework and toolkit (AHNT 2026), Queensland's SWIM data platform and the NSW and Victorian Water Directorates' training resources.

2.5 Governance principles and structure

Consistent with both the NESP research framework and the direct evidence gathered from First Nations participants in Consortium workshops, the Living Lab's governance would be built around the following principles:

- First Nations and locally led, Central Desert-based governance: a steering body with a minimum of 50 per cent Traditional Owner, remote and regional representation - mirroring the governance safeguard identified as essential in NESP and Goyder program design workshops.
- a long, funded time horizon rather than a short pilot, consistent with evidenced requirements for trust and relationality, and providing the timeframe needed for knowledge creation and sharing to inform decision-making; and

- anchoring in existing, trusted, financially durable institutions rather than a newly created entity with no track record or balance sheet — consistent with the NESP definition of an anchor institution (Appendix B).

In practice, the Consortium proposes Desert Knowledge Australia as convenor and precinct steward, reflecting its existing role, relationships and physical presence at the Desert Knowledge Precinct, with delivery responsibilities distributed across Consortium partners according to existing capability (Section 3). A monitoring and evaluation framework, co-developed with the Community of Practice and government, would underpin public reporting of progress against agreed milestones, directly responding to the transparency and accountability expectations raised in the Commission's Interim Directions.

3. Consortium Capability and Delivery Platform

3.1 A live, costed proposal already before government

The Central Desert Living Lab is not a concept proposed for the first time in this submission. On 17 March 2026 the Consortium wrote to the Minister for Climate Change, Energy, the Environment and Water, the Minister for Indigenous Australians and the Special Envoy for Remote Communities, formally proposing the Central Desert Water Living Lab with a detailed, costed proposal (RWFC 2026a). This submission asks the Commission to treat that existing proposal as a concrete, shovel-ready example of the delivery mechanism its reform directions require, and to recommend that the Australian Government respond to it.

The Consortium's proposal is staged and costed as follows:

- Phase 1 (Year 1) — $500,000: develop the business case, secure delivery partners, and complete detailed design for the facility.
- Phase 2 (Year 1) — $1.5 million: construction, development of training materials, and community engagement; and
- Phase 3 (Years 2–4) — $1 million per year: develop training programs and testing protocols, establish utility partnerships, co-develop technologies, and deliver targeted Community of Practice projects.

This totals approximately $5.5 million in Australian Government funding over five years. The Consortium recognises that any Commonwealth commitment would likely be structured with state and territory co-investment as a pre-requisite, and welcomes this: the funding strategy also encompasses collaboration with existing federal R&D programs, user-pays technology testing and training pathways, multi-jurisdictional utility R&D support, and philanthropic contributions, consistent with the Commission's own interest (Information Request 8) in Australian Government investment that 'crowds in' additional funding from jurisdictions and industry rather than substituting for it.

3.2 Consortium membership and roles

The Remote Water Futures Consortium is a partnership of organisations co-located at or closely connected to the Desert Knowledge Precinct, with supporting partners from national research institutions. Members bring complementary, non-duplicative capability, giving the Consortium direct, first-hand insight into the challenges and solutions set out in this submission:

- **Desert Knowledge Australia (DKA)** — convenor, community engagement and precinct stewardship. DKA is the proposed host and convening body for the Living Lab, drawing on its management of the Desert Knowledge Precinct and its relationships across Central Australian communities and organisations.
- **Ekistica** — technical expertise and program delivery. A Central Australia-based advisory and technical consultancy specialising in remote infrastructure; co-delivered AWA associated outputs referred to throughout this submission and is currently delivering the NT Government's Water for Homelands capacity-building project for Homeland Service Providers (AHNT 2026).
- **Centre for Appropriate Technology (CfAT)** — training and connection to people and Country, with a four-decade track record in Indigenous-led, place-based technology and training programs across remote Australia.
- **Water Services Association of Australia (WSAA)** — connections to utilities and WSAA's Clean Water and Sanitation Network, and the national First Nations remote water security evidence base in *Closing the Water for People and Communities Gap*.
- **Goyder Institute for Water Research** — science partnerships and knowledge-to-policy translation, including its convening role (with the National Water Grid Authority and DKA) of the 2023 Mparntwe national forum and the CSIRO for Doble et. al (2023)
- **Monash University (NESP Sustainable Communities and Waste Hub, IP1.02)** — systems strengthening and community-centred governance, and source of the anchor-institution conceptual framework underpinning this submission (Appendix B).
- **WaterAid Australia** — water, sanitation and hygiene expertise and community engagement in remote contexts, including homelands and outstations.

Named project contacts for the Consortium can be provided to the Commission on request.

4. Recommendations

The following six recommendations respond to the evidence in Appendices A and B, the model in Sections 2-3, and the Commission's Information Requests addressed in Section 5. Each sets out what is required, why, and the proposed solution, drawing on real precedents identified through the Consortium's evidence base.

Recommendation 1: Fund the Remote Water Futures Consortium's Central Desert Living Lab proposal, already before government

What is required: Commonwealth funding of the staged, costed Central Desert Living Lab proposal submitted to government in March 2026 (requesting approximately $5.5 million over five years) covering all four Living Lab functions, including development of the fit-for-purpose tools set out in Section 2.4.

