



Water Resources Development and Decision-making Framework for Remote Aboriginal Communities.

Dr. Kerri Muller
June 2024

*Phase 1- A case study at Iga Warta and
Mount Serle Station with the
Adnyamathanha people.*

Artwork by Leaha Coulthard, 2024.



Cover artwork story:

The painting on the cover of this report and in the background of the framework was done by Leah Coulthard (June 2024) as part of a water project, depicting the different Muda and the water points around the Mt Serle area.

Mt Serle Muda

The Frome Creek runs through Mt Serle property and water points along the creek were very important for ochre traders from the north. Frome Creek is the only major water way that feeds into Lake Eyre.

The Artuwarapanha is the mountain that represents an old woman under the blanket.

The Wildu (Eagle), Wakarla (Crow) and Urrakuli (Magpie) Muda are also depicted in this picture.

The campsite is the homestead and the Wabma Vapa Yurru (baby snakes' range) is the Muda that is about the snakes circling the camp and trying to put people in a cage.

The Alku (Black Oak) Muda is the people escaping the Wabma Vapa by running up the hill and out of the cage.

You will also see in the sky the Vidyla Vari, night creek (Milky Way), Artunyi (Seven Sisters), Miradityi (Saucepan), Vudlupila Valnarpa (Magellanic Clouds) & Vurdnu Muku (Tripod).

Traditional Custodians Acknowledgement

We pay our respects to the Traditional Owners of the lands and waters upon which we work. The case study for this project was the Iga Warta and Mt Serle properties on Adnyamathanha Country. Our offices where this report was prepared are on Ramindjeri Ngarrindjeri Country. We acknowledge the deep connections of Traditional Owners to Country and that this island continent always was and always will be Aboriginal land.

AU2100 and Kerri Muller NRM work across Australia with Aboriginal Australians to enhance Country. Through our work we seek to share knowledge, engage and empower First Nations people through meaningful relationships built on mutual respect, understanding and acceptance of each other.

We recognise the full range of First Nations' connections, rights, interests and obligations for Country and the vital importance of water for remote Aboriginal communities to thrive on Country and be able to undertake their cultural responsibilities. We seek to walk together with First Nations people to build natural capital for the Year 2100 and a better future for us all.

Acknowledgements:

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Summary

South Australia is the driest state in the driest inhabited continent on Earth. It has also been inhabited for at least 60,000 years and yet some of our First Nations peoples do not have water of a quality or quantity suitable for drinking or other daily domestic needs, let alone enough to support their economic ventures. Some remote Aboriginal communities in South Australia are responsible for their own water supplies and do not receive water from the South Australian Water Corporation (SA Water) or any other third-party provider. These self-supplied communities are not only remote, but they are also located in arid or semi-arid areas with varying levels of existing water resources development that may increase their risk factors. They are, therefore, highly vulnerable to insecure water supplies and/or poor water quality. These communities need support to rectify this situation and find ways to provide secure water supplies to meet their critical human needs, as a minimum, and preferably supplies sufficient to support achievement of their community's well-being and prosperity goals.

In 2023-2024, the Department for Environment and Water (DEW) audited nineteen remote self-supplied communities in South Australia (DEW, 2024). Their water security risk assessment for these communities over the next 10 years found that many were at risk of running out of water due to reliance on climate sensitive water sources and vulnerability to future declines in water availability expected under a changing climate. As part of the response to this audit and other work conducted by the South Australian Council of Social Service (SACOSS), this project was developed and funded through the Consumer Advocacy Research Fund (CARF), which allocates a proportion of licence fees under the *Water Industry Act 2012* for research and advocacy that promotes fair and equitable access to water for all South Australians. DEW administer and oversee delivery of these CARF projects.

This CARF project aimed to co-design a water resource development decision-making framework with one of the highly vulnerable communities identified by DEW that could be used to help secure water supplies for these remote, self-supplied communities. The DEW audit found that the Iga Warta community was at high risk of water insecurity in terms of both water quality and quantity. Significant water supply issues failed to meet their household requirements and limited their economic activities as well as creating cultural well-being, health and social issues. By going through the risk assessment and water resource planning processes detailed here, the community were able to articulate their water needs and were successful in attracting funding from the Office of Local Government for a new bore.

The framework presented here is a methodology for remote Aboriginal communities in South Australia to engage with Government agencies, industries and other stakeholders to:

- Co-design a water management strategy to meet community goals and objectives;
- Assess the availability and condition of water resources and existing infrastructure; and
- Explore risks, benefits and opportunities for wisely using existing water and harvesting additional water, if needed, to meet their goals.

Meaningful and respectful engagement and knowledge sharing is at the core of the framework and a suite of engagement principles, practices and questions have been provided to guide discussions. Examples from the Iga Warta case study and other First Nations engagement are provided. Although documentation and detailed planning are encouraged, this framework can be used in a variety of ways and at different levels of formality to suit the planning team's resources and timeframe.

The provision of adequate, fit-for-purpose water supplies to all remote Aboriginal communities is a critical human need. Access to clean and secure water supplies will enable First Nations people to remain in remote communities caring for Country, and importantly it will allow those that have been excluded from living on Country due to a lack of potable water, to move back and reignite their cultural connections and practices. Water provision beyond these essential services can be used to achieve community goals and enable self-supplied remote communities to thrive.



1. Background

Self-supplied remote communities are at a high risk of not having adequate water supplies of suitable quality water to meet their basic living requirements. There are different sources of water in different parts of the country, however, many communities rely on water sources that are very sensitive to the region's climate (e.g. rainwater tanks), that may be influenced by other users (e.g. groundwater aquifers, waterholes) and are likely to be vulnerable to climate change (e.g. changing rainfall patterns, increased evaporation from increased temperatures).

Key water supply challenges identified by DEW (2024) and through this project for remote Aboriginal communities in South Australia include:

- Limited access to regional water infrastructure (e.g. piped supplies to townships);
- Ageing infrastructure on-site that may not meet industry standards and is difficult to maintain, rectify or replace;
- Small populations with limited financial resources to fund new works;
- Climate and environmental factors (e.g. increasing numbers of days over 40°C, variable rainfall);
- Geographic isolation makes accessing spare parts or skilled labour difficult and expensive to source, and Government services may not be available in a timely or efficient manner;
- Heavy reliance on discrete and limited water supplies (e.g. rainwater, groundwater) that are at risk from pollution or overextraction; and
- Lack of monitoring of water quantity and quality at a local or regional scale to inform management decisions.

