

Incorporating First Nations Land Management into Technical Approaches to Water Modelling: Pilot Study to Establish Frameworks to incorporate Indigenous Knowledge



**with the the cultural guidance of
Mandandanji Traditional Owner,
Aunty Kay Blades.**

We acknowledge the Traditional Owners of the land we live and work on, the Yugambeh speaking peoples, and the Jagera and Turrbal peoples. We also extend our respects to the Mandandanji peoples, Traditional Owners of the project site.

We pay respect to all First Nations peoples.

Meet the Team

Relative Creative

First Nations-led strategic and visual communication designers

Dr Tristan Schultz (Gamilaroi)

Bec Barnett



Water Technology

Water, engineering and environmental consultants

Tahlia Rossi

Dr Daryl Lam

Ben Tate



Aunty Kay Blades

Mandandanji Traditional Owner

Firesticks Alliance

First Nations land management practitioners

Victor Steffensen (Tagalaka)

Leeton Lee (Thungutti, Bundjalung and Mualgal)

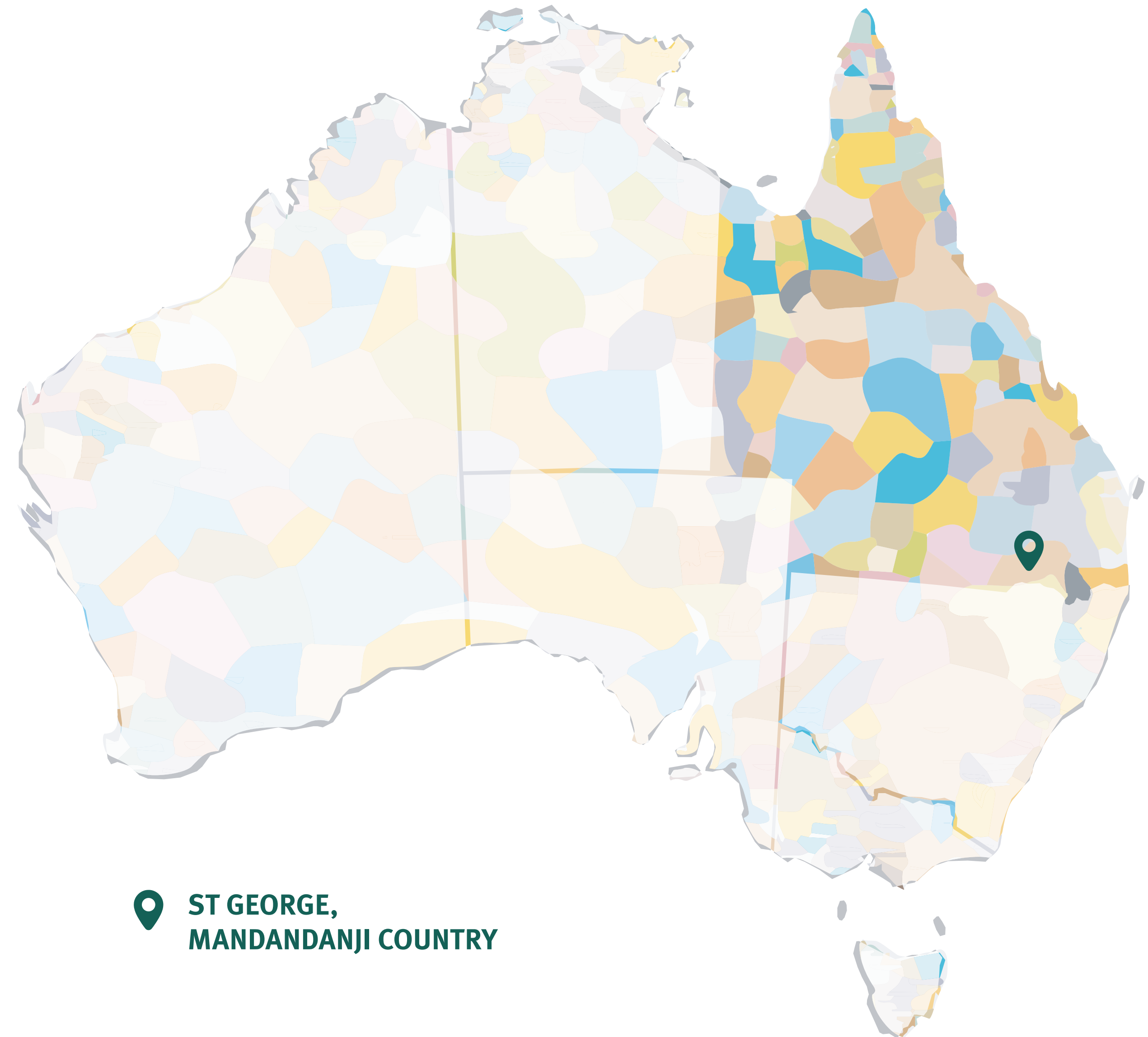
Dr Peta Standly



Project Purpose

The project intention was to better understand how Indigenous Knowledge (IK) and First Nations land management practices (FNLM) could be incorporated into the water modelling pipeline for landscape rehabilitation and landscape resilience outcomes.

The project has focussed on the site of Munga Lake (Lake Munya), St George.



A Note on Terminology

We primarily use the term First Nations to describe Aboriginal and/or Torres Strait Islander peoples, communities, cultures and Knowledges.

