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INDIGENOUS RIGHTS AND WATER POLICY: PERSPECTIVES FROM TROPICAL NORTHERN AUSTRALIA

Sue Jackson* and Jon Altman**

I Introduction

Water is vested with great cultural and symbolic significance as well as economic importance in Indigenous societies. Indigenous Australians hold distinct cultural perspectives on water relating to identity and attachment to place, environmental knowledge, resource security, and the exercise of custodial responsibilities to manage interrelated parts of customary estates.¹ In Indigenous belief systems, water is a sacred and elemental source and symbol of life² and aquatic resources constitute a vital part of the Indigenous customary economy. Indeed, fresh water is arguably the most important natural resource for Indigenous people.³

Northern Australia has a significant concentration of tropical rivers, floodplains, wetlands, estuaries and catchments which are relatively undisturbed by human activity. Compared with rivers elsewhere in Australia, the surface waters of northern catchments are largely unmodified by dams, weirs or other diversion infrastructure. Few, if any, northern rivers are over-allocated and in the Northern Territory most of these catchments have not been subject to formal state regulation or to detailed water planning. However, these river and wetland systems tend to be governed by rich and complex Indigenous institutions of ownership and management, and are integral to the cultural landscapes shaped by local belief systems and religious cosmologies.⁴

This article presents the findings of an applied research and policy development project carried out in 2007 for the Indigenous Water Policy Group, recently convened by the North Australian Indigenous Land & Sea Management Alliance ('NAILSMA'). The NAILSMA water rights project aimed to articulate poorly understood aspects of complex water policy most relevant to northern Australia's Indigenous

population in the context of changing water management institutions: issues relating to property rights, Indigenous access to water, customary management and water trading and planning. These topics were investigated through brief case studies. Findings from this preliminary research and other desktop research activities undertaken during the same period are expected to build the capacity of Indigenous organisations in northern Australia to more effectively influence Australia's dominant water policy instrument, the National Water Initiative.

The two case studies in this paper describe differing experiences of Indigenous water-using groups and their efforts to articulate their interests, values and concerns in the contemporary management of water resources – be that in relation to agriculture, pastoralism or domestic town water supplies, and the competition between these and other uses. The paper therefore offers a range of Indigenous perspectives on water, from regions in Arnhem Land beyond the 'frontier' of water regulation and planning, where there is no significant competition for water between environmental and other water uses, to the relatively intensively developed aquifer⁵ of the Katherine region, which is experiencing its first water planning exercise designed to underpin a market-based trading system for water.

The case studies reveal the complexity of water governance in northern Australia and highlight the need for further research, policy development and law reform to address equity of Indigenous access to water. The case studies also demonstrate the need to improve the quality of Indigenous participation in the management of institutions affecting water allocations, particularly water planning (including supply planning), environmental flow assessments, and pollution/water quality management. While the Indigenous people consulted during

this project⁶ seek greater recognition of their environmental and resource rights, State and Territory governments retain ultimate control of water resource management, and it is still unclear whether the right to consultation on natural resource management, including water management, has any substantive content.⁷

With many of the water resource management institutions of northern Australia under review and evolving in response to a decade of national water sector reforms and the severe problems manifest in southern Australian water management,⁸ it is hoped that the observations and insights drawn from this preliminary work will contribute to the evidence base informing water policy debates. Heightened focus on perceived water availability and future northern Australian development opportunities will require consideration of Indigenous interests, Indigenous people's culturally specific development aspirations and models of co-management that can accommodate customary law and management institutions. As new property is created in water, opportunities to ensure that access to water is provided to Indigenous communities for commercial activities will be high on the water policy agenda. The case studies also demonstrate a strong interest amongst Indigenous land management agencies in the conservation and application of Indigenous hydrological knowledge to the wider societal challenges of sustainable land and water resource development.

This article will first provide a brief overview of Australian water management (Part II), turning then to a closer discussion of the new national water policy as it relates to Indigenous interests (Part III). Part IV introduces the origins, aims and methods of a water rights research project developed under the auspices of an Indigenous land management organisation, and Part V then describes the case study results with particular emphasis on water governance, water resource pressures, and the nature of Indigenous interests in water. Observations about case study commonalities and distinctions are then discussed in Part VI, along with the implications for Australian water policy and management.

II Australian Water Resource Management

Water has always been fundamental to the existence of human societies: to settlement patterns, economic development trajectories, environmental philosophies and governance arrangements.⁹ It is considered by many

resource analysts to be a unique resource or commodity with great economic, cultural and political significance.¹⁰ Common property theorists and institutional analysts have documented examples of institutional arrangements that achieved sustainable water management over hundreds of years. Exemplary amongst these is the Aboriginal occupation of the Australian continent, which depended on knowledge of water distribution and use of technology to harvest water and aquatic resources for tens of thousands of years.¹¹

Indigenous people exercised group or joint property rights over water for many millenia prior to the imposition of British colonial rule that came with the occupation of New South Wales, after which time the English common law became the basis of management of water resources.¹² Australia's colonies derived the water-related tenets of their legal systems from British models, which were correspondingly adapted to suit the predominantly arid conditions. Douglas Fisher describes the water management system when Australia's water economy was in its infancy:

Essentially, water resources were managed in accordance with rights incidental to the ownership of land, including those associated with the riparian doctrine – a set of private rights and duties. This changed towards the end of the 19th century. For the next century water resources were managed largely in accordance with a system of public management administered by various public agencies exercising largely discretionary powers. This enabled the use and development of water resources mainly for economic and commercial purposes.¹³

The introduced system of water administration was instrumental to the nation-building project;¹⁴ however, it encouraged over-allocation of water and failed to address the ecological problems arising from overuse of water in the world's driest continent.¹⁵ Since the 1970s, environmental decline linked to excessive water use – drought, salinity, water scarcity – has been influential in bringing about institutional change, such as the cap on water extractions in the Murray–Darling Basin in the mid-1990s.¹⁶ A conservative estimate reached by the National Land and Water Resources Audit of 2000 suggested that 26 per cent of rivers and a similar proportion of groundwater systems are either over-allocated or close to it¹⁷ and are therefore unable to sustain current water-use levels and still maintain ecological values.¹⁸ The majority of southern Australia's water systems, which are also the most agriculturally

productive, are fully allocated or over-allocated. During the past decade of historically low rainfall – a trend that is possibly linked to global climate change – the risks to Australia’s water resources have been increasing despite heightened public attention and policy action.¹⁹

The Australian experience is mirrored in other countries where recent pressures from global population growth, increased demand for irrigation, the expanding urban footprint and climate change have strained institutional water resource arrangements, prompting the call worldwide for new approaches to water governance and management.²⁰ Consequently many countries are reforming their water management arrangements to address growing water scarcity, conflicts between categories of users and the need for nationally integrated water management to provide water for the environment.²¹

A popular response has been to treat water as an economic good and apply market principles to the water sector.²² Through the 1990s, in countries such as Australia and South Africa, reformist policies have instituted pricing, cost recovery and trading mechanisms to facilitate the emergence of water markets.²³ Policy and institutional changes have been designed to improve both the efficiency of water use and the environmental condition of Australian river systems.

In Australia, a decade of nationwide reform culminated in the 2004 Intergovernmental Agreement on a National Water Initiative (‘NWI’),²⁴ which expanded the market-based agenda of the 1990s. The NWI contemplates a set of related planning, regulatory and market arrangements that, in combination, represent the most significant change in water policy since Australian Federation in 1901.²⁵ The objectives of the NWI include increasing the security of water access entitlements and ensuring the economically efficient use of water resources.²⁶ These goals are to be achieved by altering property rights to enhance trade in water, implementing water planning mechanisms (including environmental flow provisions), increasing intergovernmental coordination, and developing intensive information systems.²⁷

The overall objective of the NWI is to increase the efficiency and productivity of Australia’s urban and rural water use, while ensuring community needs are met and extraction of water from rivers and groundwater is returned to sustainable levels. Daniel Connell, Lisa Robins and Stephen Dovers describe the NWI as a new philosophical approach to water

management, one that, at least in part, reflects ‘neo-liberal thinking about the role of governments and markets with regard to the management of public goods’.²⁸ Integral to this agenda is a growing impetus to rely on markets as a means of resource allocation, including tradeable water entitlements. Current reforms are a part of a broader microeconomic reform agenda underway in Australia. Although implementation is considered ‘patchy’,²⁹ and demand for water has increased since the reforms began,³⁰ there is evidence of water being reallocated from lower to higher value uses, and of other efficiencies in water use, through licence transfers.³¹

States and Territories are reported to have made considerable progress towards the goals of the NWI, with each legislature enacting compliant legislation and reforming their water management regimes by separating water access entitlements from land titles, separating the functions of water delivery from those of regulation, and making explicit provision for water for the environment.³² According to Michael O’Donnell:

The common law position in Australia ... has been substantially affected by various legislation passed in the States and Territories concerning waters and the management of it. The effect of this legislation has been at a minimum to provide for the management, control and regulation of water by the Crown or a statutory authority to the apparent acquisition of property in waters.³³

Notwithstanding these changes, water planning and water policy-making remain at an early stage of development, with water markets still relatively underdeveloped, even though the commitments made in 1994 that began the water reform process in Australia were expected to address these issues as matters of priority.³⁴ The lack of national uniformity in the language, structures, procedures and institutions of Australia’s water management system is noted as an impediment by some commentators.³⁵

As mentioned above, the water reforms were to be implemented by legislative change, which itself was accompanied by some community consultation, although significantly, Indigenous organisations were not invited to negotiate the terms of the NWI.³⁶ Consultation processes associated with legislative reform varied between the States and, in New South Wales at least, there was some consultation with the New South Wales Aboriginal Land Council. Only two States, New South Wales and Queensland,

reformed their water statutes to recognise the interests of, or benefits to, Aboriginal people and Torres Strait Islanders.³⁷ The impact of the emergence of water markets and the use of water pricing on Indigenous water rights and interests was not well considered at this time, although as will be discussed in the following section, Indigenous interests were given explicit attention in the 2004 Intergovernmental Agreement on the NWI.

