

NAVIGATING ACROSS TWO WATER LAWS: A COLLABORATIVE INVESTIGATION OF WATER GOVERNANCE IN THE WEST KIMBERLEY

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Abstract

Water in Australia's northern 'frontier' is under increasing development pressure. Water management outcomes could be improved by better integrating regional and Indigenous led policy, views and institutions into an adaptive governance framework. I propose to partner with two Aboriginal organisations (pending further discussion and approvals) to build on their previous water policy and governance work in the West Kimberley. Using a Participatory Action Research (PAR) approach, and drawing on Indigenous Methodologies (IM) if appropriate, research objectives and methods will be developed with the goal of co-creating regionally relevant knowledge that critiques the W.A. State government's water governance model. This approach will result in: (1) fresh perspectives on water management and governance in the Western Australia (2) improving policy, institutions and frameworks for water governance in the West Kimberley, and (3) Policy insight that may be broadly applicable across Northern Australia.

Contents

| | |
|---|----|
| Abstract..... | 1 |
| Acronyms..... | 4 |
| Introduction..... | 5 |
| Background..... | 5 |
| Water governance: a critical issue worldwide | 5 |
| Water management and governance in Australia | 7 |
| Water governance on the northern development ‘frontier’..... | 7 |
| Research location..... | 8 |
| Prospective project partners..... | 8 |
| Scoping discussions | 9 |
| Further background on NBY & WAC’s water research priorities | 10 |
| Conceptual framework..... | 12 |
| Critical research & a postcolonial lens | 12 |
| The strengths based approach..... | 12 |
| Multi-scale governance and transboundary framing..... | 13 |
| Research aims | 13 |
| Scope..... | 14 |
| West Kimberley overview | 14 |
| Water allocation & planning..... | 17 |
| Literature review..... | 19 |
| Introduction..... | 19 |
| Frontier mentality, the Northern myth and ‘aqua nullius’..... | 19 |
| Counter claims | 20 |
| Two Laws..... | 20 |
| Relative abundance, ‘Allocation’ and ‘under-allocation’ | 21 |

| | |
|--|----|
| Hydrocracy and ‘colonial feats’ of infrastructure | 22 |
| Contemporary Indigenous water governance in two laws | 22 |
| Methodology | 25 |
| Participatory Action Research | 26 |
| Applying PAR..... | 27 |
| Indigenous methodologies | 28 |
| Methods..... | 29 |
| Limitations | 32 |
| Research implementation..... | 32 |
| Research protocols and ethics | 32 |
| Record keeping | 33 |
| Researcher position..... | 33 |
| Initial Budget | 33 |
| Timeline | 34 |
| Dissemination of research findings..... | 35 |
| Relevance/ significance / contribution to the literature | 35 |
| References..... | 37 |
| Appendix 1: Thesis Draft Chapter Structure | 43 |
| Appendix 2: research risk management plan | 45 |

Acronyms

| | |
|--------|---|
| ANU | Australian National University |
| COAG | Commonwealth of Australian Governments |
| CSIRO | Commonwealth Scientific and Industrial Research Organisation |
| DKRWP | Draft Kimberley Regional Water Plan |
| DoW | (Western Australian) Department of Water |
| DPAW | (Western Australian) Department of Parks and Wildlife |
| EPBC | <i>Environmental Protection Biodiversity Conservation Act 1999</i> |
| ICWFN | Indigenous Community Water Facilitator Network |
| IPA | Indigenous Protected Area |
| IWRM | Integrated Water Resource Management |
| IWPG | Indigenous Water Policy Group |
| KLC | Kimberley Land Council |
| MSY | Maximum sustainable yield |
| NAWRA | Northern Australian Water Resource Assessment |
| NESP | National Environmental Science Program |
| NERP | National Environmental Research Program |
| NGO | Non-government organisation |
| NT | Northern Territory |
| NRM | Natural Resource Management |
| NWC | National Water Commission |
| NWI | National Water Initiative |
| PAR | Participatory Action Research |
| PBC | Prescribed Body Corporate under the <i>Native Title Act 1993</i> . May also (erroneously) refer to an RNTBC |
| RIWI | Western Australian <i>Rights in Water and Irrigation Act 1914</i> |
| RNTBC | Registered native title body corporate under the <i>Native Title Act 1993</i> |
| SIR | Strategic Indigenous Reserve (water allocation) |
| TRACK | Tropical Rivers and Coastal Knowledge |
| TO | Traditional Owner |
| UNDRIP | United Nations Declaration on the Rights of Indigenous Peoples |
| WA | Western Australia |

| | |
|-----|---|
| WAE | Water Allocation Entitlement |
| WIN | Water INformation (monitoring location) |

Introduction

Compared to the more heavily populated southern regions of Australia, water in the West Kimberley is relatively ‘under-developed’. The current Western Australian (W.A.) and Federal government push to develop water in Australia’s north presents opportunities to avoid some of the mistakes made elsewhere. However, water management in the Kimberley has been inconsistent, varying under different government agendas. The priorities of the State’s south often drives policy. Regional perspectives can be underrepresented, including those of Indigenous people (Morgan 2015; Marshall 2014).

In spite of their distance from decision makers in Perth, West Kimberley residents are actively involved in opportunities to improve outcomes in the water arena. They put their views forward in research, consultation processes and public forums. There is a strong interest in water management planning and building water governance structures that are appropriate to the region. Indigenous organisations, including representative bodies and policy groups, have shown ongoing policy leadership and innovation in this regard. This reflects the fact that Aboriginal people have multiple rights of, interests in, and responsibilities for water (Marshall 2014). However, there is a lack of representation in water decision making and acknowledgement of these interests by the WA government (ibid.).

In this research, I propose to collaborate with two Aboriginal organisations to further develop regionally appropriate water management and governance frameworks. Not only does this bring an alternative perspective to the water management discussions, but it draws on strengths of locally relevant natural resource management expertise.

Background

Water governance: a critical issue worldwide

Water governance is ‘the set of rules, practices, and processes through which decisions for the management of water resources and services are taken and implemented, and decision-makers are held accountable’ (OECD 2016). Getting water governance ‘right’ is crucial: water underpins our

economies, food systems, energy production and ecosystems. The relationships between these sectors and climate change, (the food-climate-water security nexus), mean that decisions about water can have wide reaching effects.

The traditional siloed, technocratic, approach offers the engineering solutions (such as dams, pumps and pipes) that are still central to water management. However, there are a range of water management ‘problems’ that engineering cannot address alone. The contemporary Integrated Water Resources Management (IWRM) has an ‘impressive global following’(Daniell, Milner & Squire 2014). IWRM is ‘the coordinated development and management of water, land and related resources to maximise the resultant economic and social welfare in an equitable manner, without compromising the sustainability of vital ecosystems.’(Nakagami, Kubota & Setiawan 2016). IWRM cannot be prescriptive or ‘one size fits all.’ (Daniell, Milner & Squire 2014). Local factors need to be taken into account. Participatory processes are particularly valuable in this regard. At the same time, successful IWRM depends on support from multiple levels, including legislation, appropriate policies and political commitment. There are also increasing calls for ‘cross-realm’ planning, integrating terrestrial, marine and freshwater planning(Álvarez-Romero et al. 2015).

Managing water over borders- within or between nations- is an essential part of managing water security(Connell 2014). Successful transboundary governance requires a high degree of co-operation, in addition to robust environmental information and modelling of cumulative impacts. Connell (2014) points that while National governments have the power to enforce water policy, at the international level there are limited structures that have the executive power to intervene. The United Nations (UN) is the closest equivalent of an international decision making body, and it is not able to enforce any particular decisions about transboundary water disputes. The international law customarily applied to freshwater is summarised by the *Berlin Rules on Water Resources* (2004). These rules provide a regulatory framework for sharing water equitably. Again, the absence of an overarching authority puts the onus on nations to resolve disputes and form agreements.

As water scarcity increases, so too does the need for robust transboundary governance processes. Part of this pertains to sharing scientific data to inform decision making. An equally important part is the relationship between jurisdictions, and an examination of how ‘soft power’ is exerted (Warner, Zeitoun & Mirumachi 2014). Arriving at solutions to transboundary issues is as much about cooperation, diplomacy and forming agreements as it is about technical information.

Water management and governance in Australia

Australia is a dry country with unpredictable rainfall. Water security has been a high priority since the arrival of the First Fleet (Cathcart 2010). The country's history is punctuated with droughts and floods. Crisis drives water policy to a certain extent. To address ongoing water management issues, and deal with conflict between jurisdictions, a national water reform agenda was established in 1993. A further suite of reforms were included in the 2003 National Water Initiative (NWI). The implementation of the NWI created caps on water extraction and ensured environmental flows were taken into account in water management plans. Water property rights were unbundled from land, and a nationally compatible water market was formed. However, after decades of water reform, in 2016 very few Australians (<5% of survey participants) feel confident about water security (Arup & Australian Water Association).