Why: National reform of funding and regulatory settings (Recommendations 2-6) requires a trusted, place-based delivery mechanism or it will not translate into improved outcomes on the ground- the consistent finding across the Ekistica, NESP, Goyder, WaterAid and WSAA and AWA evidence bases (Appendix A). A concrete, costed proposal for exactly this mechanism already exists and does not need to be designed from scratch.

The solution: The Commission should recommend that DCCEEW and the National Water Grid Authority respond formally to the Consortium's March 2026 funding request and April 2026 detailed proposal, and fund the staged model: $500,000 for detailed design and partner establishment; $1.5 million for construction and community engagement; and $1 million per year for three years for training, testing protocols and Community of Practice delivery, with state and territory co-investment as an anticipated condition, and the Consortium separately pursuing philanthropic and industry contributions. A funded, multi-year work program would be governed by a steering body with Traditional Owner, backbone-institution and remote and regional service provider representation, reporting publicly against concrete service-delivery indicators.

Recommendation 2: Reform funding architecture to balance capital and operational expenditure for remote water services

What is required: Funding programs administered through the National Water Grid Fund and equivalent state mechanisms should require — or at minimum strongly favour — applications that include a costed, multi-year operations and maintenance funding commitment alongside any capital works request.

Why: The most consistently identified structural failure in the evidence base is that capital is funded while the operations, maintenance and staffing needed to keep that capital safely functioning are not (Appendix A.3), directly producing the infrastructure failures and non-compliant water quality outcomes documented by WSAA and the NESP survey. The Commission's own Interim Update identifies that Commonwealth funds are released once construction is complete, with no upfront mechanism ensuring OPEX commitments are actually funded and sustained.

The solution: Make staged, verified OPEX funding commitments a binding condition of National Water Grid Fund releases, not only a stated expectation. A funding model similar to Roads to Recovery or the Local Roads and Community Infrastructure program (e.g. non-competitive, criteria-based, multi-year)

should be applied to remote water OPEX, removing the current reliance on competitive grant rounds that structurally disadvantage the smallest and most under-resourced utilities and service providers. The Living Lab's business-case support function (Section 2.3) would help providers articulate sustained OPEX models within funding submissions.

Recommendation 3: Formalise safe drinking water as a standalone, publicly reported Closing the Gap indicator

What is required: A national water quality and access reporting indicator for remote and First Nations communities, reported alongside existing Closing the Gap targets and used to support the development of a clear baseline and reference point for Target 9B on essential services, while also being reflected in Australia's national reporting against Sustainable Development Goal 6, which does not currently capture remote communities.

Why: Access to safe drinking water is not currently a standalone reporting indicator under the National Agreement on Closing the Gap, despite being foundational to the health, housing and economic participation outcomes that are reported (Appendix A.4). Target 9B on essential services is relevant but does not yet have an agreed reference point or baseline against which progress can be measured. This makes nationally consistent water quality and access reporting urgent, particularly given that over 500 remote and very remote First Nations communities receive no regular water quality testing.

The solution: The Commission should recommend that DCCEEW, NIAA and the Coalition of Peaks establish the indicator, building on existing (but currently inconsistent) state and territory drinking water reporting regimes and the groundwork begun through the 2023 Goyder Institute forum. The Water Justice Hub's recently published Australian Drinking Water Record is a notable example of progress that should be resourced to endure. A backbone institutional model could provide regional focal points for jurisdictional coordination, with the Central Desert Living Lab and Community of Practice piloting the architecture and guidance for data collection processes.

Recommendation 4: Fund a national, remote-specific water workforce and training model

What is required: Commonwealth investment in a remote-specific registered training organisation and training delivery model, including funded, rotating regional trainer champion positions and graduate and professional placement, twinning and mentorship pathways connecting metropolitan utilities to remote services.

Why: Workforce shortage is the most consistently raised barrier across every consultation stream in the evidence base, and it worsens systematically with remoteness (Appendix A.2). Existing training and RTO models are, by workshop participants' own account, not fit for remote delivery.

The solution: Direct investment through BuildSkills Australia's existing Water Industry Forum and National Water Training Package review process. A funded pipeline should ensure that a portion of every major remote water capital works program includes a resourced local traineeship or placement component — addressing the finding that funding is often provided for capital works with no accompanying resourcing to train the people needed to operate them. The Living Lab's Education and Demonstration Zone and Community of Practice (Section 2.2) provide a ready delivery platform, including for accredited service provider training and for capability in monitoring, testing, reporting and data interpretation.

Recommendation 5: Establish a national linking platform to retrofit existing water knowledge and tools for regional and remote contexts

What is required: Funding for the coordinating/linking platform function already scoped through NESP IP1.02 (Appendix B) to be extended nationally, using the Central Desert Living Lab (Recommendation 1) as its first operating node and proof of concept, with a mandate specifically to retrofit and adapt existing tools to community need.

Why: Existing, high-quality national water management knowledge and tools are not reaching the communities that most need them: over 75 per cent of remote LGAs are entirely unfamiliar with current Australian Government-funded water research tools and knowledge products (Appendix A.1). This represents a substantial waste of prior public research investment, not a knowledge gap requiring new research to fill.