III Australian Water Policy and Indigenous Interests

There are currently two situations in which Indigenous rights to water are recognised in Australia.³⁸ The first occurs where Australian parliaments have passed land rights legislation, and the second occurs where native title is recognised by the courts and the *Native Title Act 1993* (Cth) ('*Native Title Act*').³⁹

Instituted earlier in time than the native title regime, the land rights model grants inalienable title, generally freehold, to Indigenous people under various pieces of land rights legislation.⁴⁰ This model stemmed from the 1971 decision in *Milirrpum v Nabalco Pty Ltd*,⁴¹ which involved a land rights claim brought in the Northern Territory. Though ultimately unsuccessful, the land claim led to the Commonwealth Government establishing the Aboriginal Land Rights Commission and subsequently passing the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth) ('*Land Rights Act*').⁴² With the exception of Western Australia, this model was followed in other States, although land holdings in these other jurisdictions were generally smaller.⁴³ Western Australia has a large area set aside for Aboriginal reserves but these are held under Crown control and management.⁴⁴

Land rights legislation generally makes no mention of ownership of or rights to inland waters.⁴⁵ In certain cases, for example in respect of the *Pitjantjatjara Land Rights Act 1981* (SA), riparian rights apply to flowing waters and the Crown's power to manage, regulate and control waters applies as it does to other freehold title holders.⁴⁶ O'Donnell outlines the differences in position in relation to Aboriginal land in the Northern Territory under the *Land Rights Act*. In that case, the grant of freehold title does not include minerals and, under the Act, minerals are defined to include water. Grants of title under the *Land Rights Act* often do extend to the low water mark, affording traditional owners of coastal estates a right to control access to certain tidal waters.⁴⁷ The recent High Court decision in *Northern Territory v Arnhem Land Aboriginal*

Land Trust,⁴⁸ commonly known as the *Blue Mud Bay Case*, confirmed the exclusive right of traditional owners over the intertidal zone and the marine property within it.

Aside from the property rights granted to Indigenous people under land rights regimes, the *Mabo* decision⁴⁹ and the *Native Title Act* made possible some recognition of Indigenous rights to inland waters under Australian law. Under the Act, rights to hunt, gather and fish for the purposes of satisfying the personal, domestic or non-commercial needs of native title holders can be exercised free from licensing or permit restrictions that otherwise apply to such activities. The same exemption applies to cultural and spiritual activity and other kinds of activity which may be later prescribed, provided the activity involves the exercise or enjoyment of native title rights and interests.⁵⁰ As at June 2008, there were 502 applications for native title, 112 registered native title determinations and 342 Indigenous land use agreements under the *Native Title Act*.⁵¹ According to Bardy McFarlane, most if not all water resources (groundwater and surface water) within the Australian mainland are subject to native title claims.⁵²

Indigenous rights and interests were not, however, formally considered in water policy documents prepared during the initial water reform era of the 1990s. Poh Ling Tan argues that this is surprising given that Native American water rights in the USA have been the subject of much attention.⁵³ Crown ownership of water was affirmed during this initial period of water reform, and all States and Territories subsequently passed complementary legislation to give effect to s 212(1)(b) of the *Native Title Act*, which confirmed 'any existing right of the Crown in that capacity to use, control and regulate the flow of water'.⁵⁴ Tan elaborates:

As the Crown has the right to use, control and regulate the flow of water, it is likely that any utilisation of native title to water resources (apart from the domestic and minor uses statutorily exempted from regulation) would be considerably controlled by the regulatory regime in the States and Territories.⁵⁵

When the NWI was finalised in 2004, negotiators intended to address the previous neglect of Indigenous interests. Indigenous people were to be included in water planning processes and water plans were to incorporate Indigenous objectives.⁵⁶ The NWI explicitly recognises the special character of Indigenous interests in water. Parties to the NWI have agreed to an overarching objective: water access

entitlement and planning frameworks should recognise Indigenous needs in relation to access and management. Indigenous access to water is to be achieved through planning processes that:

- include Indigenous representation in water planning, wherever possible;
- incorporate Indigenous social, spiritual and customary objectives and strategies for achieving these objectives, wherever they can be developed;
- take account of the possible existence of native title rights to water in the catchment or aquifer area;
- potentially allocate water to native title holders; and
- account for any water allocated to native title holders for 'traditional cultural purposes'.⁵⁷

According to an analysis conducted by Sue Jackson and Joe Morrison, there are a number of challenges and impediments specific to the treatment of Indigenous interests under the NWI.⁵⁸ Firstly, most of the NWI provisions are expressed in discretionary terms. Although this provides flexibility to suit a wide array of circumstances, impediments and competing priorities may hamper the extent to which Indigenous objectives are addressed. Secondly, little guidance is provided to water resource managers seeking to address objectives relating to Indigenous access and involvement. Thirdly, implementation emphasis is given to protecting Indigenous customary values (which are construed as non-market values) and meeting legal requirements to protect native title. The NWI actions reflect statutory frameworks for native title and interpretations of Indigenous resource interests that are, according to Jon Altman, 'insufficiently inclusive in their definition of water property'.⁵⁹ The property rights conferred by the *Native Title Act* are only partial, covering customary use rights.⁶⁰ Furthermore, the wording in the NWI, where water allocated to native holders for *traditional cultural purposes* is to be accounted for, suggests an intention to preclude commercial uses under the definition of native title rights, although the absence of definition leaves some doubt as to what is intended.⁶¹

Despite the existence of a national policy, water resource management practice has not yet been markedly affected by the inclusion of Indigenous interests in the NWI. Although in practice the Commonwealth has an important role in the management of water through policy formulation, constitutional responsibility for water resource planning and management rests with Australia's eight State and Territory

jurisdictions.⁶² The States and Territories allow other parties the rights to access and use water for a variety of purposes, such as irrigation, mining, recreation and servicing urban and rural communities. Under the *Native Title Act* statutory framework, States and Territories are also respondents to all native title applications affecting land and waters within their jurisdiction.⁶³ All jurisdictions currently have differing approaches to addressing Indigenous interests and the NWI leaves it open for each jurisdiction to independently pursue the above listed objectives or implementation tasks as they see fit.⁶⁴ It is likely therefore that McFarlane's conclusion regarding the NWI is accurate: the scope and level of Indigenous engagement will ultimately depend on the approach adopted by each jurisdiction.⁶⁵ There is no easily identifiable Australian model of water resource legislation and only one, in the state of New South Wales, gives substantial legislative attention to Indigenous benefits and aspirations.⁶⁶ As a result, Australia has inconsistent, ad hoc and underdeveloped approaches to allocating water to Indigenous uses and meeting Indigenous values in water quality management and river conservation.⁶⁷ Greater clarity in conceptualising the types of Indigenous water uses and needs is urgently required, as are national guidelines and standards for meeting Indigenous water requirements through water planning and allocation.

The status accorded to Indigenous participants vis-à-vis the NWI is far from clear. McFarlane advocates for precedence being given to Indigenous interests:

It is arguable that, based on their relationship to the water and the surrounding environment, they [Indigenous parties whose rights and interests are affected] are elevated beyond being merely another stakeholder. There is also recognition in the NWI agreement that the water plans may need to make specific allocations of water to Indigenous people in recognition of native title rights. It is implied that this will be limited to those purposes identified in the *Native Title Act 1993* and clarified through the common law, unless there are specific policy or legislative initiatives on allocation developed in the various jurisdictions.⁶⁸

Indigenous Australians therefore face a range of water-related challenges as they seek to engage in water reforms and emerging water institutions and mechanisms such as water planning. These include:

- poor understanding of Indigenous cosmology,

environmental philosophies and resource management institutions amongst the dominant settler society,⁶⁹

- difficulties facing Indigenous representatives wishing to participate in multi-stakeholder resource management groups, such as catchment management authorities, which in some jurisdictions are responsible for water planning;⁷⁰
- lack of capacity in Indigenous and water resource agencies to address cross-cultural issues and lags in native title claim processes;⁷¹
- narrow interpretations of Indigenous water property in current water resource management plans and discourse;⁷² and
- poor formal recognition of the right of Indigenous groups to participate in management of waters (eg, the *Native Title Act* does not directly provide for an increased role for Indigenous people in the management of water resources).⁷³

There are two significant consequences arising from this inadequate policy framework. Firstly, Indigenous groups who are unable to frame and specify their requirements are at a distinct disadvantage when competing with organised groups who have clearly articulated claims for water and recognised expectations for continuity of access and use. This positional disadvantage is particularly pronounced in situations of water scarcity and intense competition between users. The omission of Indigenous values and uses may result in inefficient and inequitable allocation decisions, and regional development opportunities may be foregone. One of the case studies reported below clearly shows the potential for this to occur, as does the recent history of water allocations in the Murray Darling Basin, although in that region Indigenous people have very limited statutory rights in land and resources.⁷⁴

Secondly, if Indigenous people are excluded from water planning they will be unable to contribute their hydrological and ecological expertise to water management. Effective water resource management must be grounded in the best available knowledge yet in many parts of Australia the science base is limited. As such, the considerable knowledge base that exists within many Indigenous communities regarding local water systems represents a valuable resource for policy-makers. To exclude Indigenous participation may therefore not only be to the detriment of the interests of Indigenous stakeholders but may also substantially limit the effectiveness of water management generally.

