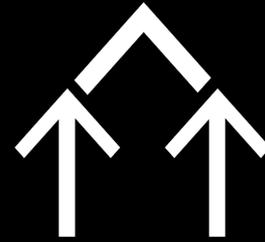


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Liam Grealy  
2 February 2022

Email: [watersecurity.ntg@nt.gov.au](mailto:watersecurity.ntg@nt.gov.au)

To The Office of Water Security,

**SUBMISSION: NT STRATEGIC WATER PLAN**

I welcome the opportunity to make a submission in response to the Northern Territory Government's 'NT Strategic Water Plan – Directions Paper'.

I note that the Housing for Health Incubator made a submission to the former 'Northern Territory Water Regulatory Reform' process on 30 March 2019. That submission, which I co-authored with Dr Kirsty Howey, made the following recommendations.

1. Securing a safe and potable public water supply for all residents of the NT should be an explicit and primary aim of the proposed reforms
2. The NTG should legislate for uniform minimum water quality standards and water utility service provision across the NT
3. The NTG should amend the *Water Act* to include a power to specifically reserve water for future drinking water supply security and to ensure it is of adequate quality
4. The NTG should legislate for a right to potable and adequate drinking water for all residents

The above recommendations remain relevant and necessary in 2022. Since that time, Dr Howey and I have published peer reviewed research on water law and governance regimes in the Northern Territory. Rather than describe in detail the findings of that research, I have attached the following publications as appendices to this submission, noting key pages:

- Housing for Health Incubator. 2020. 'Safe drinking water in the Northern Territory – Fact Sheet, November 2020.'
- Grealy, Liam and Howey, Kirsty. 2020. 'Securing Supply: Governing drinking water in the Northern Territory.' *Australian Geographer*. 51(3): 341-360. (Especially pages 343-349)
- Howey, Kirsty and Grealy, Liam. 2021. 'Drinking water security: The neglected dimension of Australian water reform.' *Australasian Journal of Water Resources*. 25(2): 111-120. (Especially pages 116-119)

In terms of the proposed directions for water security listed within the current Directions Paper, this research is most directly relevant to: 1. Water governance is contemporary and coordinated, and 2. Drinking water is safe.

It is important that the consultation exercise initiated by this Directions Paper leads to significant reform in Northern Territory water governance. This must involve meaningful collaboration with Traditional Owners and their representative institutions. In order to ensure that NT residents' water security is guaranteed, I consider it necessary that the following actions are pursued:

- 1. Legislate a Safe Drinking Water Act**
- 2. Establish an independent water regulator**
- 3. Develop a pricing regime for commercial water use**

Yours sincerely,

Liam Grealy

DR LIAM GREALY  
Research Fellow | Housing for Health Incubator  
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## SAFE DRINKING WATER IN THE NORTHERN TERRITORY – FACT SHEET, NOVEMBER 2020

What do we mean when we say that the Northern Territory (NT) lacks adequate protections for safe drinking water, and that this is especially so in remote communities?

### ***Water Act 1992 (NT)***

In the NT, the *Water Act 1992 (NT)* provides for the declaration of Water Control Districts (WCDs), the development of Water Allocation Plans (WAPs) within WCDs, and statutory-based licences for certain water extraction activities. Water Allocation Plans allow for allocations for public water supply. However, existing Water Allocation Plans only account for a small proportion of the NT's landmass, predominantly applying to areas along the Stuart Highway and excluding many remote communities (see Appendix 1).

Even where Water Allocation Plans exist, the *Water Act* does not include a power to reserve public water supply above other uses, including extractive industries and pastoralism.

The NT charges citizens for residential water use. However, it is the only Australian jurisdiction that does not charge for water consumption by mining and petroleum companies, pastoralists, and agricultural users. Water Allocation Plans establish some limits on water use for consumptive purposes. For example, a licence is required for extracting groundwater within a WCD, though not elsewhere, provided groundwater is extracted at a rate of less than 15L per second. Exemptions for licenses exist for stock and domestic purposes, and road construction and maintenance.

In the NT, water is free for various consumptive purposes. Outside of WCDs, its extraction can proceed to the detriment of drinking water security.

### ***Water Supply and Sewerage Services Act 2000 (NT)***

The *Water Supply and Sewerage Services Supply Act 2000 (NT)* (WSSSA) regulates public water supply in the NT. It requires that "water supply services" in "water supply licence areas" are licensed by the Utilities Commission.

The government-owned Power and Water Corporation is the current and sole licensee. Its license contract requires meeting provisions related to asset management planning, license compliance reporting, a customer contract, and service planning.

The *Water Act* (s73), the WSSSA (s45), and the *Public and Environmental Health Act 2011* (s133), each include a power to establish minimum standards for drinking water quality. However, this power has not been used.

Instead, the Department of Health and Power and Water Corporation have a Memorandum of Understanding (MoU) that states the Australian Drinking Water Guidelines "will be used as a peak

reference”. The MoU appears to have expired in 2015. Legally, the MoU and Power and Water Corporation’s customer contract are unenforceable.

### **Power and Water Corporation and Indigenous Essential Services**

The “water supply licence areas” specified in Power and Water Corporation’s license include 18 gazetted towns where the vast majority of the NT’s non-Indigenous population lives. Outside of these towns, drinking water provision is not licensed.

This does not mean that treatment, testing, and planning measures are not taken to provide safe drinking water in contexts beyond license areas. But it does mean that there are no legal requirements for risk management plans (including monitoring programs and incident protocols), audits, reporting, and compliance with minimum standards.

In 72 remote communities and 79 outstations, Indigenous Essential Services Pty Ltd provides drinking water services. Indigenous Essential Services is a not-for-profit subsidiary of Power and Water Corporation (see Appendix 2) There is no legislation mandating service standards by Indigenous Essential Services.

Indigenous Essential Services is funded by a recurrent grant payment from the Department of Local Government, Housing, and Community Development according to an unpublished Service Level Agreement. This arrangement lacks transparency and does not meet National Water Initiative expectations for Community Service Obligation payments. Annual reports suggest that Indigenous Essential Services in turn pays Power and Water Corporation to manage drinking water services in those remote communities and outstations.

The *Information Act 2002* (NT) appears to protect Power and Water Corporation, as a government-owned corporation, from freedom of information requests that concern its business operations. There is limited publicly available information about IES.

This means that in 72 remote communities and 79 outstations, the drinking water services provider is unlicensed, operates without minimum quality standards in place, and with limited public information relating to its funding and service arrangements, day-to-day operations, and planning for future infrastructural needs. IES does not appear to be accountable to any government authority.

### **Towards Safe Drinking Water Legislation?**

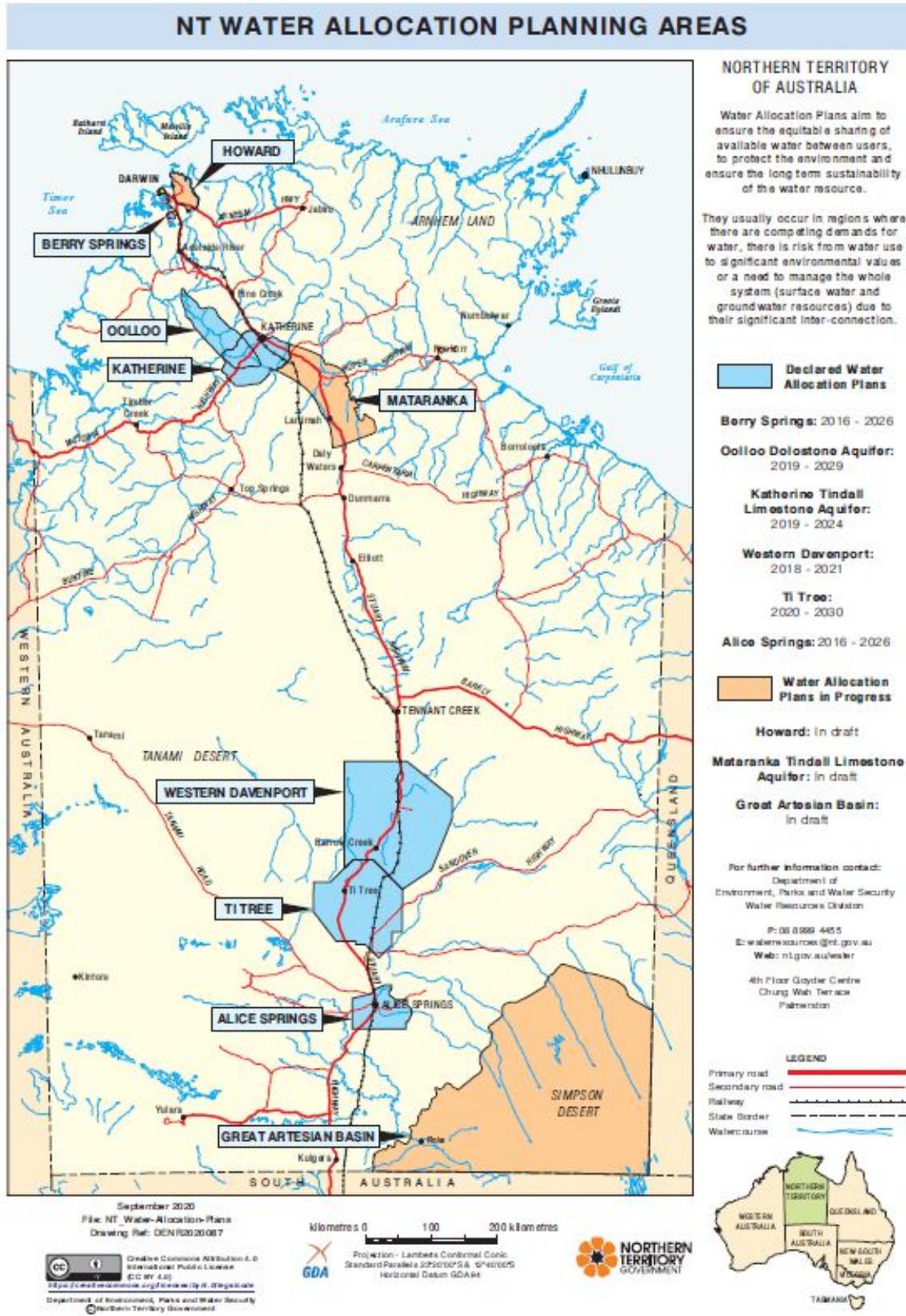
All four Northern Territory Land Councils have recently called for A Safe Drinking Water Act. Legislative reform is one important part of the solution. A Safe Drinking Water Act could:

- Establish a general power to reserve water for drinking water supply against other consumptive uses (which does not exist in the *Water Act*)
- Establish minimum water quality standards (which are currently governed by an unenforceable MoU)
- Establish the requirement that IES or PAWC is licensed by the Utilities Commission to deliver water services in 72 remote communities, according to similar standards governing existing license areas