The solution: A nationally resourced retrofit-and-translate mandate delivered through place-based anchor institutions. An early demonstration could be a scaled-down, rapid-assessment version of the Water Sensitive Cities Index, sized and costed for communities with populations in the low hundreds or less, piloted in the Central Desert and made available nationally within three years, with the Community of Practice as the platform for broader translation and scaling.

Recommendation 6: Build practical capability for First Nations water rights activation, not only recognition

What is required: National water reform processes, including any successor to the National Water Initiative, should explicitly separate, and separately resource, two distinct tasks: the legal and policy recognition of First Nations water interests, and the practical, funded capability-building needed for those interests to be exercised on Country.

Why: Formal recognition of First Nations water interests is advancing through native title and related processes, but unevenly: the experience of Central Land Council members and delegates in Queensland and the Northern Territory is that recognition on paper has frequently not translated into substantive rights or control in practice. Even where interests are recognised, consultation evidence (Appendix A.4) indicates recognition is not matched by the practical capability, resourcing or authorising environment needed to activate and exercise those interests.

The solution: A funded, staged capability program, co-developed with First Nations leaders and community members through the Central Desert Living Lab, that moves a specific community from formal recognition of a water interest to the practical capacity to plan, govern and, where appropriate, commercially or culturally activate it, supported by the Indigenous water literacy and rights-navigation toolkit proposed in Section 2.4. This should include consideration of the localised First Nations water authority model ranked among the top three priorities by the 68 attendees of the 2023 Mparntwe forum, providing First Nations voices, expertise and decision-making authority on water in remote communities. The Living Lab could also support public reporting of projects as a discrete component of funding arrangements such as the National Water Grid Fund's First Nations water infrastructure program.

5. Responding to the Commission's Information Requests

This section responds to the Information Requests raised in the Commission's June 2026 Interim Update, drawing on the evidence and model set out above. We note the Interim Update already draws on two of the same primary sources this submission relies on, in Cromar and Ross's (2023) Goyder Institute report and Vanweydeveld's (2022) WSAA review, giving the Commission an existing basis for testing the Consortium's proposals against evidence it already regards as credible.

5.1 Information Request 3: Priorities for self-determined improvements to water services in Aboriginal and Torres Strait Islander communities

The Commission's three priority clusters; *standards and reporting; community capability and partnerships; and infrastructure, governance and data* align closely with the 12 priority actions independently ranked by 68 First Nations community members, utilities, service providers and policymakers at the Goyder Institute's 2023 forum, lending the Commission's framework strong support from a direct, remote-community consultation process. The Consortium's evidence base points to two further priorities not fully captured:

- a distinct capability-activation priority, separate from rights recognition itself: the practical capability to plan, govern and activate recognised water interests is a separate and currently unfunded task (Recommendation 6); and
- a funding-architecture priority specific to operations: even where community capability and governance are strong, a lack of durable OPEX funding undermines self-determined management of water assets already under community control. CAPEX funding decisions should be paired with committed, multi-year OPEX funding as a condition of release (Recommendation 2).

We also note the Goyder forum's further prioritised items, including community water rangers, joined-up cross-sector planning, and a national action plan spanning all states and territories, as independently generated evidence of priorities the Commission may wish to consider.

5.2 Information Request 4: Service delivery in regional and remote areas

The Central Desert Living Lab is itself a direct, concrete answer to this Information Request's call for specific cases of existing or prospective collaborative models. Mapped against the approaches the Commission asks about:

- Coordination between government agencies is delivered through the Living Lab's live funding-and-needs mapping (Section 2.3).
- Navigation of approval, grant-making and regulatory processes through its business-case support function.
- Self-determination is centred through governance requiring a minimum 50 per cent Traditional Owner, remote and regional steering body (Section 2.5) while ensuring involvement in governance and accountability, not consultation alone.
- fit-for-purpose technology selection through the Technology Incubator Zone's validation of treatment technologies against the documented contaminant profile of Central Australian supplies (Section 2.1; Doble et al. 2023).

- local capacity, employment and skills through the Community of Practice, modelled on operating precedents (National WSUD Capacity Building Network, Central West ROC, QWRAP, AWA's NSW Regional Water Champions)

the Commission could examine directly as evidence of what works at low cost.

On what Australian Government action could support jurisdictions to adopt improved delivery models: we recommend the Commission treat the Consortium's existing funding request as a test case, and specifically examine whether current National Water Grid Fund grant administration and evaluation processes are capable of assessing and funding a multi-partner, cross-organisational delivery model of this kind, or whether guidance reform is needed to accommodate it.

5.3 Information Request 5: Sustainable funding for service improvements in small towns and communities (BLOS and CSO payments)

On BLOS cost data: the NESP IP1.02 national LGA survey (Appendix A.1) already provides a partial, quantified baseline, the proportion of regional and remote LGAs lacking integrated water management plans, stormwater harvesting and wastewater recycling schemes (Swapan and Aktar 2023) that could inform how a Basic Level of Service is defined and phased in for regional and remote areas, rather than requiring new baseline data collection from scratch.