Water governance on the northern development 'frontier'

The NWI applies nationally, but it is geared towards managing water in the Murray-Darling Basin (MDB), a very large, interconnected surface water system with a high level of agricultural and irrigation development. Owing to the NWI's history, a large portion of Australian water literature concentrates on the MDB, rivers and the southern part of the country. Focus on the MDB has framed national debate about water.

In contrast, Western Australia relies on groundwater resources, and is not hydrologically connected to the Eastern river basins. Consequently, less attention has been paid to water in the north, with reform in Western Australian and the Northern Territory languishing behind the MDB states. W.A.'s sparsely populated Kimberley region is part of the Northern 'frontier' that is frequently the object of Federal and state development policy.

In terms of water governance, it is unclear whether the frameworks of the south can be successfully applied to the north. One point of difference is that institutional arrangements are being developed in 'under-allocated'¹ systems (Nikolakis & Grafton 2014). Market based mechanisms used in the south would be ineffective in parts of the north. Furthermore, other differences include the lack of infrastructure, the number of unconnected water systems (reducing ability to trade) and a seasonal climate with high evaporation, leading to a greater reliance on groundwater.

¹ 'Under-allocated' is a contested term. See literature review.

A feature of the NWI reforms is that transboundary governance is addressed at the State/ Territory scale, with the Commonwealth of Australian Governments (COAG) signing the agreement. Again, this has framed discussions and the focus of reforms. Consistency at the COAG level is crucial to national water security. However, the primacy of COAG has excluded First Nations peoples from the reform agenda. Consequently, there are two areas of governance are unaddressed: firstly, the relationship of 'First Law'(Indigenous customary law) to Australian water management. Secondly, transboundary governance between First Nations peoples in the context of contemporary water challenges.

In conclusion, it is crucial to Australia's water security that the northern development agenda is informed by suitable water governance frameworks. There are some significant differences between the south and the north and it is unclear whether the governance frameworks of the south can be applied to the north. WA's north and groundwater management are underrepresented in Australia's water governance literature. Counter-claims and counter perspectives challenge the dominant framework. Examining water governance from a Kimberley perspective may provide insight into a suitable governance framework for the region.

Research location

This research focuses on the West Kimberley region. The rationale is:

- The region is one of the foci of State and Federal water development policy
- The community, including First Nations peoples, is actively engaged in water management and governance issues
- Initial scoping suggests that work is needed to align State policy and governance with regional priorities and customary governance
- Relatively underrepresented in the current literature

Prospective project partners

I have been developing this project proposal with the generous cultural advice of Dr Anne Poelina, Nyikina woman and also a director of the Walalakoo Aboriginal Corporation, the Nyikina-Mangala claim's RNTBC. I have also been assisted by representatives from Yawuru claim group's RNTBC, Nyamba Buru Yawuru (NBY). Both organisations have a rigorous research approval process. I will apply for the approval of NBY, WAC, and through the ANU research ethics committee.

In W.A., RNTBCs are the major decision making units, or representative bodies, responsible for governing First Nations lands and waters. The research partners (NBY and WAC) are collaborating with me on this research because of their:

1. Water policy expertise in the west Kimberley region
2. Current research interests, and
3. Organisational capacity to undertake research.

In addition, collaborating with NBY and WAC will provide contrasting case studies (surface water and groundwater).

Scoping discussions

Between July and September 2016 I worked from Broome and held informal scoping discussions. I spoke with local experts, researchers, and representatives from the two prospective partner organisations.

The following general points emerged from the scoping discussions. Water management cuts across multiple areas: culture, environment/ country, health, economic opportunities, etc. Therefore, water management impacts on Indigenous interests, rights and responsibilities. Government processes can be opaque, exclusionary and inconsistent. Water management decisions/ water development programs do not necessarily reflect local understandings and priorities (of both Aboriginal and non-Aboriginal people). Furthermore, an Aboriginal understanding can provide a counter-perspective to the dominant model.

Traditional Owners/ custodians and the broader community value information that helps make better water management decisions. Thus, being involved in research can be positive. However, a large amount of research has been done in the past. Leaving aside the problem of ‘research fatigue,’ there were criticisms of (some) previous research processes. Pre-defined, fixed, research agendas created some frustration. So too was research framed within the ‘deficit model²’ that problematizes Aboriginal culture and identity.

² Please see pg. 12 for further explanation of the deficit model

There was strong support for collaborating, bring together multiple knowledge systems. Rather than identify problems (which are already documented) there was a preference to focus on building on strengths and devising solutions. There was general support for research that:

- Provides analysis of broader institutional context, processes
- Builds on existing regional expertise, knowledge, policy and institutions.
- Identifies options, regulatory space
- Develops water governance frameworks that incorporate Indigenous interests/rights/responsibilities in a **contemporary** context
- Provides tangible outcomes of some sort for the benefit of NBY & WAC

[Note: this list is not exhaustive]

Further background on NBY & WAC's water research priorities

In November 2016 the traditional owner groups of the Mardoowarra/ Fitzroy River, (Bunuba, Gooniyandi, Ngurrara and Nyikina Mangala) issued the 'Fitzroy River Declaration.' (TOs 2016)

They expressed concern for the catchment and agreed to work together on:

1. Action a process for joint PBC [Prescribed Body Corporate³] decision making on activities in the Fitzroy catchment;
2. Reach a joint position on fracking in the Fitzroy catchment;
3. Create a buffer zone for no mining, oil, gas, irrigation and dams in the Fitzroy catchment;
4. Develop and agree a Management Plan for the entire Fitzroy Catchment, based on traditional and environmental values;
5. Develop a Fitzroy River Management Body for the Fitzroy Catchment, founded on cultural governance;
6. Complement these with a joint Indigenous Protected Area over the Fitzroy River;

³ 'PBC' colloquially refers to both PBCs (the prescribed body corporate holding or managing Native Title during the Native Title determination process) and RNTBCs (the Registered Native Title Bodies Corporate established after a determination) under the Native Title Act 1993. In either case, the meaning is inferred as the legal representative body.

7. Engage with shire and state government to communicate concerns and ensure they follow the agreed joint process;

8. Investigate legal options to support the above, including: 1)Strengthen protections under the EPBC Act National Heritage Listing; 2)Strengthen protections under the Aboriginal Heritage Act; and 3)Legislation to protect the Fitzroy catchment and its unique cultural and natural values.

This declaration highlights several points. Firstly, a lack of confidence in the formal WA State government processes to protect the Mardoowarra. Secondly, the identification of the governance gap that was created when PBCs/ RNTBCs became established as separate decision making blocks. Thirdly, the assertion of priorities for management and a cultural governance framework. And finally, recognition of the need to bring along shire and state government.

Kimberley Indigenous and non-Indigenous organisations have been watching the WA water reform process and contributed submissions to the 2013 consultation round. The DoW put out a discussion paper, Securing Western Australia's Water Future (Department of Water 2013). Of relevance here is Nyamba Buru Yawuru's submission (Nyamba Buru Yawuru 2013) on the proposed legislative changes. NBY made detailed comments including:

- Water rights and access are central to maintaining Indigenous peoples' practice of culture and unique connections to country
- The proposed reforms did not meaningfully recognise Indigenous rights to water
- The reforms should include provisions for Indigenous access, involvement in water planning and management
- Yawuru supported a Strategic Indigenous Reserve approach
- Concerns that fracking was not covered by the proposal (particularly relevant to Yawuru given Buru Energy's current unconventional gas exploration in their Native Title area)
- Concerns that DoW had insufficient hydrogeological information about the Broome region
- Recommendations about improving the transparency of DoW processes

As well as many numerous other comments and recommendations about the reform process, the likely impacts on the region and across WA. The contents of the NBY submission may provide a focal point (s) for this research.

Conceptual framework

‘Water’ cuts across disciplines. In recent years there has been a shift away from siloed thinking to interdisciplinary, multidisciplinary and even transdisciplinary approaches (Camkin & Neto 2013). This research is located in the ‘critical research’ tradition, applying a postcolonial lens informed by transboundary water governance literature.

Critical research & a postcolonial lens

Although research can be a valuable endeavour, it can also be an oppressive, coercive, extractive and dehumanising experience for the ‘researched.’ Research has impacted negatively on Indigenous peoples in the past (Schnarch 2004; Smith 1999; Louis 2007). Questioning and critiquing the assumptions of academic research is essential to working more respectfully and effectively with my research partners, Therefore, I draw from the ‘critical research’ approach. Critical research questions hegemony, assumptions about the power of researchers (Given 2008).

Postcolonial analysis has a lot to offer our understandings of Australia’s water and land. A postcolonial analysis illuminates the role of imperialism and colonialism in shaping the way water and people are viewed. Postcolonialism questions the narratives of the colonial era, offering alternatives for change. The term ‘postcolonial’ is problematic because it can imply that colonisation is over. Like Janes (2016), I use ‘postcolonial’ not to denote a time period, but rather to indicate a perspective.