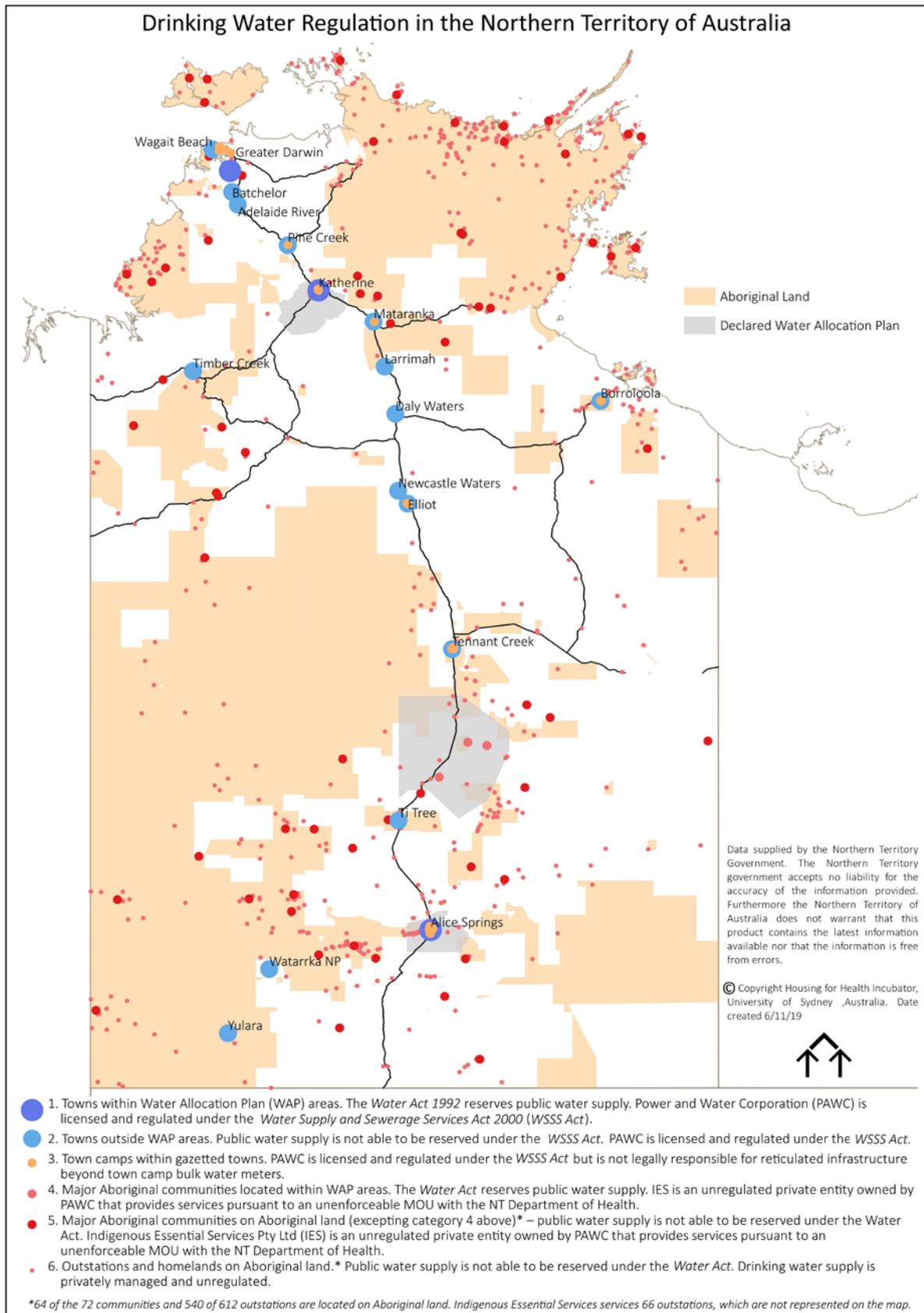
Contact us at [sophi.hfhincubator@sydney.edu.au](mailto:sophi.hfhincubator@sydney.edu.au) or visit [www.hfhincubator.org](http://www.hfhincubator.org)

Cite as: Housing for Health Incubator. 2020. “Safe Drinking Water in the Northern Territory Fact Sheet.” November.

Appendix 1. NT Water Allocation Planning Areas



Appendix 2. Housing for Health Incubator, 2019, Drinking Water Regulation in the Northern Territory.





## Securing supply: governing drinking water in the Northern Territory

Liam Grealy & Kirsty Howey

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## Securing supply: governing drinking water in the Northern Territory

Liam Grealy  and Kirsty Howey 

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### ABSTRACT

This article considers the spatial and material implications of drinking water regulation in the Northern Territory (NT) of Australia. Responding to water contamination and scarcity events in remote NT communities, we argue that the politico-bureaucratic edifice of uniform drinking water governance and service provision across the NT is a state-curated fiction. The article outlines the available legislative protections for drinking water supply in the NT, which include minimum quality standards, water allocation mechanisms, testing regimes, and so on. These are shown to vary significantly between geographic locations and we argue that this produces a racialised ‘archipelago’ of differentiated islands of drinking water governance (Bakker 2003. “Archipelagos and Networks: Urbanization and Water Privatization in the South.” *The Geographical Journal* 169 (4): 328–341). Using the Gulf country town of Borroloola as a case study, the article then examines the colonial and land rights bases of this spatial variegation, and its significance for drinking water infrastructure provision and remediation. In doing so, we consider how the entropic materialities of ageing infrastructures work to further confound effective drinking water regulations and their practical enactments. The article argues that it is crucial to understand the limits of drinking water regulation in the NT, in order to elucidate the racialised distribution of potential environmental harms, and to mitigate further toxic inheritances.

### KEYWORDS

Water; governance;  
geography; infrastructure;  
law; materiality

On 19 April 2018, the Northern Territory (NT) Department of Health issued precautionary drinking water advice to Garawa 1 and Garawa 2 camps, two of the four Indigenous ‘town camps’ in the remote NT township of Borroloola. Routine testing had revealed elevated lead and manganese in the water supply above safe levels. Residents were told not to drink, cook, or brush their teeth with the water, while assured that the contamination was a short-term problem. Although never publicly confirmed, brass fittings in the decades-old reticulated piping were blamed, with the acute problem resolved by a combination of water flushing and spot replacement of fittings at the most stubborn points. The advice was lifted two months later on 15 June 2018. It was, according to the authorities, a minor incident.

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Across the NT, and exacerbated by drought conditions and extreme heat in recent years, remote Indigenous communities are experiencing frequent failures in drinking water supply and quality. In August 2019, the groundwater supply to Yuendumu in Central Australia was reportedly at severe risk of total depletion (Beavan 2019). In the remote outstation of Mudginberri in Kakadu National Park, a five day water outage resulted in emergency drinking supplies trucked in while residents were unable to flush toilets, shower, or wash laundry (Gibson 2019). Other recent incidents include a toxic algal bloom in the water supply at Yuelamu in February 2016 (Maddocks 2016), the failure of water chlorination equipment in Yarralin in January 2017 (NTG 2017), and the depletion of the bore water supply at Ngukurr in December 2017 (McLennan 2017). While some water provision failures in Australia generate national outcry – such as those arising from mismanagement of the Murray-Darling basin – the smaller scale of these continuing crises in the nation's more remote regions escape sustained attention. However, considered collectively, these incidents highlight the precarity of reliable water supply in regional and remote Indigenous communities in the NT. This has direct implications for the health of people living in contexts that are relatively more vulnerable to climate change risks (Hennessy et al. 2004; Pittock, Hussey, and McGlennon 2013), and which depend on the availability of water that is safe to drink, of adequate supply, and distributable to homes (Healthabitat 2019).

This article examines the spatial and material implications of drinking water regulation in the NT. Adopting Tess Lea's 'policy ecology' analytic, we analyse the legal and policy environments of drinking water regulation, as well as the 'connections that stem from and flow through the alive, inhabited worlds that policy is entering into' (Lea 2015, 378). This requires analysis of not only legal and policy regimes and their colonial origins and spatial effects (Bartel et al. 2013, 340), but also the confounding material agencies of the deteriorating infrastructures through which drinking water governance is enacted (Ballesterio 2019). Our analysis is based on two key methods. First, it draws on ethnographic fieldwork in Borroloola and Darwin in October 2018 and May 2019. This involved investigating the site of contamination and localised remediation work, and the distributed sites of bureaucratic administration. Second, the analysis depends on a critical ethnographic reading of archival materials and contemporary legal and policy documentation regarding drinking water governance and service provision in the NT (Sullivan 2012). Through both approaches – augmented by a public seminar and radio and television interviews that generated responses from government (Lavery 2019) – our chief aim has been to determine who is responsible for drinking water provision in what NT contexts; according to what standards; what procedures are enacted when those standards are not met; and the legal, geographic, and practical limits to such regimes.

Our central argument is that the politico-bureaucratic edifice of uniform drinking water governance and service provision across the NT is a state-curated fiction. Drinking water regulation in the NT is in fact spatially heterogeneous, producing different forms of responsibility, accountability, attention, procedure and intervention between contexts. Making legible the social and environmental harms currently enmeshed in drinking water legislation is crucial for any attempt to institute more coherent or stringent regulations for water security (Scott 1998; Ballesterio 2019; Neale 2019). Following Karen Bakker (2003) on law's spatial effects, we suggest that a fragmented and

hierarchised ‘archipelago’ of drinking water regulation governs remote and urban/town populations and their relations to drinking water differently and unequally. The first section of this article analyses the *Water Act 1992* (NT), and the important but infrequently considered *Water Supply and Sewerage Services Act 2000* (NT) (WSSS Act), to show their patchwork application across the NT. We then illustrate how the ‘islands’ in the NT’s water governance archipelago are hierarchised to the relative detriment of Indigenous remote communities and homelands, with regard to guarantees of water supply and quality, intervention by authorities, and legal accountability to residents. Following Nikhil Anand, this regime produces differentiated forms of ‘hydraulic citizenship’ (2017, 8).

The second section of this article employs the 2018 contamination event at Borrooloola as a case study to illustrate how contemporary archipelagic governance depends in part on the colonial and post-land rights appropriation and alienation of territory and the allocation of attendant property interests. Geographically differentiated forms of testing and remediation are complicated further, and undermined, by the entropic characteristics of the ageing bores, reticulated pipes, storage tanks, taps and houses through which water flows. We suggest that, especially where subterranean infrastructure is involved, sustained empiricism is often replaced with estimates and reactionary remediation in the day-to-day implementation of water management – what we call ‘governing with guesswork’. This issue is of particular relevance to contemporary decolonising demands for services and infrastructures to be returned to Aboriginal control as a governance solution to systemic state neglect in the NT. This article aims to draw attention to the condition of such legacy infrastructures, which stand to provide ‘toxic inheritances’ to Indigenous communities, if arrangements clarifying questions of legal responsibility and providing adequate resourcing for ongoing maintenance are not established.

## Part one: guaranteeing supply

### *The legal geography of NT water governance*

Ninety percent of the NT’s water supply – including for nearly all remote Indigenous communities – comes from groundwater aquifers, recharged by wet season rainfall and seepage from rivers and floods, and accessed by humans via some 35,000 known bores. Uniquely in Australia, ‘property’ in all water, whether surface or ground, is vested in the Crown in the NT. In other jurisdictions, the Crown’s rights are limited to the use, flow and control of water, not ownership.<sup>1</sup> The dominant purpose of the NT’s key water planning legislation treats water as an extractive resource to be allocated to competing users and exploited for different purposes. The purpose of the *Water Act* is to allocate, manage and assess water resources in the NT, supported by the *Water Regulations*, and other policy instruments.<sup>2</sup> Within this legislative paradigm, current and potential conflicts over water are selectively ‘managed’ in discrete areas in response to stressors such as the intensification of agricultural, pastoral, extractive and other human uses of water, and the location of denser human populations.

One of the key functions of the *Water Act* is to stipulate where and when statutory water extraction licences are required, and to provide decision-makers with the power

to decide where and when more intensive water resource management is needed. For example, the legislation enables the declaration of Water Control Districts (WCDs), of which there are currently eight. Such districts are typically in more heavily populated areas with higher competition for water and thus higher risk to overuse of groundwater reserves, river flows and wetlands. A licence is required for extracting groundwater within a WCD, though not elsewhere, provided groundwater is extracted at a rate of less than fifteen litres per second.

The declaration of WCDs enable the development of Water Allocation Plans (WAPs) within those districts. WAPs apply in specific areas within the eight WCDs across the NT; as of July 2020, there are only six such plans have been instituted, though more are planned (see [Figure 1](#)). These allocate water between various non-consumptive uses (environmental and cultural) and consumptive uses (including rural stock and domestic, public water supply, aquaculture, industry and agriculture). Public water supply is one of many 'consumptive uses'. There are generalised exemptions to the requirement to obtain water extraction licences across the NT (including in WCDs) for 'stock and domestic purposes' (*Water Act*, S14), and road construction and maintenance.