On incentivising collaboration through CSO design: the evidence in Appendix A.3 indicates that competitive, project-based grant funding actively discourages collaboration because providers compete for the same pool. Participants specifically proposed non-competitive, criteria-based funding models (citing Roads to Recovery and the Local Roads and Community Infrastructure program) as designs that would instead reward collaboration (Recommendation 2). Furthermore, a comparable state-level review has already recommended this approach for South Australia, proposing both a defined basic level of service and an extension of CSO funding beyond the incumbent major retailer (Aither 2021)

On accountability mechanisms: the Living Lab's proposed monitoring and evaluation framework (Section 2.5), co-developed with the Community of Practice and government and reporting publicly against agreed milestones, is offered as a working example of transparent, place-based accountability.

5.4 Information Request 6: Standardised tools for consumer-led planning, monitoring and evaluation

The recent evidence body (Appendix A.1) suggests that existing national tools were developed for, and tested in, metropolitan contexts, and that retrofitting rather than fresh development is both cheaper and more likely to achieve adoption. The Living Lab's Functions One and Four propose exactly this retrofitting role and could serve as the vehicle for revising or replacing the discontinued Community Water Planner for Central Australian and comparable remote contexts. Notably, a comparable toolkit has recently been developed and delivered for Northern Territory Homeland Service Providers (AHNT 2026) led by Ekistica (a consortium member), demonstrating the practical feasibility of context-specific tool development at homelands scale. The Living Lab's staged, multi-year funding structure (Section 3.1) is designed specifically to avoid the one-off, unmaintained-tool problem the Community Water Planner's discontinuation illustrates. Its proposed national water quality register for remote communities (Section 2.4) is designed as the place-based mechanism by

which locally generated community planning and monitoring data could feed upward into jurisdictional and national reporting.

5.5 Information Request 7: Nationally consistent reporting on drinking water quality

The evidence in Appendix A.4, stating that over 500 remote and very remote First Nations communities receive no regular water quality testing, that at least 24,245 people across 99 locations received non-compliant water in a single year (Wyrwoll et al. 2022), and that specific Central Desert communities (across NT, WA and SA) have documented health-based exceedances, is direct evidence for the Commission's finding that data availability is particularly limited in regional and remote areas and undermines trust. We support the Commission's proposed direction of legislating nationally consistent reporting standards under the Water Act 2007 rather than relying on ADWG guidance alone.

A national data dashboard was independently identified as a top-tier priority at the Goyder Institute's 2023 forum, whose attendees called for a culturally appropriate, plain-language, 'traffic light' style platform, and noted that the previous comparable national tool, the Community Water Planner (Grey-Gardner & Taylor 2009), fell out of use partly because small, high-turnover community organisations could not maintain it. This is a key design lesson directly relevant to whatever standard the Commission recommends. We propose that the Living Lab's national water quality register for remote communities (Section 2.4) be piloted in the Central Desert as a practical testbed for this reporting standard before national rollout. The determination of the appropriate Commonwealth lead agency for data collection and custodianship will be a key matter for the Australian Government; we note only that any custodianship arrangement should be co-developed with First Nations organisations to protect data sovereignty, consistent with Closing the Gap Priority Reform Four.

5.6 Information Request 8: Role of Australian Government investment and funding programs

The Commission's Interim Update identifies that National Water Grid Fund conditions require states and territories to commit to operation and maintenance costs, but that Commonwealth funds are released once construction is complete, with no upfront mechanism ensuring OPEX commitments are actually funded and sustained. This is precisely the structural gap identified independently through the Consortium's evidence base (Appendix A.3), giving the Commission's analysis and the Consortium's evidence a shared, mutually reinforcing basis for reform. We recommend making staged, verified OPEX funding commitments a binding condition of National Water Grid Fund releases, not only a stated expectation (Recommendation 2). On 'crowding in' additional investment, the Consortium's own blended funding strategy (Section 3.1), being an anticipated Commonwealth commitment with state co-investment as a pre-requisite, alongside philanthropic contributions and user-pays technology testing and training pathways, is offered as a practical example the Commission may wish to examine.

Appendix A: Evidence Base and System Challenges

This appendix sets out the evidence for four linked, mutually reinforcing challenges identified consistently across the five source studies introduced in Section 1: (A.1) a fragmented and metro-centric knowledge and tool base; (A.2) a workforce and skills shortfall that worsens with remoteness; (A.3) a funding architecture that does not fit remote-scale servicing; and (A.4) a First Nations water security and governance gap that current mechanisms have not closed. Each directly informs the design of the Central Desert Living Lab (Section 2).

A.1 A fragmented, metro-centric knowledge and tool base

The outputs of the substantial body of Australian Government-funded water research developed over the past decade, including through the Cooperative Research Centre for Water Sensitive Cities (CRCWSC), a major transformative initiative for urban water management, have largely not reached, or been implemented by regional and remote LGAs. The national survey of 400 regional and remote LGAs conducted under NESP IP1.02 (102 valid responses: 72 regional, 30 remote) found that more than 75 per cent of remote LGAs and 55 per cent of regional LGAs were not at all familiar with this research, and over 95 per cent were unaware of the equivalent urban heat mitigation and blue-green infrastructure knowledge products (Swapan & Aktar 2024). More than 60 per cent of surveyed LGAs lack an integrated water management plan, and 58 per cent of regional and 77 per cent of remote LGAs have no active collaborative network of institutions for shared water responsibilities.