These challenges have been apparent for some time and are well-recognised by a number of Government agencies. For example, Closing the Gap (<https://www.closingthegap.gov.au>) is a national strategy that seeks to achieve equality for Aboriginal and Torres Strait Islander people in health and life expectancy.

Water is one of the essential services needed to meet Closing the Gap targets such as Target 9b which states that by 2031 all Aboriginal and Torres Strait Islander households within discrete communities will receive essential services that meet or exceed the relevant jurisdictional standards.

The South Australian Government has also committed to ensuring that the critical human water needs of all South Australians are able to be met, including for those South Australians living in remote communities (DEW 2022).



2. The Case Study

The Iga Warta Homeland Community is a one square kilometre area in the northern Flinders Ranges, South Australia. Established in 1996, Iga Warta can house 25 permanent Adnyamathanha residents and the on-site cultural centre showcases the culture of the “rock people” to people staying at the campgrounds, and day tourists. Iga Warta is fully Aboriginal owned and managed, offering camping experiences and cultural tours that include the Yalmarralpana Ochre Pits.

In late 2023 at the commencement of this project, only eight people were living at Iga Warta out of a former resident population of 25. The campground and commercial kitchen were closed, and the swimming pool was unusable due to the lack of water of sufficient quality and quantity to provide these services. Tourists could not be charged for water because there was not enough good quality water to share, and the remaining water was of such poor quality that tourists could only be supplied with enough water to get back to Leigh Creek, 56 kilometres away.

Key challenges to their water security were prolonged drought periods, groundwater contamination with iron bacteria, and infrastructure damage due to high calcium concentrations in the groundwater corroding pipes, pumps and domestic appliances. Iron bacteria outbreaks occurred annually and during these periods the groundwater could not be used for showering and household use, meaning that the community was solely reliant on rainwater for household use.

The Iga Warta Aboriginal community was assessed as being at high risk of water insecurity for potable and non-potable water use (DEW 2024a). Their significant water supply issues limited their economic activities as well as creating cultural well-being, health and social issues.

Historically, there have been numerous governance and investment roadblocks for new water infrastructure construction and maintenance at Iga Warta, but in January 2024 a new bore was installed funded by the Office for Local Government. This new bore is expected to meet a large part of the water demand at Iga Warta, especially in conjunction with installation of more rainwater tanks which is proposed to be undertaken under a future National Water Grid Fund project, although funding is not yet available. The water delivery infrastructure across the property, however, still requires repairs due to thick iron bacterial crusts blocking the pipes. The water still has “septic” smells and can be murky, suggesting that the system needs to be cleaned or replaced and that additional rainwater tanks will still be needed to ensure high quality water is available at the houses.

The new bore has allowed the swimming pool to be filled again acting as a significant community asset with Adnyamathanha community members coming from all over the region to use it. The swimming pool at Iga Warta is more important than ever now the natural water holes have dried up and the community pool at Leigh Creek has closed. The pool is also an important source of firefighting water, which is important for the safety of guests, road users, tourists and residents. Tourism assets at Iga Warta have been upgraded, including new tents, now that the shower block is useable again. Being a cultural hub for the Adnyamathanha people it is important that the facilities at Iga Warta are suitable for accommodating 75 people at normal capacity but up to 500 community members for gatherings such as weddings, or sorry business. The cold water is flowing well into the commercial kitchen since the new bore was installed, but hot water still needs to be bucketed in until the pipes and hot water service are replaced.

The extent that the new bore meets the community’s needs at Iga Warta will depend on the actual volumes and quality of water that the bore yields as well as the volumes and quality of water needed to meet the community’s aspirations.

The neighbouring Mount Serle property is a 497 square kilometre pastoral lease that was a significant pre-European camp site for Adnyamathanha people and includes over 70 culturally sensitive and sacred sites. The landscape features in many dreaming stories and the intermittent Frome Creek runs through the property on its way to Lake Eyre. This was part of an important trade route for ochre and other materials, which extended from Lake Eyre to the Kimberley and Cape York

(see cover artwork and story). Iga Warta currently holds the lease for Mount Serle Station. Restoration works including the removal of stock and 7,000 feral goats has seen the resurgence of rare and threatened native plant species. There are three houses at Mount Serle that are currently undergoing repairs. There are not currently any permanent residents, but once the houses are fixed and the water supply is made secure, there is capacity for 20 to 30 people to live there.

3. The Framework

The water resource decision-making framework for remote Aboriginal communities that grew out of the Iga Warta case study is depicted in the centre of the artwork by Leah Coulthard (Figure 2). This reinforces the fact that contemporary water resource management overlays many thousands of years of active management of the landscape and protection of these waters for all users and for their intrinsic value as part of the cultural landscape by First Nations people. It also reminds us that the Adnyamathanha people have been mining and trading for thousands of years and that water resources management is an intrinsic part of those ancient cultural practices.

This framework has been tailored for the water resources planning challenges relevant to remote Aboriginal communities in South Australia that are self-supplied, but it can be transferred to other planning processes. The methods are based on industry standards (e.g. ISO14001) and well-researched structured decision-making processes (e.g. Gregory et al. 2012), although they have been collated, adapted and refined to suit the needs of this project.

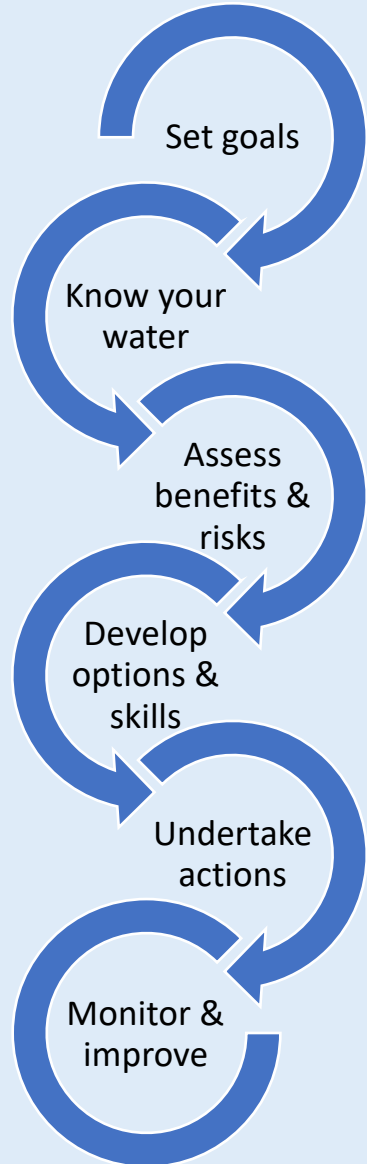
3.1 Listening to Country.

