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Modernising Water: Articulating Custom in Water Governance in Australia and East Timor

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Abstract
The modernisation of water governance, which can entail resource commoditisation and privatisation, requires the reformation of water allocation institutions. In many parts of the world, such transformations have empowered statutory systems to dominate or marginalise parallel, extant customary systems of water governance. The water policy and management frameworks of Australia and East Timor (Timor-Leste) are at different stages of a modernisation trajectory; yet, both have extant systems of customary governance and so lend themselves to a comparative analysis. This paper describes the institutions and negotiating arenas through which indigenous peoples of these two countries seek to define, increase or influence their access to water, and the legitimacy of their water related values, ethics, and practices. Institutional transformations are compared alongside local efforts to create space for the co-existence of custom while improving the economic standing of Indigenous and local populations and the environmental quality of their territories.

Keywords
customary water governance, Indigenous water rights, water reform, East Timor, Australia, water resource management

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Modernising Water: Articulating Custom in Water Governance in Australia and East Timor

Water has always been fundamental to the existence of human societies: to settlement patterns, economic development trajectories, environmental philosophies, and governance arrangements (Vorosmarty et al., 2010). Throughout the course of history, the critical need to secure human water supplies has generated a variety of social institutions that control and influence access to water (Bruns & Meinzen-Dick, 2005). Foremost amongst these institutions are property rights regimes. Common property theorists, institutional analysts, and ethnographers have documented examples of institutional arrangements that achieved sustainable water management over hundreds of years. Exemplary among 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 (Lloyd, 1988). Another example can be found in the famed Balinese subak and temple network system, which co-ordinates wet rice agriculture across the island (Lansing, 2007).

Competition for water between users extending beyond small, face-to-face communities poses collective action challenges of great complexity (Bruns & Meinzen-Dick, 2005; Scholz & Stiftel, 2005). Recent pressures from global population growth, increased demand for irrigation, the expanding urban footprint, and climate change have strained institutional water resource arrangements worldwide (Boelens, Chiba & Nakashima, 2006; Poff et al., 2003). It is estimated that nearly 80 percent (4.8 billion) of the world's population (in 2000) lives in areas facing a very high threat to human water security or aquatic biodiversity (Vorosmarty et al., 2010). Of these 4.8 billion, 3.4 billion are particularly vulnerable because they reside in developing countries that have a reduced capacity to invest in water security technologies (Vorosmarty et al., 2010).

As well as investing in water supply systems, many countries are reforming their water management arrangements, particularly their water allocation institutions, to address growing water scarcity, conflicts between categories of users, and over-allocation, often incurred at the expense of the environment (Bruns & Meinzen Dick, 2005; Saleth & Dinar, 2005). The mounting pressure on water resources is prompting the call for new approaches to water governance and management. In countries such as Australia and South Africa, wide ranging water law reforms have resulted in a "radical shift in the manner in which water is conceived in legal terms and the regulatory frameworks that control its allocation and distribution" (Godden, 2005, p. 181). According to Bruns, Ringler, and Mainzen-Dick (2005), the transfer of water rights has been the major driver in global governance transformations. In an effort to increase the international competitiveness of their respective agricultural industries, countries such as Australia, Spain, and the western United States have promoted relatively secure tenure for irrigators and Australia, Mexico, South Africa, Chile, and China have advanced pro-market national water policies since the 1980s (Bruns et al., 2005; Madeleno, 2007). Not all reforms involve changes to property rights. For example, to counter the negative effects of burgeoning urban growth and other competing land and water uses on the traditional Balinese irrigation practices and associated social institutions, the government of Indonesia has recently nominated the Balinese subak system as a world heritage cultural landscape (Ministry of Culture and Tourism of the Republic of Indonesia & the Government of Bali Province, 2010).

We argue here that reformist governments and multi-lateral institutions will need to take careful and holistic account of the socio-economic impacts on Indigenous peoples who, in many parts of the world, maintain customary forms of governance and management and rely on aquatic environments for their livelihoods and well-being. For instance, reforms that create property in water to establish tradeable rights may privilege private property over communal or jointly-held property rights characteristic of most Indigenous societies (Prasad, 2007). As growth and development impose increasing pressure on natural systems (Vorosmarty et al., 2010), it is critical that Indigenous communities be able to effectively engage in natural resource development processes and institutional transformations to protect their customary use of water. In addition, customary systems are of interest in their own right as alternative modes of resource governance. Attention to the study and promotion of community-based governance is, in some significant part, warranted because of the

"perceived failure and recognised limitations of state-centred and market-based approaches" (Schlager, 2005, p. 38).