This is not a failure of research quality: the underlying CRCWSC tools (the Water Sensitive Cities Index, Scenario Tool and Benefit-Cost Analysis Tool) are well regarded where they are known. It is a failure of fit and translation, as the tools were built for, and tested in, metropolitan and peri-urban contexts, and survey respondents were explicit that adaptation, not adoption, is what is needed.

> *"Providing case studies from larger-scale implementation to small scale and budgetary options, all relevant to the rural and regional setting (not urban/peri-urban)."*

Nor is this challenge confined to local government. Utilities, homelands services providers and state agencies consulted through Australian Water Association (AWA) forums, WaterAid and Ekistica workshops (WaterAid 2026; AHNT 2026) and WSAA's national networks reported parallel constraints in servicing remote communities, including workforce, funding and knowledge-translation pressures experienced at every level of the sector — underscoring that these are systemic rather than localised issues. The NESP survey also found a statistically clear relationship between LGA population size and water and heat management performance scores: the current knowledge and tool ecosystem structurally advantages the communities that already have the most capacity and structurally disadvantages those most in need. Stakeholders across the Goyder, AWA and NESP knowledge-holder workshops repeatedly proposed the same structural fix — a coordinating or 'linking' platform, anchored by trusted local institutions, that could retrofit existing national tools, knowledge products and guidance to remote and regional contexts.

> *"A linking-platform would be very useful but must be connected by backbone institutions to support systemic function over a longer-term timeframe."*

A.2 A workforce and skills shortfall that worsens with distance

Across the AWA engagements (e.g. The Ozwater 26 hosted workshop), the NESP knowledge-holder workshops and the WSAA remote-communities review, workforce capacity emerged as the most consistently raised barrier to safe, reliable water services. LGAs, water directorates and remote service providers described compounding pressures: competition for skilled operators from resources, energy-transition and construction sectors; the absence of accredited, place-relevant training pathways; and a gap that widens the further a community sits from a regional centre.

> *"We currently have 20% of positions available and that gets worst as you go west [more remote]. So, these networks are critical."*

NESPs workshop identified operator capacity, emergency-response capability and access to contextually and culturally appropriate training as first-order constraints in remote settings specifically, while regional areas more often reported second-order constraints — training providers, funding for training, and leadership and authorising conditions. NESP survey and workshop participants independently converged on solutions including inter-regional skills acquisition and sharing, graduate placements, twinning and mentorship, delivered through networks anchored to place rather than administered centrally and removed from context.

A.3 A funding architecture mismatched to remote-scale servicing

Both the AWA and NESP evidence bases identify a structural CAPEX/OPEX imbalance as a primary driver of infrastructure failure in regional and remote communities. Capital funding is comparatively available, particularly through programs such as the National Water Grid Fund, but sustained operational funding for maintenance, monitoring, staffing and community engagement is not, meaning capital assets are frequently commissioned without the recurrent funding required to keep them safely operating.

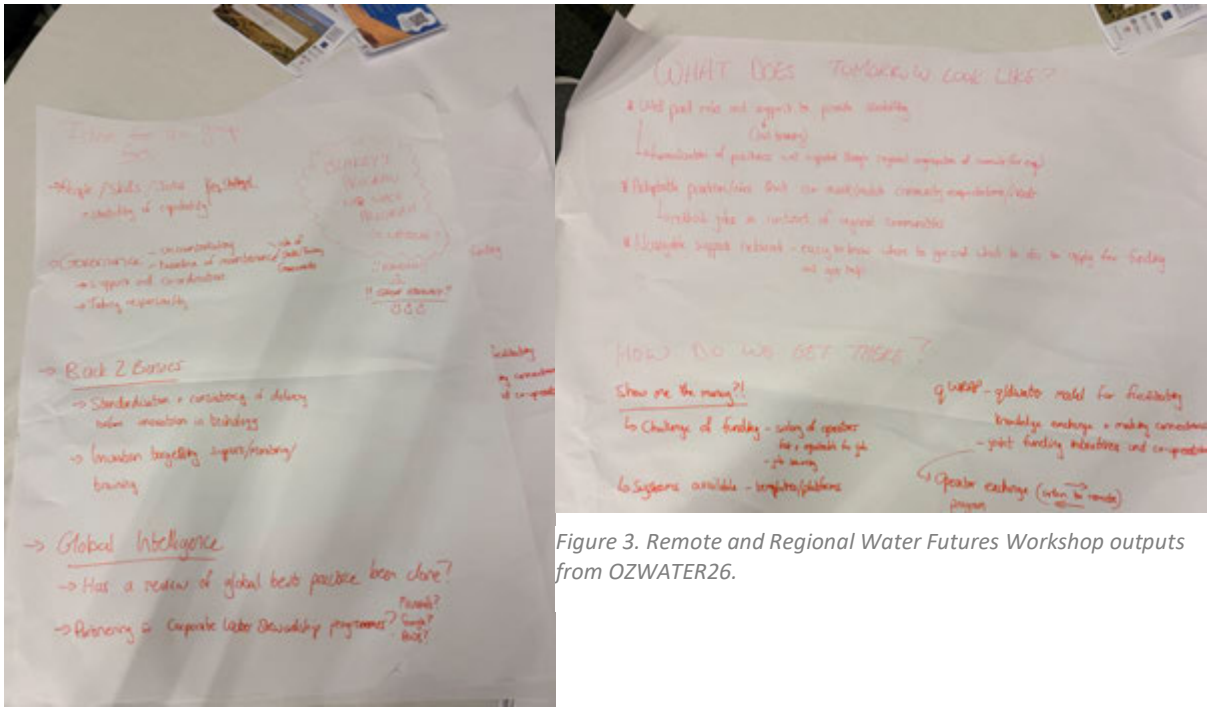

Figure 3. Remote and Regional Water Futures Workshop outputs from OZWATER26.