The nucleus of this framework is listening to the Country itself that the community is situated on and for which the community members involved in water resource planning are responsible for. The landscape tells a story of water availability both now and in the past.

Remote Aboriginal communities in South Australia are in arid or semi-arid landscapes with low annual average rainfall that typically comes in large events over the summer months. Cultural stories and a shared understanding of Country provide valuable insights into eco-hydrogeological processes and patterns that are important for wise water management over the long term for the region under consideration. There may also be a role for subject matter experts to share their knowledge and research findings. For example, the first engagement exercise in the case study involved community members, geologists, hydrogeologists, ecologists, water planners and infrastructure managers meeting on Country to listen to the challenges the community had with water supplies and work together to examine possible sites to find a preferred location for a new bore that would yield good volumes of suitable quality groundwater. This brought together cultural knowledge of the landscape, the practical wisdom of community members that find solutions to these challenges daily and the technical knowledge of experts to find the best spot for a new bore.



**Water resources
planning framework for
remote Aboriginal
communities.**



Artwork by Leaha Coulthard, 2024.

3.2 Engage & Share Knowledge.

The foundational process that runs through the whole framework is genuine and respectful engagement between all interested parties. The common aim is to co-design water resource plans that meet the needs and aspirations of the specific remote Aboriginal community or communities involved. Knowledge sharing is an essential element of this and given the complexity of many water resources planning processes for remote Aboriginal communities, this is likely to require the sharing of knowledge across many sources and disciplines, including First Nations peoples that can speak for that Country and subject matter experts (e.g. ecologists, hydrogeologists, hydrologists, geologists, planners). It is also important that sufficient time and resources are provided for engagement to be meaningful and to give time for people to understand different perspectives and explore multiple creative solutions to water resource planning problems.

The key aims for engagement using this framework are to build relationships that:

- Allow for a shared understanding of the problems to be developed,
- Provide opportunities for issues to be explored in-depth and for creative solutions to be generated, and
- Support coordinated action to provide safe and secure water to all remote Aboriginal communities.

It is also important that the community builds their understanding of the water resource risks and the potential benefits and opportunities associated with better water management, if required. This is particularly important given that these are self-supplied, and therefore largely, self-managed communities.

Suggested engagement principles, practices and questions are provided in Section 3.

Key engagement messages from discussions with the Iga Warta and other First Nations people about water resources management in South Australia included the following:

- Our waterways are like veins and our wetlands are like kidneys.
- Water moves across Country. We want recognition of our cultural rights to care for water as it moves through our Country – opportunities to practice our responsibilities to care for it.
- Water is part of our culture and our stories.
- If there is not water, there is a reason – this is what our Muda (spirits) tells us.
- A percentage of all water rates or payments should go back to the Aboriginal People as royalties.
- We need cultural rights to water, healthy people, healthy Country – we need better water management.
- There are less waterholes – there used to be more that were clear, free, running before industry and pastoralists pump out the groundwater. Government needs to control the amount of water being taken – it is already too much.
- Our springs are drying up – we are losing our water, our swimming places, our meeting places, the crust of Mother Earth herself gets damaged when too much water is taken out.
- The mulga is dying, too little water underground, stock expose the roots, but also the water table is dropping, and mulga have roots that tap into the groundwater.
- Summer fruiting trees are bearing less fruit, smaller fruit, or no fruit at all.

3.3 Set goals.

Goal setting is an important part of water resources planning. A clear and direct statement of the community's goals will help to make sure that all parties are working towards the same outcome. The goal can be further broken down to objectives and targets for actions that work towards meeting this goal.

Ideally, goals, objectives and targets are SMART meaning that they are:

- Specific - to the location and community's goals
- Measurable – to allow progress to be tracked
- Achievable – to ensure that there is a good chance of success
- Relevant – to the achievement of the community's goal
- Time-bound - to give a date by which the goals, objectives or targets will be met.

If there is not enough water available to meet all the community goals, then there will need to be a process for prioritising these goals.

Case study example

Our vision is for our family to grow the tourism experience at Iga Warta and continue to provide accommodation services to the wider Adnyamathanha community plus setting up the Dr. Clifford Coulthard Research Centre at Mount Serle to be a cultural learning facility for all Universities or others to use. We want to generate income by healing our lands through cultural tours, accommodation, solar, wind, revegetation, carbon farming and contracting.

Objectives identified in the case study included:

- ◇ **Objective 1** – Provide safe, clean water to all houses, the campground, shower blocks and have enough good water to sell or give to tourists who need water.
- ◇ **Objective 2** – Maintain the swimming pool as a community and tourism asset, but also as an essential firefighting water supply.
- ◇ **Objective 3** – Reinstate watering of native food orchard, revegetation propagation nursery and vegetable gardens for fresh food.
- ◇ **Objective 4** – Urgent action to save the older buildings from salt damp, important to have somewhere safe and dry as a keeping place for repatriated artefacts, art gallery, photographs etc – establish a cultural museum once dry and safe.
- ◇ **Objective 5** – Explore opportunities for wastewater re-use, stormwater harvesting, slowing down water to increase infiltration.
- ◇ **Objective 6** – Assess feasibility of wind and solar power using a shared beneficiaries model with other Aboriginal groups and charities.

Ideally, these objectives would now be fed into a prioritisation process by which each objective is assessed against water availability and community priorities and ultimately, a business case for further development at Iga Warta and Mount Serle Station prepared.

3.4 Know your water.

Every water resource is unique in some way in terms of quality and quantity of supplies, however, water in remote South Australia is typically sourced from rainfall, groundwater, dams or purchased water (e.g. bottled or piped). Water holes, springs and rivers are generally not reliable sources of water, which may be due to the impacts of existing or historic water use and/or a changing climate, as well as being a naturally arid climate.

Water source assessments can include the following themes:

- 1 Water uses – volumes and quality of water needed for household water use, gardens, orchards, stock, feral animals, swimming pools, firefighting, etc
- 2 Water sources – volumes and quality of water available from different sources including groundwater bores, rainwater tanks, dams or purchased water.
- 3 Infrastructure condition audit – map out the water delivery and storage system, and assess the condition of pipes, pumps, weirs, tanks and other infrastructure to check for leaks or other damage.
- 4 Opportunities for new sources – this is likely to be limited but may include additional roof area, gutters and rainwater tanks to increase roof catchment, re-use of grey water or stormwater, access to new pipelines or other regional water supplies (e.g. proposed desalinated water pipelines from Cape Hardy to northern South Australia).