Scholarship about NT water resource planning has predominantly focused on the distributive justice of the water planning framework, including water allocation to Indigenous landowners for cultural and commercial purposes and the intersection with Indigenous rights to water (Altman 2004; Jackson 2006; Jackson and Langton 2012; Jackson and Barber 2013).<sup>3</sup> Scholarship and advocacy beyond the NT has investigated water supply and sanitation, including the barriers to effective Indigenous water governance (HREOC 1994; HREOC 2001), and has applied Indigenous ontologies and environmental justice frameworks that consider issues of recognition, participation and distributive justice to Indigenous water rights (McLean 2007; Yazzie and Baldy 2018). While indebted to this literature, our focus here is with how drinking water service provision is regulated (or not) by the state in the NT. Our key point is that while the *Water Act* purports to provide an NT-wide framework for the sustainable management of water resources, its geographic application with respect to public drinking water is fragmentary. Such geographic differentiation is not necessarily a problem (place-based approaches necessarily recognise the specific characteristics of contexts that belie singular approaches), but in this instance generates racialised disparities in legal protections and practical attention. Public drinking water supply is only protected or 'allocated' in the NT in areas both declared as a WCD and where a WAP applies. There is no general power in the *Water Act* to reserve water for current and future public water needs.<sup>4</sup> Other users may extract water in accordance with the requirements of the *Water Act*, often without a licence or regulatory oversight, and even when such use might impact drinking water sources.<sup>5</sup>

This means that an adequate drinking water supply is not currently guaranteed to residents in the vast majority of the NT not covered by WAPs, including in most Indigenous communities. Although the licensed utility provider, Power and Water Corporation (PAWC), is required under the *Water Act* (S90) to obtain water extraction licences to utilise water for public supply,<sup>6</sup> it appears to hold very few groundwater extraction licences outside of declared WCDs. As Jackson and Altman (2009) have noted, this means areas outside of WCDs – where most Indigenous communities are located on inalienable Aboriginal land owned under the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth)

### NT WATER ALLOCATION PLANNING AREAS

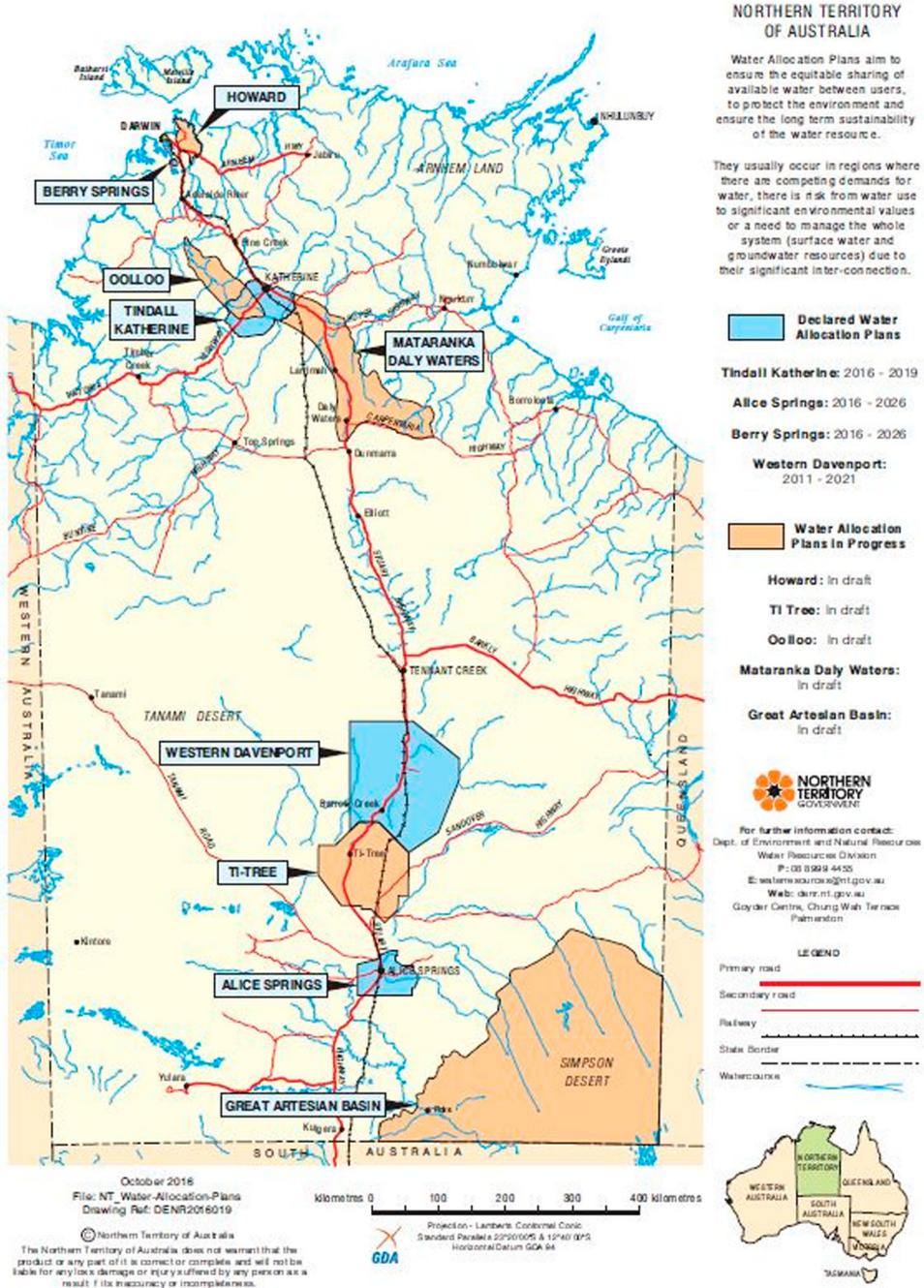


Figure 1. NT Water Allocation Planning Areas, Northern Territory Government.

(ALRA) – constitute spaces beyond the ‘frontiers’ of settler colonial water management (Povinelli 2018). Groundwater in these places is neither reserved for public supply, nor is much of its extraction licensed or regulated against other uses.

### Minimum standards

Establishing this absence of water planning regulation for large swathes of Indigenous-owned land, we ask: what regulatory arrangements *do* exist for the supply and quality of drinking water in the NT? Some answers are contained in the *Water Supply and Sewerage Services Act 2000* (NT) (*WSSS Act*), which regulates the provision of public water supply. The *WSSS Act* requires that provision of ‘water supply services’<sup>7</sup> in what are known as ‘water supply licence areas’ be licensed by the NT Utilities Commission, a government-established regulator which oversees essential services provision to NT consumers of water. PAWC is the current and sole licensee under the *WSSS Act*, and it must ‘provide water supply or sewerage services to customers who own land with an authorised connection to [its] water supply or sewerage services infrastructure’ (S41[2]). Other requirements are imposed on PAWC through the legislation and its licence, regarding asset management plans for water supply infrastructure (S48), licence compliance reports (S49) and service plans (S51). Direct accountability to the customer regarding these requirements is established in part via a mandated (S47) and standardised ‘customer contract’ published in the NT government gazette which, among other matters, stipulates that PAWC will provide water at a pressure and flow-rate suitable for normal day-to-day usage.

Unlike other Australian jurisdictions where a corporate entity is licensed to supply drinking water<sup>8</sup> – the NT has not set minimum standards for water supply. Under the *WSSS Act*, the Minister can specify minimum standards that PAWC must meet (S45), and a similar power to prescribe minimum water quality standards exists in the *Water Act* (S73) and the *Public and Environmental Health Act 2011* (NT) (S133). However, instead of enforceable standards, the Department of Health (2011) and PAWC have entered into a memorandum of understanding (MOU), which concedes that ‘no minimum standards for drinking water have been set’, although the *Australian Drinking Water Guidelines* (ADWG) ‘will be used as the peak reference’ (Department of Health 2011, clause 4). The MOU allows the Department to vary the quality criteria drawn from the ADWG ‘in specific circumstances... as long as public health is not compromised’ (2011, clause 4). The MOU contains criteria for the administration and implementation of the ADWG, the safe treatment of water, water testing regimes, responses to public health incidents and events, and annual public reporting of drinking water quality across the NT. However, in strict legal terms, despite the appearance of regulation of drinking water quality and a measure of public transparency, the MOU is unenforceable. The MOU also expired in 2015, but appears to have been used since that date. This regime involves a voluntary program couched in aspirational terms.

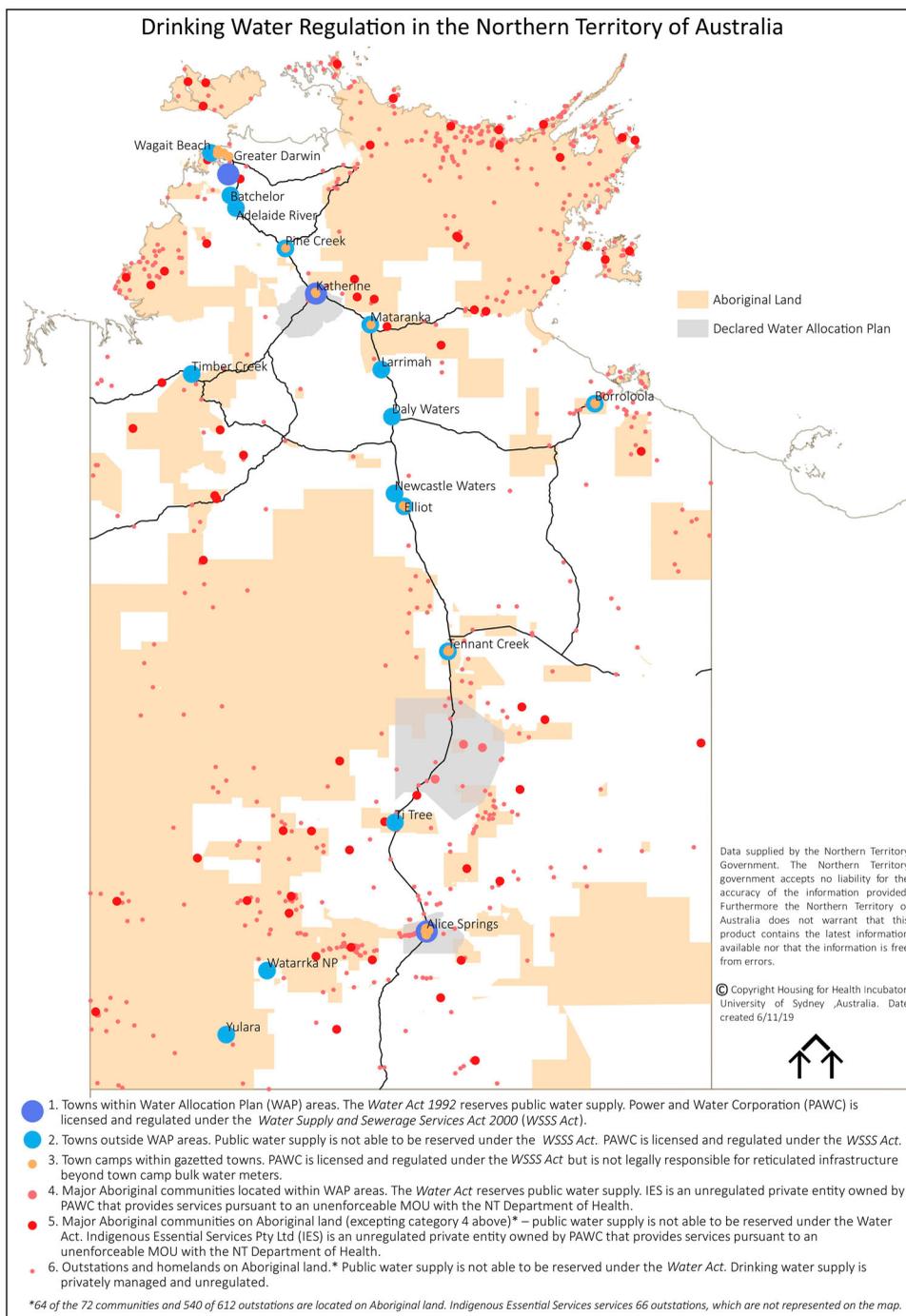
But even these limited protections do not extend across the NT. The *WSSS Act* applies only in water supply licence areas, which currently comprise eighteen gazetted towns: including the major centres Darwin, Alice Springs, Katherine and Tennant Creek – and Borroloola, for reasons we explain below. The seventy-two larger Indigenous communities and over 600 Indigenous outstations located on Aboriginal land owned under the *ALRA* and other forms of Indigenous-owned land, are not water supply licence areas and therefore the *WSSS Act* does not apply.<sup>9</sup> These mostly regional and remote communities and sixty-six of the outstations – in which about half the NT’s Indigenous population live –

are serviced by Indigenous Essential Services Pty Ltd (IES), a not-for-profit subsidiary of PAWC established in 2003. While PAWC is overseen by the Utilities Commission, IES is a private proprietary limited company and its operational structure and legal obligations are opaque, with no legislation mandating licensing or particular levels of service or standards. Further, the standards, duties, accountability and transparency mechanisms that do exist within the *WSSS Act*, licence and customer contract do not apply to IES. The MOU between the Department of Health and PAWC referred to above does, however, apply in the communities that IES services, providing a framework (albeit unenforceable) for working cooperatively, including regular testing of drinking water supplies in remote areas and public reporting of results. Neither IES nor its parent company, PAWC, operate at all in the vast majority of outstations on Aboriginal land. Here, water infrastructure is typically managed in an ad hoc manner by outstation resource centres who compete for annual funding from a very limited, and perennially under threat, NT budget allocation (Marks 2015).