The NESP survey provides a quantitative dimension: nearly 60 per cent of regional LGAs and 87 per cent of remote LGAs reported needing an active stormwater harvesting project or plan but lacking one, and half of all remote LGAs surveyed had no wastewater recycling scheme whatsoever, with residents relying on septic systems or untreated onsite disposal. Consultation participants were clear that funding reform, not simply more funding, is the core requirement: multi-year, coordinated (federal/state/local) commitments that survive electoral cycles; funding tied to needs-based criteria rather than competitive grant rounds that structurally disadvantage under-resourced remote councils; and business-case support so that operational and renewal funding can be argued for on equal footing with new capital works.

> *"In terms of the competitive grant process, they are far more politically driven, and I question the motivation around their success. [Something tied] to certain criteria ... avoids the competitive nature."*

A parallel South Australia focused review reached the same conclusion, recommending Community Service Obligation arrangements, currently confined to SA Water, be extended to all licensed water retailers servicing regional and remote communities (Aither 2021).

A.4 A First Nations water security and governance gap

Evidence on First Nations remote water security provides a primary and core basis for this submission. WSAA's national review found that over 500 remote and very remote First Nations communities do not currently receive regular water quality testing (Vanweydeveld 2022). Independent research led by Wyrwoll and colleagues, found that at least 24,245 people across 99 locations with populations under 1,000 accessed water that did not comply with health-based Australian Drinking Water Guideline values in a single reporting year, rising to at least 627,736 people across 408 locations when aesthetic water quality (taste, hardness, discolouration) is included, and that 40 per cent of all locations with recorded health-based exceedances nationally were remote Indigenous communities (Wyrwoll et al. 2022; Vanweydeveld 2022). WSAA has estimated that at least $2.2 billion of investment is required to ensure remote Australians receive drinking water that meets the Australian Drinking Water Guidelines (Vanweydeveld 2022), a figure that is itself likely an underestimate: officials familiar with Northern Territory servicing have suggested that addressing NT communities alone could approach $2 billion.

NESP remote workshop findings substantiate this at a systems level: participants described communities relying on ageing bores, salinity-affected aquifers, diesel-powered systems with significant cost and environmental burdens, and long-distance trucked or piped supply from sources hours away, alongside councils heavily advocating to secure new water connections for growing populations.

CSIRO's 2023 water quality review provides the specific technical detail for the Central Desert region. Naturally occurring uranium exceeding Australian Drinking Water Guidelines (ADWG) values has been recorded at Willowra (0.022 mg/L) and Wilora (0.020 mg/L) in the Barkly Regional Council area, and at Laramba (0.048 mg/L) and Yuendumu (0.020 mg/L) in the southern NT; nitrate exceedances above the safe level for bottle-fed infants have been recorded in 19 Western Australian communities, two of which (Cosmo Newberry and Patjarr) exceeded the safe adult threshold; and fluoride exceedances have been recorded across the Aṉangu Pitjantjatjara Yankunytjatjara Lands in South Australia (Doble et al. 2023). Conventional treatment processes are not effective at removing uranium, meaning

affected communities require purpose-designed technology. The Laramba Water Treatment Plant, opened in April 2023, uses ion exchange technology to treat naturally high uranium for a community of 300. Power and Water Corporation's most recent annual drinking water quality reporting indicates Laramba's supply is no longer over the guideline limit following treatment, however, Nyirripi and Alpurrurulam remain non-compliant with ADWG health values for fluoride (NTP&W 2025), and CSIRO's assessment notes that uranium waste management from treatment plants remains an ongoing, unresolved challenge- precisely the kind of place-based technology validation gap the Living Lab's Technology Incubator Zone (Section 2.1) is designed to close.

This is compounded by a governance gap that is distinct from the service-delivery gap. Formal recognition of First Nations water interests is advancing through native title and land-tenure processes in some jurisdictions, but unevenly — and, as the experience of Central Land Council members and delegates in the Northern Territory attests, recognition on paper has frequently not translated into substantive rights or control in practice. Even where interests are recognised, NESP workshop participants were explicit that there is no corresponding capability, authority or resourcing pathway for groups to activate and manage those interests:

> *"There has been very little consideration into how this is managed in water and land activation. Capability is not just about how do you support water use and quality systems. The actual capability to activate and access water via the enabling environment [is what is missing]."*

The Goyder Institute's 2023 Mparntwe forum brought the scale of this governance gap into sharp relief. Sixty-eight attendees (47 per cent government and policymakers, 31 per cent community and homeland representatives, 7 per cent utilities and 15 per cent other service providers, with First Nations representation included representation from Yuendumu, Yuelamu, Laramba, Ali Curung, Anmatjere/Ti Tree, Amoonguna, Atitjere/Harts Range, Scotdesco, Willowra and Bonya Outstation communities together with the Central and Northern Land Councils) reached consensus on 12 ranked priority actions.