3.5 Assess benefits & risks.

Risks to water supplies need to be assessed in a systematic way, but it does not need to be an overly onerous or formal process. Ideally, risks are identified and then ranked based on the likelihood and consequences of each risk actually occurring.

Risks factors may include:

- Changes in the character or health of water-holding Country
- Changes in source water availability
- Water quality issues
- Changing demand
- Licensing restrictions

Consequences that might be associated with these risks can be scored as low, medium or high (DEW 2024 a and b) and may include:

- Frequency and duration of the community's loss of, or reduced access to, water supplies
- Health and social impacts of poor water quality or not having enough water
- The proportion of the community impacted upon and the impacts on the population size of the community (e.g. more people can live on Country if there is good quality water available)
- Impacts on infrastructure and machinery (e.g. whitegoods, car parts, swimming pools, pumps, pipes etc) due to poor water quality

The likelihood of these consequences being felt as actual impacts will depend on how well the water supplies met the prioritised needs of the community and how secure the water sources are. The likelihood of them occurring can be scored from certain to almost never.

A simple table can be prepared that lists each of the possible risks (or impacts) and their individual scores for consequence and likelihood. In this way the risks can be ranked from the highest level (e.g. high consequence and being certain to occur) to the lowest level (e.g. low consequences and almost never occurring). This will help prioritise actions towards the highest risks.

Discussions about risks and negative impacts often leads to a broader discussion about benefits (positive impacts), opportunities and options for fixing problems.

Benefits and opportunities may include:

- Improved health and well-being of community residents.
- Increased unity and stability for the community, particularly residents of communities that are made more water secure and can then support a larger population.
- Increased numbers of people able to practice their cultural responsibilities.
- Expansion or creation of tourism activities or other cultural enterprises that can increase employment opportunities on Country.
- Production of native or exotic foods for community use and/or sale.
- Opportunities for education and awareness raising about the importance of managing water wisely within and outside of the community.

3.6 Develop options & skills.

Water management in remote areas with low rainfall is often complex and challenging. Once the community has identified its aspirations and assessed the risks, benefits and opportunities associated with its water sources, then there is a need to explore a wide range of creative solutions to overcome challenges and reduce risks. People that have lived with these water challenges for many years or generations have a wealth of practical wisdom that can be drawn upon to identify potential actions. It is important to not be too concerned about current water restrictions when thinking creatively, but rather let the ideas flow and then prioritise later.

Conversations that are open-ended and held in a comfortable setting can generate creative thinking about options for managing water and on-ground action. This is the time for blue sky thinking and not being held back by practicalities too quickly. Once a list of easy to do, potential or even seemingly fantastic solutions has been generated, the different options can be compared, evaluated and refined into prioritised action plans.

As well as coming up with ideas, community members may also need new skills to undertake planned actions as well as trouble shoot, maintain and repair water infrastructure. These essential skills may only be the beginning of the capacity building opportunities associated with more secure water supplies and there may be a range of skills that community members want to invest in to achieve their community goals and their personal aspirations.

Skills audits can be undertaken to identify training needs and aspirations, which may include:

- Plumbing or irrigation or other trades
- Remote data and information management
- Tourism or hospitality
- Native vegetation propagation and management
- Cultural rangers or other Government co-management opportunities
- Business administration or financial planning

- Communications, marketing and engagement
- Graphic design, art or craft etc.

3.7 Undertake actions.

Action planning and implementation is where the framework can really start to make a difference to the everyday lives and long-term outcomes for remote Aboriginal communities.

Action plans can be simple or highly detailed, but often include:

- Why – a brief reason for why the action needs to be taken.
- What – a description of what needs to be done.
- Where – details of the location, site, building or room where the action needs to occur.
- How – what skills, tools, instructions or materials will be needed.
- Who – names and contact details of community members, contractors and other people who are going to undertake the tasks.
- Costs – a realistic estimate of the budget needed to complete the action.
- Timeline – this may include target dates for the beginning, end or in-between steps.

Actions that were identified in DEW (2024) and the case study included:

- Assess the condition of existing bores and prepare a maintenance or repair plan (e.g. partially collapsed bores can be rehabilitated).
- Installation of new bores and header tanks – preferably more than needed to create redundancy in the supply system.
- Investigate the feasibility of water treatment systems to mitigate iron bacteria and calcium problems.
- Install new filters where the water leaves the tank and before it enters the houses.
- New pipes throughout the delivery network due to severe clogging by iron bacteria
- Install more rainwater tanks and guttering on houses to capture clean water for cooking, drinking and bathing (noting that bathing water is usually groundwater although it is hard and difficult to achieve a good lather with shampoo).
- Develop operational plans with the community that outlines roles and responsibilities for maintenance to avoid problems.
- Clean or replace calcium-damaged infrastructure (e.g. pipes, taps, tanks).

3.8 Monitor & improve.

It can be difficult to know whether water supplies or quality are changing unless they are being monitored. Monitoring can be very simple checks such as:

- Measuring the depth of water in a tank once a week.
- Looking for leaks in delivery systems each month or more often if water seems to be being lost from the system; and
- Checking for damage to infrastructure or looking for signs of moisture where it shouldn't be.

Water quality meters can be purchased and as long as they are maintained and calibrated, they can provide valuable information. Otherwise water samples can be sent to laboratories for testing. It is often easy to tell by the smell, colour or taste of water that there is a problem, but some pollutants are not easy to see (e.g. pesticides, heavy metals) and so it is wise to get some water testing done during the planning process and at least once a year to ensure that the community know that the water is safe to consume.

Water resource planning can always be improved, and it can be beneficial to have a process for community members to share ideas or suggestions for improvement or future projects when the ideas arise. That way when the plan is reviewed, new ideas can be explored and not lost.

4. Engagement Principles & Practices

4.1 Principles for Engagement

Based on AIATSIS (2011), NCFRP (2017) and FAO (2023):

- A. Planning and research must meet the needs of the Aboriginal organisation/community;
- B. Research and planning projects are implemented with free prior and informed consent of Aboriginal participants; and
- C. At all stages of the project there will be regard for Aboriginal decision-making processes.