### *Archipelagic water governance*

Across the NT, then, legal regulation of both drinking water supply and quality are fragmented and unequal. Making legible the detailed spatial effects of water governance reveals how the law differentiates how particular populations are governed along racialised lines (Riles 2005). Karen Bakker characterises the public water supply systems of Jakarta in Indonesia as an ‘archipelago’, comprising ‘spatially separated but linked “islands” of networked supply in the urban fabric’ (2003, 337), as the consequence of ‘attempts by colonial and postcolonial governments to differentiate people by class and race’ (Kooy and Bakker 2008, 1844). This metaphor aptly describes the differentiated and hierarchised ‘islands’ of NT drinking water governance, which produce differences between urban and town (predominantly non-Indigenous) and remote (predominantly Indigenous) populations. Within this archipelago, we suggest that there are at least six different ‘islands’ of drinking water governance (see Figure 2).<sup>10</sup> These are:

- (1) Towns within WAP areas. The *Water Act* reserves public water supply and PAWC is licensed and regulated under the *WSSS Act*.
- (2) Towns outside WAP areas. Public water supply is not able to be reserved under the *Water Act*. PAWC is licensed and regulated under the *WSSS Act*.
- (3) Town camps within towns. PAWC is licensed and regulated under the *WSSS Act* but is not legally responsible for reticulated infrastructure beyond town camp bulk water meters.
- (4) Major Aboriginal communities located within WAP areas. The *Water Act* reserves public water supply. IES is an unregulated private entity owned by PAWC that provides services pursuant to an unenforceable MOU with the NT Department of Health.
- (5) Major Aboriginal communities on Aboriginal land (excepting category 4).<sup>11</sup> Public water supply is not able to be reserved under the *Water Act*. IES provides services pursuant to an unenforceable MOU with the NT Department of Health.
- (6) Outstations and homelands on Aboriginal land.<sup>12</sup> Public water supply is not guaranteed under the *Water Act*. Drinking water supply is privately managed and unregulated.



**Figure 2.** Drinking Water Regulation in the Northern Territory, Housing for Health Incubator.

This close analysis of the differentiated application of NT water protections is not simply of significance to lawyers or scholars of legal geography. Attending to such technicalities clarifies the variegated protections that currently exist, which represent neither wholesale state abandonment nor adequate government guarantees. This is important knowledge to underpin advocacy regarding the failure to meet such protections through practical interventions, on behalf of either reform of existing laws or transformations towards Indigenous ownership and management of remote assets. In the case study which follows, we reveal how different ‘islands’ of drinking water governance are grounded in the colonial territorialisation of land and the consequent post-land rights property regimes operating in the NT. We examine how the Borroloola water contamination incident, far from minor, exposes the shortcomings of legal protections for remote communities, and we consider how particular material processes affect the enactment of water governance.

## Part two: responding to water contamination

### *Precautionary advice at Borroloola*

Borroloola is a very remote town located approximately 970 kilometres drive southeast of Darwin in the Gulf region of the NT. Seventy-five percent of its 900 residents are Indigenous. Borroloola was gazetted as a township in 1885, as a rest stop for drovers on the Gulf stock route between Queensland and northern Australia and as a service hub for surrounding pastoral stations (Avery 1988; Baker 1992). Following the establishment of the upstream McArthur River Mine in the early 1990s, it became a town closely imbricated with the nearby lead-zinc-copper deposit. Today, Borroloola includes four areas designated in NT bureaucratic parlance as ‘town camps’, which describes housing areas for Indigenous residents usually located on town peripheries (and ordinarily distinguished from remote Indigenous communities, which are generally located on Aboriginal land).<sup>13</sup> As Figure 3 shows, Yanyula, Garawa 1 and Garawa 2 camps are located within Borroloola’s township boundary, while Mara camp is to the north. The McArthur River courses through the township towards the Gulf of Carpentaria, with Garawa 1 and 2 camps to the east and Yanyula camp to the west.

As a gazetted town, Borroloola was excluded from claim with the advent of statutory land rights in the NT under the *ALRA*. This differs from nearly all other NT Indigenous communities and outstations, which were located on either Aboriginal reserves or vacant crown land and therefore available for claim and/or transfer to Aboriginal freehold ownership under the *ALRA*. Borroloola township is now landlocked by Aboriginal land (formerly vacant crown land) successfully granted under the *ALRA*, including Mara Camp, which is owned by the Narwinbi Aboriginal Land Trust. In 2016, the Federal Court recognised that native title continues to exist within Borroloola where it had not been extinguished by prior government actions.<sup>14</sup> Yanyula, Garawa 1 and Garawa 2 camps are located on Crown Leases in Perpetuity.

In its colonial and post-land rights histories, then, Borroloola was a stock route town converted to a mining town which is now also a part-Indigenous owned town. Distinct from most other NT Indigenous communities, Borroloola’s colonial origins as a gazetted town means the *WSSS Act* applies there as part of a water licence supply area. This means

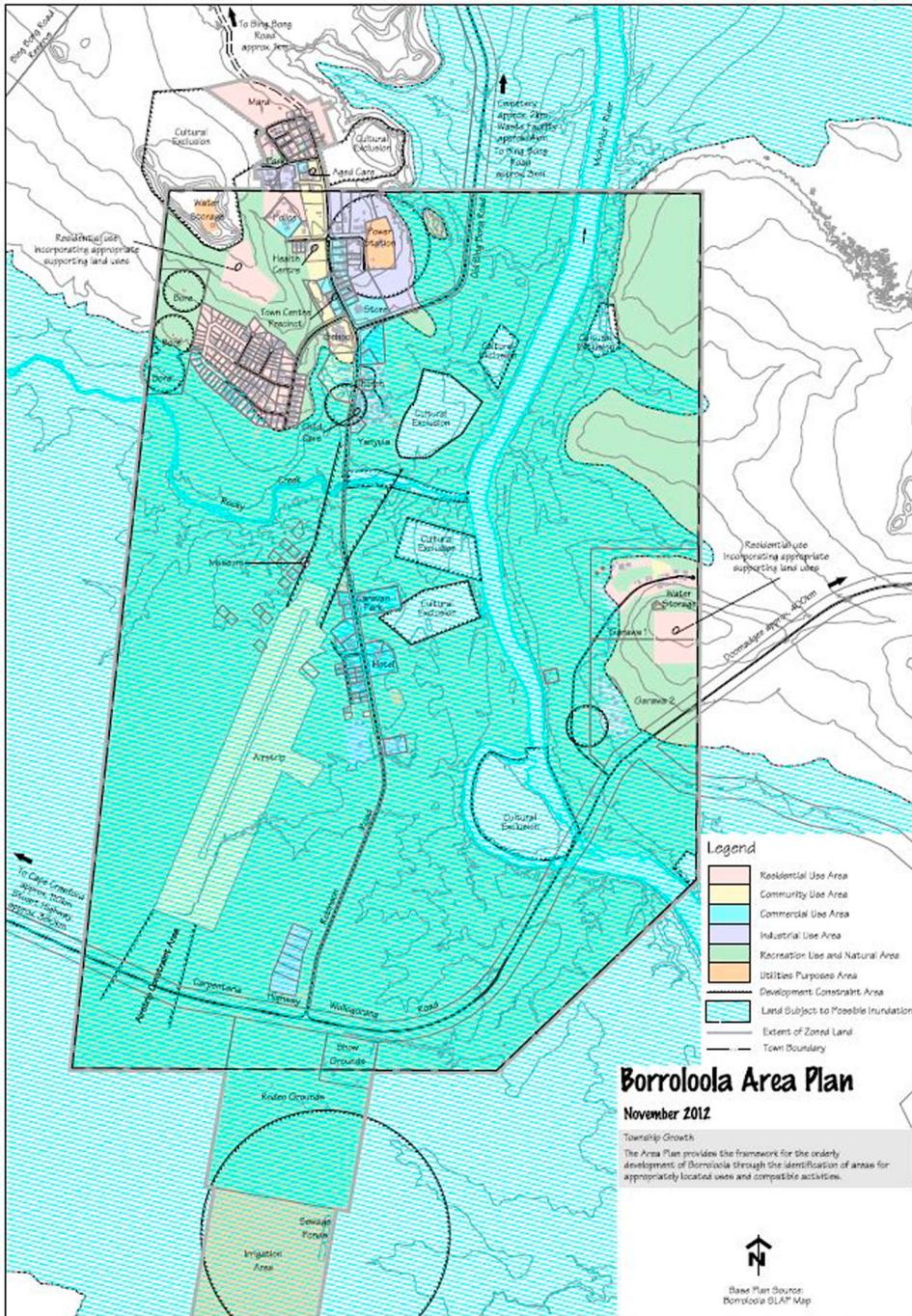


Figure 3. Borroloola Area Plan, Northern Territory Government.

that PAWC, rather than IES, is responsible for the provision of water supply services and the associated infrastructure. The nineteenth century act of surveying and subdividing Borroloola brought the town within the NT’s colonial frontier, the survey arbitrating

'between an acknowledged regime and those forms of property deemed to lie "outside" the frontier' (Blomley 2003, 128). This is the cartographic source of the NT's contemporary 'archipelagic' water governance. Land located beyond former frontiers subsequently reterritorialised as Aboriginal freehold ownership is now subject to less stringent legal and monitoring regimes, such as public water supply by IES. Although contemporary regulatory frameworks and instruments encourage an interpretation of comprehensive and consistent governance within the jurisdiction (Kahn 2017), multiple regimes of property law and water governance in fact operate simultaneously and at different scales. Such regimes mutually constitute one another through what De Sousa Santos (1987) describes as a process of 'interlegality', which is typically blackboxed by public assurances and the fiction of universal or consistently applied law (Valverde 2009). However, this multiplicity of legal regimes is only part of the story.

After precautionary drinking water advice was issued by the NT Department of Health in April 2018, a water tanker was provided by Mabunji Aboriginal Resource Indigenous Corporation, with residents also purchasing bottled water and hauling water from a public tap across the McArthur River. On 4 May 2018, Garawa 1 was advised its water was safe for human consumption, following two rounds of testing. However, the presence of lead, at 0.011Mg/L, and manganese, at 0.65Mg/L, in Garawa 2 water, remained above safety limits specified by the ADWG (0.01Mg/L and 0.5Mg/L respectively) (Davidson 2018). The precautionary advice for Garawa 2 was finally lifted on 15 June 2018.

A statement from a PAWC representative outlined that 'it is suspected that ... legacy infrastructure (not belonging to Power and Water) contributed to the elevated levels of lead that were detected during routine sampling' (Northern Territory Legislative Assembly 2018). A radio interview of the Chief Health Officer in response to our research also inferred this cause (Lavery 2019). The water supply to the Garawa camps is separate from the main Borroloola supply network, which opened a new water treatment plant in October 2018 (see Figure 4). Water is drawn from a nearby bore and pumped north to an elevated tank, which drains via reticulated piping to housing at Garawa 1 and Garawa 2 (Water Resources Division Assessment Branch 1986). PAWC testing across the two month period determined that the issue could most likely be attributed to a stretch of reticulated infrastructure, specifically a pipe between Garawa 2 camp housing and the sewerage pump station located just outside the camp boundary. While the use of lead water service pipes has not been common in Australia since the 1930s, lead solder was used in some copper pipes and fittings until the late 1980s, and according to Taylor, Harvey and Morrison (2018), Australia's *National Construction Code* continues to allow 4.5 percent lead content in brass alloys used in plumbing. Reticulation in the camps uses a combination of PVC pipes with brass components. Though the government has not provided a definitive explanation, the contamination was most likely caused by these brass fittings, in combination with corrosive water from the Borroloola aquifer. This is unsurprising: a bore report for Garawa water supply notes that 'Due to the low pH and low alkalinity the water is corrosive to metal fittings' (Water Resources Division Assessment Branch 1986, 3). In this case, corrosion was likely exacerbated by a recent chlorination process in response to an *E. coli* outbreak. While no emergency plan was activated as would occur in a metropolitan area, the acute problem was resolved by PAWC's replacement of sections of the reticulated infrastructure.