The three highest-ranked actions identified were: setting national principles on safe drinking water that prioritise source protection and incorporate cultural knowledge and Indigenous-led, localised community engagement; addressing national health targets through better understanding of water quantity and quality issues; and creating a localised First Nations water authority providing First Nations voices and expertise on water in remote communities (Cromar & Ross 2023). Attendees also prioritised a national water quality data dashboard in a culturally appropriate, plain-language format, noting that the previous national tool, the Community Water Planner (Grey-Gardner & Taylor 2009), is difficult for small organisations with high staff turnover to maintain. These findings directly inform the Living Lab's proposed national water quality register (Section 2.4) and the response to Information Request 7 (Section 5.5).

The Australian Government's 2023 commitment of $150 million through the National Water Grid Fund for First Nations water infrastructure, made under the Closing the Gap Implementation Plan, has been a significant and welcome step. While this commitment has achieved significant outcomes for some remote communities, it represents a small fraction of the investment needed to equitably address drinking water issues for all regional and remote Australians. What is not yet resolved is the delivery mechanism: a durable, trusted, locally accountable institutional model able to convert this funding,

and the policy commitments behind it, into sustained local capability rather than one-off, fly-in/fly-out project delivery. Section 2 sets out how the Central Desert Living Lab is designed to be that mechanism.

Appendix B: Reform Framework and Policy Context

The Central Desert Living Lab model is not a novel or untested concept invented for this submission. It responds directly to a conceptual framework already under active national development, and it sits within and seeks to strengthen delivery of existing Commonwealth policy commitments.

B.1 The anchor institution / coordinating platform framework

The NESP Water Sensitive and Liveable Communities in Regional and Remote Australia project (IP1.02), led by researchers from Monash University, Curtin University and CSIRO, has developed and tested- through a national LGA survey and structured knowledge-holder workshops- a conceptual framework for exactly this problem. The framework proposes a coordinating platform for capability strengthening and country/place-centred servicing, built around a networked systems of local anchor institutions that sit between national resource administration (federal and state policy, regulation and funding) and local Country and community (Figure B1). The NESP project defines anchor institutions as large, typically financially stable organisations or collectives whose long-term sustainability is tied to the wellbeing of the populations and Country they serve, providing a stable, durable focal point for innovation, coordination, skills acquisition and integrated planning. Critically, the networked or *linking* capacity of this concept, allowing multiple Anchoring institutional arrangements spanning remote and regional areas, support systems strengthening outcomes for remote and regional water servicing, building robustness and resilience into this system in supporting outcomes such as resource, data, skills and knowledge sharing that is fit for purpose to these unique water servicing areas.

This is no longer a proposal on paper only. NESP IP1.02 has already established one place-based application of this framework in Central Australia — a partnership with Anangu Traditional Owners to develop an Anangu-led water plan for Uluru–Kata Tjuta National Park and the surrounding Katiti Petermann Indigenous Protected Area, under backbone institutional enablement via a formalised partnership network including Parks Australia, the Central Land Council, the Mutitjulu Community Aboriginal Corporation and other local stakeholders. The Central Desert Living Lab proposed in this submission is a separate and independent application of the same underlying framework, led by the Remote Water Futures Consortium rather than by NESP directly, and is not affiliated with or dependent on the Uluru–Kata Tjuta arrangement.