4.2 Engagement Practices

Ideally, engagement will occur on Country at the location where the water is needed to meet the community goals. A diversity of engagement practices may be needed to engage the right people and to give time for people to think through the issues, discuss and consider the different components of the water resource planning process and come up with a range of options for meeting their goals.

Subject matter experts may also be required to attend some or all of the engagement events, depending on the knowledge and research needs of the project. For example, the second workshop for the case study was held in the same regional centre at the same time as a major science forum, which was beneficial for both projects in terms of the scientists getting greater understanding of the cultural knowledge of the water resources they were assessing and the First Nations attendees getting a deeper understanding of the limits to water availability, impacts of a changing climate and likely impacts of industry expansion.

Engagement activities may include:

- Field trips or Regional Workshops with overnight stays, if remote
- After work or weekend family BBQs
- Personal communications (phone, email etc)

Some community members will be residents and can be engaged through field trips to assess the water sources. Others who need to contribute to the water resources plan may not be employed in a capacity that allows them to attend meetings or be otherwise recompensed by a third party for attending. It is important, therefore, that travel expenses incurred in attending regional workshops and/or time commitments for engaging are reimbursed or paid on the day of attendance by the water resource planning funds.

This is particularly important in remote areas where travel distances can be great enough to require overnight accommodation for safety reasons and/or where people who need to be involved in discussions are not living or working on Country and need to travel and potentially take time off work to attend.

4.3 Engagement Questions

The following questions are suggestions only. They are linked to the different parts of the framework and have been designed to facilitate open-ended conversations with community members. They can be used in a range of settings at different levels of detail or formality and tailored to different audiences. Not all the questions will apply to every water resource planning situation. They can be altered to shape the process, as needed.

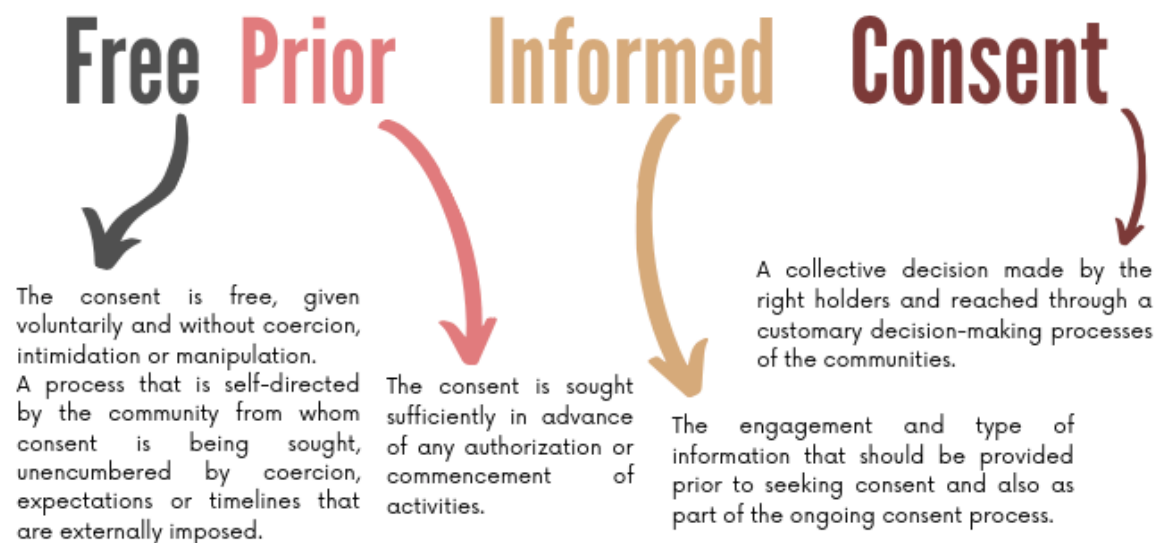
In answering these questions it is acknowledged that only information which is agreed to be shared will be shared and will only be made available to those people, and for those purposes, that have been agreed to. It may be useful to have two versions of the community's answers: one that can be used privately within the community only to help build a common goal and help with daily management, and another that can be used publicly to promote projects or seek funding.

Part A: Sharing Cultural Knowledge and Responsibilities.

1. How should we seek free, prior and informed consent from (insert Nation) people involved in this project?

This is a right granted to Indigenous People by the UN. It allows Indigenous People to provide or withdraw their consent to be involved in the project at any point. It also allows Indigenous People to shape the design, actions, monitoring and evaluation of projects. See Figure 1.

2. Who would you like to be involved in co-designing a water resource planning framework for NATION, PROPERTY or REGION (e.g. family members, community members, government agency staff, subject matter experts, researchers, consultants, contractors)?
3. What aspects of spiritual and cultural connections to Country would you like to share in this plan for NATION, PROPERTY or REGION about your hopes for the future and links to the past?



fao.org/indigenous-peoples

Figure 1: The Food and Agriculture Organization of the United Nations infographic describing Free, Prior and Informed Consent. Source: FAO (2023) <https://www.fao.org/indigenous-peoples/our-pillars/fpic/en/>

Part B: Setting Goals, Objectives and Targets.

4. What would success look like for the XX People if more water was securely available at NATION, PROPERTY or REGION?
5. What would you like to achieve in 5 years, 10 years, 20 years, 100 years etc?
 - Breakdown into goals (aspirations), objectives and targets
6. Would you like to identify and prioritise the economic, social and ecological values connected to water that support the cultural needs and aspirations of the XX people (see Figure 2 for example from Murray Darling Basin Indigenous Peoples)?
7. Are there obligations or responsibilities for caring for Country that you cannot currently undertake that this water plan could reinstate?
8. Are there characteristics of the water holding Country, and the plants and animals that depend on it, which need to be considered in this plan?
9. Are there any connections between people, water, the landscape, plants, animals and rocks (interrelationships) that need to be considered in this plan?
10. Would development of an artwork, conceptual model or a program logic diagram be useful (see Figures 3, 4 and 5 for examples)?
11. What sorts of revenue streams would you like to pursue? And are there any revenue streams that are considered inappropriate? (e.g. tourism, cultural tours, contracting, consulting, arts, funding for cultural rangers, biodiversity credits, carbon credits, grazing cattle as a pastoral property, other).

Part C: Co-designing a water plan.