This paper describes the customary water governance systems of two neighbouring countries, Australia and East Timor, each at a different stage in modernising and reforming their water sectors. Australia has been a global leader in reforming its sector, while East Timor has yet to institute its first national water resource law or policy. The paper examines the difficulties facing Indigenous and local communities that are attempting to have their rights to assert control of their waterscapes recognized in the face of rapidly changing water governance institutions. Over the last few decades Australia has experienced momentous changes in water policy and law. From this period of historic reform, we reveal valuable lessons for East Timor, one of the world's newest nations, and for other countries facing water reform. The case studies develop and illustrate two themes relating to empowerment in the face of changing resource governance systems: (a) recognition and prioritisation of co-existing systems of customary governance; and (b) inclusion of ethical concerns and complex inter-relationships between people and water in governance reforms.

This paper is structured as follows. The next section defines customary water governance systems; then case studies describe these systems in Australia and East Timor. An overview of the recent sectoral reforms in the two countries is then provided, with a description of some Indigenous and local responses to these changes and policy interventions in each country. In the discussion, we compare the cases and draw out similarities and differences and, in doing so, conclude that there is an urgent need for policymakers and practitioners pursuing integrated water resource management to (re)consider the importance of foundational Indigenous and local peoples' water related values, ethics, and practices.

Customary Systems of Water Governance

At local levels in some countries, community allocation and management systems that have endured the colonial period continue to play a significant role in managing water systems. The term "customary governance" is defined here as law and rules based on long-standing practice and hereditary principles of social organisation, which are not usually codified in written form. It is important to note the point made by analysts of legal pluralism, such as Bruns and Meinzen-Dick (2005), that, rather than there being a dualistic state and customary relationship, there is often a complex interaction between state law and local law, one that "might include local norms and practices, village and district governments, and religious values and leaders, as well as other ideas and principles at the community level" (p. 12).

The existence of diverse customary institutions that govern the sharing, distribution, and consumption of water has been analysed in many countries, such as Chile (Madaleno, 2007), Indonesia (Lansing, 2007), East Timor (Palmer, 2010, 2011), Australia (Jackson & Altman, 2009; Langton, 2006), and Kenya (Gachenko, 2012). Analysts have paid particular attention to: (a) the creation of local rights and allocation systems in regions reliant on irrigated agriculture (very often these systems predate colonial rule); (b) the religious foundation of ritual practices that sustain the sanctity and productivity of cultural landscapes; and (c) the hydrological knowledge held by water users. For example, in most parts of rural Africa customary institutions continue to exercise an important role in governance of water resources (Gachenko, 2012). In that region, as in many others, customary institutions are founded on social and cultural norms, along with sanctions and dispute resolution mechanisms in the event of a breach of the accepted norms or rules.

The interface between statutory and customary water rights has also been the subject of anthropological, legal, and policy analysis (Jackson, 2011; Ramazotti, 2008; Roth, Boelens, & Zwarteveen, 2005; Schlager, 2005; Weir 2009), although it is argued by Bruns and Meinzen-Dick (2005) that changes affecting water tenure have received less attention than changes to land tenure institutions. Burchi (2011), for example, refers to a number of water laws that give consideration to customary water rights and practices, such as the regulatory systems for water abstraction and wastewater disposal permitting in Namibia, and similar

regulatory arrangements in Mozambique, Chile, and Paraguay. Interactions between state and Indigenous systems have been closely studied in the USA, where Schlager (2005), for example, argues,

> American courts have been suspicious of customary law and practices, refusing to allow longstanding practices to "create legal rights that would govern communities." Customary rights were viewed as antidemocratic and courts argued that communities should be governed by open, constitutional practices. (p. 34)

Burchi's (2011) overview of international trends in recognising customary water governance concludes that laws will more likely treat customary rights and interests superficially (e.g. in Russia, Indonesia, Nicaragua, and Tanzania) than treat them equally. Noting that many laws include an explicit acknowledgement and safeguard of customary rights for water in general, he argues that the effect is inconsequential as customary rights are relegated to "a legal limbo" (p. 3). Customary rights are dealt with by "basically separating them out of the mainstream 'modern' water rights regulated by statute, and by creating a separate legal space for them" (Burchi, 2011, p. 3). Northern Chile is an exemplar, according to a study by Madaleno (2007) who found that the privatisation of water and allocation of water rights to mining companies has had a profoundly adverse impact on the region's Indigenous communities, resulting in some cases where communities have migrated away from ancestral estates. Madeleno (2007) stated:

> The 1981 Water Code, which separated water from land ownership, ascribed separately superficial and groundwater resources, and permitted faster return activities, such as mining, to appropriate all available water rights. Ancestral group loyalties were broken and the water cycle and the ecosystem approach, for so long respected, abandoned by the new water management models. (p. 204)

In the following section, we describe the Indigenous customary water governance systems of Australia and East Timor before turning to an analysis of sectoral reforms and their impact on the Indigenous people of these countries.