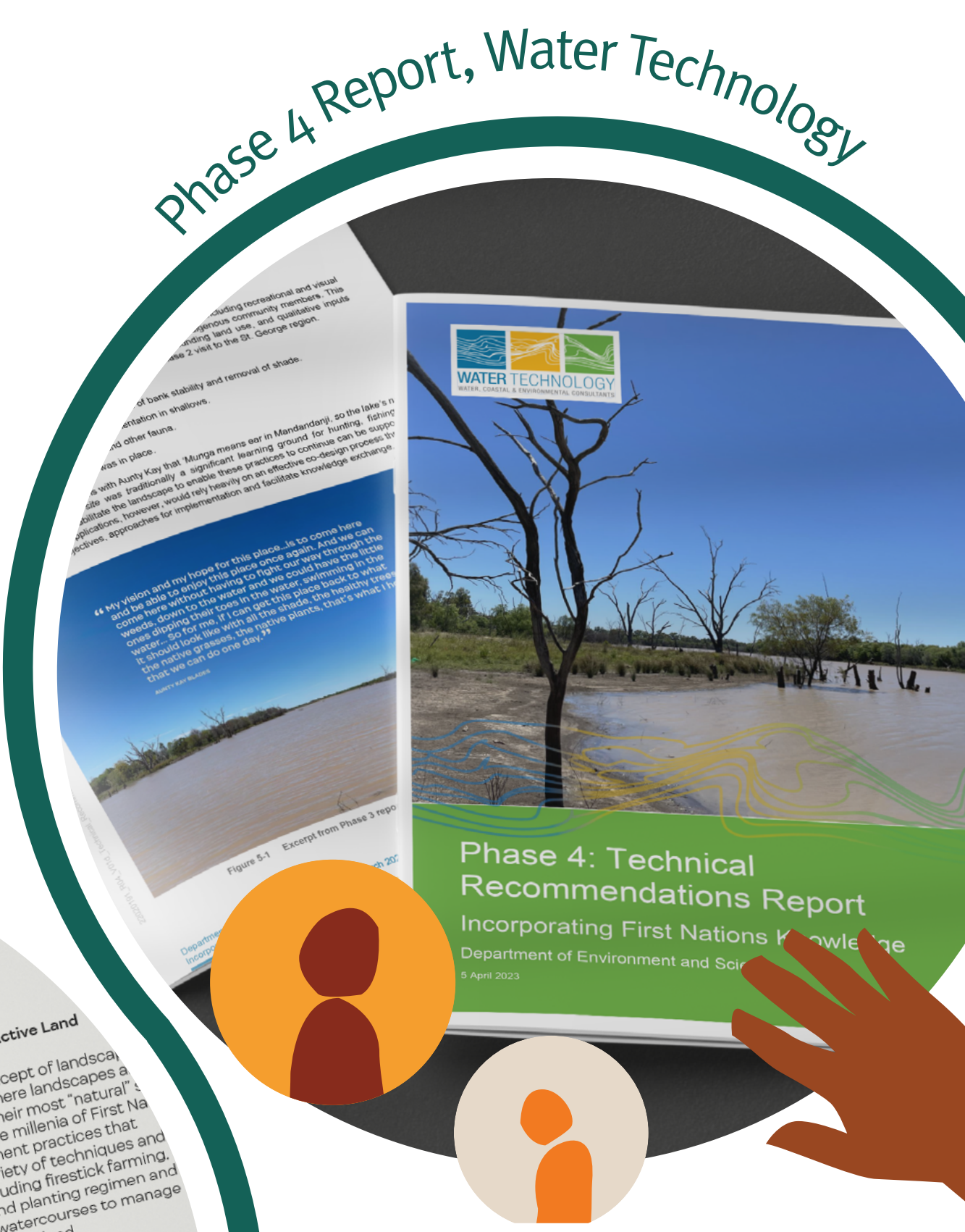
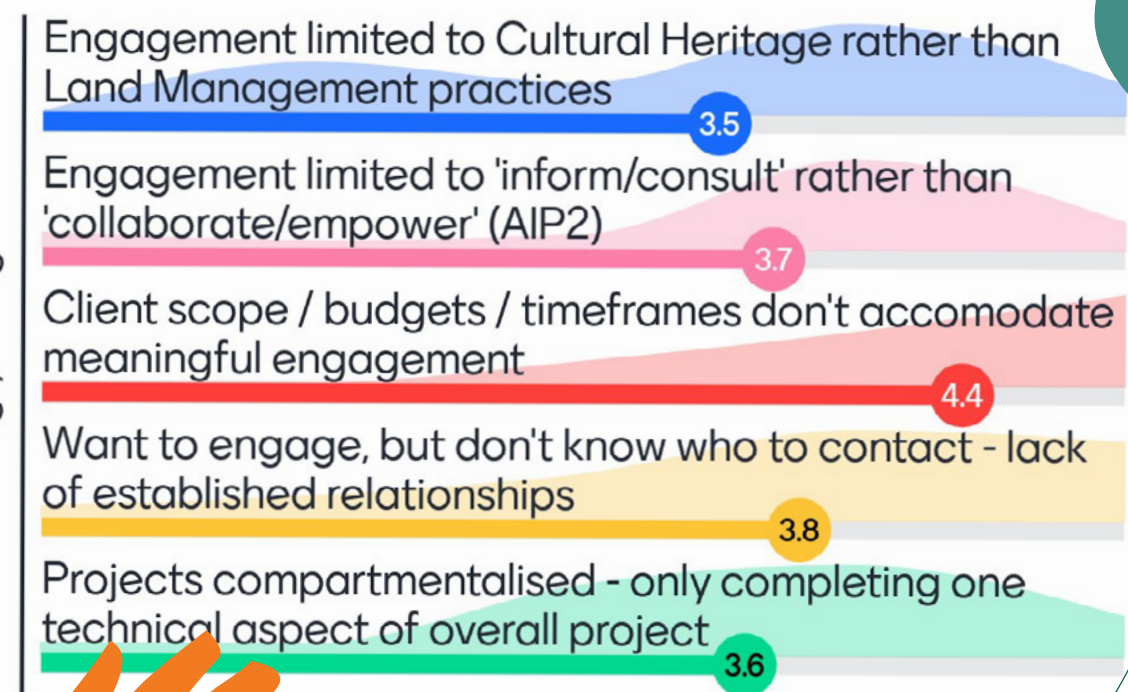
Occasionally we talk about Indigenous Knowledge, this term is widely used within academic fields focussing on Indigenous Studies, Decolonisation and similar fields. Our use of this term relates back to these fields of study, which are global.

When we are discussing a specific Nation/Country peoples or culture, for example the Mandandanji Nation, we use that Nations name, understanding that there are occasionally variations in spelling.