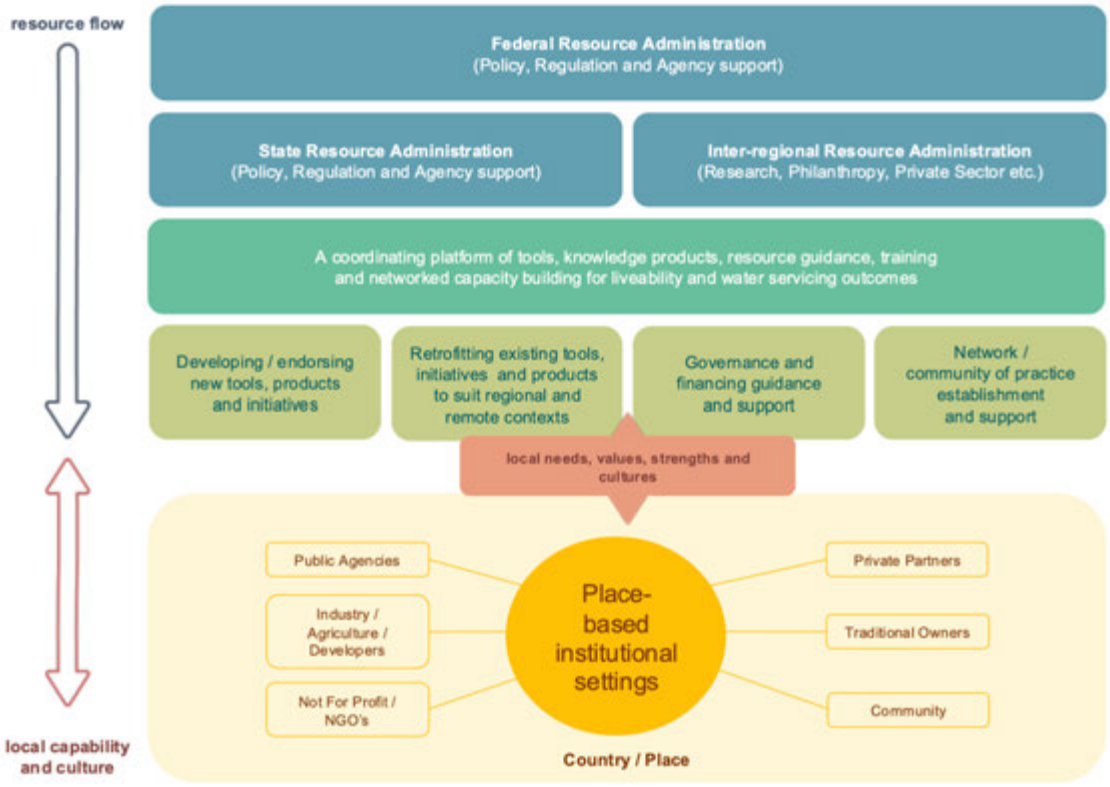

Figure B1: The NESP IP1.02 anchor-institution / coordinating platform conceptual framework.

Multiple independently generated lines of evidence converge on substantially the same institutional mechanism. The Consortium's own applied framework, developed through 2025 workshops in which members shared primary research and direct engagement experience, arrived at a strikingly similar structure to the NESP model: a Water Living Lab linking national policy and resourcing to Country and community through place-based backbone institutions. The Goyder Institute's 2023 Mparntwe forum independently ranked the creation of a localised First Nations water authority third among 12 priorities, alongside a national Community of Practice connecting water professionals across industry, government and community water rangers. WaterAid's recent 2026 workshops with Homeland service providers in the Norther Territory which highlighted the critical need for dedicated spaces for peer learning, networking and workforce practice innovation responding to unique homeland water supply challenges, technical servicing requirements and funding and policy settings (WaterAid 2025) Comparable independently developed models — such as Queensland's regional council alliance approach under QWRAP — demonstrate the same logic operating successfully in other jurisdictions. This convergence is itself evidence that the anchor-institution model responds to a structural gap in the system rather than the preference of any single research team or proponent.

B.2 Closing the Gap and the National Water Grid Fund

The National Agreement on Closing the Gap's Priority Reforms, which include 1) *shared decision-making, 2) building the community-controlled sector, 3) transforming government organisations, and 4) shared access to data*, map directly onto the anchor-institution and place-based governance model proposed here. However, despite continued commitment to water infrastructure investment in First Nations communities (as outlined in the 2026 Implementation Plan), safe drinking water access does not currently appear as a standalone reporting indicator under the National Agreement, despite its

evident centrality to the health, housing and economic participation outcome areas that are reported, and consistent with housing health hardware, environmental health and remote housing policy settings.

The Australian Government's February 2023 commitment of $150 million within the National Water Grid Fund for First Nations water infrastructure was made explicitly as part of the Closing the Gap Implementation Plan 2023, has been carried over in subsequent years, and is intended to be delivered in collaboration with state and territory governments and First Nations organisations and communities. The National Water Grid Authority has itself commissioned two of the evidence bases this submission relies on, in CSIRO's 2023 water quality review and treatment technology framework, and the Goyder Institute's 2023 Better Drinking Water in the Bush forum, and remains a NESP IP1.02 program partner, indicating the Authority already recognises the same evidence gaps this submission addresses. The 2023 forum's outputs, including the coolamon of written messages presented to the then Minister for the Environment and Water at the forum's close, were formally received by government.

This submission accordingly positions the Central Desert Living Lab as a durable delivery mechanism for the funding, research and partnership commitments already made through the National Water Grid Fund, rather than a request for an entirely new program area.

B.3 Closing the Gap Target 9B: Essential services and the missing water baseline

Closing the Gap Target 9B is the most direct existing national policy reference point for essential services in remote First Nations communities. Its purpose is to improve access to essential services, including electricity, water, wastewater and telecommunications, in or near Aboriginal and Torres Strait Islander communities. It therefore provides an appropriate policy home for safe drinking water access, but it is not yet sufficient as an accountability mechanism because it does not currently have an agreed baseline, reference point or nationally consistent reporting method for water quality and access (NIAA 2023; PC 2025; PC2026).

This absence matters. Without a baseline, governments and communities cannot reliably measure whether essential water services are improving, whether investment is reaching the communities most at risk, or whether service quality is being sustained after capital works are completed. A nationally consistent drinking water quality and access indicator would help give Target 9B practical content by establishing the data architecture needed to define the baseline, track progress over time and make service gaps visible in public reporting.

The proposed Central Desert Living Lab would support this task by piloting the practical reporting architecture for remote contexts: locally appropriate data collection, plain-language community reporting, jurisdictional coordination, and safeguards for First Nations data governance. In this way, the Living Lab would not replace Target 9B; rather, it would help make Target 9B measurable and actionable for water services, while also strengthening Australia's reporting against Sustainable Development Goal 6.

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