**Figure 4.** Borroloola Water Treatment Plant opened October 2018, Liam Grealy.

### **Tenure: who owns the pipes?**

Resolving the acute contamination issue illuminated various impediments to the security of Borroloola's domestic water supply, including the condition of housing stock, of infrastructural assemblages, and the legal capacity of particular authorities to attend to both. Housing in Borroloola's town camps has received inadequate government attention for a long time, is functionally failing due to insufficient maintenance and repairs, and is subject to overcrowding. Until March 2019, the last new houses in Borroloola town camps were supplied in 2006 by the Australian Defence Force under the Army Aboriginal Community Assistance Program (AACAP). In the intervening period, despite \$14.6 m secured in 2009 under the *National Partnership Agreement on Remote Indigenous Housing* (NPARIH), houses did not appear (Grealy 2018).

Until recently – including the installation in October 2018 of a new water treatment plant servicing the township west of the McArthur River – water infrastructure has also received limited attention by way of necessary upgrades and replacement. Official explanations for why available funding for housing in Borroloola was not expended emphasise 'tenure', or the Commonwealth government's requirement to secure leases before it funds housing and infrastructure – what is known as the 'secure tenure' policy (Terrill 2010). Until the late 2000s, public assets were constructed on Aboriginal land and within town camps on native title land without formal property arrangements. In 2008, under NPARIH, parties agreed that Commonwealth funding for remote housing was conditional on secure land tenure being settled by states and territories. This was supposed to standardise service provision arrangements. In practice, this has proliferated forty-year leases over housing precincts and other government assets – such as bores and water tanks, though

not reticulated pipes – in remote communities located on Aboriginal land. Despite such mainstreaming by lease agreements, it is clear that differentiated services still apply.

If we accept that lead and manganese contamination emerged via corroded pipe fittings, (rather than, say, nearby mining operations), we might ask why it was so difficult to have these replaced. In part, the answer concerns tenure. No one government agency has legal responsibility for the reticulated infrastructure that circulates water through the Garawa camps. The *WSSS Act* outlines the use of water meters by a licensee (PAWC) to determine water consumption and associated costs (\$7.1), while PAWC's customer contract clarifies that the customer, or landowner (in this case the town camp association), is responsible for 'all the plumbing from the property side of the meter' (2007, 8), 'and for all water that flows through the meter' (2007, 10). This division of responsibility for water infrastructure between public utilities and private landowners via water meters is common (Von Schnitzler 2018), including where tenants lack the financial means, security of tenure, or social power to conduct necessary remediation on private land (Fennell 2016). In Borroloola's town camps, meters functionally employed for billing are located at the boundaries of the community lease area, meaning it is possible for PAWC to disavow itself of responsibility for repairs beyond those points.

Land in Garawa 1 and Garawa 2 camps is owned as leasehold title granted to two Aboriginal corporations: 'Garawa No. 1 Camp Aboriginal Corporation' and 'Garawa No. 2 Housing Aboriginal Corporation'. While these corporations exist as legal entities, they are not resourced to maintain subterranean infrastructure. Without such capacities, and without this legacy infrastructure being leased to government, the responsibility for its maintenance and repair remains practically ambiguous. This is despite the required repairs and upgrades identified in these town camps by the recent *Town Camps Review* (DHCD 2017). Recalling the racialised typology of islands of water governance above, the Borroloola town camps represent category three – town camp corporations are legally responsible for reticulated infrastructure, as an artefact of tenure arrangements, but lack adequate resources for necessary assessment, upgrades and installations. PAWC is licensed and regulated under the *WSSS Act* but has no responsibility beyond the bulk meter at town camp boundaries.

Despite this landscape of differentiated legal authority, we are not suggesting the state is absent from the town camps. PAWC discovered the contamination while implementing the testing regime agreed in its MOU with the Department of Health. Following the precautionary notices and media attention, PAWC investigated the cause and replaced sections of reticulation it presumed to be at fault. However, to reiterate, this is not the legal responsibility of PAWC. It is informal care where attention is not mandated, and this informality helps explain the sporadic and reactive mode of provision. While PAWC has the licence to provide drinking water to the Borroloola township, its labour in response to the contamination in town camps was provided by the understanding that if they did not, who would? While such an intervention might be welcomed during a crisis, it highlights the lack of attention to town camp infrastructures in general, alongside the broader absence of enforceable regulatory regimes governing drinking water at outstations or IES serviced communities on Aboriginal land.

### **Governing with guesswork**

Despite the shortcomings of existing protections, legal and policy reform will not necessarily guarantee against similar contamination incidents in the future. The material qualities of the objects being governed – subterranean water and infrastructure, or the ‘systems of substrates’ (Star 1999, 380) underpinning Borroloola town camps’ water supply – and their interactions, confound the effective governance of water supply (Anand 2017). Recent literature on the subterranean has highlighted challenges associated with governing the ‘vertical third dimension’ (De Rilke, Munro and Melo Zurita 2016), including how to determine the nature of underground objects predominantly accessible by indirect methods, and the displacement of ‘shadow waters’ by dominant epistemologies (McLean et al. 2018), including the regulatory protections of settler law.

While the *Town Camps Review* (DHCD 2017) acknowledged that the water supply infrastructures in Borroloola town camps was upgraded during the Australian Army led ‘Connecting Neighbours’ program in 2006, these upgrades were evidently inadequate to prevent a contamination event twelve years later, to say nothing of like situations across the ‘splintered’ (Graham and Marvin 2001), typically discrete, water infrastructures in other NT remote communities and town camps. We argue that the illegibility (Bebbington and Bury 2013; Neale 2019) of subterranean infrastructures is compounded by policy decisions that have failed to formally make any government entity responsible for their maintenance. This included the NT Government’s decision to implement the archipelagic drinking water governance regime across the NT described in this article, but also implicates the Commonwealth. Specifically, across the NT in the late 1970s and 1980s as part of the Indigenous policy of ‘self-determination’, the Commonwealth funded the installation of drinking water and sewerage infrastructure in town camps and outstations without the need for ‘tenure’ (Marks 2015), and without adequate funding for ongoing maintenance. Of that provisioning, inconsistently detailed public records are available today (noting, again, that the NT Government has only been responsible for town camps and outstations since 2008).

This lack of documentation to mediate between the thing itself and the authorities charged with its maintenance and repair is one inheritance of ‘legacy infrastructure’ in the NT. It is also a significant impediment to the hydraulic state, for which ‘seeing like a state means looking at records more often than the things they represent’ (Hull 2012, 166). This combines with the inevitability that infrastructures will crack, corrode and deteriorate, and the difficulty of determining the state of sunk infrastructure without intrusive excavation or potholing. For Akhil Gupta, infrastructure is always already undoing itself, or in motion, ‘ephemeral, shifting, elusive, decaying, degrading, becoming a ruin but for the routines of repair, replacement and restoration (or in spite of them)’ (2018, 62). This dynamic conception highlights the labour of system maintenance, which is especially difficult to determine and enact for underground reticulation. Water management – flow, pressure, quality and so on – is a matter of testing and approximation with experts ‘only too familiar with both the ubiquity of leakage and the difficulties of repairing it’ (Anand 2015, 308).

We call this situation ‘governing with guesswork’. Water is notoriously difficult to manage, taking into account competing demands on the available resource, their fluctuations, chemical and biological characteristics, shrouded infrastructures and the regimes

required to manage relations between these things. In most contexts, infrastructural interruption and disturbance is the norm rather than exception (Graham 2010). The interaction at Borroloola between corrosive water, metal fittings, chemical treatments and ageing materials signals the potential for unpredictable outcomes following standard practices. One issue here is how to challenge the 'slow violence' (Nixon 2011) of infrastructural neglect. Put differently, how can we recognise infrastructural entropy as inevitable, without accepting infrastructural neglect, and without further entrenching low expectations for policy success and material conditions in remote Indigenous communities? How can normal accidents be anticipated and assured against?

### Conclusion: guarding against toxic inheritances

Critical analyses of infrastructure frequently note that infrastructures and our reliance on them become most visible during breakdown or failures (Larkin 2013). Similarly, democratic governance depends on both the application of relatively consistent standards across a state's jurisdiction and the collection of data assessing the safe, effective and equal provision of infrastructure and resources (Dillon et al. 2017). Inevitably, such forms of provisioning and audit are subject to frontiers, exceptions, elisions and other techniques of illegibility (Anand 2015). In the analysis above, questions of visibility and legibility are doubly relevant. First, the geography of archipelagic drinking water governance across the NT means that the lack of regulatory accountability in major Aboriginal communities and outstations is concealed from publics in urban and regional centres from which most remote governance occurs at a distance. Second, and partly as a consequence of this racialised spatial variegation, the entropic objects of governance themselves (including the reticulated infrastructure, bores, pipes and the corrosive water flowing through them) are often only partly visible to both the state and its designated authorities. That is, the state is aware of its regulatory limits, but its substantive knowledge is relatively circumscribed by historical shortcomings in record-keeping and the geographies in which it has determined to set and enforce legal standards.

Analysing NT drinking water governance as a policy ecology reveals the interactions between complex legal geographies subject to various 'islands' of water supply services and legacy infrastructures that are unpredictable in their slow decay. Any reforms must engage with 'a wider field of non-human connections, both re-fleshing the policy arena and returning the more-than-human to policy framings' (Lea 2015, 379). Drinking water provision in the NT is not straightforward terrain to govern, given the challenges of remoteness and ongoing funding negotiation between Commonwealth and NT governments. But the difficulty of the task does not excuse the failure to set, test and enforce standards that apply across the NT (as is pursued by other Australian states and territories), with the knowledge that things fall apart and will require ongoing attention. This article encourages further analysis of the condition of remote community infrastructures and what 'toxic inheritances' – biological, legal, economic and environmental – might be involved in any transition of ownership or management from the state and major utility providers to Aboriginal corporations. Lest such transitions provide opportunities for governments to divest responsibility for dilapidated assets, we argue that any changes to infrastructural tenure arrangements proceed with detailed condition assessments and, most importantly, guarantees for ongoing funding for needed maintenance, repairs and upgrades.

In the coming decades, assessments of water security will become increasingly significant in debates about the ‘viability’ of remote NT Indigenous communities. A critical view of viability discourse is needed, which in addition to prioritising an economic logic regarding the costs of infrastructural provisioning per capita, typically infers assumptions about sustainability and self-sufficiency that are rarely applied to urban and regional centres. We also note that differentiated standards for drinking water supply imply that viability determinations have already been made, at least by *de facto* techniques of withdrawal and neglect (Povinelli 2008). This is most evident in homelands communities seriously constrained by access to funding for infrastructural maintenance and upgrades. It is important that such neglect does not promote engagement with issues of water precarity as a mode of ‘settler apocalypticism’ which positions Indigenous communities as destined for environmental devastation (Whyte 2018, 234). Instead, we argue that it is crucial to make visible the limits of contemporary drinking water regulation, and the potential of those limits to allow social and environmental harms to eventuate, visible only in moments of crisis or unfolding without government record. Such gaps and absences must be addressed by present regulations and in any shift to Indigenous community control of assets and services.