12. What do you think a water resource plan for your community should contain?
13. What information do you need to help you plan the actions needed to achieve your goals?
14. What are the different water sources can we consider?
e.g. rainwater tanks, groundwater, surface water capture, re-use, other?
15. What are the risks and benefits associated with increasing water supplies and use?
16. What are the (seasonal) patterns or limits associated with these different water resources?
17. Are there rules that need to be made about how much water can be used, when and for what purposes?
18. How can we make sure different people know how to manage and maintain the water supplies into the future (infrastructure – bores, pipes, pumps, tanks)?
19. How will you know that you are on the right path for achieving your goals?
 - in 5 years, 10 years, 20 years, etc
20. What are our key (evaluation) questions about how well we are meeting our goals, objectives and targets?

5. Conclusions

This case study was conducted with a remote Aboriginal community at high risk of water supply failure. It has followed the advice of the South Australian Council of Social Services to move forwards from asking ‘why’ these communities are at risk and provides a co-designed framework for identifying practical solutions that can realise that basic necessity of safe, secure and reliable water supplies.

We found that by following the steps outlined in this framework we were able to secure participatory and informed conversations with the Iga Warta community which enabled distillation of the community’s goals and objectives for Iga Warta and Mount Serle Station.

These goals and objectives enable water solutions in relation to the community’s water security challenges to be founded on their aspirations, holistic and future focussed rather than delivering on the provision of water only for the here and now, which in this case was a much-reduced socio-economic circumstance driven by declining water scarcity.

It is vital for the on-going prosperity of Aboriginal and non-Aboriginal remote communities in remote South Australia that water resources planning is undertaken within the capacity of these water precious and vulnerable resources, whilst also seeking to dismantle long-term and entrenched inequalities with regard to water access for our remote Aboriginal communities and work together for a better future for all water consumers.

Visual or conceptual representations of Indigenous connections to water, and community aspirations for water resource management in remote or regional communities, can be expressed in many different ways that are all valuable to the planning process, as the following examples demonstrate.

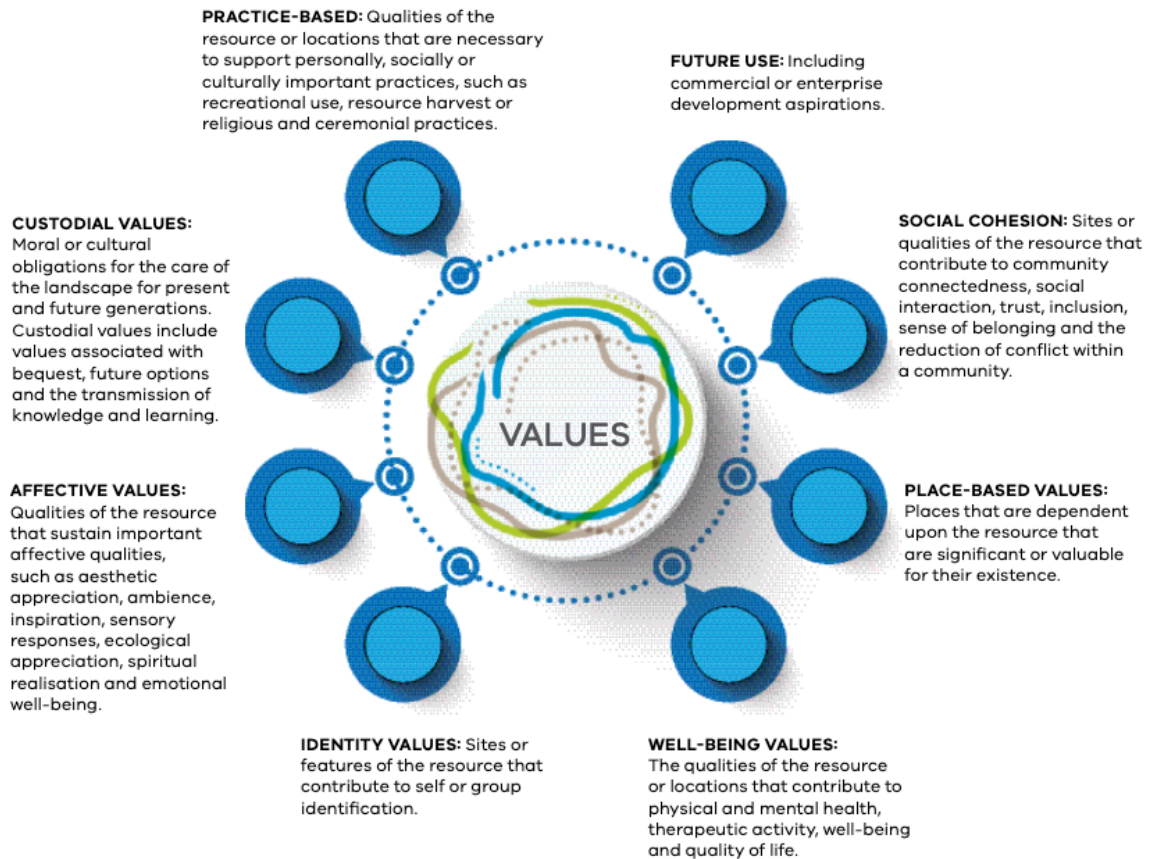


Figure 2: Values identified through cultural water planning in the Murray Darling Basin (Source: NCFRP, 2017).