IV Northern Australian Research Project on Indigenous Water Rights

The research reported here was commissioned by the Indigenous Water Policy Group ('IWPG') established in 2006 by the NAILSMA. NAILSMA was formed in 2001 to 'aid Indigenous land and sea management activities across north Australia and foster Indigenous led thinking in relation to the management of the north's Indigenous estate'.⁷⁵

With the formation of the IWGP,⁷⁶ NAILSMA aimed to build the capacity of Indigenous organisations and land owners in northern Australia to understand and influence water policy and management. The IWPG was formed in response to the findings of an earlier scoping study that found a very low awareness of water reform amongst Indigenous people in Australia's tropical north.⁷⁷ Comprised of representatives from the major land councils and native title representative bodies of northern Australia, the IWPG's role is to oversee the conduct of research activities, consider and endorse policies, engage with water policy-makers, and improve awareness of NWI issues in the wider Indigenous communities of northern Australia.

Specifically the NAILSMA project aims to articulate issues relating to water property rights, use and management by Indigenous people. Across Australia Indigenous water resource interests are diverse and the ways in which they interact with a federal system of 'mainstream' institutions is extremely complex; hence, the focus of the project is on learning more about the circumstances of tropical Indigenous Australia, and is targeted at research into local socioeconomic and institutional contexts to provide evidence-based research of value to broader policy processes.

Indigenous systems of resource management co-exist alongside the relatively recently introduced and rapidly transforming institutional systems of states. These latter systems encompass a mix of regulatory and market-based allocation mechanisms, incorporate scientific methods of resource assessment and management, and increasingly involve efforts to achieve transparency in water planning procedures, including opportunities for public participation in water management decisions. Tropical northern Australia contains rivers that carry vast amounts of water and account for over 60 per cent of Australian runoff (although, there is uncertainty surrounding actual water availability).⁷⁸ Demand for water in these regions has been historically low, in large

part because of the relatively small and sparsely distributed population; yet there is now ample evidence to suggest that most northern Australian rivers are likely to face increasing pressure in the near future.⁷⁹

In the absence of information and knowledge about the implications of national water reforms for Indigenous people,⁸⁰ there is a considerable risk that Indigenous interests will be poorly considered, if not totally neglected, in future development debates and proposals. This has the potential to give rise to stakeholder conflicts, further socioeconomic marginalisation of Indigenous people, and inefficiencies in water use. For example, for future water resource markets to function efficiently Indigenous property rights in water, even if of a customary (non-market) nature, will need to be recognised or else there is likely to be conflict over water use.⁸¹ It should be noted that both the Northern Territory and Western Australia are in the process of reforming their water legislation,⁸² and Queensland has recently introduced legislation that affects the management of unregulated rivers in that State's north. In that case, specific attention has been given to providing Indigenous water allocations under the wild rivers regulatory framework that includes the *Wild Rivers Act 2005 (Qld)*.⁸³

This article draws on material from two northern Australian regional case studies conducted during 2007 in the Maningrida and Katherine regions in the Northern Territory. A third case study from the Gulf of Carpentaria (Queensland) was undertaken although it is not reported on here. Other research reports were produced during the first year of the IWPG project, including a review of international literature on Indigenous rights to water⁸⁴ and an analysis of the implications of Australian water policy for Indigenous people.⁸⁵

Each case study had its own emphases, contingent upon local circumstances and the interests and expertise of individual authors, although all three considered the effect of, and interaction between, state water management regimes and Indigenous values, management systems and rights. Each study involved a short period of field work undertaken during 2007, although the reports were all heavily informed by the prior knowledge of the principal investigators developed over many years of frequent interaction.⁸⁶

The methods employed in each case study were similar; combining desktop review of relevant literature with

approximately 10–15 days of fieldwork interviewing Indigenous land owners and custodians of cultural water sites, community organisation representatives, researchers and government water agency staff. The Katherine case study was conducted under the auspices of a research agreement with two traditional owner organisations, the Jawoyn Association and the Wardaman Association; and the Maningrida study had the approval of the Bawinanga Aboriginal Corporation.

V Northern Territory Water Administration

This section will provide a summary description of the Northern Territory case study sites focusing on water governance, resource pressure, and the nature of Indigenous interests. These brief profiles are intended to assist in interpreting the lessons outlined in the subsequent section. Before turning to the case material we provide a brief summary of water administration in the Northern Territory.

The Northern Territory manages its water resources through a regulatory framework that includes the *Water Act (NT)*, enacted in 1992 but amended several times, the *Water Regulations (NT)* and a series of 'water allocation plans' under development.⁸⁷ The *Water Act (NT)* provides for the investigation, allocation, use, control, protection, management and administration of water resources. According to s 9 of the Act, the Crown owns all surface and groundwater – a situation described by O'Donnell as unique to Australian water law because it establishes the Northern Territory as the only jurisdiction that uses property as the foundation of its water management and regulation system.⁸⁸ Water is provided to users through a system of permits, licences and exemptions under the management of the Controller of Water Resources. The Department of Natural Resources, Environment, Arts and Sport ('NRETAS') administers the Act. The Power and Water Corporation is the sole service provider for urban and rural water and NRETAS is the resource manager.

As a result of high variability and seasonality in flows in the Territory's surface waters, year-round water use for domestic, stock and industrial purposes is reliant on the region's extensive groundwater systems.⁸⁹ Although the Northern Territory does not have over-allocated river systems or groundwater resources, there is potential for this to arise, particularly in the Darwin region.⁹⁰ In response, NRETAS has prioritised the development of statutory water resource strategy planning to regulate, share and sustain local water

resources in the population centres and agricultural zones of Katherine, Darwin, Alice Springs, Daly River and Ti Tree.⁹¹

The *Water Act* (NT) has no objects or principles to guide the development or content of a water allocation plan.⁹² Sustainability is introduced through the concept of 'beneficial use'.⁹³ Through the public declaration of beneficial uses, management goals are set for a water control district in areas requiring intensive management to determine how and why community sectors and government want to protect, manage and use the water resource. The beneficial use concept is important in the *Water Act* (NT) for it provides the context in which decisions relating to management planning and the issuance of licences and approvals are made.⁹⁴ Citizens have the opportunity to nominate the uses to which a water body is to be put (ie, agriculture, aquatic ecosystems, aquaculture, public water supply, industry and culture) and the values they wish to see protected by the water management regime.⁹⁵ There is, however, no prioritisation in the list of beneficial uses – for example, the environment is just one of a number of uses for which water can be allocated.⁹⁶ Interestingly, the list of beneficial uses under the Act makes no mention of specific Indigenous uses of water, particularly for customary purposes, some of which might have a commercial benefit (eg, environmental flows required to sustain wild resources that are harvested for commercial use in the arts industry). According to the *Water Act* (NT), cultural beneficial uses entail the use of water to meet aesthetic, recreational and cultural needs.⁹⁷ It is assumed that these beneficial uses are to be met by instream flow and that they are of a non-consumptive nature; that is, their satisfaction does not require water extraction. Current NRETAS policy states that adequate provision will be made to maintain cultural and environmental requirements (referred to as 'aquatic ecosystem and cultural beneficial uses'), although there are no guidelines for measuring or estimating these requirements.⁹⁸ The *Water Act* does not recognise the need for an Indigenous-specific allocation for commercial purposes.

A Maningrida, Northern Territory

1 The Local Context

The Maningrida research focuses on three linked broad perspectives on water: a historical analysis of the political economy of water; a sectoral analysis of water in the regional 'hybrid' economy; and a spatial analysis of water governance in Maningrida and the hinterland. A series of dichotomies is

evident, both between Western and Aboriginal views about water, but also in recent times within the Aboriginal domain. The summary provided here highlights the cross-cultural contestation over water values and property rights and the need for a new water governance paradigm for this region that lies beyond the state's water allocation system.

Maningrida is a large Aboriginal township located within the Arnhem Land Aboriginal Land Trust region encompassing a number of entire river catchments, including the Mann–Liverpool and Cadell–Blyth river catchments. The Land Trust manages land held under inalienable Aboriginal title granted in 1980 under the *Land Rights Act*. Prior to that, the Maningrida area was Crown land reserved for exclusive Aboriginal use since the early 20th century. Maningrida, and Arnhem Land more generally, represents a 'frontier' in water management: under the Northern Territory's water administration regime an unallocated system operates in Arnhem Land, with no licences for commercial use of surface or groundwater having been granted.⁹⁹

The region is characterised by a pattern of monsoonal rainfall that generates an abundance of water during the wet season (October to April).¹⁰⁰ Although it is commonplace to talk of distinct wet and dry seasons in this region, Indigenous seasonality is classified into at least six seasons with each highly dependent on actual weather conditions rather than time of year.¹⁰¹ Another notable difference in hydrological concepts relates to groundwater–surface water interactions. The distinction between ground and surface water that is now dominating discussions about water governance in managerial circles is not so prominent in Indigenous classifications, although the inter-connections between the two are strongly recognised in Indigenous religious beliefs.