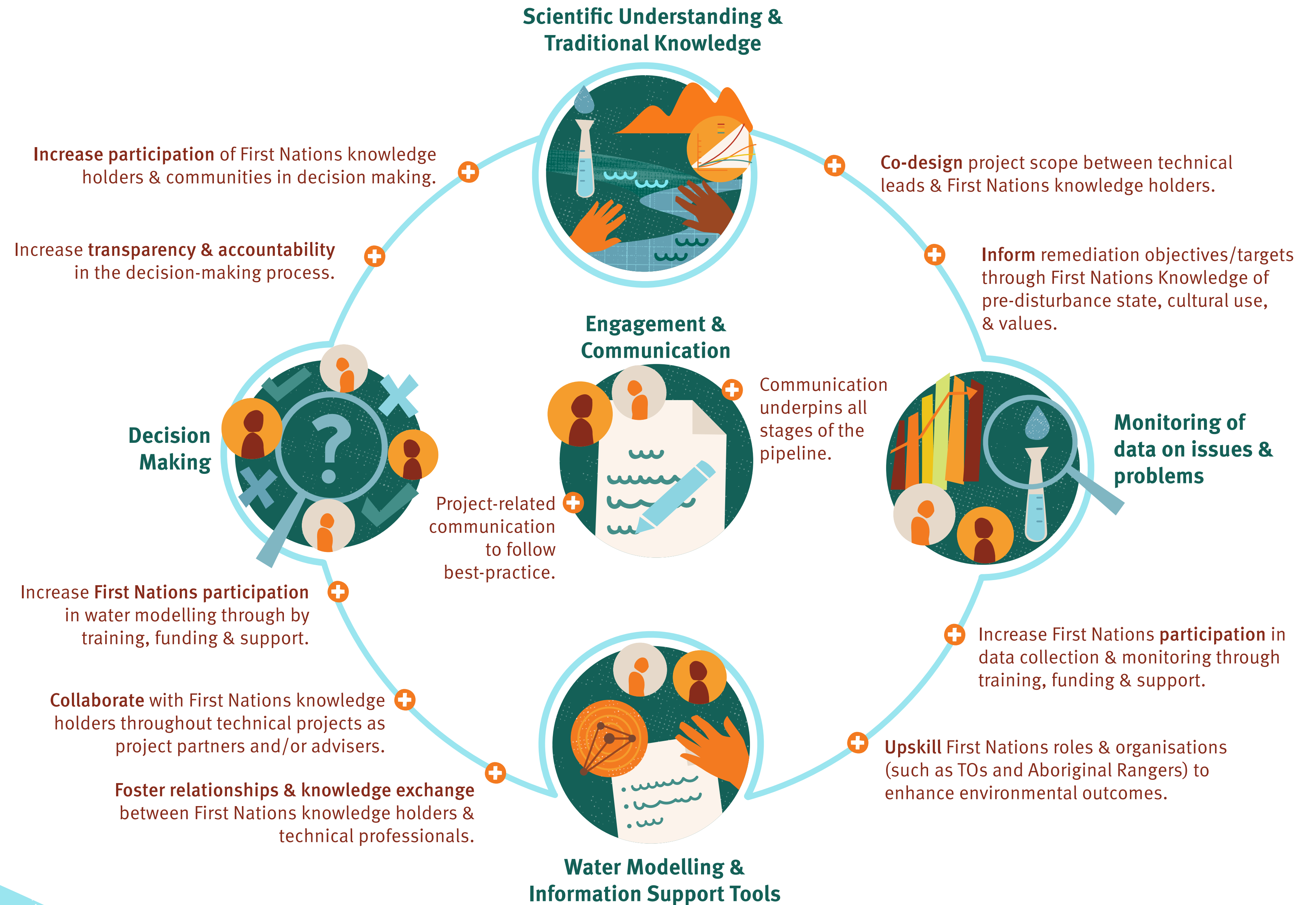
We always capitalise proper nouns.



How we Developed our Recommendations



The Water Modelling Pipeline: Reimagined



Action & Application

What was found

Further funding for Traditional Owners and Aboriginal Rangers to implement practical landscape rehabilitation works on the ground is likely to have positive environmental and social outcomes.