## Notes

1. While the NT, like other states and territories, has legislative jurisdiction over water allocation and management, institutional arrangements in relation to water management are more complex than can be done justice in this article. Of note, the NT is a signatory to the 2004 COAG Intergovernmental Agreement on a National Water Initiative (NWI), which aims to create a national approach to water resource management where governments commit to prepare comprehensive water plans, expand trade in water rights and sustainable water use. Though foreshadowed, the NT has not fully implemented measures in the NWI (for example, there is no trade in water entitlements).
2. These include the ‘First-in-first-served’ Policy, the Northern Territory Water Allocation Planning Framework (the 80:20 Rule), the Strategic Aboriginal Water Reserve Policy Framework and the Darwin Rural Area Licensing Policy.
3. Australian law recognises that (where native title exists) this extends to a native title right to take and use water for domestic, social and cultural purposes. However, these rights are not equivalent to property rights in water and are subject to the state’s superior right to validly make and amend water management legislation and issue water licences/permits and construct facilities for services to the public (ss24HA and 24KA of the *Native Title Act*). Following the High Court’s decision in the Timber Creek case (*Griffiths v Northern Territory of Australia* [2016] FCA 900), any extinguishment as a consequence of such actions would likely give rise to a right of compensation, which may give native title holders leverage with respect to negotiating future water governance arrangements, although any such claims are at this stage hypothetical.
4. Australia has ratified the *International Covenant on Economic, Cultural, and Social Rights*, which recognises the universal right to an adequate standard of living, including food, water and housing. To the extent this implies a universal right to adequate, clean and sufficient drinking water, it has not been enshrined in Australian legislation. However, Australian anti-discrimination laws may impute a right of non-discrimination in relation to access to drinking water.
5. Until November 2018 mining and petroleum activities were exempt from the *Water Act*’s licensing requirements. Removing this exemption was one of the recommendations of *The Scientific Inquiry into Hydraulic Fracturing in the Northern Territory* (Pepper 2018).
6. Under the *Water Act* (S90), license applications are considered against criteria such as the availability of the water resource and the current and future demand for water for domestic

purposes. It is not clear how these criteria are assessed given a proportion of water extraction is exempt from licensing and therefore unknown to authorities.

7. 'Water supply services' means supplying water to paying customers (including operating water supply infrastructure and distribution infrastructure) and includes retailing water supply services (S4).
8. Safe drinking water legislation exists in South Australia (*Safe Drinking Water Act 2011*), Victoria (*Safe Drinking Water Act 2003*), NSW (*Water Industry Competition Act 2005*) and Queensland (*Water Supply [Safety and Reliability] Act 2008*).
9. Aboriginal land is held as inalienable fee simple title by Aboriginal land trusts, administered on behalf of traditional Aboriginal owners by Northern Territory Aboriginal land councils. Approximately half of the land in the NT is owned under the *ALRA*. Land councils are not tasked with essential service provision responsibility under the *ALRA*, although they control access to Aboriginal land. Land council functions include to negotiate and facilitate the grant of property interests (including leases and licences to government entities) and to grant permits to enter Aboriginal land. However, the *ALRA* does not displace the legislative jurisdiction of the NT Parliament, including under the *Water Act* or (should water supply licence areas be extended to Aboriginal land) the *WSSS Act*.
10. Since Figure 2 was published in November 2019, two new Water Allocation Plans have been declared for Ti Tree and for the Ooloo Dolostone Aquifer.
11. 64 of the 72 communities are located on Aboriginal land. IES also services 66 outstations.
12. 540 of the 612 outstations are located on Aboriginal land.
13. We note that the terminology 'town camps' does not reflect the permanence and stability of such living areas, which is better reflected by the description of 'community living areas'. This article uses 'town camps' as the most commonly used terminology by government and utility providers.
14. The High Court's recognition of native title in Australia in its 1992 *Mabo* decision and subsequent *Native Title Act 1993* enabled traditional owners to claim in 2003 that native title existed within the Borrooloola township. See *Rrrumburriya Borrooloola Claim Group v Northern Territory* [2016] FCA 776; 255 FCR 228; 339 ALR 98. As noted in footnote 3, while these rights include a right to take and use water for domestic, social and cultural purposes, this is effectively subordinate to superior state rights in relation to water allocation/planning and public supply.

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## Disclosure statement

No potential conflict of interest was reported by the author(s).

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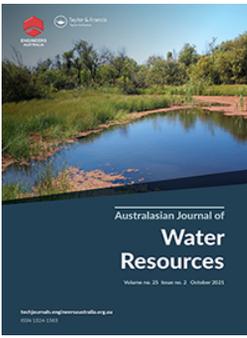
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## Drinking water security: the neglected dimension of Australian water reform

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ARTICLE



# Drinking water security: the neglected dimension of Australian water reform

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## ABSTRACT

Drinking water security has been a neglected issue in Australian water reform. This article considers Australia's chief water policy of the past two decades, the National Water Initiative, and its aim to provide healthy, safe, and reliable water supplies. Taking the Northern Territory as a case study, we describe how despite significant policy and research attention, the NWI has failed to ensure drinking water security in Indigenous communities in the NT, where water supply remains largely unregulated. The article describes shortcomings of legislated drinking water protections, the recent history of Commonwealth water policy, and areas where national reforms have not been satisfactorily undertaken in the NT. We aim to highlight key regulatory areas that require greater attention in NT water research and, more specifically, in the Productivity Commission's ongoing inquiry process.

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Drinking water; National Water Initiative; Indigenous water rights; Northern Territory

## 1. Introduction

Adequate and safe drinking water is key to human life and health and is vital for the self-determination of Indigenous communities. In the Northern Territory (NT), drinking water security for remote communities is under threat from government neglect (Kurmelovs 2020), renewed calls for water-intensive development in northern Australia (Allam 2020), and climate change (Allam, Evershed, and Bowers 2019). This article examines Australia's most significant national water reform of the past two decades, the National Water Initiative (NWI), in relation to drinking water regulation in the NT. Specifically, it considers how despite significant policy and research attention, the NWI has failed to ensure drinking water security in Indigenous communities in the NT, where drinking water remains largely unprotected and water services unregulated.

Legacy decisions in the domains of Indigenous affairs and water policy have led to this outcome. We suggest that by 'compartmentalising' (Jackson 2006) Indigenous rights and interests in water to matters of economic development and 'cultural flows' within centralised water allocation planning systems, the NWI has directed focus away from drinking water in remote contexts and has facilitated the exclusion of Indigenous stakeholders from planning and decision-making related to drinking water services and infrastructure. The Australian Government's 2005 reforms towards the 'mainstreaming' of Indigenous essential and other services (so that the state formally assumed responsibility for service provision) have also

contributed to this outcome (Willis et al. 2008; Altman and Russell 2012). In the NT, this has allowed the continuation of a racialised governance regime that privileges urban, predominantly non-Indigenous communities, over remote Indigenous communities (Grealy and Howey 2020, 2019a). Acknowledging these limitations of the NWI, we show how the NT has nonetheless failed to implement numerous NWI reforms. Put another way, the terms of the NWI have been inadequate but a reformed attention to regulating drinking water is one important means of ensuring amenity in remote Indigenous contexts.

This article summarises the priorities of past reforms under the NWI and the failure of the NT to develop protections for drinking water according to NWI requirements. We commence section two by sketching contemporary threats to water security in the NT and the differentiated regulatory protections for drinking water that do exist. Section three provides a brief description of our methods, while section four provides an overview of national water reform priorities in Australia since the 1990s. Section five offers substantive analysis of the failure of NWI reforms to be properly implemented in the NT, in relation to Indigenous water use, urban water services, community service obligations, and drinking water infrastructure.<sup>1</sup> In conclusion, we argue that urgent legal and policy reform is needed to redress water security issues in the NT, and that such reform must attend to the details of funding, accountability, and institutional arrangements in ways that prior analyses have failed to do.

## 2. Background

### 2.1. Context and threats

The NT comprises approximately one sixth of Australia's landmass, yet is the least populous jurisdiction, with approximately 230,000 residents of whom one quarter are Indigenous. Half of NT land is owned as freehold by Indigenous people under the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth). Much of the remainder is subject to native title rights and interests under the *Native Title Act 1993* (Cth). Nearly all Indigenous communities are located upon Aboriginal land owned under the *Land Rights Act*.

NT Indigenous communities are experiencing significant challenges in relation to adequate and safe drinking water, concerning water supply, water quality, and drinking water infrastructure. Issues undermining water security range from intermittent algal blooms (Maddocks 2016), failing chlorination equipment (McLennan 2017), bore depletion (Beavan 2019), contamination by heavy metals (Kurmelovs 2020; Grealy 2020), and delays in infrastructural delivery and refurbishment. The impact of climate change on water security is already underway, but this is likely to accelerate in the NT – where 90 per cent of the consumptive water supply comes from groundwater – through increased droughts, erratic rainfall (and aquifer recharge), and extreme temperatures (Northern Territory Government 2020; Nikolakis, Nygaard, and Grafton 2011). Climate change is also likely to exacerbate existing inequalities in health, infrastructure provision, lack of educational and employment opportunities, and income for remote residents, prompting political questions about the viability of human habitation in remote communities (Lea, Grealy, and Cornell 2018; Green, Jackson, and Morrison 2009). The NT is also under renewed pressure to develop water-intensive industries, including as a consequence of the Australian Government (2015) 'White Paper on Developing Northern Australia' (Allam 2020). Water security is thus precarious in the NT, yet drinking water supply is largely unprotected and water services unregulated and unaccountable in the majority of remote contexts.

### 2.2. Drinking water regulation in the NT

Despite the legal recognition of native title rights and interests in water by the Commonwealth, and extensive Indigenous landholdings under the *Land Rights Act* where Indigenous communities in the NT are generally located, ownership (and control) of water is vested in the Crown in right of the Northern Territory (O'Donnell 2013; O'Neill et al. 2016). The human right to adequate and safe drinking water is not enshrined in legislation (Good 2011). Instead, water is governed by various NT laws and policies,

including the *Water Act 1992* (NT) and the *Water Supply and Sewerage Services Act 2003* (NT). This legislation fails to protect drinking water supply against other uses and does not establish minimum quality standards for drinking water across the NT. The following description of these laws demonstrates how weak laws and regulations, combined with ongoing consultation efforts and the publication of policy papers, can create the illusion of an effective regulatory regime for drinking water. The detail is necessary to convey the features and limits of the existing regime, which have been largely neglected from the scrutiny of prior national water reform processes. Such detail must be understood in order to advocate for strengthened protections through specific reforms.

The purpose of the *Water Act* is to allocate, manage, and assess water resources in the NT. Under the *Water Act*, allocations for drinking water exist in areas that have been designated as 'Water Control Districts', where a 'Water Allocation Plan' has also been finalised. There are eight Water Control Districts (WCDs) in the NT and six Water Allocation Plans (WAPs). WAPs predominantly apply to areas surrounding urban centres with comparatively dense human populations. They allocate water between various non-consumptive uses (environmental and cultural) and consumptive uses (including rural stock and public water supply, aquaculture, industry, and agriculture). Public water supply is one of many consumptive uses.

Public water supply services, or drinking water, is only protected or 'allocated' in the NT in areas both declared as a WCD and where a WAP applies. There is no general power in the *Water Act* to reserve water for current and future public water needs. This means that an adequate drinking water supply is not currently guaranteed to residents in the vast majority of the NT not covered by WAPs, including in most Indigenous communities. Groundwater in these places is neither reserved for public supply, nor is much of its extraction licenced or regulated against other uses.

The *Water Supply and Sewerage Services Act* (WSSS Act) also regulates the provision of public water supply. It requires that provision of 'water supply services' in 'water supply licence areas' be licenced by the NT Utilities Commission, a regulator which oversees essential services provision to NT consumers of water. Power and Water Corporation (PAWC) is the current and sole licensee under the *WSSS Act*, and must 'provide water supply or sewerage services to customers who own land with an authorised connection to [its] water supply or sewerage services infrastructure' (S41[2]). Other requirements are imposed on PAWC through the legislation and its licence, regarding asset management plans for water supply infrastructure (S48), licence compliance reports (S49), and service plans (S51). Accountability to the

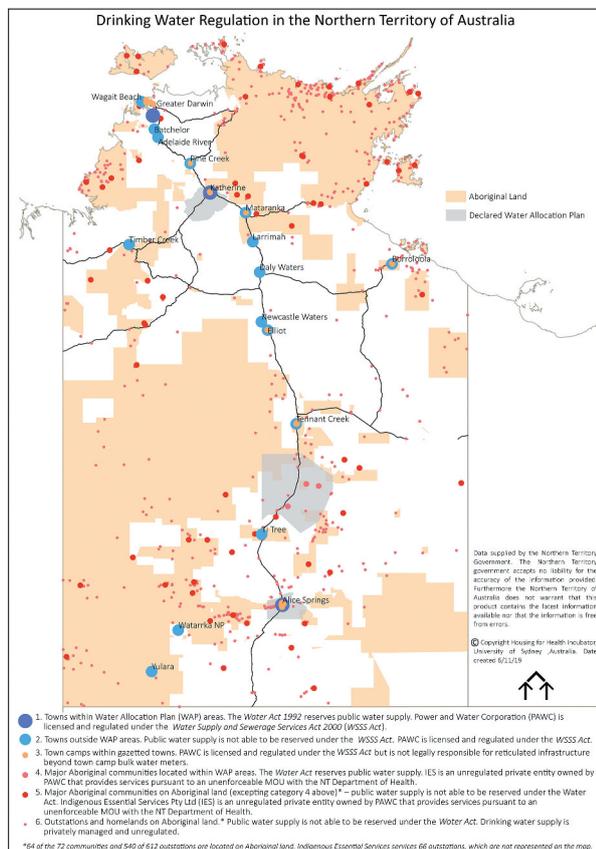
customer is established in part via a mandated ‘customer contract’ (S47).