The high awareness and deep understanding that Aboriginal people have of the connectivity between groundwater and surface water is evident in the most sacred Creation stories which depict the route taken by the mythical Being the Rainbow Serpent, who is said to have travelled underground between various water places. Local knowledge of the network of groundwater flows and discharge sites contributed to recent hydrological studies and helped establish the records of the historical behaviour of water places.¹⁰² The frequent occurrence of water themes throughout local mythology is testimony to the detailed understanding local Aboriginal people have of the hydro-ecology, as well as its economic and spiritual significance.

Hydrological studies indicate that most of the groundwater in the Maningrida area is of very good quality and fit for human consumption, although the hinterland, where most outstations are located, has poorer access to groundwater because of the nature of the aquifers.¹⁰³ It is in these areas that springs and surface water are essential for the viability of the livelihoods of people living in outstation communities. These springs are particularly important for maintaining dry-season flow in creeks and rivers, and most support rainforest vegetation. Most are sacred sites. It is unlikely that the hinterland could support large population concentrations or intensive agriculture, although directly around the Maningrida township there is potential for substantial water use.

A combination of factors immensely complicates the region's water governance arrangements, including:

- distinct Aboriginal customs, beliefs and institutions that remain robust in the face of a relatively short colonial history (it is just over 50 years since the Maningrida township was created as an instrument of state policy);
- Aboriginal people abide by both Western and customary institutions, and a high degree of linguistic and cultural diversity within the Aboriginal population extends to some differences in cultural views about water;
- a diversity of settlement patterns with a mobile population moving between the large township of Maningrida and over 30 outstations in the hinterland;
- a regional economy that encompasses overlapping market and customary (non-market) sectors and values, and includes a significant state sector;
- the contestation of property rights in water at a local level: while the state asserts Crown ownership of water, this is not a view that is shared by the traditional owners of the land. The precise relationship between statutory land rights and Indigenous notion of water rights remains unclear and legally untested;
- the division of responsibility for water management – the Power and Water Corporation regulates and manages water in the Maningrida township, while domestic water in the hinterland is provided to small outstations by the Bawinanga Aboriginal Corporation;
- the operations of the Djelk Rangers, a community-based natural resource management arm of Bawinanga Aboriginal Corporation, who provide some formal water management services at the regional scale, focusing on water quality management; and

- the provision of informal services by traditional owners and residents, often as a positive environmental spin-off benefit resulting from wildlife harvesting and other customary activity.

2 Discussion

In relation to remote Indigenous Australia at a broad level, Jon Altman, Geoffrey Buchanan and Nicholas Biddle have shown using official statistics that the 'real' economy is in fact a hybrid economy, consisting not only of private (market) and public (welfare and state employment) sectors but also of an Indigenous customary (non-market) sector.¹⁰⁴ At the regional level, the hybrid economy has been quantified to estimate the relative dollar values of, and work effort in, different sectors.¹⁰⁵ The hybrid economy framework is used principally as an analytic device to highlight the significance of the non-market sector and the extent of sectoral inter-linkages. This case study seeks to highlight the role that fresh water plays in each of the economy's three sectors – private, public and customary – and more importantly in the four key segments of inter-sectoral overlap between these three sectors where most productive economic activity is undertaken. It should be noted that the hybrid economy model has been developed to challenge the dominant view that economies are only dualistic, consisting of public and private sectors. However, the model is also useful for challenging the consumptive-productive vs non-consumptive-'unproductive' dichotomy that is currently dominating water allocation thinking.¹⁰⁶ The Maningrida case demonstrates that such a dichotomy is false and empirically unsupported.

Today Aboriginal people in the Maningrida region are gaining a livelihood through 'hybrid' economic means, and many remain strongly engaged with the customary sector, which is in turn dependent on water and structured seasonally. A six-season cycle, mainly defined in terms of relative abundance or lack of water, structures Aboriginal people's hunting, fishing and foraging activities in Maningrida, and this cycle correspondingly organises the daily rhythms of life for those people still participating in customary modes of subsistence. Yet a focus on subsistence activity does not fully capture the significance of water in cultural terms; that is, in the regional- or language community-based shared values and beliefs that inform group action in relation to fresh water and water places. Because colonisation of the region came relatively late, there are few non-Aboriginal people who have lived in the

region for long periods of time; and while non-Aboriginal water values dominate through Western law and state authority, it is quite unclear what significance they have in this particular regional context. Indeed, much of the recent heightened interest in fresh water has been imported into Arnhem Land owing to southern concerns about water shortage and the subsequent NWI. Increasingly, externally-imposed non-Indigenous values that are locally irrelevant are gaining a foothold in policy discourse about the region, while Aboriginal values that are locally dominant and highly relevant either go unrecognised or, at best, are poorly understood.

Much of this divergence occurs because, from a Western perspective, water is increasingly a tradeable commodity with a market value, or else a non-commercial environmental flow. From a regional Aboriginal perspective the trade-off is not just between commercial and environmental water values, although both are certainly considerations today. Rather, the value of water is more deeply culturally embedded in extant belief systems, in the sentient landscape where water places have special significance, and in the political geography of the landscape whereby people often affirm their land rights, with boundaries of land holdings demarcated by key named fresh water places that are invariably sacred sites. In short, water values pervade all aspects of Aboriginal life, livelihood and beliefs in the Maningrida region.

Today, the most open manifestation of people's rights in water and water places is demonstrated in the production of art, an activity that links customary knowledge, often from ceremonial contexts, to market activity. Selling art is an activity that has been undertaken in the Maningrida region since colonisation. Altman provides a very concrete and contemporary example of the cultural significance of water: a brief analysis was undertaken of the themes in bark paintings produced by the top 26 artists working with Maningrida Arts and Culture, the regional arts marketing agency, during the first half of 2007.¹⁰⁷ The most fundamental and dominant themes in this art are water myths, water places and water species. These themes are often represented in abstract iconography.¹⁰⁸

One of the key features of the hybrid economy model is its recognition of sectoral articulations or overlaps – for instance, the overlap between the customary and private sectors. Conceptually these overlaps are important. Historically, for example, the competing needs for water during the colonial

era saw the entire Maningrida population being moved by colonial authorities in the 1960s – water demand, including using water for agricultural enterprises, exceeded supply. This resonates with issues associated with competing rural and urban water needs in Australia generally today; and there is undoubtedly the potential for excessive water use in the market or state sectors to impact on the availability of non-market resources that are dependent on fresh water, such as magpie geese or barramundi. Such sectoral overlaps and associated trade-offs are crucially important in considering how water might be optimally used and how different value systems and property rights regimes might come into conflict over definition of that optimality.

The very different Western and customary views about water have inevitably created a degree of contestation about who holds primary authority over fresh water, though in comparison to during colonial times, conflicts over water have been relatively muted in the Maningrida region in the post-colonial era. Altman attributes this to the fact that there has been no recent water shortage, no competition from external commercial interests, and no attempt by the state to regulate water usage or to impose water charges to manage water demand for Aboriginal domestic users.¹⁰⁹ While it is true that under the *Water Act* (NT) water is vested in the Northern Territory,¹¹⁰ in remote contexts like the Maningrida region, where there is no water control district and no water allocation plan in place, this is only a theoretical proposition.¹¹¹ What is clear is that two key agencies, the Power and Water Corporation and Bawinanga Aboriginal Corporation, take responsibility for water administration in town and country respectively.

Despite the relative peace in Maningrida over water resources at present, there are a number of factors that have the potential to increase conflicts over rights in water in the region. The first is the decision of the High Court in the *Blue Mud Bay Case*,¹¹² which was handed down in July 2008. In its judgment the High Court held that Aboriginal land owners in Arnhem Land whose land was granted under the *Land Rights Act* hold exclusive rights to control access to the intertidal zone and tidal rivers above the low water mark. This potentially has major ramifications for fresh water property rights, including in the Maningrida region. In light of the High Court's judgment, it could now be argued that the terrestrial Arnhem Land Aboriginal Land Trust and its resources, including fresh water, have been similarly reserved.

Second, recent public debates about leasing of Aboriginal townships have raised issues about the protection of the rights and interests of the Maningrida traditional owners. In particular, it is unclear whether the Power and Water Corporation has entered into any formal agreements under s 19 of the *Land Rights Act* for the occupation and use of bore fields, and ancillary facilities such as water tanks and piping that might have been constructed since the grants were made to Maningrida traditional owners. There seems to be a growing recognition evident in policy debates in relation to long-term leasing of Aboriginal-owned land for the provision of social housing that both the Northern Territory and Commonwealth governments may have failed to enter formal agreements and make appropriate land use payments to traditional owners for the use of their land.¹¹³

Third, contestation may increase as a consequence of significant recent reforms to local government structures in the Northern Territory.¹¹⁴ These reforms have seen the establishment of eight new shires and have involved attempts to align Northern Territory water administration with national policy on full-cost pricing, amongst other things. Under such circumstances, which have entailed changes in policy and service-delivery in Maningrida, there may be heightened conflict over water ownership, management and administration, protection, allocation and consumption.