We propose

Test-case how data gathered by Traditional Owners and Rangers could be implemented into technical projects & models:

Further investigation into:

- What **type of data** specifically Aboriginal Rangers (and Traditional Owners) currently collect and could share with government, research and/or industry.
- Whether it is **of interest or fitting for Traditional Owners and Aboriginal Rangers to receive training** to undertake project-specific data collection independently or alongside project partners for a specific project purpose (e.g., flow data, water quality data etc.).

Action & Application



QWMN priority action	Engagement findings	Technical perspectives
PA2.1/PA 3.1 Understand where key knowledge gaps are	The pre-colonial state is a major gap in available data.	There is a need to understand what the desirable state is to which a project seeks to work towards. Also, it's important to keep in mind the previous state may not be ideal with climate change increasing the pressure on landscapes and ecosystems.
PA2.2 Address multi-disciplinary needs of restoration and rehabilitation planning and evaluation	Models could provide information around adjustments necessary to respond to climate change and re-establishing flows despite changes to the landscape.	Multi-disciplinary, multi-stakeholders collaboration is vital.

Conservation vs. Active Land Management

What was found

The western concept of landscape conservation wherein landscapes are maintained in their most 'natural' state contrasts to the millennia of First Nations land management practices that use a wide variety of techniques and practices to actively alter and manage landscapes and landforms for sustainable use and ecosystem health.



We propose

Early consultation and whole-of-project collaboration with First Nations knowledge holders to be more reflective of active management. This could:

- Achieve greater **awareness and value of** First Nations knowledge and land management practices.
- Increase **collaboration on technical projects** for relationship building, greater trust and confidence in modelling, and knowledge exchange.
- Result in **increased climate resilience** of natural landscapes to adapt to climate variability, warming, and species shift trends.
- Occur throughout the water modelling pipeline and rely on a **co-design approach** to set project aims, objectives and processes.

Conservation vs. Active Land Management



QWMN priority action	Engagement findings	Technical perspectives
PA2.1/PA 3.1 Understand where key knowledge gaps are	Data is often drawing on data from ecosystems already altered or in decline, rather than detail of a pre-colonial state.	It is important to understand the ecosystem is not in a stationary state.
CS2 The design, monitoring and evaluation of management interventions...	Projects need to be designed with continued management in mind.	Rehabilitation plans and actions will likely be unsuccessful without continuous management and maintenance.

Valuing & Modelling Indigenous Knowledge

‘Valuing our knowledge’

What was found

More work needs to be done across the industry to support culturally responsive engagement and values shift to ensure Indigenous Knowledge is valued within landscape rehabilitation projects.



We propose

A more collaborative approach to technical projects that includes First Nations knowledge holders in designing the project scope. This could include:

- **Collaborative approaches to projects** using use co-design principles rather than compartmentalisation.
- **First Nations Knowledge sought as a key project input** (such as setting waterway buffers and identifying critical environmental and cultural values for protection such as parent trees).
- **Revision of state mapping** through consultation and collaboration with First Nations knowledge holders, government, and research partners.
- Increased requirements to **consult and include** First Nations inputs to technical projects similar to cultural heritage requirements.

Valuing & Modelling Indigenous Knowledge

‘Valuing our knowledge’



QWMN priority action

PA2.4 Increase capacity building and investment to ensure access to the water modelling tools and capability needed

Engagement findings

Working with TOs and Aboriginal Ranger groups to understand water modelling and support the use of collected data in models where relevant

Technical perspectives

Collaboration and frequent communication is key.

Mapping Climate Change Impacts & Changes to Landscape & Flows

What was found

Interest in the ability of water models to provide further insights to Traditional Owners and Aboriginal Rangers was highlighted, including to identify the limits of rehabilitation works, the impacts of climate change and the use of modelling to inform decision making and funding applications for landscape rehabilitation projects.



We propose

Greater opportunity for knowledge exchange between First Nations Knowledge holders and technical and modelling professionals for great collaborative potential. This could be achieved through:

- Increasing **opportunities for knowledge exchange to occur** generally, and for site-specific and/or project-based applications. This would advance the potential for effective project-based collaboration.
- Alignment with other recommendations to **increase opportunities for First Nations peoples to complete environmental studies** to further participate in landscape rehabilitation projects and in shaping the approach used for projects.