Under a critical research framework, the action of research can be reframed as ‘knowledge gathering and sharing’ Brown & Strega (2005). Similarly, unidirectional ‘knowledge transfer’ can be reframed as ‘knowledge mobilisation’. Critical research rejects notions of research as a value-free science (Brown & Strega 2005). Central to the critical research view, and to working in intercultural context, is rejection of conceptual parochialism.

The strengths based approach

In scoping discussions, a preference was given to a ‘strengths’ based research approach. Strengths based research contrasts to the ‘deficit discourse’ outlined below. A strengths based approach research is consistent with Smith’s (1999) call for Indigenous communities to ‘reframe’ research: how problems are defined and how they should be solved.

Within the ‘deficit discourse’, Aboriginal identity is tied up in narratives of ‘negativity, deficiency and disempowerment’ (Fforde, Bamblett, Lovett, Gorringe, et al. 2013 pg162). Overseas, the deficit discourse is linked to negative outcomes, such as stereotypes and perpetuating the notion of lack of agency. The subtle nature of the deficit discourse means that it has been perpetuated by advocates for Indigenous people, including, in some cases, by Indigenous people themselves (ibid, pg. 166).

An alternative to the ‘deficit discourse’ is a ‘strength based’ approach (ibid pg. 168). Strengths based research rejects narratives that promulgate inferiority. Strengths based education has a greater focus on innate ability, the advantages of Indigenous culture (rather than framing it as disadvantageous), dialogue, and ‘hopes and aspirations’ for ‘how we want to be’ (ibid).

An example of strengths based research is the recent Yawuru wellbeing study (Yap & Yu 2016). Rather than document disadvantage, as we have seen in the ‘closing the gap’ statistics, the research articulated Yawuru’s own measures of wellbeing/ ‘*mabu liyan*’. The outcome can be used by the Yawuru community for their long-term benefit, shifting the ‘power of data to Yawuru hands’ (Peter Yu, cited in Yap & Yu 2016). The study does not ignore ‘pressing issues’ (pg. 99). However, it focuses on the things that make Yawuru strong, such as community connections and culture.

Multi-scale governance and transboundary framing

The second major perspective I will apply to this research comes from water governance literature on scale. As noted by Daniell & Barreteau (2014), ‘many water governance challenges require multi-level, cross-scale governance processes and conflict resolution’. This research will be informed by:

- A critique of the administrative, jurisdictional and institutional scales considered effective for water management
- Mechanisms for bridging scales, such as co-management, increasing institutional interaction or creating bridging organisations (ibid, pg. 10.)

This research will incorporate Aboriginal people’s assertions of sovereign First Nations through reframing some management questions as transboundary issues, akin working across international borders. Literature about transboundary management and governance could offer nuance and direction that analysis based on a single Western Australian state lacks.

Research aims

The exact research questions and methods will be co-designed with the research partners. I propose a possible question as a starting point for discussion:

- How can regional and Indigenous perspectives, policy and institutions be better incorporated into governance frameworks to improve the outcomes of water management decisions in WA?

Scope

This research is focused on issues of water governance from a resource management and allocation perspective. It will not address drinking water *service provision* governance. Embedded in the conceptual framework is the primary assumption that Indigenous peoples have a right to govern their lands and waters, as described by the United Nations Declaration on the Rights of Indigenous Peoples⁴, or UNDRIP (United Nations General Assembly 2007).

West Kimberley overview

There are many ways to tell the Kimberley story. Sometimes it goes like this: the iconic Kimberley region is famed for its rugged beauty, ‘wilderness,’ and relatively intact (underdeveloped) landscapes. The climate is arid/semi-arid monsoonal with a ‘wet’ and a ‘dry’ season.

⁴ The validity of this claim is explored by numerous scholars, for example: (Marshall 2017; Tan & Jackson 2013; O’Donnell, Godden, O’Neill & Macpherson 2016; Tran 2015; Langton 1999)

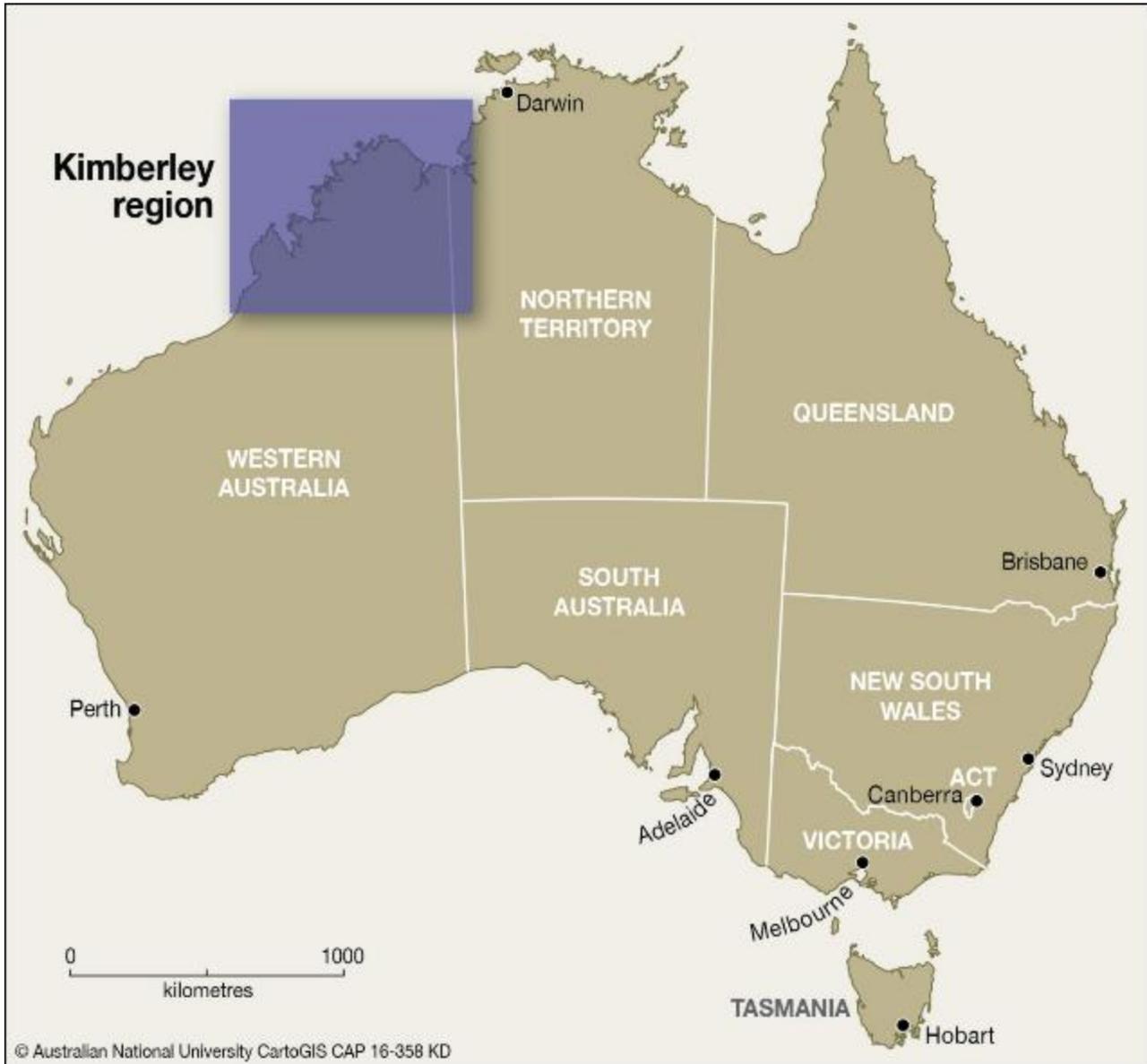


FIGURE 1: AUSTRALIA'S KIMBERLEY REGION

The environment of this remote area is diverse and species rich. The Kimberley's southern and eastern reaches cover the Great Sandy Desert. The coast runs along the Western edge. The Kimberley is loosely divided into two subregions: the West and East. Broome and Kununurra, respectively, are the major towns in each subregion. The 700km long Mardoowarra, or Fitzroy River, covers three Shires: Wyndham East Kimberley, Halls Creek and Derby West Kimberley.

The Kimberley has a low population density- 40,000 residents over 423,517 sq. km. Of these, approximately 40% are Aboriginal. In comparison, the population of the capital city, Perth, is just 1.6% Indigenous. There are around 30 Indigenous language groups. English and Kriol are the main

languages spoken. [ref] Most employees work in healthcare, education & public administration. The highest revenue industries are mining, retail, tourism and agriculture (Department of Regional Development 2014).