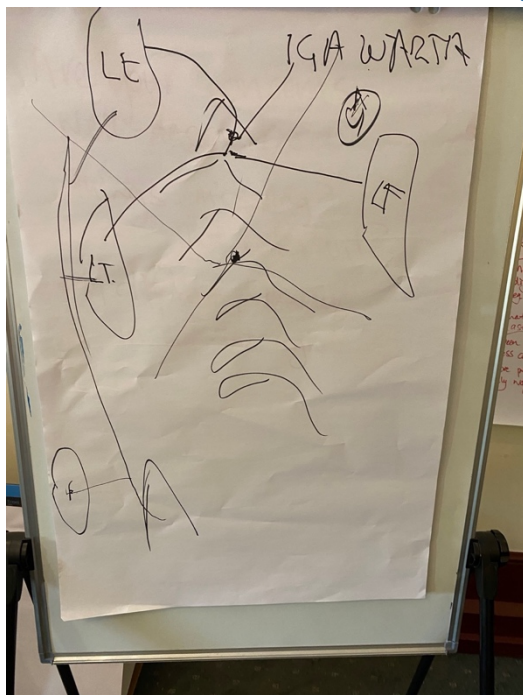
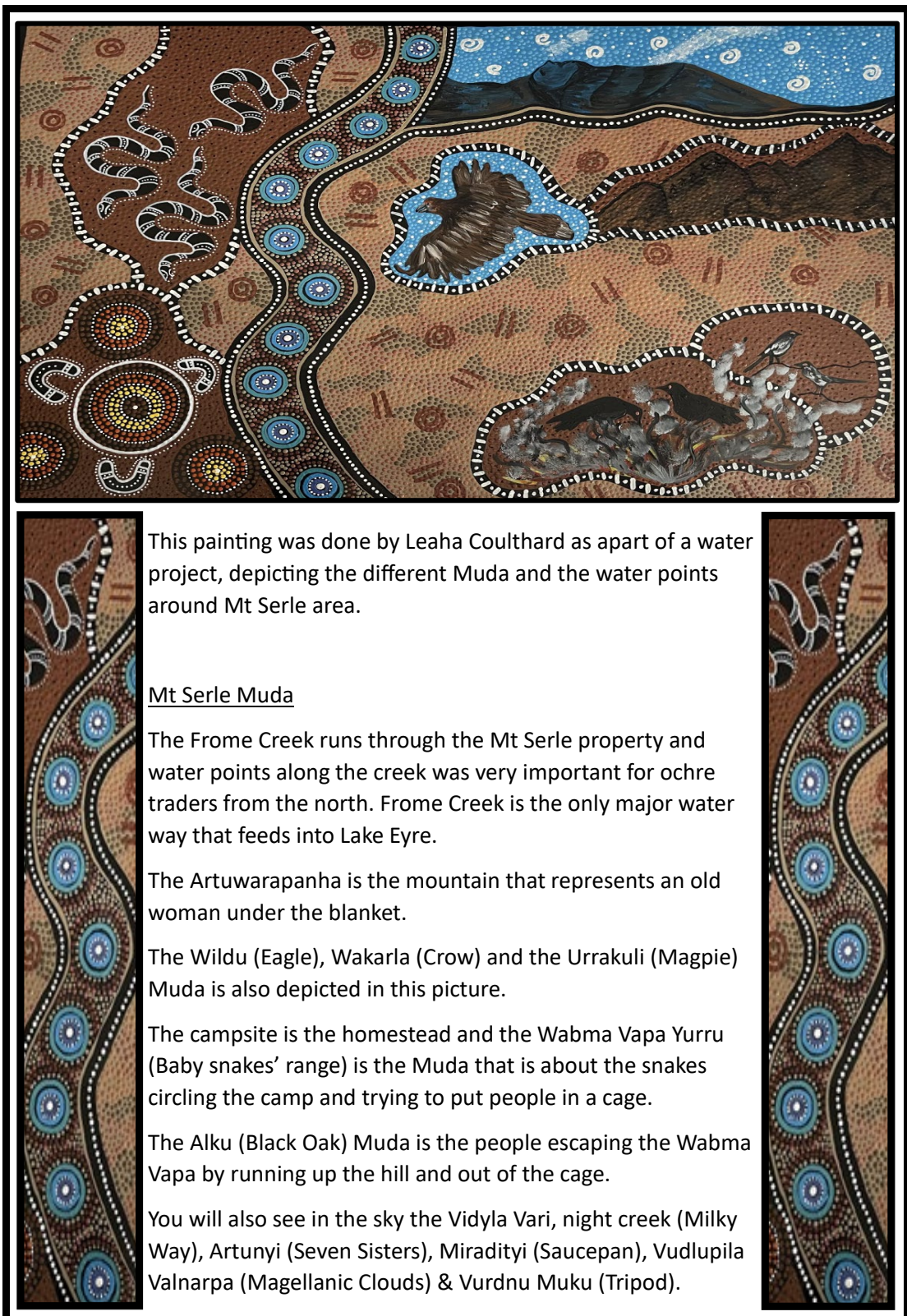


Figure 3: A simple but powerful eco-hydrological model of the Flinders Ranges and regional saline lakes, drawn by Terrence Coulthard at Workshop 2.



This painting was done by Leaha Coulthard as part of a water project, depicting the different Muda and the water points around Mt Serle area.

Mt Serle Muda

The Frome Creek runs through the Mt Serle property and water points along the creek was very important for ochre traders from the north. Frome Creek is the only major water way that feeds into Lake Eyre.

The Artuwarapanha is the mountain that represents an old woman under the blanket.

The Wildu (Eagle), Wakarla (Crow) and the Urrakuli (Magpie) Muda is also depicted in this picture.

The campsite is the homestead and the Wabma Vapa Yurru (Baby snakes' range) is the Muda that is about the snakes circling the camp and trying to put people in a cage.

The Alku (Black Oak) Muda is the people escaping the Wabma Vapa by running up the hill and out of the cage.

You will also see in the sky the Vidyla Vari, night creek (Milky Way), Artunyi (Seven Sisters), Miradityi (Saucepan), Vudlupila Valnarpa (Magellanic Clouds) & Vurdnu Muku (Tripod).

Figure 4: Artwork by Leaha Coulthard prepared as part of the case study on Mt Serle.