Mapping Climate Change Impacts & Changes to Landscape & Flows



QWMN priority action	Engagement findings	Technical perspectives
<p>PA2.2 Address multi-disciplinary needs of restoration and rehabilitation planning and evaluation</p>	<p>Potential to use water models to provide detail around impacts of climate change and other altered states.</p>	<p>Collaboration between technical professionals and First Nations Knowledge holders would enable enhancement of knowledge sharing and exchange.</p>
<p>PA2.4 Increase capacity building and investment to ensure access to the water modelling tools and capability needed</p>	<p>Investing in training to support TOs and Aboriginal Ranger groups to access water modelling could help benefit projects.</p>	<p>Educating climate change through providing more information to TOs and rangers can equip them with knowledge that can help them evolve their current management practices.</p>

Funding, Jobs, & Training

What was found

Incorporating First Nations land management practices into landscape rehabilitation requires funding for First Nations peoples to apply their knowledge to Country. To be effective, funding needs to be ongoing and support job opportunities for long-term landscape rehabilitation and management.

Further support could occur in the training space, ensuring opportunities for Country-based knowledges to be shared and practiced, and engagement with water modelling can occur.



We propose

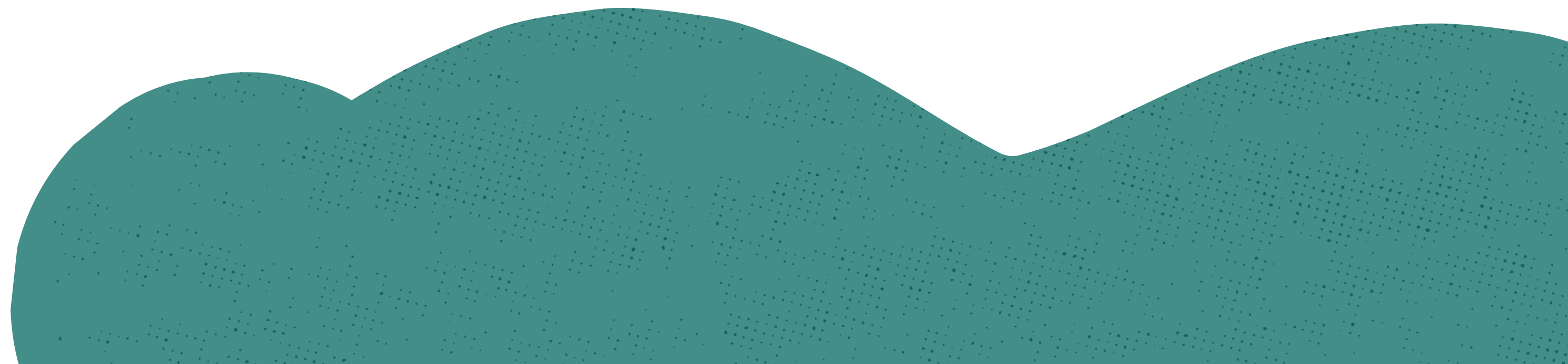
Increasing funding, jobs and training would made a significant difference to the ability to incorporate First Nations Knowledge and land management practices. This could be achieved through:

- Government investment in **increasing policy and guideline requirements** to include First Nations knowledge in landscape rehabilitation projects.
- Application of **best practice for remuneration and protocols** and how this can be achieved on a project-by-project basis.
- Investment in **supporting and recruiting First Nations peoples into university courses** that lead to careers in landscape management and rehabilitation.
- Government and industry **recruitment focus and internship programs** supporting First Nations entering the workforce.
- Industry bodies **raising awareness of collaborative project approaches** including First Nations knowledge holders in technical projects.