3 Conclusions

Water is integral to the hybrid economy of the Maningrida region, yet since the colonial state establishment of the Maningrida township in 1957 there has been no systematic focus on the crucially important issue of fresh water governance in the region. There is a wide gap between the views held by the traditional owners of the Maningrida region in relation to water and the position of the Australian state, which asserts its ownership of, and management rights in, fresh water.

The case study concludes by outlining some possible avenues to ameliorate the potential for conflict arising from this divergence in perspectives. First, the legal status of fresh water in the Maningrida region requires clarification: there is uncertainty in the space between the assertion of Crown ownership of water under the *Water Act* (NT), the counter-assertion of rights in water by local Aboriginal people, and the rights held by traditional owners under the *Land Rights Act*.

Additionally, a dialogue must be initiated between government and local traditional owners and their mediating organisations about possible future water governance in this region. To date, the Bawinanga Aboriginal Corporation has advocated quite effectively for customary access and use of resources, including fresh water, and it has provided institutional support to the Djelk Community Rangers who now play a formal role in managing water places. There is, however, a great deal more that needs to be done to build the capacity of local organisations and institutions. Government also needs to recognise the crucial role of Aboriginal organisations in mediating customary water rights and management in remote regions like Maningrida.¹¹⁵

Consistency in water governance frameworks between the Maningrida township and outstations must be established. This is especially important as local people move on an almost constant basis between the town and outstations. Related to establishing consistency in water management is the need for greater transparency regarding which organisations currently pay for water in the township and whether this has had an impact on demand management. Lastly, increased recognition must be given in the water management arrangements to the contributions made by Aboriginal people living on country to the maintenance of water quality and associated biodiversity.¹¹⁶

B Katherine, Northern Territory

1 The Local Context

The major regional centre of Katherine is the Northern Territory's third largest town. The local government area of Katherine has a population of approximately 9000, of whom 27 per cent are Aboriginal people.¹¹⁷ There are seven Aboriginal communities within the town and nearby surrounds, ranging in size from about 10 to 300 residents. The region comprises land tenures associated with the most intensive current and future water usage in the Territory's Top End, including residential, industrial, commercial, horticultural, farming and pastoral uses. The region also relies economically on tourism based around the Nitmiluk National Park (Katherine Gorge) and other permanent waters of the spring-fed Katherine–Daly river system, including Edith Falls and the Flora River Nature Reserve.

The headwaters of the Katherine River lie in the escarpment country of Arnhem Land and Nitmiluk and Kakadu

National Parks to the north. Like Maningrida, the average rainfall of the study area is high – 1040 mm per annum, falling mainly in the wet season (October to April).¹¹⁸ The Katherine River is subject to high wet season flows with occasional serious flooding. Groundwater discharge from aquifers sustains dry season base-flows¹¹⁹ in parts of these river systems. The Tindall aquifer is the most substantial and reliable groundwater resource within the study area and its discharge sustains the important ecological, cultural and economic values associated with the Katherine river system. Maintenance of these base-flows is therefore a high-priority water management objective.

Aboriginal rights and interests in water in the study area are in part a product of the history of Aboriginal and colonial occupation and use of land, which has been influenced by a number of environmental, cultural and historical factors. Such factors include the ecological and related cultural values of significant riverine environments, such as the Katherine River system; pastoral and mining development; development of the town of Katherine; and the regional movement of Aboriginal people to the area. The groundwater-fed Katherine and Flora Rivers are both examples of ecologically-rich ecosystems that are correspondingly rich in the occurrence of Aboriginal cultural sites and patterns of occupation and use. This richness has continued to influence the residential patterns of local Aboriginal people. The present locations of the permanent Aboriginal communities located in ‘town camps’¹²⁰ and on Aboriginal freehold title granted under the *Land Rights Act* are all within such zones; and despite the fact that their development as permanent communities has been influenced by non-Indigenous settlement, they are all on or adjacent to important cultural sites of longstanding significance. That is, community locations are in keeping with ongoing customary use of the land. Certain land and waters within the Katherine Water Control District are subject to a current native title claim, and in claim documentation, fishing and hunting in those waters are given as incidents of the customary rights and continuity of occupation asserted by claimants. In addition, the traditional owners of the study area have sought formal registration of a number of sites under s 27 of the *Northern Territory Aboriginal Sacred Sites Act* (NT) (*‘Sacred Sites Act’*). There are approximately 25 registered sites within the study area that include culturally significant water features.

As a fundamental aspect of land and ecosystems, water is integral to the lives and beliefs of Aboriginal groups in the Katherine area. However, while distinct and, indeed,

profoundly important cultural practices and beliefs relating to water exist, it is difficult and perhaps unwise to attempt to abstract such practices and beliefs from the broader processes and institutions that shape and give meaning to the cultures, the social arrangements, lived experience and relationships to land of Indigenous people in Katherine. As was found in the Maningrida case, with water emerging in recent years as a key resource policy issue an Indigenous discourse around water has emerged. However, that discourse remains essentially separate from the day-to-day social arrangements and cultural practices relating to water, which exist within the broader cultural and social organisation, processes and practices of Aboriginal people in the Katherine area.

Cultural practices relating to water in the Katherine region were found to be consistent with those in the Maningrida area, and include talking to country,¹²¹ ‘watering’ strangers and others,¹²² the imposition of restrictions on behaviour and activities such as fishing, protecting others from harm, and management and protection of important sites. These practices are a consequence of belief in the continuing spiritual presence of Creation beings in the landscape as well as more recent remembered and unremembered ancestors, or ‘old people’, returned to their countries as spirits. The animating spirits that become children are also believed to enter their mothers from water.

Aboriginal groups have deep cultural connections to water sources in the study area, and hold customary rights of ownership and custodianship of cultural water sources.¹²³ Significantly, these cultural rights extend beyond surface waters to the underground waters, including the waters of the Tindall aquifer. The study found that the underground waters are themselves significant and feature in Aboriginal ritual knowledge. This is an important issue that remains largely unaddressed in management and planning contexts, including in relation to heritage protection and the current water planning processes.

2 Discussion

As noted above, traditional owners have had a number of significant cultural sites registered under the *Sacred Sites Act*. Yet the Act, which relies on the broad definition of ‘sacred site’ given under the *Land Rights Act*,¹²⁴ is relatively silent as to the extent of protection afforded to specific features of registered sites, such as their water resources. Under s 3 of the *Land Rights Act* a ‘sacred site’ is defined as

a site that is sacred to Aboriginals or is otherwise of significance according to Aboriginal tradition, and includes any land that, under a law of the Northern Territory, is declared to be sacred to Aboriginals or of significance according to Aboriginal tradition.

While registration is usually sought for individual sites, there are instances in the Katherine region of the registration of site complexes and even whole sections of dreaming tracks, which include multiple and interconnected features of significance. It would seem that, to the extent that water resources forming part of registered sacred sites can be said to be sacred or of significance according to Aboriginal tradition, such resources are protected under the *Sacred Sites Act*. Conceivably this could extend not only to water flowing from springs but also to underground water which feeds springs and waterholes, especially considering the cultural and spiritual significance that often attaches to underground water. The implications of protections provided under the *Sacred Sites Act* vis-à-vis the allocation and trading of water in the Katherine area warrant further investigation.

There are a number of key impediments to continued customary use of water sources in the Katherine area. Utilisation of cultural water sites in the study area is influenced by a range of factors: current patterns of residence and access to vehicles; knowledge of the cultural associations of sites and historic patterns of Aboriginal use; the particular experiences of individuals in visiting sites with their elders and families; the availability of access; and uses associated with cultural tourism and other economic uses of traditional lands. Alienation of land through non-Indigenous acquisition, and the attendant land uses and management practices, prevent access to large sections of the rivers and streams and many cultural water sites in the Katherine area. Most Aboriginal usage of water sites includes fishing, whether or not that is the primary reason for visiting a location.

As mentioned above, the Tindall aquifer is reaching full allocation and there is a growing need to reconsider the rules that govern its use. Groundwater is currently extracted from the aquifer for agricultural and horticultural irrigation and other purposes, including domestic and light industrial use. Demand for water is likely to grow given that the region is considered to have the 'potential to be one of the last regions in Australia to be cleared and developed for intensive agriculture'.¹²⁵ Assuming that the 2003 rate of development in the region remains steady, estimates of growth in

production predict that horticultural production will increase from \$15 million to \$100 million annually.¹²⁶ Water users in the Katherine area operate within a declared water control district and therefore must apply to the Water Controller for water licences.¹²⁷ Currently, the volume of water sought by application is four times the amount considered to be sustainable, and no new applications for water licences have been accepted since 2007.¹²⁸ Agriculture is the largest user of water by a factor close to five.¹²⁹ A draft water allocation plan, prepared over the past 18 months in accordance with the *Water Act* (NT), is currently being finalised for the Tindall groundwater resource.¹³⁰ The content of the plan was developed in partnership with the Katherine Water Advisory Committee, which consists of 12 voting members representing various sectors of the Katherine community, and includes two Indigenous representatives. The water allocation plan is expected to be consistent with the NWI.¹³¹