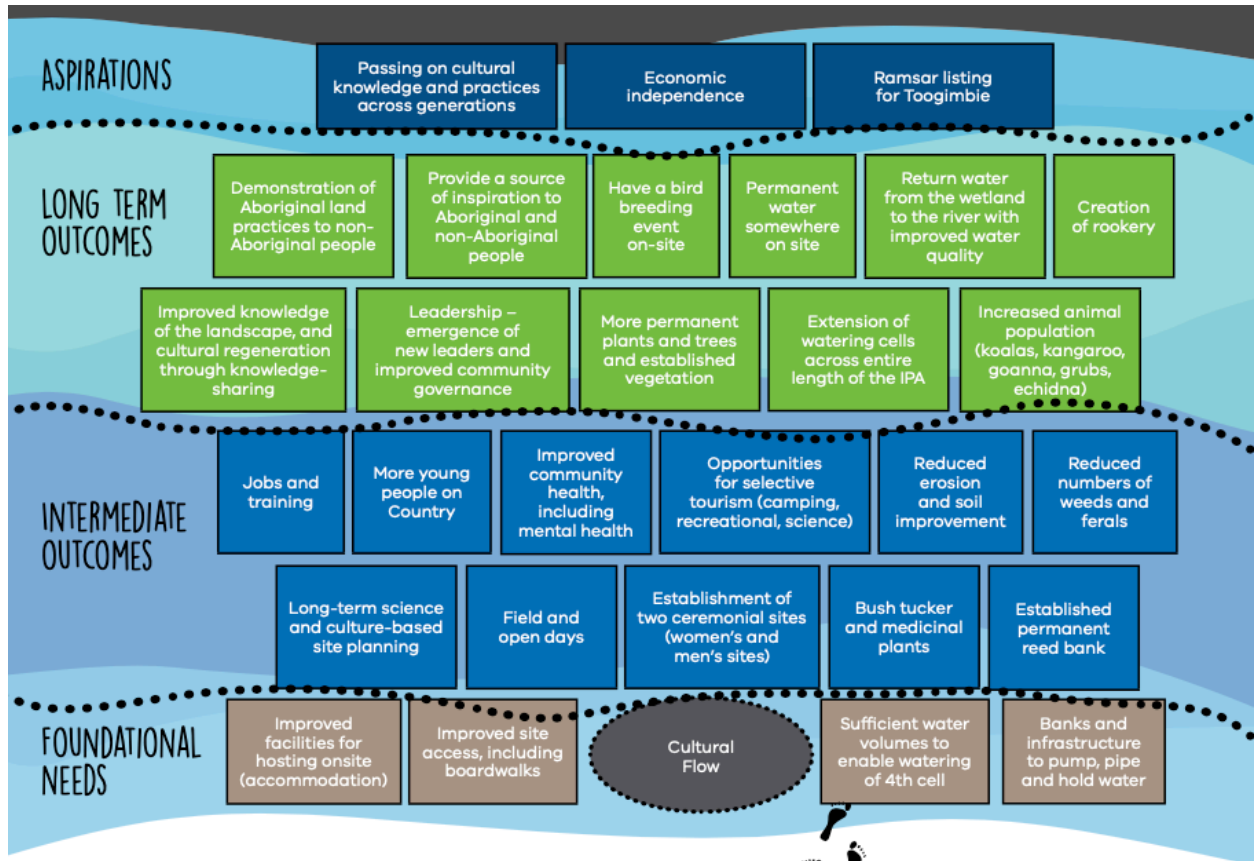


Figure 5: An example of a program logic diagram (Source: NCFRP, 2017).

The numbers in white circles represent key ecological components, processes and services or benefits that would result from a cultural flow allocation; those in orange represent the cultural outcomes.

1. Promotes lateral connectivity between floodplain and parent river;
2. Water is turbid which in turn affects rates and levels of primary and secondary production;
3. Watering triggers emergence of invertebrates from the egg bank, triggering a boom in secondary production (i.e. food for waterbirds and frogs);
4. Lignum, the target vegetation species, undergoes growth and reproduction;
5. Presence of water supports a diversity of birds predominantly ducks, grebes, swan, spoonbills, ibis and rails and crakes;
6. Increased health and density of lignum supports waterbird breeding (nesting sites);
7. Proliferation of harvest species, including bushfood, iconic fauna species relied upon for hunting, and the availability of plant species for medicine, artefacts, ceremony and culture enable traditional practice;
8. Cultural management of the site through traditional practice fulfils cultural obligations for the maintenance of artefact, burial and occupation sites, connected to the belief in the continuing spiritual presence of ancestors in the landscape;
9. Greater access to traditional medicine and participation in cultural management of Country present benefits associated with mental health and wellbeing improvements of Aboriginal people on Country, reduced influence of drug dependence of community members involved, and regional scale public beneficial health outcomes;
10. Support for culturally significant species;
11. Rapid drying during summer results from high temperatures and increased evaporation as the wetland is shallow. With the onset of drying waterbirds will move onto other systems, with the cycle beginning again with the arrival of water into the system.

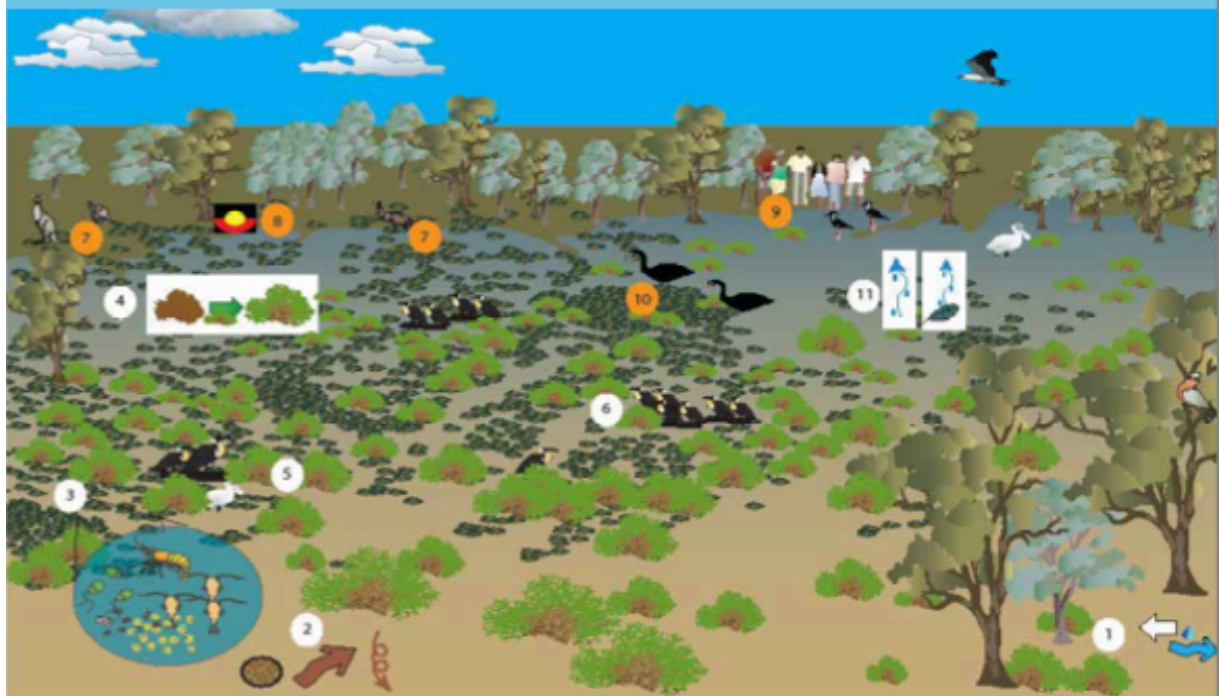


Figure 6: An example of a conceptual model – this one is for Toogimbie Wetlands (Source: NCFRP, 2017).

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