Funding, Jobs, & Training



QWMN priority action	Engagement findings	Technical perspectives
<p>PA2.2 Address multi-disciplinary needs of rehabilitation and rehabilitation planning and evaluation</p>	<p>Consideration for how water modelling can support the justification of increased employment in the landscape rehabilitation space.</p>	<p>Professional and technical service industry could consider how they can facilitate and enhance more inclusive workplaces and workforces within their scope of influence.</p>
<p>CS2 The design and monitoring and evaluation of management interventions, to focus investments and efforts for maximum impact.</p>	<p>Supporting continued funding for landscape rehabilitation through modelling the difference First Nations land management practices make to landscapes.</p>	<p>This will provide further scientific evidence to the benefit of First Nations land management practices being further funded and integrated in projects.</p>



Data Sovereignty

‘Our knowledge, our data’

What was found

Concerns were raised around losing control of First Nations data were it to be shared. Data sovereignty is a theme we have noticed as recurring in many recent engagements.

In this context it relates to “the right of Indigenous peoples to govern the collection, ownership and application of data about Indigenous communities, peoples, lands, and resources” (AIATSIS, 2019).



We propose

Data agreements are standard practice detailing the ownership and permitted use of the data shared; however, this typically relates to quantitative data. Further work could be done, including:

- **Data definition and further identification of the types of data** that could be generated for technical projects could be investigated, to be inclusive of qualitative and quantitative data.
- Development of data agreement **incorporating ICIP** could serve as a template for managing data sovereignty for First Nations peoples yet enable inclusion in projects.
- Establishing **co-designed guidelines** around the use and ownership of data.

Data Sovereignty

‘Our knowledge, our data’



QWMN priority action

Develop data and approaches to ensure water models are relevant, effective, and efficient and consider non-traditional information sources

Engagement findings

TOs and Aboriginal Ranger groups have the ability to (and in many cases already are) collect data that could be used in models. Co-designing guidelines around data sovereignty is an important step to engage with this data.

Technical perspectives

Better understanding and clarification is required in terms of data ownership, management and use.

Engagement Practices & Protocols

What was found

While there are guidelines and protocols published for best practice engagement further work is required to train and support industry representatives in meeting these protocols.

Consultation fatigue and a lack of accountability and follow-through is a critical flaw in projects, and if perpetuated, is likely to form barrier to First Nations peoples continuing to engage in projects.



We propose

In addition to the implementation of prior recommendations technical projects decrease the occurrence of engagement malpractice by:

- Valuing the **role trained and experienced engagement practitioners** bring to a project.
- Investing time and budget in the scope of technical projects to **include adequate resources for engagement planning, implementation, reporting and ongoing communication** throughout the project .
- Additional consideration when projects engage with First Nations peoples, that a **First Nations advisor and project review role** is included, and that all engagement activities have been designed to be **culturally appropriate, respectful, and responsive**.
- Increasing **accountability of decision-makers for post-project communication and implementation** of recommendations.

Engagement Practices & Protocols



QWMN priority action	Engagement findings	Technical perspectives
PA3.3 Develop resources, guidelines and standards to ensure water modelling in Queensland is best practice	Further work to consider how budgets, timelines and engagement approaches are best practice.	Increase accountability of technical projects that include engagement to follow best practice frameworks, by trained engagement practitioners, and conducted in partnership with First Nations advisement.

The Water Modelling Pipeline: Applied

The outlined key project stages and tasks provide an overview of the approach the project team would take to implementing a case study involving the site.



Scoping & Setting Objectives

- Identify ideal state outcomes (Traditional Owners and Aboriginal Rangers).
- Set targets to achieve through project.
- Site visit at Munga Lake (co-design engagement).



Identifying cause of environmental degradation

- Desktop assessment of catchment conditions and constraints.
- Water balance modelling.
- Identify water regime required for remediation.
- Reporting & presenting results (co-design engagement).



Identifying physical works required

- Modelling scope to be determined by co-design and initial results.
- Hydraulic modelling.
- Identifying options, effectiveness & costs.
- Reporting & presenting results (co-design engagement).
- Prioritisation of works.



Implementing actions

- Short term solutions that can be implemented on site.
- Long term targets (e.g. business cases to prepare)).
- Management report (co-design engagement).
- Communicating project process, findings & outcomes.

Thank you!

Stay in touch:

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