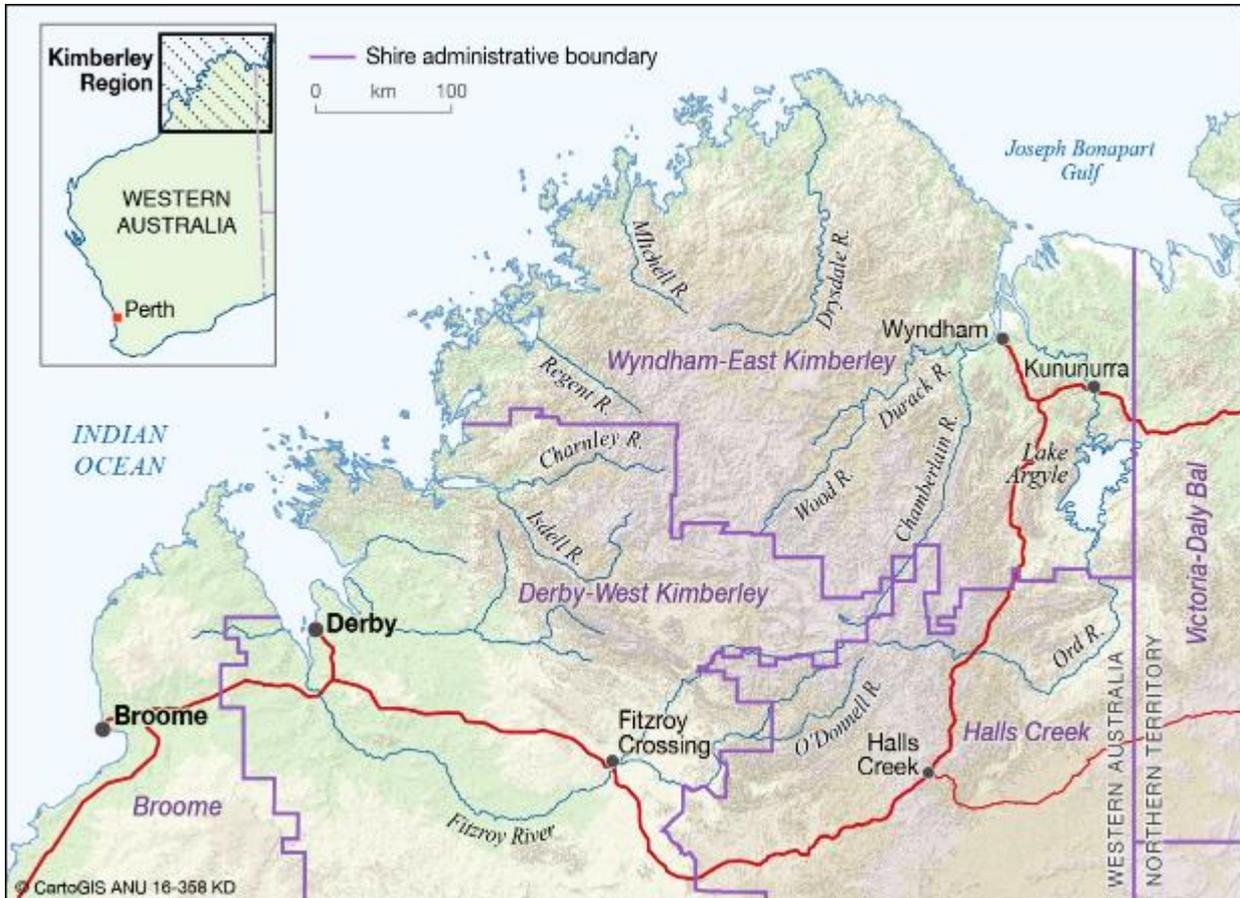


FIGURE 2: KIMBERLEY TOWNS AND SHIRE BOUNDARIES

This version of the story renders the Kimberley's living landscape relatively inert. It verges on the ahistorical and apolitical. The six seasons are collapsed into two. Wilderness is fetishized and plays to the myth of *terra nullius*. The Kimberley remains, in the mind of many, Australia's frontier lands.

Around 70% of the land is under Native Title, and further claims are ongoing (KLC 2016). However, colonisation is not an event of the past, it is an ongoing, omnipresent process. The legacy of *terra nullius* remains.

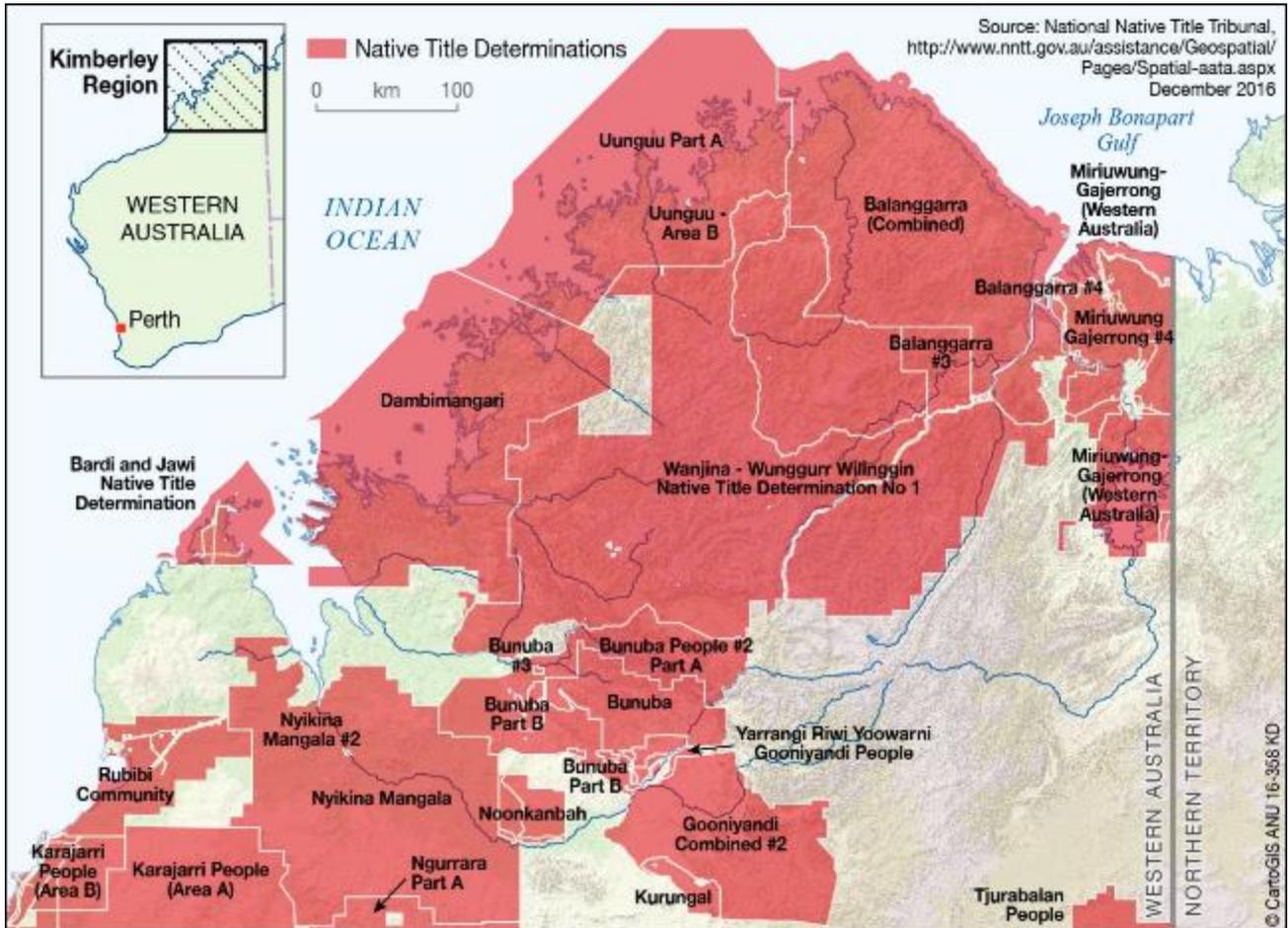


FIGURE 3: KIMBERLEY NATIVE TITLE DETERMINATIONS (2016)

Water allocation & planning

Compared to southern Australian regions, water extraction for industry or agricultural purposes (etc.) is relatively low in the Kimberley. Through the whole region, the volume of water potentially available to new licences is thought to be around 250GL in shallow aquifers (majority in Canning-Kimberley and Canning-Pender areas), and 530GL of surface water, mostly in the Ord (Department of Water 2014). For water planning purposes, the region is divided into 6 subregions: La Grange, Fitzroy, Ord, Dampier Peninsula, Northern Kimberley and Desert.



Figure 2 Area covered by the Kimberley regional water plan, showing six subregions

FIGURE 4: KIMBERLEY WATER SUBREGIONS. SOURCE: DRAFT KIMBERLEY REGIONAL PLAN (DOW, 2010)

The main uses of water in the West Kimberley region are: rural stock & domestic 23% , agriculture 20%, mining 22%, and household domestic: 18% (Thomas, 2008). In 2015 the total volume of licences in the Lower Fitzroy area was 23.5 GL/year for groundwater and 14.2 GL for surface water (Harrington & Harrington 2015). Although more information is needed to properly assess total water availability in the region (ibid, and Ryan Vogwill 2015) current understanding suggests that Canning Basin aquifers, Poole Sandstone and Grant group aquifers and the Devonian Limestone are good groundwater prospects (Harrington, N.M. & Harrington, G.A. 2015). Due to the North’s highly seasonal flows and the crucial ecological role of flooding, rivers are considered by many to have less potential than groundwater (Water Taskforce 2009)

Only some Kimberley regions have water allocation plans and management plans⁵ (Department of Water 2010). Significantly, surface-water and groundwater allocation plans do not exist for the Fitzroy River⁶. Some initial planning was done as part of the Draft Kimberley Regional Water Plan (Western Australia & Department of Water 2010). The year 2010 also produced a Catchment Management Plan (Centre of Excellence in Natural Resource Management 2010) However, these plans are non-binding.