The NT has not set minimum standards for water quality. Under the *WSSS Act*, the Minister can specify minimum standards that PAWC must meet (S45), and a similar power to prescribe water quality standards exists in the *Water Act* (S73) and in the *Public and Environmental Health Act 2011* (NT) (S133). However, instead of enforceable standards, the Department of Health (2011) and PAWC have entered into a memorandum of understanding (MOU), which concedes that ‘no minimum standards for drinking water have been set’, although the *Australian Drinking Water Guidelines* (ADWG) ‘will be used as the peak reference’ (Department of Health 2011, Clause 4). Despite the appearance of regulation and a measure of public transparency, the MOU is legally unenforceable.

The protections that the *WSSA Act* does provide do not extend across the NT, applying only in ‘water supply licence areas’, which include 18 gazetted towns. The 72 larger Indigenous communities and over 600 Indigenous homelands and outstations are not water supply licence areas and therefore the *WSSS Act* does not apply (see Figure 1). There is thus a fragmented archipelago of water governance in the NT, with distinctive islands of relative regulatory protection and government abandonment, and

differences most marked between major towns and Aboriginal homelands (Grealy and Howey 2020; Bakker 2003).

For the 72 larger remote Indigenous communities on Aboriginal land, and 79 of the outstations, water services are managed by Indigenous Essential Services Pty Ltd (IES). IES is a not-for-profit subsidiary of PAWC established in 2003. While PAWC is overseen by the Utilities Commission, IES is a private proprietary limited company and its operational structure and legal obligations are opaque, with no legislation mandating licencing or service standards. The standards, duties, accountability, and transparency mechanisms that do exist within the *WSSS Act*, licence, and customer contract do not apply to IES (discussed further in section five). Given the lack of protections for drinking water supply and water services under existing laws in such remote contexts, one might expect the NT regulatory regime to have been the subject of sustained critique by NWI inquiries and academic research alike. Yet such shortcomings have only ever been identified in broad terms, with limited attention to geographic distinctions, and with commentary based on assurances by the NT government that reforms to meet NWI standards were underway (Productivity Commission 2017). The emphases of reform processes and related academic commentaries have instead been skewed towards water trading, licencing, and pricing (Hart, O’Donnell, and Horne 2020; O’Donnell 2013).



**Figure 1.. ‘Drinking water regulation in the Northern Territory’, Housing for Health Incubator.**

### 3. Methodology

This article builds on a submission that we produced for the Productivity Commission’s current Inquiry into the NWI, as contracted researchers for the Central Land Council (2020). It extends our larger research programme on drinking water protections in northern Australia, which in addition to traditional research outputs has included prior submissions (Grealy and Howey 2019b), media advocacy for a safe drinking water act, and participation in an expert roundtable as part of the Productivity Commission’s current National Water Reform. The primary method used for this article was policy and legal analysis of the NWI and its implementation in the NT, with a focus on legislation and grey literature related to drinking water supply and services. We have examined submissions made by NT land councils and other Indigenous organisations, key industry stakeholders, and academic researchers to prior NWI inquiries and to NT regulatory reform processes concerning water issues since the establishment of the NWI in 2004. These include the 2015 Our Water Future consultation, the 2017 the Strategic Indigenous Reserve Stakeholder consultation, and the 2018 Water Regulatory Reform process, among others. Submissions have been analysed for their

consideration of drinking water supply, services, standards, governance, and infrastructure. Similarly, we have analysed academic literature across the same period to determine the dominant objects and foci of research on the NWI and water in remote Indigenous contexts more generally. This analysis found that a disproportionate focus on the establishment of water markets and the regulation of water pricing has diverted scholarly attention paid to drinking water (O'Donnell 2013; Taylor, Moggridge, and Poelina 2016). Where drinking water is considered, this tends to be through a public or environmental health framework, with limited consideration given to the wider regulatory and infrastructural networks required to improve householders' health outcomes (Torzillo et al. 2008; Hall, Barbosa, and Currie et al. 2017).

The Issues Paper for the current National Water Reform process frames 'Water Services', and in particular 'Safe and reliable water supply', in a way that notably attributes these issues greater significance than past NWI reviews (Productivity Commission 2020). Our discursive approach to documentary analysis has situated NT regulations in the broader Australian context, to compare jurisdictional approaches to managing drinking water security – a task pursued by the NWI Inquiry itself, under the issue heading of urban water reform. Collectively, these methods underpin our aim to ensure that future reforms are appropriately briefed on the limitations of past assessments and contemporary regulations.

#### 4. National water reform

The complex history of Australian water management between federal and state jurisdictions is outside this article's remit (though see Kildea 2010; McKay 2005). This section considers how the 1994 COAG Water Reform Framework and the 2004 National Water Initiative (NWI) have fundamentally reshaped Australian water management, recognised as comprising 'the most significant water law reform for a century' (Gardner 2009, p. 26). As such, primary focus is given to settler water management frameworks, as distinct from Indigenous knowledge and laws regarding water. The following analysis prioritises consideration of COAG and NWI recommendations for water regulation, and the extent to which such reforms have been undertaken in the NT in particular.

##### 4.1. The 1994 Council of Australian Governments water reform framework

The Council of Australian Governments (COAG) Water Reform Framework Agreement (COAG 1994 Framework) recognised that urgent and united action

was needed to arrest widespread natural resource degradation through unsustainable use across states and territories. Reform was driven by '[t]he combined issues of infrastructure debt, poor pricing for water services, service delivery challenges and environmental degradation' (Australian Water Partnership 2016, p. 7). The 1994 Framework recognised that water users were often paying more than the cost of water provision, that refurbishment of rural water infrastructure was required, and that institutions required refined clarity regarding their responsibilities. It sought to 'implement a strategic framework to achieve an efficient and sustainable water industry' (COAG 1994, p. 1). This tranche of recommendations included:

- the conversion of existing water access rights into tradeable property entitlements separate from land title;
- the introduction of water pricing reform based on principles of consumption-based pricing and full cost recovery;
- the reduction of subsidies to promote efficient use of water resources and assets, and to increase the transparency of remaining subsidies; and
- the allocation of sufficient water for environmental purposes by treating the environment as a user of water with rights.

While led by the Commonwealth, most reforms proposed by the NWI require implementation by states and territories, which have jurisdiction over water resources. Indigenous needs and interests in water were not specifically mentioned in the 1994 Framework.

In relation to drinking water (as 'urban water services' and 'rural water supply'), the 1994 Framework proposed that the introduction of marketised water pricing reform would reduce existing subsidies for urban and rural water services. The impact of removing subsidies on domestic consumers was anticipated to be 'offset by cost reductions achieved by more efficient, customer-driven, service provision' (COAG 1994, p. 2). The 1994 Framework was intended to generate the financial resources to maintain water supply systems. However, it also recognised that it would not always be possible to recoup the costs through customer payments, due to factors including remoteness, small populations, maintenance expenses, and inadequate competition in water supply. The 1994 Framework thus specified that:

where service deliverers are required to provide water services to classes of customer at less than full cost, the cost of this be fully disclosed and ideally be paid to the service deliverer as a community service obligation. (COAG 1994, p. 3)

The use of community service obligation (CSO) payments as a form of government subsidisation is

important to remote water services in the NT today. As a funding mechanism, community service obligations (CSOs) are arrangements whereby governments provide non-commercial funding to a service provider, where the service provider cannot achieve full cost recovery through user charges. The aim of categorising and subsidising service delivery in this way is to highlight the cost of such services, as a justified cost given the nature of the service and the factors involved in its provision. Emphasis is placed on making CSO payments transparent, in contrast to the former ad hoc provision of government grants to service providers, or the cross-subsidisation of higher-cost users by lower-cost users. For our purposes, the key point is that the 1994 Framework introduced a marketised approach to water that aimed to remove existing inefficient government subsidisation of water services. It also required that, where costs cannot be met via pricing mechanisms and subsidisation is necessary, subsidies must be made transparent as a CSO.

#### **4.2. The Intergovernmental agreement on a National water initiative 2004**

The National Water Initiative (NWI) extended the 1994 Framework agenda for national water reform. It aimed to achieve a 'nationally-compatible, market, regulatory and planning based system of managing surface and groundwater resources for rural and urban use that optimises economic, social and environmental outcomes' (COAG 2004, Intergovernmental Agreement clause 3). Under the Intergovernmental Agreement, Australian state and territory governments committed to:

- prepare comprehensive water sharing plans;
- achieve sustainable water use in over-allocated or stressed water systems;
- introduce registers of water rights and standards for water accounting;
- expand the trade in water rights;
- improve pricing for water storage and delivery; and
- better manage urban water demands.

The National Water Commission was established as an independent statutory authority by the *National Water Act 2004* to assess implementation of the NWI and related national water reform objectives, advising COAG and reporting to the Department of Sustainability, Water, Population and Communities. The National Water Commission was abolished in 2014 and its triennial reporting functions transferred to the Productivity Commission. Federal legislative reform has also occurred as a consequence of the NWI. The *Water Act 2007* (Cth) establishes a detailed regime for the use and management of

water resources in the Murray Darling Basin, leading to the development of the Murray Darling Basin Plan. The NT is not affected by this.

#### **4.3. Indigenous water use and national water reform**

Unlike the 1994 Framework, the NWI notes the importance of water planning frameworks that recognise 'Indigenous needs in relation to water access and management' (C25[xi]). This objective has principally found expression in the setting aside of water in planning frameworks for Indigenous social, spiritual, and customary objectives and strategies (often referred to as 'cultural flows' and sometimes as 'Aboriginal water') or commercial purposes.

There is considerable scholarship about how the NWI and water allocation legislation more broadly embeds 'water colonialism' that marginalises Indigenous knowledges of water, and situates decisions about water allocation and planning in the state (see Burdon et al. 2015; Hartwig, Jackson, and Osborne 2020; Poelina, Taylor, and Perdrisat 2019; Taylor, Moggridge, and Poelina 2016). This scholarship questions the NWI's foundations, including state-controlled water allocation frameworks, the market-based approach, and the decoupling of water licences from land.

However, both this critical scholarship and scholarship more invested in reforming national water policy has paid limited attention to drinking water security as an Indigenous issue. To take one recent analysis of the extent of compliance by northern Australian jurisdictions with the NWI, Indigenous interests in water are described thus:

Generally, Indigenous communities seek both *cultural water* – non-consumptive water reserved for cultural purposes (eg ceremony and protection of sacred sites) – and *consumptive water* for their economic use. (Hart, O'Donnell, and Horne 2020, p. 12)

Jackson (2006) describes this as the 'compartmentalisation' of culture in Australian water governance, where Indigenous interests in water are treated as one of multiple uses of a consumptive pool. Important work in this regard has been undertaken by a number of Indigenous organisations, including the North Australian Indigenous Land and Sea Management Alliance and its former Indigenous Community Water Facilitator Network (ICWFN) and Indigenous Water Policy Group (IWPG) (Altman 2009; O'Donnell 2011). This focus is also evident in, for example, the 2017 COAG *NWI Policy Guidelines for Water Planning and Management on Engaging Indigenous Peoples in Water Planning and Management* (Australian Government 2017). We suggest that the framing of Indigenous interests in water

in this way has diverted scholarly attention from sustained analyses of drinking water security.