The overarching objective of the draft water allocation plan is to ensure that the water contained within the Tindall aquifer is managed sustainably and that a balance is created between the environment and extractive users.¹³² No special mention is made of Indigenous rights or interests within the water allocation plan's vision statement, although one of its objectives is to 'ensure the maintenance and protection of values and access to places of importance under traditional laws, customs and practices'.¹³³ Strategies devised to meet plan objectives include the implementation of monitoring programs to continually assess the performance of the plan, the establishment of rules for water licensing and trading, the recognition of varying climatic conditions and the need to conduct regular compliance inspections for water extraction licences.¹³⁴ Water trading, currently not allowed, is to be permitted amongst growers in the Katherine area who extract from the Tindall aquifer.¹³⁵ Water trading is now being considered because the 20 per cent of annual recharge from the Tindall aquifer that is available for extractive uses is close to being fully allocated to industrial, agricultural, and public amenity purposes.¹³⁶ The other 80 per cent is allocated to the environment and to cultural beneficial uses.¹³⁷

In a study on the potential for water trading in the Katherine area, Anna Stratton et al describe the rationale for adopting trading rules:

it can facilitate water being diverted to high value uses, thus bringing about the more profitable use of water, and can also make it easier to recover water for environmental

purposes while compensating those who decide to sell their entitlements.¹³⁸

Water markets cannot function effectively without scarcity, and it is through the full allocation of the Tindall aquifer to extractive uses that this precondition will be created.¹³⁹ An enforceable cap will need to be placed on water extraction for the market to operate effectively. This will therefore restrict access to water to new entrants. According to the Northern Territory Water Controller, after current licence applications are granted with the introduction of the water allocation plan, 'no more will be allowed'. He adds 'what we're trying to do is to look after those people who are already here and established'.¹⁴⁰

There is the potential for an inequitable distribution of water access entitlements amongst competing user groups in the Katherine area. Much international water rights literature is set within the context of competing social and economic rights to water. A number of studies have documented the extremely unequal distribution of access to water in countries where land and water rights were alienated during colonial periods, with the result that Indigenous peoples now face increasing pressure from competition with other water users.¹⁴¹ There is, according to Rutgard Boelens and Paul Hoogendam,

[a] mutual relationship between water rights and power: power relations determine the distribution of water rights and, in turn, water rights reproduce and/or restructure power relations.¹⁴²

Although there is only one small portion of Indigenous-owned land within the Tindall aquifer area, a native title claim is pending and, if successful, may raise expectations of commercial development opportunities.¹⁴³ Yet it must be noted that many Indigenous groups, such as those in the Katherine region, do not have fully formed strategies for utilising water for commercial purposes. Their relative disadvantage in this regard should not preclude them from benefiting from future development opportunities, particularly where it is likely that a cap on water entitlements will soon be in place and entering the water market in coming years may be costly or impossible.¹⁴⁴

With these circumstances in mind, the Water Controller should consider options for providing an allocation for Indigenous commercial use (including agricultural and

industrial) during the life of the Tindall aquifer water allocation plan. For example, a portion of the consumptive pool could be reserved for future Indigenous commercial use. Such a reservation can be made in the case of town water supplies – some existing water allocation plans have already made such provisions. In this case, the plan could provide for water reserved for Aboriginal commercial purposes to be traded in the short term, or until Aboriginal groups required it for their own enterprises. A socioeconomic assessment of the costs and benefits of providing an Indigenous access entitlement is also warranted. The draft Tindall plan contemplates the creation of an Indigenous reservation for economic development purposes in the event that native title is recognised.¹⁴⁵

Aboriginal groups in the Northern Territory have not had the opportunity to properly consider the implications of the current national water reform process, including those that may affect future developments or enterprises requiring water allocations.¹⁴⁶ The fact that none of the current water licence applicants in the Katherine Water Control District is Aboriginal is indicative of this lack of opportunity. In the beginning of the Katherine study, very few people were aware of the proposed water plan for their area or of government efforts to regulate and trade in water. Indigenous engagement in the water planning process was, and remains, insufficient. Significant attention needs to be given to ensuring that local Aboriginal groups are consulted extensively in the public comment period following the release of the draft water allocation plan and that options for ongoing Indigenous engagement in plan implementation are investigated and secured.

3 Conclusions

The ability of Katherine traditional owners to exercise their cultural rights and responsibilities, and to access cultural water sites for customary purposes, has been impaired as a result of the history of non-Indigenous alienation and exclusive use of the land. At the same time, the various statutory and common law regimes for the recognition of customary rights in land and sacred sites have given rise to an expectation on the part of traditional owners that they now have a legitimate basis in terms of recognised rights and interests. There is a sense amongst traditional owners that this recognition gives, or should give, a position of negotiating parity with non-Indigenous decision-makers and land owners. This expectation was strongly put to

David Cooper by a local Aboriginal elder during fieldwork for the study:

In early days the white man just put trouble all over blackfellas ... he was under a pastoral property ... they didn't want to talk. [If] they just wanted to put something up there, they just went on ahead and put it up. But now we comin' in together, negotiate proper deal, and work together. We should share something, then we happy to do that. But it gotta be court proper way [proper processes which recognise our right of consent], whether we can give him go ahead to put the bore in there, or might be we say no, might be find another place away from that sacred site. Well, we have to negotiate the proper way, good relationship for share the water, together. Because [it's] their water and our water too, same way. Well, government say, 'No, everything under the ground belong to us', but we got our dreaming too, you know, all the way. That's what our ceremony and law is, underneath the ground.¹⁴⁷

There could be no clearer statement of the basis of traditional rights over underground and other waters, and of the desire of local Aboriginal people for a respectful and collaborative partnership with governments and decision-makers for the management of areas and resources of cultural significance on their traditional lands.

VI Analysis

Attention is being given to Indigenous water rights in international fora, including the World Water Forum, which is organised by the World Water Council. The World Water Forum meets every three years and represents the largest international event in the field of water. In 2003 the Forum identified four types of water-related challenges facing Indigenous people:

- Indigenous cultural and spiritual understandings about water are misunderstood or simply ignored by the dominant societies;
- Indigenous communities are not engaged meaningfully in water policy and planning processes;
- customary access and rights to water are seldom recognised by the state authorities that now control Indigenous areas, and
- water bodies that are critical to cultural and physical wellbeing are being polluted by forces beyond Indigenous peoples' control.¹⁴⁸

The project reported on here has found a slightly different, more fundamental set of challenges facing Indigenous people in the case study sites.

Regarding sensitivity to Indigenous cultural and spiritual beliefs about water, northern jurisdictions have shown a growing interest in understanding Indigenous people's values relating to water, in part because there is an increasing recognition that Western science alone is inadequate for proper water management. However, this interest rarely translates to direct support to document or incorporate Indigenous knowledge, values and associations in water use decisions. For instance, heritage assessment procedures and protection measures are rarely undertaken or invoked. The result is that water allocation decisions are being made in the absence of information on the potential social and economic impacts on Indigenous lifeways and livelihoods. This is occurring despite recognition in the NWI that settling trade-offs between competing outcomes for water systems will involve judgements informed by the 'best-available science, socio-economic analysis and community input'.¹⁴⁹

In light of the international experience of unequal patterns of resource distribution, water resource assessments should not be limited to considering 'cultural and spiritual understandings' of water, though these are undoubtedly important. There is a need to also factor in the potential for adverse socioeconomic impacts arising from the exclusion of a large and disadvantaged sector of the community from commercial opportunities arising from water trading. Experience in southern Australia has shown how difficult it is to buy back entitlements once they have been granted to competing users and uses.¹⁵⁰

With respect to the second point made by the World Water Forum above, water policy and planning processes have indeed failed to engage Indigenous people. More recent efforts to address this failure are reliant on a problematic 'representative' model of stakeholder participation, and water management discussions and consultative processes that are founded on non-Indigenous modes of interaction, debate and reliance on Western scientific knowledge. This was most starkly evident in the Katherine case study, where there was a very low level of Indigenous engagement with the planning process. We argue that the problem is not merely one of failed engagement; it is rather that the orthodox natural resource management approaches are premised on

the wrong paradigm and need to shift from consultation to negotiation and collaborative management.

As for state recognition of traditional ownership of land and water, this has been incomplete under Australian law. In native title cases where there has been recognition of rights to water it has been limited to non-commercial resource use. Furthermore, Aboriginal land rights legislation such as the *Land Rights Act* generally does not confer ownership of or rights to inland waters. As a consequence, statutory water management systems empower State and Territory water authorities to control and regulate water resources, and privilege 'mainstream' management approaches, normative frameworks and values over those of Indigenous people. In regions like Katherine, rights to water are now being negotiated between water user groups and governments under a new set of rules, partly in response to the creation of markets in water. The case study findings show that the new water-sharing rules do not recognise an inherent Indigenous economic or commercial right to water. Further, the protection offered other native title rights, such as customary fishing, is limited to a review of impacts following plan implementation. In the Katherine case, government environmental management procedures should have included the collection of empirical data to support their decisions prior to allocation of entitlements. The new rules that distribute water rights and regulate its use may intentionally or unintentionally entrench historically determined power differentials between Indigenous and non-Indigenous groups.