In contrast to the MDB states, W.A. has yet to enact the water reforms described in the NWI. The main piece of legislation for water resource management- the *Rights in Water and Irrigation Act 1914* (RIWI)- uses a licensing system applied on a ‘first in, first served’ basis. The WA Department of Water (DoW) is in the process of drafting new legislation that would introduce perpetual property rights to water, statutory water management plans, and mechanisms for reserving water allocations for specific uses.

Literature review

Introduction

Conceptualisations of water can be a complex and contested space. Water may be considered, for example, a common pool resource at one moment, and a private property right the next. A river can be resource or a sacred ancestral being. Seemingly contradictory concepts overlap and interplay. This literature review gives an overview of ‘frontier mentality’ that underscores the dominant framing of water in the north, and then uses a postcolonial lens to provide counter-claims. This context is then used to provide a synopsis of previous West Kimberley water research.

Frontier mentality, the Northern myth and ‘*aqua nullius*’.

Since colonisation, European ‘water dreamers’ advocating for large water infrastructure projects imagined a ‘silent’ land that needed to be filled with the sounds of civilisation (Cathcart 2010). The idea of Northern Australia’s agricultural potential was challenged in (1965) by Bruce Davidson. According to Davidson, most forms of agriculture in the North were uneconomic. In contrast, the ‘Northern Myth’ of profitability through development was accepted as ‘truth’ (Davidson, 1965,

⁵ The current plans are: the Derby groundwater management plan, Broome groundwater management plan, and the La Grange groundwater allocation plan.

⁶ Notwithstanding a drinking water source protection plan for the town of Fitzroy Crossing with a reserve is gazetted under the *Country Areas Water Supply Act 1947*.

preface). This myth assumes bountiful, ‘untapped’ quantities of water and reflects the centrality of water in the national colonial psyche.

In the ‘North’⁷ development is driven by a ‘frontier mentality’ of expansion and exploitation. In recent history we have seen cycles of government investment in cropping, followed by failure and then more investment. Andrews (2015) describes this as a ‘circular conundrum’. Further large scale, intensive agricultural developments would be a repeat of previous ‘mistakes’ (Hussey 2014).

In spite of the ‘naysayers’, the ‘believers’⁸ continue to promote the north’s potential large scale development expansion. Andrews identifies three beliefs that ‘inhibit learning’ (pg. 347). Firstly, the myth of the ‘empty north’- an uninhabited place awaiting colonial inhabitation. Secondly, frontier mentality renders the frontier timeless. When the past is erased, it is perpetually Rose’s (1997) ‘year zero’ and no lessons can be learned from history. Thirdly, the belief in ‘inevitability of westernised development’. Understanding these beliefs give insight into the persistence of the frontier mentality. It shows that much of the northern development policy is part of the ongoing project of colonisation.

The frontier mentality has led to the fiction of ‘*aqua nullius*’ (Sheehan & Small 2007; Marshall 2012) a term analogous to *terra nullius*⁹. *Aqua nullius* makes invisible the claims¹⁰ of First Nations people. In the same way that the legal fiction of *terra nullius* allowed land property rights to be granted to colonists, overriding existing Indigenous rights, *aqua nullius* legitimises the continued erosion of Indigenous rights.

Counter claims

Two Laws

In effect, there are two ‘Laws,’ or conceptual systems, for governing water. There is ‘Western Law,’ i.e. the Australian legal system based on the Westminster model, with legislature, the judiciary, and the executive power of the government. There is also ‘First Law,’ sometimes called ‘Traditional/ customary Law’ as practiced by First Nations peoples¹¹. The colonial institutions of Australian

⁷ The location of the ‘north’ is nebulous, with the north-south boundary shifting over time from the straight line of the Tropic of Capricorn to more locally grounded boundaries based on catchments or bioregions (Andrews 2015).

⁸ Andrews (2015) notes the role of the naysayers/ believer dichotomy

⁹ ‘*terra nullius*’ or ‘land belonging to nobody’ is an international law expression used to describe land without a sovereign state.

¹⁰ Articulated in the Mary River Statement (Delegates of the Mary River Water Forum 2009), Garma Declaration (International Indigenous Water Experts Forum 2008) and elsewhere

¹¹ The terms ‘Western Law’ vs ‘First Law’ reflect West Kimberley colloquial expressions for contrasting knowledge systems. I do not suggest there are a single set of rules- clearly, water ‘Law’ varies from place to place.

‘western law’ often deny the legitimacy of First Law. Where First Law about water is recognised, it is often shoehorned into Western frameworks that fit poorly (Tran 2015). The net effect is that ‘Western Law’ dominates. The ability of First Nations people to manage water according to First Law, and to benefit from water resources, is limited.

The quest to develop the North shifts water rights from the Crown to (largely non-Indigenous) commercial interests. As we have seen with land claims, when property rights are granted by the government, Native Title rights can be extinguished. Hand-in-hand with the water development agenda, is an erosion of First Nation people’s rights.

The notion of ‘Two Laws’ challenges the way scale is constructed in water planning, and the approach. Under the dominant government framework, Aboriginal people are often framed as ‘stakeholders’ who must be ‘engaged’¹² in water planning. A contrasting framing sees First Nations as sovereign peoples who are, perhaps, trying to ‘engage’ the Australian government in their own processes. Management of a water resource can be thought of as a transboundary undertaking across Nations within Australia. The tendency to homogenise First Nations, or to look only at PBCs/ RNTBCs for decision making, leads to a governance gap: decision making processes for multiple PBCs/ RNTBCs in a region.

Relative abundance, ‘Allocation’ and ‘under-allocation

In contrast with the fantasies of endless empty frontiers, water and land in the North is finite. It is subject to the pre-existing claims of the First Nations peoples who live there. In terms of water quantity, river flow varies significantly between the wet and dry seasons. Groundwater has better prospects than dams (Water Taskforce 2009). Agriculture faces the constraints of poor soils, transportation distances, pests, and other variables documented by Andrews (2015), Davidson (1965) and others. Another potentially limiting factor is the changing conditions under climate change. Furthermore, the euro-centric assumption of a ‘climate normal’ average smooths out cycles of droughts of floods. Murray Darling Basin planning has failed to take both long term historic rain fluctuations and climate change into account (Alexandra 2016). These factors apply to the North as well as the South.

¹² A typical recent example is the title of COAG guidelines: *Engaging Indigenous Peoples in Water Planning and Management* (2017).

In the West Kimberley Fitzroy catchment, there is uncertainty over the volume of water available due to lack of detailed hydrogeological information.¹³ Technical hydrogeological analysis has been hampered by lack of a comprehensive, consolidated dataset in DoW's WIN¹⁴ database (Harrington, N.M. & Harrington, G.A. 2015). There is no water allocation plan yet. The Department of Water (DoW) considers the current allocation below the level required to trigger an allocation planning process.

However, the term 'unallocated' is disputed locally. Firstly, the central assumption that the DoW has the ultimate authority to allocate water (or not) conflicts with the sovereign claims of First Nations peoples. Secondly, some consider the surface and groundwater are already fully in use- or 'allocated'- by local ecosystems. Thirdly, it something of an affront to the perspective (documented by Sullivan, Boxer & Bujiman 2012; Jackson 2015; Yu 2000, others) that water on country is living¹⁵.

Hydrocracy and 'colonial feats' of infrastructure

The role of water infrastructure in Australia's nation building has been questioned. Molle's (2009) analysis of hydraulic bureaucracies, or the 'hydrocracy' points out the power tripod of water agencies, government, and engineers. The quest for 'iconic and symbolic projects' is described as a 'colonial feat' and has become an 'ends to itself.' The hydrocracy is seen played out in proposals such as a canal¹⁶ from the Kimberley to Perth.

It has been suggested that in Australia's MDB, vested interests have influenced the reform process, resulting in 'rent seeking' behaviour and a shift of public funds to private interests (Alexandra n.d.). Directing funds to 'water-saving' infrastructure, rather than simply buying back water to replenish the overallocated system, went against the advice of economists and did not result in significant improvements [REF 2017]. Although water infrastructure of some sort is essential, the current investment focus on engineering solutions is at odds with the evidence.

Contemporary Indigenous water governance in two laws

The 'law is still quite uncertain in some aspects' of water rights (Durette 2008 p1.) In Australia, the major legal mechanism for recognising First Law property rights is the *Native Title Act 1994*

¹³ CSIRO, the Commonwealth Scientific and Industrial Research Organisation, is currently investigating water availability as part of the Federally funded Northern Australian Water Assessment.