A study by Eileen Willis *et al.* is exceptional in the literature in its consideration of early Indigenous responses to the NWI. This study interpreted the NWI against the contemporaneous policy shift to the ‘mainstreaming’ of services to Indigenous people across Australia, as outlined in the 2005 National Framework of Principles for Government Service Delivery to Indigenous Australians. Willis *et al.* stated that the NWI represented ‘a clear policy injunction for Aboriginal communities to be serviced by mainstream providers, rather than Indigenous-specific providers’ (Willis *et al.* 2008, p. 419). We suggest this broader national policy shift in Indigenous policy may explain why the NWI did not treat drinking water (as part of essential service provision) as a specifically ‘Indigenous’ issue – or an issue that might be subject to Indigenous governance – while compartmentalising other concerns as specifically racialised cultural categories. This point provides essential context to NWI implementation, including the exclusion of Indigenous organisations and communities from drinking water governance, as such reforms were considered the domain of the state (Central Land Council 2020a). Given such exclusions, failures by consecutive governments to implement the NWI to achieve ‘mainstream’ standards across the NT are even more significant.

## 5. National water reform in the NT

In its most recent Inquiry report on the implementation of the NWI, in 2017, the Productivity Commission found a number of failures against the NWI recommendations. These include that:

- the NT has not yet unbundled water licences from land;
- water licences are granted for a limited term (usually ten years), not in perpetuity, and are not NWI compliant in their current form;
- water allocation plans are only in place for some catchments;
- trading of water licences is very limited;
- reporting on environmental water use is limited;
- there is Indigenous exclusion from input into, and allocation from, water planning frameworks.

This section does not offer extensive analysis of issues relating to water access entitlements and planning, water access and trading, and environmental water management. Instead, there are four key sections of the NWI that are relevant to the supply of water in NT Indigenous communities:

- (1) Urban Water Reform, where the main objective is to ‘(i) provide healthy, safe and reliable water supplies’ (clause 90).
- (2) Rural and Regional Communities, where full cost recovery (while the explicit objective) may not be possible. In these circumstances all subsidies must be transparently reported, including with respect to the payment of Community Service Obligations (CSOs) (C66 [v]). In most Indigenous communities in the NT, this sub-clause would apply.
- (3) Institutional arrangements, where the roles of water resource management, standard setting and regulatory enforcement, and service provision should be institutionally separated (C74).
- (4) Investment in water infrastructure, where principles and safeguards for determining the provision of new water infrastructure are established (C69).

These are considered below as ‘Healthy, safe, and reliable water supplies’, ‘Community Service Obligations’, ‘Institutional reform’, and ‘Investment in new infrastructure’.

### 5.1. Healthy, safe, and reliable water supplies

The 2017 Inquiry Report highlighted some failures of the NT to meet NWI reforms in the provision of drinking water in remote Indigenous communities. However, the Productivity Commission significantly understates the structural and longstanding problems with respect to water services in remote Indigenous communities. In relation to the NWI commitment of achieving safe and healthy water supplies, the Commission noted that

compliance issues remain regarding water quality outcomes in the NT. In 2015-16, six of 72 remote communities did not comply with the ADWG’s microbiological guidelines and seven did not comply with various chemical parameters, including nitrates, uranium, barium and fluoride (2017, p. 463).

Later, the report states that ‘some issues remain in . . . the Northern Territory, particularly in remote areas, but [the jurisdiction] is taking steps to address remaining concerns’ (2017, pp. 10, 467).

The NWI aims to ensure the provision of ‘healthy, safe and reliable water supplies’ across the NT. However, the Productivity Commission fails to consider how the NT’s regulatory framework detracts from the likelihood of achieving this outcome. The above analysis highlights that there are no enforceable minimum drinking water quality standards across the NT, and the provision of water services in remote NT communities is unregulated. There are thus no NT

government agencies that are legally accountable to the residents of Indigenous communities for the supply of drinking water to them.

### 5.2. Community Service Obligations (CSOs)

The Productivity Commission also noted as a ‘Recent policy effort’ that ‘Indigenous Essential Services receives a significant annual CSO, in the order of \$80 million’ (2017, p. 463). The Inquiry Report states that ‘greater clarity on the use of CSO payments in the Northern Territory would improve consistency with the NWI’ (Productivity Commission 2017, p. 181). For the reasons given in the following paragraphs, this is a significant understatement of the failure of the NT Government not only to comply with NWI expectations about CSO payments and reporting, but to use CSOs to fund a remote services regime subject to little legislative and regulatory oversight.

It is not clear that the annual payments to IES do in fact constitute a CSO as outlined by the Productivity Commission. Power and Water Corporation (Power and Water Corporation 2019) itself reports these payments to IES as grants, rather than CSOs (which are a separate line item). There are no publicly available policies in the NT guiding the development of CSOs as part of social policy, as exist elsewhere (see New South Wales Treasury 2019). It is possible these payments may comprise opaque grants or subsidies designed to disguise the true cost of delivering drinking water.

Even if payments to IES do constitute CSOs, there are significant issues with its role as a water service provider. IES provides water, sewerage, and power services to 72 remote Indigenous communities and 79 outstations under an unpublished Service Level Agreement (SLA) with the Department of Local Government and Housing and Community Development (DLGHCD). As described above, IES is a private proprietary limited company with an opaque operational structure; it shares a board with PAWC and it is unclear whether it has direct employees and if so how many. IES is also subject to no legislation mandating licencing or particular levels of service or standards. The standards, duties, accountability, and transparency mechanisms that do exist within the NT WSSS Act, licence, and customer contract do not apply to IES. There are numerous issues relating to the operation, accountability, and transparency of IES that have not been identified by the Productivity Commission or prior research. Based on publicly available information, it is not possible to determine an adequate understanding of:

- the methodology for calculating the CSO/grant to IES, and thus whether such calculations are appropriate or adequate;

- what proportion of the CSO/grant to IES is for water infrastructure and services, versus power infrastructure and services;
- the community and outstation breakdown of IES expenditure on water infrastructure and services, or the rationale for this breakdown;
- whether funds are set aside for future asset refurbishment and/or upgrading of government supplied water infrastructure and, if so, how decisions are made to prioritise infrastructure provision in certain contexts above others;
- the performance indicators that IES must comply with to measure the effectiveness of its program and how it is meeting stated policy objectives;
- what drinking water monitoring program is undertaken by IES, including its regularity and whether it operates to any particular standards;
- the policies applicable to IES;
- how IES actually operates, including whether it employs staff directly, or whether it operates as a shell private entity to receive government funding and then sub-contract its operations to PAWC.

Indeed, one could argue that by funnelling grants to a private company with no regulatory oversight, the precise opposite of accountability and transparency has been facilitated by the funding of IES through CSO payments. That this has not been identified as a severe shortcoming of transparent governance by prior NWI reviews highlights the need to investigate the details of water service operations across the NT, rather than to seek assurances regarding steps being taken by PAWC to address regulatory concerns.

### 5.3. Institutional reform

The NWI requires differentiation between water resource management, standard setting, and regulatory enforcement functions. This presupposes the existence of regulatory frameworks for water provision. However, in the NT, there is no regulator of water supply outside the 18 towns where the Utilities Commission provides limited oversight. There is also no regulator of drinking water safety across the NT – the Department of Health instead oversees drinking water safety pursuant to an unenforceable MOU with PAWC. The policy of mainstreaming Indigenous service provision involved the assumption of essential service provision by the state. Simply put, present arrangements do not meet the reforms required by the NWI or by good governance more generally.

### 5.4. Investment in new infrastructure

The Productivity Commission notes in relation to the NWI that governments seeking to provide funding for

water infrastructure should ensure a number of safeguards are met. These include that ‘NWI-consistent entitlement and planning frameworks are in place before any new infrastructure is considered’ and that ‘an independent analysis is completed and made available for public comment before any government announcement on new infrastructure is made’ (Productivity Commission 2017, p. 23). Under the NWI, ‘The Parties agree to ensure that proposals for investment in new or refurbished water infrastructure continue to be assessed as economically viable and ecologically sustainable prior to the investment occurring (noting paragraph 66[v])’ (C69). However, in the NT, justifications for what water infrastructure is funded in which locations are often opaque. This lack of transparency exacerbates vulnerability that infrastructure spending might be influenced by political prerogatives, rather than obligations to meet adequate service requirements.

Water infrastructure projects in remote communities appear to have been funded in the NT without attendant or ongoing governance arrangements that would create accountable, enforceable obligations for these assets. It is also unclear whether these investments have undergone cost/benefit analyses or assessments of ecological sustainability, as required by the NWI (Grealy and Howey 2020). The opacity of infrastructure funding arrangements can be exacerbated by sporadic Commonwealth funding injections into remote communities. For example, the *Strategy on Water and Wastewater Services in Remote (including Indigenous) Communities* was a separate 2011 strategy entered into by the NT Government under the COAG Water for the Future Initiative. The NT Government’s (Northern Territory Government 2011, p. 1) Implementation Plan outlines a strategy for water security and climate change adaptation in remote communities, including safe water supplies, and aims to ‘provide a level of service that meets regulatory standards that would apply to any other community of similar size and location.’ This strategy provided for the funding of approximately \$20 million in water infrastructure to some remote NT communities. Noting that these communities are serviced by IES, this funding has been provided without transparent regulatory arrangements governing these assets.

Across the NT, there is thus a serious absence of public clarity about which water infrastructure projects are funded and why. The situation described above – in which the Department of Local Government, Housing, and Community Development provides recurrent grant funding to IES, which itself appears to contract PAWC to deliver its services in 72 remote communities and 79 outstations – further complicates the question of which authorities have the capacity to approve new water infrastructure and on what grounds. While there is

severe need of infrastructural replacement and refurbishment in numerous communities (Beavan 2019; Kurmelovs 2020), there is often no clear rationale for what projects garner funding support. Indigenous organisations and remote community residents have been excluded from these planning and decision-making processes, which demands further academic attention.

## 6. Conclusion

Drinking water governance in the Northern Territory is fragmented and inequitable, and threatens the viability and self-determination of Indigenous communities. The implementation of the most significant national water reform in Australian history, the National Water Initiative, has failed to rectify, or even detect, the structural inequalities embedded in the laws governing drinking water in the NT. This article has argued that the selective focus of Indigenous water use in the NWI (limited to ‘cultural’ or ‘economic’ allocations) can be seen as a product of the policy emphasis on ‘mainstreaming’ essential service provision to Indigenous communities. This has led to the exclusion of Indigenous organisations and communities from planning and decision-making about the provision of drinking water across the NT. The inadequate consideration of remote drinking water security as part of NWI reform efforts has also facilitated the continuation of a racialised regime governing urban/regional water to the detriment of Indigenous people in remote contexts. Drinking water security for Indigenous communities has been subordinated to other water concerns, and is the neglected dimension of reform under the NWI.

While the NWI aims to ensure the provision of ‘healthy, safe and reliable water supplies’, this has not occurred uniformly in the NT. The conceptual foundation of the NWI, which characterises water as a commodity, may not be appropriate to achieve this outcome. Other policy domains, including public and environmental health, Indigenous affairs, housing, and climate change adaptation must also be integrated with water policy to achieve safe and adequate drinking water in remote contexts. These are policy domains to which the marketised approach underpinning the NWI cannot be readily applied.

In the context of ongoing policy and regulatory reform, we note that the four land councils in the NT recently mobilised to demand safe drinking water legislation for all residents of the NT (Council 2020b). Such legislation should at a minimum require registration of drinking water providers with the Department of Health, necessitate approval of risk management plans that are compliant with the *Australian Drinking Water Guidelines*, and contain strong complaint, compliance, monitoring and

enforcement provisions. However, as highlighted in this article, the operations, funding, and governance of water service delivery and infrastructure in remote communities are opaque to those outside the NT Government and its agencies. The Central Land Council (2020) has thus called for extensive and urgent reforms to implement core components of the NWI (as they apply to drinking water security) and for such reforms to embed the principles of safety and health, transparency, accountability, adequate resourcing, and Indigenous decision-making. We suggest that governments collaboratively partner with land councils (and other appropriate Indigenous organisations, depending on context), and adopt a strategic, transparent, and risk-based approach to water infrastructure and service provision across the NT that incorporates these core principles.

## Note

1. Urban water services references the NWI category 'Urban Water Reform' (Intergovernmental Agreement 2004), which encompasses drinking water reforms in 'urban' and 'regional' contexts and does not imply any distinction between towns and remote communities in the NT.

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