Along with social issues of water use and allocation, there is the need to consider the environmental impact of water use and the role of Indigenous people in natural resource management. Water bodies are subject to a range of pressures, many beyond the control of Indigenous groups. However, as a result of Indigenous occupation and management and the exclusion of large-scale commercial ventures on Aboriginal lands, the water resources of northern Australia are in relatively good health and Indigenous groups are increasingly becoming involved in land and water management activities, particularly on the substantial lands under their direct control. Recent community-based environmental management projects and initiatives are responding to those pressures and providing a wider set of environmental services to society, as shown in the Maningrida case with the Djelk Rangers group. It should be noted that these catchment management efforts are currently under-resourced.¹⁵¹

Despite the current health of water bodies in northern Australia, there remains a distinct possibility that water consumption and water degradation will increase in the near future as water-dependent industries look north to this region's substantial water resources. In southern regions of Australia, the over-consumption of water and degradation of water quality threatens both the market-based and non-market values held by Indigenous people. Although there are frequent claims that northern Australia holds abundant water resources, these may be exaggerated when the highly seasonable and variable flows are taken into account – inadequate hydrological data makes estimating sustainable yields more difficult. Notwithstanding this caution, the quantities of water are relatively large, and this volume has attracted the attention of those interested in promoting the growth of water-based industries in northern Australia. A Federal Government Northern Australia Land and Water Taskforce has been established to examine water-based development options,¹⁵² and the potential development of Australia's tropical rivers was a key outcome of the Prime Minister's 2020 Summit held in April 2008.¹⁵³ The challenge for Indigenous land and water managers, should they seek to benefit from the commercialisation of water resources, will be to give due recognition to the mutual dependence between the so-called consumptive and non-consumptive uses.

VII Conclusion

There is an overarching Aboriginal view that water is a resource with inseparable cultural and economic values, and in both Katherine and Maningrida there are a number of significant water places with high religious and livelihood values. It is noted that this view is in marked contrast to dominant Western notions of water as a resource with competing commercial, environmental, recreational and cultural values. Such a view renders the customary Indigenous sector invisible, and yet it is clear that this sector is highly dependent on adequate quantities of high-quality fresh water.

It is noteworthy that Indigenous knowledge is based on an assumption of unregulated, unimpeded water flows.¹⁵⁴ Prior to colonisation, Indigenous people had limited experience of impeded environmental flows beyond very slow climatic fluctuations over millennia. Today, new challenges to Indigenous knowledge are emerging, including unmanaged wildfires, climate change, and the impact of invasive species

such as feral animals and exotic weeds, all of which have implications for the management and use of fresh water.

In water usage patterns revealed in the northern case studies there are relationships of mutual interdependence that constrain all parties. Indigenous people can be land owners, as in the Maningrida region, with exclusive rights to develop their land-base and therefore authority to determine the type and scale of regional development. In this case, traditional owners and their associates also have some involvement in managing the wider catchment that supplies water to the community. At the same time, people are increasingly reliant on the hydrological knowledge generated by the Northern Territory's water resource agency, and there is evidently an 'intercultural' dimension of water management in this region.¹⁵⁵ In the Katherine region Indigenous people share a desire with other stakeholders to ensure that the Katherine River does not cease to flow under any water allocation regime. In this case, the objective of providing a flowing river for aesthetic, spiritual, customary, economic and recreational purposes unites both Indigenous and non-Indigenous people. Yet here there is a different form of 'interculturality' in relation to water management that has been greatly influenced by settler-colonial history: Aboriginal people do not enjoy exclusive land rights and have to contend with non-Indigenous commercial, as well as recreational and environmental, interests.

In the discussion above we have documented the many water-related challenges facing Indigenous peoples in tropical Australia. In our view, the two case studies highlighted raise two general issues that warrant closer attention and further consideration in water policy-making and planning.

First, we emphasise that imposing a Western water management frame onto Indigenous stakeholders will not result in either efficient or effective outcomes in water management and planning. While there is clearly a diversity of Indigenous positions in relation to fresh water, these positions are invariably being informed today by both customary and Western social norms. Management processes need to create the space for exchange of ideas and dialogue around differing cultural perspectives on the nature of water, its broader social meaning and value, as well as how to equitably share in its direct use and economic benefits.

Second, we propose that it is now time to consider how a policy frontier that is creating new forms of property can

be shaped to address social justice concerns, particularly Indigenous disadvantage, and to ensure more inclusive and equitable remote area development. Historically governments in Australia were mainly concerned with expanding water regulation systems and associated institutions that were designed to stimulate community and regional development opportunities. In the past two decades the use of water for social goals is less popular than in previous eras, but the conditions for a broader socially inclusive agenda for water policy are favourable in northern Australia: water legislation is under review, water resources are not yet over-allocated, Indigenous land holdings are substantial and growing, and governments are once again focusing on Indigenous economic development in their policies.

Our research focus on tropical northern Australia seeks to raise awareness of the implications of broad state goals of Aboriginal socioeconomic improvement (or 'closing the gap') and the recent shift to a market-based approach in relation to water. In the implementation of Australian water reforms, attention needs to be given to affording Indigenous stakeholders an equitable, or even principal, interest in water vis-à-vis other stakeholders with historical, as well as future, entitlements. The distinct Indigenous intercultural interests in water, which often encompass non-market values, need to be included in any new system that seeks to either facilitate or establish market-based approaches. Provision needs to be made by the Australian state for relatively impoverished Aboriginal land owners to have adequate access to water for their interrelated consumptive and non-consumptive, or commercial and enviro-cultural, purposes. Importantly, there is, as the case studies have demonstrated, considerable diversity within the Indigenous sector, and this is something that ought to be both recognised and accommodated in emerging new water allocation and planning institutions.

* Sue Jackson BSC (UNSW) PhD (Geography) (Macquarie) is a Senior Research Scientist, CSIRO Sustainable Ecosystems, Tropical Ecosystem Research Centre.

** Jon Altman BA (Auckland) MA (Hons) (Auckland) PhD Anthropology (ANU) is an ARC Australian Professorial Fellow, and Professor and Director at the Centre for Aboriginal Economic Policy Research, ANU.

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- 75 Interview with Joe Morrison, Executive Officer, NAILSMA (Telephone interview, 10 December 2005).
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- 78 Rebecca Letcher and Susan Powell, 'The Hydrological Setting' in Lin Crase (ed) *Water Policy in Australia: The Impact of Change and Uncertainty* (2008) 19.
- 79 Sue Jackson et al, 'The Changing Value of Australian Tropical Rivers' (2008) 46(3) *Geographical Research* 275.
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- 81 Altman, 'Indigenous Interests and Water Property Rights', above n 59.
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- 83 Cape York Indigenous leader Noel Pearson has been extremely critical of the *Wild Rivers Act*, in particular the consultation processes undertaken prior to its passage.
- 84 Durette, above n 7.
- 85 Sue Jackson, *Indigenous Interests and the National Water Initiative: Water Management, Reform and Implementation: Background Paper and Literature Review*, NAILSMA IWGP (2007) <http://www.nailsma.org.au/projects/indigenous_engagement_in_water_resource_management.html> at 13 July 2009.
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- 87 Environmental Defender's Office NSW, *Legal and Policy Frameworks for Water Management in the Northern Territory* (2005).
- 88 O'Donnell, above n 33, 96.
- 89 Environmental Defender's Office NSW, above n 87.
- 90 National Water Commission, *Northern Territory NWI Implementation Plan* (2006) 15 <<http://www.nwc.gov.au/www/html/684-northern-territory.asp?intSiteID=1>> at 13 July 2009.
- 91 Ibid. These areas have been declared 'water control districts' under the *Water Act* (NT).
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- 93 See *Water Act* (NT), s 4(3).
- 94 See, eg, *Water Act* (NT), s 22B(5)(a).
- 95 NRETAS, *Fact Sheet: Beneficial Use Declarations* <<http://www.nt.gov.au/nreta/publications/natres/waterfactsheets.html>> at 13 July 2009.
- 96 Environmental Defender's Office NSW, above n 87.
- 97 *Water Act* (NT), s 4(3)(e).
- 98 An undated document entitled 'Water Allocation Planning' which is purportedly circulated by NRETAS. See also Jackson for a case study of the treatment of Indigenous interests under the beneficial use system of classification: Jackson, 'Compartmentalising Culture', above n 67.
- 99 The Maningrida region lies outside of the Territory's water control districts.
- 100 Mean annual rainfall is 1305 mm: see Altman and Branchut, above n 86, Appendix A; Bureau of Meteorology, *Climate of the Northern Territory* (1998).
- 101 Jon Altman, *Hunter-Gatherers Today: An Aboriginal Economy in North Australia* (1987).
- 102 Ursula Zaar, *Water Resources of West Arnhem Land: Aboriginal Knowledge*, Conservation and Natural Resources Group Report No 36/2003D, Northern Territory Department of Infrastructure, Planning and Environment (2003).
- 103 Ibid 39.
- 104 Jon Altman, Geoff Buchanan and Nicholas Biddle, 'The Real "Real" Economy in Remote Australia' in Boyd Hunter (ed), *Assessing the Evidence on Indigenous Socioeconomic Outcomes* (2006) 139 <<http://eprss.anu.edu.au/titles/caepr.html>> at 13 July 2009.
- 105 Jon Altman, 'People on Country, Healthy Landscapes and Sustainable Indigenous Economic Futures: The Arnhem Land Case' (2003) 4(2) *Australian Review of Public Affairs* (2003) 65.
- 106 According to this approach, water used for environmental purposes is considered to be non-consumptive or unproductive whereas water used for industry and other human purposes are considered to be consumptive or productive.
- 107 Altman and Branchut, above n 86, 25.
- 108 See the extensive analysis in Luke Taylor, *Seeing the Inside: Bark Painting in Western Arnhem Land* (1996).
- 109 Altman and Branchut, above n 86.