¹⁴ WIN= Water INformation (site). WIN sites are listed on the WIR database (Water Information Reporting <http://wir.water.wa.gov.au/Pages/Water-Information-Reporting.aspx>)

¹⁵ Similarly, the international 'Rights of the River' and Earth Laws frame rivers as having an intrinsic right to exist.

¹⁶ Proposed by former premier, Colin Barnett. The proposal was assessed as uneconomic and unfeasible.

(Cmwth). The capacity of the Act to deliver water rights to Indigenous Australians has been critiqued extensively (Examples include, Durette 2008; Poirier & Schartmueller 2012 Morgan 2014). Provisions for water rights are poorly matched with Indigenous aspirations (Tan & Jackson 2013).

In the present day, the right to take water for ‘traditional and cultural purposes’ under the *Native Title Act* is difficult to reconcile with the reality of water markets nor the management responsibilities associated with industrial scale development.

[PARAGRAPH AND FIGURE 5 REMOVED FROM THIS SECTION]

The second major mechanism for recognising property rights is through State and Commonwealth water management legislation, which reflect the reforms of the National Water Initiative. The NWI includes some provisions, albeit limited, for including Indigenous peoples, but even these ‘lack teeth’ due to the discretionary wording of the NWI. The NWI gives greater legitimacy to the claims of existing State recognised ‘users’/ stakeholders, leaving Aboriginal people at a ‘positional disadvantage’(Jackson & Altman 2009). In Western Australia, the RIWI Act does not recognise any particular pre-existing rights, nor does it facilitate reserves of water being held for Aboriginal use. The WA State government has, to date, made very few provisions for First Nations peoples’ water rights, including the drafting of new legislation(Marshall 2014).

In general, State legislation does not offer substantial rights to Indigenous people (Marshall 2014). The state-by-state approach has been inconsistent, creating a ‘legal nightmare for Aboriginals’ (Poirier & Schartmueller 2012). Jurisdictional tension is compounded by the fact that main recognition of Indigenous water rights exists at the Federal level (under the Native Title Act) and yet in general, water rights are defined and administered by State/ Territory legislation (Poirier & Schartmueller 2012).

Until recently, environmental flows were used as a surrogate for protecting Indigenous interests (Finn & Jackson 2011). From there, ‘cultural flow’ allocations that preserve Indigenous values were proposed (Jackson, Pollino, Maclean, Bark, et al. 2015). Options for economic use include Strategic Indigenous Reserves (SIRs) for underdeveloped systems, or, as the First People’s Water Engagement Council (FPWEC) suggested, an Indigenous Economic Water Fund (IEWF) for systems like the Murray-Darling (FPWEC 2012). Neither SIRs or an IEWF have been established in Australia.

The term ‘cultural flows’ is sometimes used to indicate any water allocation for Indigenous Australians. The FPWEC’s policy document uses the term ‘Aboriginal water’ rather than ‘cultural flows’ to encompass many types of water rights, including groundwater rights. ‘Aboriginal water’ is not often used in W.A., so I use the umbrella term ‘Indigenous water rights’ to denote rights of all sorts.

The expectation that Indigenous claims ‘fit in’ with legal models (Tran 2015) has constrained the place of these claims in water management practice and literature. Indigenous claims are seen as a ‘threat to the integrity of current frameworks for water management’ (Tran 2015). Water management guidelines and literature often:

- Conceives of First Nations as ‘stakeholders’ and often ‘community stakeholders’, when many Indigenous people do *not* see themselves as ‘mere’ stakeholders (Tan, Bowmer & Baldwin 2012)
- Refers to Indigenous *values* rather than rights
- Refers to *cultural connection* but rarely to customary governance/ sovereignty
- Tends to homogenise different First Nations peoples

These choices reflect, perhaps, the tendency to acquiesce to the dominant paradigm.

First Nations people have been vocal in their critiques of their exclusion from Australian water governance. Influential documents on Indigenous water rights include the Lingiari Foundation’s water rights report series, the *Boonamulla Statement*, *Mary River Statement* (Delegates of the Mary River Water Forum 2009) and *Garma Declaration* (International Indigenous Water Experts Forum 2008). The Indigenous Water Policy Group’s (IWPG, 2010), the FPWEC’s 2012 advice to the (now abolished) National Water Commission, and the 2016 *Fitzroy River Declaration*.

Some traction has been achieved in Victoria, with the recent Yarra River Action Plan (Victorian State Government 2017). The plan includes an action to “Establish ongoing collaborative governance arrangements between DELWP, Traditional Owners, Parks Victoria, Melbourne Water and local government.”

The Coast Salish Tribal Council deals with transboundary environmental issues around the Salish Sea. The Council takes in 70 tribes and crosses the USA/ Canadian border (Norman 2012).

In New Zealand, Waikato river traverses through the Waikato tribe's lands, the Tainui confederation and the Te Arawa confederation. The Maori's responsibility as river caretakers was recognised by the government with the Waikato River Settlement in 2010. Largely focused on improving water quality and restoring *mana* (sovereignty, prestige), the Settlement established a co-governance and co-management regime between the Crown and the tribes (van Meijl 2015). A statutory body, the Waikato River Authority, was established with representatives from the Crown and tribes.

In 2012, the State announced the partial sale of publicly owned hydropower enterprises, in effect converting a common pool resource to a property object, which called river ownership into question. The Maori moved¹⁷ to establish a legal claim (van Meijl 2015) which was rejected by the Supreme Court. Although power is shared by granting Maori decision making authority, ultimately the statutory relationship between the crown and Maori remains vertical (Wevers 2013). Thus, *Maori rangatiratanga* (authority over resources) is a 'political, not legal sovereignty' (ibid).

Methodology

Methodologies compatible with an anti-oppressive, critical research framework include Participatory Action Research (PAR) and Indigenous Methodologies (IM), which can be used complementarily (Evans, Hole, Berg, Hutchinson, et al. 2009).

PAR and other critical research methodologies are influenced by Freire's theories of education and dialogic action. Freire asserts that education is not benign, and neither is academia. Rather, education can be a process of oppression embedded within larger systems of domination and control. This is undertaken with the 'banking' model of education (filling empty heads with knowledge).

To free education from oppression, Freire proposes knowledge construction based on dialogic action. In his dialogic action theory, Freire distinguishes between dialogical actions, which promote understanding, cultural creation, and liberation; and non-dialogic actions, which deny dialogue, distort communication, and reproduce oppressive power structures. Another key concept put forward by Freire is praxis: transforming situations through action and critical reflection.

The characteristics of anti-dialogic action are:

- The need for conquest

¹⁷ Notwithstanding the division between Maori about the various legal options for property rights and the legitimacy of 'owning' an ancestral being (van Meijl 2015)

- Divide and conquer: problems are defined as local and not seen in broader societal context
- Preservation of domination through manipulation, (myths) and
- Cultural invasion: a sense of inferiority is imposed on the oppressed

On the other hand, dialogic action promotes:

- Cooperation achieved through communication, dialogue
- Unity for liberation (working together to address structural problems)
- Authentic organisation (not based on manipulative myths)
- Cultural synthesis- cultural action than transforms the structure.

Participatory Action Research

PAR is an applied research approach resting under the ‘collaborative research’ umbrella. Although a tightly articulated, widely-accepted definition of PAR does not exist, a PAR research project will often involve an academic researcher working with community participants as co-researchers or collaborators, investigating an issue through action. The PAR approach asserts that research and action must be done ‘with’ people and not ‘on’ or ‘for’ people (Bergold & Thomas 2012). PAR rejects the researcher as neutral observer, and is concerned with questions of liberation (Cameron & Gibson 2005) through the action of research. PAR is an orientation for the practice of research. Participatory methods are ‘not fundamentally distinct from other empirical social research procedures’(Bergold and Thomas 2012, p.2) and the methods chosen for any particular piece of research are those considered ‘best-fit’ for the situation by the researchers and participants (Mackenzie, et al 2012). PAR challenges the monopoly on the written word, which makes it particularly suitable to working with people who have a strong oral tradition.

The value of the PAR orientation lies in explicitly addressing the inequitable power dynamics between researchers/ the communities impacted by the research. PAR is not immune from criticism. Janes’ (2016) post-colonial analysis of PAR identifies several deficiencies, including the under-theorisation of knowledge democratisation.

PAR is appropriate to this research because it addresses:

- Ethical considerations
- Rigor: framework adapted to cross cultural research

- Insight: reframing of the research issue allows new analytical perspectives
- Locally grounded policy production and
- Diverse dissemination of findings to multiple audiences.

Applying PAR

PAR and scale

Scale is an important consideration for research into governance, and PAR in general. Failure to engage multiple levels of governance has been cited as a limiting factor in some participatory projects (e.g. Cameron & Gibson 2005). I plan to begin this research at the local scale of native title claim groups. Wider scales such as regional or State could be involved later, pending direction of the research.

PAR and action/ social change

Within PAR, the emphasis on action and participation varies. PAR lies somewhere on the continuum between Participatory Research and Action Research. With its roots in Freire, early participation literature often refers to ‘consciousness-raising,’ ‘transformation’ and ‘empowerment.’ Slocum (1995 pg. 5) states that the intent of transformation is to ‘move control over resources and institutions to disadvantaged groups’. This language has problematic elements. More contemporary terminology might refer to research as, say, a ‘vehicle for social change’ (e.g. Cahill 2007). The essential point to note is that effecting change is integral to PAR’s investigative process, which may be construed as political activism. Within an academic environment, using research for transformative purposes may subject the researcher to ‘discipline’, requiring the researcher to ‘challenge’ the institution (Anderson & McLachlan 2016). However, the recent trend for research impact may ‘open more space for transformative research’ (ibid).

In spite of this, PAR’s authors often have a difficult time with the theorisation of the role of the action and political activism within PAR. Many report poor integration or tension between ‘action’ and ‘research.’ Change is usually aimed at the level of the individual. For example, Cameron & Gibson (2005) post structuralist interpretation of PAR shifted representations of identity to allow greater opportunities for economically disadvantaged community members . Cahill(2007) also sees self-representation as a ‘significant contribution’ of PAR to the individual. On a societal level, Cahill suggests that change may occur through including excluded perspectives in research, then presenting

finding to multiple audiences. Janes suggests that PAR may be ‘overly focused’ on building research skills as a tool for social change (Janes 2016). The issues of scale mentioned above contribute... Also, clearly defining objectives at the beginning, and ensuring consistency with methods and objectives may reduce this tension.

Participation

Although some consider participation to be an ‘end in itself,’ (Slocum et al 1995 pg 19.) there is increasing recognition of the potential ‘tyranny’ (Cooke & Kothari 2001) of participation as a box ticking or coercive exercise, and of research fatigue (Clark 2008). Clear demarcation of roles and responsibilities has been identified as a key aspect of successful PAR (Mackenzie, et al 2012). Therefore, rather than working from an assumption that everyone will be involved in everything, I suggest negotiated roles working together to achieve clearly articulated shared aims. Barreteau et al.’s (2010) procedural framework (making explicit who will be involved, how, when and information flows) and recommendations could guide these discussions.

Indigenous methodologies

Indigenous methodologies, or IM, is ‘Research by and for indigenous peoples, using techniques and methods drawn from the traditions of those peoples’ (Evans, et al. 2009). IM practitioners aim to research Indigenous issues ‘in a more sympathetic, respectful, and ethically correct fashion *from an Indigenous perspective*’ (Louis 2007). As a non-Indigenous person, I do not have the perspective to conduct research using IM. On the other hand, as a collaborative, participatory research with Indigenous organisations, the theoretical basis of IM is highly relevant.

The current academic interpretation of IM frequently looks to Linda Tuhiwai Smith’s ‘watershed’ book *Decolonizing Methodologies* (1999). There is no singular ‘Indigenous methodology’ (Louis 2007; Smith 1999). However, Louis finds commonalities, including relational accountability, respectful representation, reciprocal appropriation, and rights and regulation. Louis clarifies the difference between Western research and IM:

1. Accepting/advocating of Indigenous knowledge systems
2. Positioning of the Indigenous community members and the researcher in the research [in non-diminutive terms]
3. Determining a research agenda [in response to needs of the community]
4. Directionality of sharing knowledge [both ways]

These characteristics are consistent with PAR and will be adopted as principles for this research.

Methods

Surface water and groundwater case studies

NBY and WAC will lead two ‘case studies’ on groundwater and surface water respectively. and potentially some cross comparisons can be made. Furthermore, it can add depth by adding different perspectives to the analysis.

The methods will be determined through discussions with the research partners. The design process will be drawn from Galvin et al.’s (2016) model of knowledge co-creation: iterations of co-design, co-production and knowledge dissemination. As a collaborative endeavour, the interests/ priorities of both my research partners and I will be taken into account when designing the research aims, processes, and outputs. The question of exactly who will participate in the project, and at what level of involvement, will also need to be determined.

Involvement

WAC and NBY will suggest representatives for the research reference groups consistent with organisational and cultural norms. NBY will likely nominate one of its existing steering committees. The reference groups will give advice on involving other members of the community. It will likely be open to anyone interested in water governance. Opportunities to participate will be promoted through local channels (e.g. emails, newsletters).

It is highly unlikely that children will be included in this research, although they are not specifically excluded.

The co-design will take into account:

1. Alignment with the research partners research priorities, (for example, research that develops the water management frameworks outlines in the Fitzroy River Declaration or builds on NBYs previous policy recommendations concerning water reform)
2. Production of outcomes/ outputs relevant to WACs, NBYs needs and those of a PhD thesis.

As well as

3. Contribution to water governance policy.

Based on the information provided by scoping discussions and the background review, indicative methods might include:

PREPARATORY WORK JANUARY-MARCH 2017

1. Establish NBY and WAC reference groups and key co-researchers (via email)
2. Clarify NBY and WAC feedback procedures
3. Confirm the audience for the co-design phase (I suggest the process be open to any Yawuru or Nyikina-Mangala person with an interest in water governance).
4. Confirm workshop tools (see below)

CO-DESIGN PHASE APRIL-MAY 2017

Workshop to design project, informed by Galvin et al.'s (2016) model of knowledge production: iterations of co-design, co-production and knowledge dissemination. Tools from the *Multi-Stakeholder Partnership (MSP) guide* (Brouwer, et al. 2016) will be used to develop the research plan. As an indicative plan, the co-design workshop might include the following MSP tools:

1. Introductions
2. Joint framing of research topic, research question (s) or objectives,
 - a. Rich picture group work (drawing the issue to establish shared context)
3. Problem definition exercise, followed by Problem Tree (determines root of problem)
 - a. Trendline (water resource situation past, present and desired future)
 - b. Forcefield analysis (examines forces for and against the desired change)
4. Roles and responsibilities, information OCAP (ownership, control, access, possession)
5. Project ground rules exercise
6. Methods, research plan, output format
 - a. Brainstorming
 - b. Prioritising and ranking
 - c. Synthesis
7. Monitoring and keeping on track
 - a. Timeline exercise
8. Closing circle and evaluation
9. Visual mapping of research plan (occurs throughout workshop)

RESEARCH PHASE JUNE-OCTOBER 2017

Methods will be discussed with NBY, WAC and my supervisory panel. Indicative methods are:

- Focus groups
- Key informant interviews
- Conceptual mapping

DATA ANALYSIS PHASE NOVEMBER-DECEMBER 2017

Methods will be discussed with NBY, WAC and my supervisory panel. Indicative methods are:

- focus groups
- Workshops
- Review plan for reporting/ information dissemination

REPORTING PHASE JUNE 2018- FEBRUARY 2019

- Member checking of findings
- Review of draft outputs (reports etc.) by NBY and WAC reference group
- Final presentation of outputs to NBY and WAC, submission of thesis for marking
- Dissemination of outputs as per NBY and WAC requirements

A phased approach suggested by AIATSIS (2012) as an appropriate way to apply Principle 7 *Responsibility for consultation and negotiation is ongoing*.

Consideration for method selection:

- Match of method to research question
- Practicality of method, resources needed
- Suitability of method to West Kimberley context & fit with PAR framework
- Need for variations to ANU ethics approval
- Ensuring validity through triangulation, member checking or other mechanisms

A research journal/ diary is a tool for reflexive practice. A research journal may be used like laboratory or field notebook to record details of the methods and results. However, the key function of research journal/diary is to critically explore interpretation. Keeping a research journal provides

many benefits through the initial writing process and again later, as reference to assist the formal writing up stage (Borg 2001) and to increase the general ‘integrity’ of the research (Finlay 2002). In line with Nadin & Cassell (2006), I began my research journal after a literature review and before field research commenced.

Limitations

Possible limitations include:

- regional and culturally specific factors may limit the transferability of findings
- the legislative and policy environment is dynamic and may change significantly mid-project (2017) if new legislation is passed or a new government is elected
- Logistical constraints of field work- interviewees unavailable, bad weather, etc.
- ‘Scaling up’ and engaging at the State level (if needed)

Research implementation

Research protocols and ethics

This research will comply with the ANU code of research conduct. This involves preparing a full ‘High Risk’ level Protocol for consideration of the ANU ethics committee, complying with relevant codes, legislation and guidelines. In addition, complying with ethics protocols and research permission processes of other organisations. At all times I will work to minimise risk to all involved. Ensuring free, prior, informed consent, and ongoing consent of participants is crucial.

Dr Anne Poelina (Nyikina) has offered to be a cultural advisor and co-researcher for this research. Her advice and feedback will help guide the project. At NBY, Land and Sea staff members will provide similar advice. Supervisor Dr Kate Andrews has extensive experience working in Northern Australia will be particularly valuable in helping resolving any arising issues.