- 110 *Water Act* (NT), s 9.
- 111 There are grounds to believe that the assertion of exclusive water property rights vested in the Crown could be legally challenged. The *Water Act* (NT) itself notes that land holders have the right to take groundwater and surface water on their land for domestic purposes, watering stock, and for domestic gardens of up to 0.5 hectares. If water needs exceed this then a water extraction licence is required.
- 112 [2008 HCA] 29.
- 113 It is noteworthy that the report of the Northern Territory Emergency Response Review Board in October 2008 recommended that the Australian Government pay just-terms compensation to Aboriginal land owners for the acquisition and use of their property: Northern Territory Emergency Response Review Board ('NTER Review Board'), *Report of the Northern Territory Emergency Response Review Board* (2008) 14 <<http://www.nterreview.gov.au/report.htm>> at 13 July 2009. In its interim response on 23 October 2008, the Australian Government undertook to pay reasonable rent (not just-terms compensation) for land leased: see Jenny Macklin, Minister for Families, Housing, Community Services and Indigenous Affairs, 'Compulsory Income Management to Continue as Key NTER Measure' (Press Release, 23 October 2008) <http://www.jennymacklin.fahcsia.gov.au/internet/jennymacklin.nsf/content/nter_measure_23oct08.htm> at 13 July 2009.
- 114 See NT Department of Local Government and Housing, *Local Government Reform* <<http://www.nt.gov.au/localgovernment/new>> at 13 July 2009.
- 115 Jon Altman and Michelle Cochrane, *Innovative Institutional Design for Sustainable Wildlife Management in the Indigenous-Owned Savanna*, CAEPR Discussion Paper No 247/2003 (2003) <<http://www.anu.edu.au/caepr/discussion.php#DP247>> at 2 August 2008.
- 116 Jon Altman and Sue Jackson, 'Indigenous Land and Sea Management: Recognise, Respect and Resource' in David Lindenmayer et al, *Ten Commitments: Reshaping the Lucky Country's Environment* (2008) 207.
- 117 Australian Bureau of Statistics, *National Regional Profile: Katherine (T) Local Government Area* <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/LGA72200Population/People12002-2006?opendocument&tabname=Summary&prodno=LGA72200&issue=2002-2006>> at 13 July 2009.
- 118 David George, *Water Resources of the Katherine Region and South West Arnhem Land*, Northern Territory Department of Infrastructure, Planning and Environment, Natural Resources Division (2001).
- 119 Perennial rivers in the Northern Territory are exclusively fed by groundwater in the dry season, referred to as a base-flow.
- 120 As Aboriginal and Torres Strait Islander Social Justice Commissioner Tom Calma explains: 'There are a number of areas in and around centres in the Northern Territory known as town camps. These town camps are established by leases granted under the *Special Purposes Leases Act 1953* (NT) ... and the *Crown Lands Act 1992* (NT) ... They are granted by the Northern Territory Minister or the Administrator of the Northern Territory.' Aboriginal and Torres Strait Islander Social Justice Commissioner, *Native Title Report 2007* (2008) 196.
- 121 This practice involves introducing visitors to the ancestors.
- 122 Strangers are required to be welcomed to country, especially to a water body. Water is typically placed on the head.
- 123 Significant cultural water sites within the study area include rivers and creeks and their associated features, including gorges, waterfalls, plunge pools, waterholes, billabongs and springs; and areas away from river and creek beds such as seasonally inundated swampy areas and isolated rockholes and springs.
- 124 See *Sacred Sites Act*, s 3.
- 125 Shiw Murti and Valerie Hristova, *Natural Resources and Development in the Daly River–Sturt Plateau Region of the Tropical Savannas of the Northern Territory*, Northern Territory Office of Resource Development (1998).
- 126 Anna Straton et al, *Institutions for Water Trading and Policy-Making in the Tropical Savannas: A Case Study of the Katherine–Daly River Region*, CSIRO and the Tropical Savannas Cooperative Research Centre, (2006) 18 <<http://www.cse.csiro.au/publications/2006/Katherine-DalyWaterInstitutions.pdf>> at 13 July 2009.
- 127 All water extraction in the Northern Territory requires authorisation under the *Water Act* (NT) through a licence, except for stock and domestic purposes. Exemptions exist for extractors outside of a water control district or inside the Darwin Rural Water Control District unless they are taking more than 15 litres per second. See *ibid*, 23.
- 128 Interview with Ian Lancaster, Director, Water Management Branch (Telephone interview, 21 June 2007).
- 129 Straton et al, above n 126, 19.
- 130 See NRETAS, *Draft Water Allocation Plan: Tindall Limestone Aquifer (Katherine)* (2008) <<http://www.territorystories.nt.gov.au/handle/10070/153090?show=full>> at 10 May 2009.
- 131 While the *Water Act* (NT) and *Water Regulations* (NT) guide these processes, they are also influenced by national water policy.
- 132 NRETAS, *Draft Water Allocation Plan: Tindall Limestone Aquifer (Katherine)*, above n 130, 4.
- 133 *Ibid*. Other objectives include protecting minimum flows in the Katherine River, maintaining the quality and quantity of water from the Tindall aquifer and providing access to groundwater for agricultural and industrial purposes.

- 134 Ibid 4–5.
- 135 See *ibid.* According to the Intergovernmental Agreement on a National Water Initiative, water trading involves the buying and selling of individual water access entitlements, an entitlement being 'a perpetual or open-ended share of the *consumptive pool* of a specified water resource, as determined by the relevant *water plan*'. See Council of Australian Governments, *Intergovernmental Agreement on a National Water Initiative* (2004) 5–6 <<http://www.nwc.gov.au/www/html/117-national-water-initiative.asp>> at 13 July 2009.
- 136 Straton et al, above n 126, 17.
- 137 *Ibid.* See also NRETAS, *Draft Water Allocation Plan: Tindall Limestone Aquifer (Katherine)*, above n 130, 17.
- 138 Straton et al, above n 126, 11.
- 139 *Ibid* 42.
- 140 ABC Rural Radio Northern Territory, 'Irrigators Debate Katherine Water Plan', 17 July 2008 <www.abc.net.au/rural/nt/content/200807/s2306832.htm> at 13 July 2009.
- 141 Rutgerd Boelens and Bernita Doornbos, 'The Battlefield of Water Rights: Rule Making Amidst Conflicting Normative Frameworks in the Ecuadorian Highlands' (2001) 60 *Human Organization* 343; Rutgerd Boelens, Moe Chiba and Douglas Nakashima (eds), *Water and Indigenous Peoples: Knowledges of Nature 2* (2006) < http://portal.unesco.org/science/en/ev.php-URL_ID=4901&URL_DO=DO_TOPIC&URL_SECTION=201.html> at 13 July 2009.
- 142 Rutgerd Boelens and Paul Hoogendam, 'The Yapa: Water Rights, Power and Empowerment' in Rutgerd Boelens and Paul Hoogendam (eds), *Water Rights and Empowerment* (2002) 241, 243.
- 143 Cooper and Jackson, above n 86.
- 144 There are analogies here with Aboriginal exclusion from commercial fishing rights and the subsequent problems in purchasing expensive licenses: see Durette, above n 7.
- 145 NRETAS, *Draft Water Allocation Plan: Tindall Limestone Aquifer (Katherine)*, above n 130, 22.
- 146 A local Aboriginal association holds one water licence for a small agricultural endeavour.
- 147 Cooper and Jackson, above n 86, 54–5.
- 148 Indigenous Water Initiative, *Indigenous Peoples Kyoto Water Declaration* (2003) <<http://www.indigenouswater.org/IndigenousDeclarationonWater.html>> at 13 July 2009.
- 149 Council of Australian Governments, above n 135, 7.
- 150 Daniel Connell, *Water Politics in the Murray–Darling Basin* (2007) 208.
- 151 Altman and Jackson, above n 116; Jon Altman, Geoff Buchanan and Libby Larsen, *The Environmental Significance of the Indigenous Estate: Natural Resource Management as Economic Development in Remote Australia*, CAEPR Discussion Paper No 286/2007 (2007).
- 152 Northern Australia Land and Water Taskforce <<http://www.nalwt.gov.au>> at 13 July 2009.
- 153 See Australian Government, *Responding to the Australia 2020 Summit* (2009) 76 <http://www.australia2020.gov.au/docs/government_response/2020_summit_response_full.pdf> at 13 July 2009.
- 154 Though this assumption is tempered by a sensitivity to annual variations in rainfall and to timing of seasons that are clearly imbedded in Indigenous markers of seasonality, which are based on empirical observation of floral and faunal condition.
- 155 The term 'intercultural' refers to the analysis of the relational dimensions of Indigenous and non-Indigenous social forms. It has developed in response to 'traditionalist' anthropological studies that reproduce idealised representations of Aboriginal peoples and hence inadequately describe the nature and extent of change they experience. See Francesa Merlan, *Caging the Rainbow: Places, Politics and Aborigines in a North Australian Town* (1998); Melinda Hinkson and Benjamin Smith, 'Introduction: Conceptual Moves Towards an Intercultural Analysis' (2005) 75(3) *Oceania* 157.