An issue that is notably absent from the ANU ethics approval is that of information and intellectual property. It has been said that ‘indigenous knowledge has become the latest exploited commodity and site of colonialism in the twenty-first century’ (Morrow 2009). Schnarch (2004) proposed a useful framework: Indigenous information Ownership, Control, Access and Possession (OCAP). Explicitly discussing these issues early in the project, and identifying the types of information that may be sensitive, proprietary or restricted, could improve outcomes for all involved.

Diane Smith calls for ‘culture-smart’ data—that is, information that can be produced locally, captures local social units, conditions, priorities and concerns and is culturally informed and meaningful (Smith 2016)

More detail will be provided in the protocol submitted to the ethics committee.

Record keeping

Records will be kept according to ANU *Code of Research Conduct*. In addition, processes will be put in place to ensure copies of relevant records (e.g. Non-confidential interview transcripts, film, and audio) are provided to the partner organisations for their archives.

Researcher position

A central tenant of PAR is that the research is *not* a neutral observer. Rather than make false claims, it is suggested that researchers ‘locate’ themselves. Any interpretation of the researcher’s analysis can then take this position, including potential biases, into account. I am a non-Indigenous person and grew up in Perth, Western Australia. I moved to the Kimberley in 2010 and previously worked for Kimberley Land Council.

Initial Budget

Budget to be revised in 2017 after research questions and methods are determined.

| Item | Cost | Resourcing options |
|---|---------|---|
| Desk space, Broome | In-kind | Hosting by local organisations-discussions underway |
| Fieldwork travel Flights 3* Canberra-Broome return (\$1100) = \$3300 | \$3300 | *Crawford HDR Fieldwork funding provides up to \$4000 Apply 2 months prior to fieldwork |
| Meeting expenses (e.g. venue hire, food) | ? | Crawford HDR funding not available Seek in-kind or grants |
| Kat meeting transport | ? | Kat to provide own car |
| Kat accommodation | ? | Broome: own accommodation Outside Broome: seek hosting. Crawford funding may possible for short term accommodation |
| Research project expenses | ? | Seek in-kind or grants |
| Conference (s?) | ? | *Crawford HDR funding Up to \$2,500 |
| Research outputs (films? Posters? GIS layers?) | ? | Seek in-kind or grants |
| Thesis production costs. Printing, binding, proofreading. Editing | ? | Up to \$840 under APA subject to ANU thesis allowance policy |
| NViVO training | ~\$200 | Crawford training fund |

Timeline

| YEAR 1 | | | | | | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| 2016 | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec | |
| Coursework, first aid training, academic skills training Thesis proposal review Human ethics drafting, application, approvals | | | | | | | | | | | | |
| YEAR 2 | | | | | | | | | | | | |
| 2017 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
| ANU Field work funding application 1 Milestone 1: identify objectives, process, plan Vary/ update ethics protocol as needed Consider other grants/ funding options Milestone 2: plan initiated AIATSIS Native Title Conference water workshops (TBC) Milestone 3: tba Milestone 4: finalise research Draft intro (Chpt 1) Draft background chapter (chpt 3) Draft conceptual framework (chpt 3) Draft literature review (chapt 4) Draft research questions (Chapt 5) Draft methods (Chapt 6) | | | | | | | | | | | | |
| YEAR 3 | | | | | | | | | | | | |
| 2018 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
| Results (Chapt 7) ANU Fieldwork funding application 2 Results (Chapt 8) Discussion (Chpt 9) Conclusion (Chapt 10) Fieldwork- Discuss findings/ member checking Revisions, Editing Closing- present final findings/ thesis | | | | | | | | | | | | |

Dissemination of research findings

A communication plan will be developed with the partner organisations and my supervisory panel. This plan will include review processes, identifying key audiences and messages, and preferred formats.

For the purposes of the PhD, a monograph style thesis will be written. See Appendix 1 for draft chapter structure.

TABLE 1: RESEARCH COMMUNICATION PLAN

| Audience | Key message (s) | Format | Date |
|---|--|---|----------|
| Academic | Full research findings | Thesis (online) | 2019 |
| | Indigenous water policy in Australia | Australasian journal of water resources | 2017 |
| Note: proposed paper topics examples only, final topics to be developed with partners | e.g. Fitzroy River regional / cultural governance model | Publication in journal, e.g. <i>Journal of Hydrology</i> | 2018 (?) |
| | e.g. Yawuru analysis groundwater governance in WA | Publication in journal, e.g. <i>Australasian Journal of Water Resources</i> | 2019 |
| | e.g. Using PAR to investigate policy over multiples scales | e.g. <i>Ecology and society</i> , | 2019 |
| | Possible option: A more experimental paper format using storytelling or multimedia | e.g. <i>Journal of Water Alternatives, Australian Aboriginal studies journal, Action Research</i> | |
| Academic- ANU | Research proposal | TPR Seminar | 2016 |
| | Initial findings | Mid-term review | 2017 |
| | Summary of final findings | Oral defence/ final seminar | 2018 |
| Kimberley community | Summary of final findings | Nulungu ‘Talking Heads’ seminar | 2018 |
| NBY, WAC and participants | Results, findings | Tbc. At minimum, copy of final thesis | |

Relevance/ significance / contribution to the literature

This research aligns with several of the global water research needs identified in 2013 pertaining to governance¹⁸, equity and values (Pahl-Wostl et al.). It may help direct water governance policy in WA.

¹⁸ Pahl-Wostl et al’s Table 1: ‘Support participation and equity in decision-making processes’, ‘Support design, implementation and evaluation of water governance settings at different levels’ and ‘Analyze change in and role of values, ethics, beliefs on water governance.’

Water in the Kimberley region faces increasing pressure. Southern-centric, top down water management policies and programs result in contested space and often inequitable outcomes. This research rejects the dominant deficit model implicit in many research projects involving Indigenous people. Instead, it takes a strength based approach to build on previous work of Indigenous policy groups, by working with leading Aboriginal policy organisations to offer locally grounded counter-perspectives on water management, that may provide novel ways of resolving contested claims to water.

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Appendix 1: Thesis Draft Chapter Structure

1. Introduction
 - a. Topic introduction
 - b. Research overview- PAR, IM methodology,
 - c. research partners,
 - d. research questions
 - e. Research significance. Highlight main results
 - f. Scope
 - g. Outline of thesis structure
 - h. Definitions
2. Background
 - a. International water law, water security, water climate nexus, transboundary governance, cross-realm planning, IWRM
 - b. Australian national water reform legal, policy, economic
 - i. Focused on MBD and rivers, less focused on other regions and groundwater
 - c. Australian first nations and water
 - i. Native Title Act and water
 - ii. Cultural values and connection (anthropology)
 - d. Community/ stakeholder engagement/ participation
 - e. Kimberley climate, demographics, land use
3. Conceptual framework
 1. Critical research and post-colonial analysis
 - i. 'research' knowledge transfer vs knowledge mobilisation
 - a. Participatory Action Research
 - i. Freirean PAR
 - b. Indigenous Methodologies
 - i. Deficit vs strengths based model (Education)
4. Literature review
 - a. Construction of scale, interactions of scale
 - b. 'Develop the north' history, endless frontiers, water dreamers
 - i. Water grab, aqua nullius
 - c. First law, indigenous water rights
 - i. legal pluralism, policy
 - ii. Human geography
 - iii. Cultural flows
 - iv. 'allocation', 'stakeholder' (also see Jackson other items??), 'Values vs rights'

- v. Effectiveness of the market to distribute equitably- what is 'high value?'
 - d. Rights of river
 - e. Policy overview Indigenous led water policy (Mary River statement, etc.) , 'first law' in a contemporary setting
 - f. State & Federal policy and initiatives [**Paper 1: 'State of the art' paper on water governance and First Law policy in the Australasian Journal of Water Resources, co-authored with Brad Moggridge**]
 - g. Previous research: water, Yawuru,
 - h. Previous research, water, Nyikina- Mangala
 - i. Some of this may develop after questions are finalised
5. Research question (s)
 - a. How the questions were determined (brief)
 - b. Questions (list)
 - c. How questions address gap
 - d. Importance/ significance
 6. Methods
 - a. Methods (TBC)
 - b. Data analysis
 - c. Protocols and ethics
 7. Results: Fitzroy River [**PAPER 2 TBC: A cultural water governance framework for the Fitzroy River. Journal of Hydrology.2018.**]
 8. Results: Roebuck Plains [**Paper 3 TBC: Yawuru analysis of regional groundwater governance in WA. Australasian Journal of Water Resources. 2018]**
 9. Discussion
 - a. Cross comparisons Fitzroy River, Roebuck Plains, and literature
 - b. Implications of results for water governance
 - c. Methodological contributions [**Paper 4: using PAR (and IM?) to investigate water governance policy across multiple scales. Journal of ecology and society. 2019. Include a comparison of the NBY vs WAC case studies**]
 - d. Limitations of research
 - e. Recommendations
 10. Conclusions
 - a. Recommendations (summary)

b. Areas for further research

11. References and appendices

Appendix 2: research risk management plan

Please see attached document