Australia

Australia has a stable liberal democratic political system, which functions as a federal parliamentary democracy and constitutional monarchy. The federation comprises six states and several territories. Within Australian society, Indigenous Australians are a culturally distinct group representing approximately 2 percent of the total population of approximately 22 million, which is heavily concentrated in conurbations of the country's southeast. While Indigenous people own approximately 23 percent of the Australian landmass (Altman, Buchanan, & Larson, 2007), these lands are mostly in the remote northern and central regions where there has been limited water resource development. Regarded as a highly developed country, Australia's economy is the world's thirteenth largest and its per capita income is the world's fifth highest.

Water, like energy and clean air, makes an essential contribution to Australia's social well-being, lifestyles, and the maintenance of the natural systems that underpin economic activity (Foran & Poldy, 2002). Australia is the driest inhabited continent on Earth with the least runoff per unit area, the lowest percentage of rainfall as runoff, and the least amount of water in its rivers. Australia's water resources are highly variable and reflect a continental range of climatic conditions and terrain (Chartres & Williams, 2006). The level of development of Australia's water resources in the north and south also shows a marked contrast. The majority of southern Australia's water systems, which are also the country's most agriculturally productive, are fully allocated or over-allocated; and the most productive region, the Murray-Darling Basin, is facing a water crisis brought about by overuse, degradation of wetlands, and severe drought (Grafton & Connell, 2011). As noted above, Indigenous land ownership is very high in the region's remote north and central areas where commercial and

industrial water use is negligible[1]; it became a significant factor shaping the level of political influence Indigenous people wield in these very different parts of the country.

Before becoming a British colony, Indigenous people exercised group or joint property rights over water for many thousands of years. Access to territory and natural resources was regulated through social convention and rules differed across the continent in response to the abundance and reliability of resources (Hiscock, 2008). Availability of water shaped the movement of territorial groups, and rich, complex cultural landscapes were constructed around spiritually powerful water bodies, such as rock-holes and billabongs, created by ancestral beings. Successful hunting and foraging strategies relied on oral instruction and stylised mapping of traditional knowledge regarding the type and location of water supplies (Bayly, 1999). In most parts of Australia, the pre-colonial hunter-gatherer economy did not rely upon agriculture and, therefore, had little need for irrigation systems. However, in some parts of southern Australia, aquaculture was practiced and surface water systems were controlled to maintain the productivity of fisheries (Bandler, 1993; Richards, 2011).

In those parts of the country where Indigenous people have maintained customary systems of governance (see Jackson & Altman, 2009; Langton, 2006; Toussaint, Sullivan, & Yu, 2005), they must now co-exist alongside the relatively recently introduced, and still evolving, state systems that encompass a mix of regulatory and market-based allocation mechanisms (to be discussed below), scientific methods of resource assessment and management, and efforts to achieve transparency in water planning procedures, including opportunities for public participation in water management decisions. Under provincial (state) law, water is vested in the Crown; therefore, statutory water management systems empower water authorities to regulate water resources and licence water users, and, in doing so, privilege mainstream management approaches, values, and concepts over those practiced or held by Indigenous people (Jackson, 2006; Jackson, Tan, Mooney, Hoverman, & White, 2012; Weir, 2009).

Water, however, continues to play a central role in Indigenous societies and distinct cultural perspectives on water are manifest in many regions of the country (Barber & Jackson, 2011; Langton, 2006; Toussaint et al., 2005; Weir, 2009). These perspectives relate to identity and attachment to place, environmental knowledge, resource security, and the exercise of custodial responsibilities to manage inter-related parts of customary estates. In Indigenous belief systems, water is a sacred, elemental source and symbol of life (Langton, 2006) and aquatic resources constitute a vital part of the Indigenous customary economy (Jackson & Altman, 2009). In this paper, we focus on water, noting, however, that an exclusive focus on water values is antithetical to the holistic quality of Indigenous environmental perceptions and discourse that consistently emphasise connectivity and relationships between features and components of the socio-ecological system.

Indigenous hydrological knowledge and cultural relationships to water are understood within the context of an overarching belief system or cosmology relating to the origin and ongoing maintenance of the physical environment and the distinct cultures and social groups that reside within it. This is commonly referred to in English as "the Dreaming," derived from translations of its equivalents in Indigenous languages, usually derivations of the words for "dream" (Cooper & Jackson, 2008). Water features strongly in Indigenous cosmology, according to which water sources and rivers were derived from the powerful actions of mythic beings during the Dreaming, when the world attained its present shape, and the socio-cultural institutions governing present water use were formed (Barber & Rumley, 2003; Toussaint et al., 2005).

[1]In the tropical north, where population density is below one person per square kilometre, Indigenous people represent one quarter of the population and control close to 30 percent of the land mass; whereas, in the Murray Darling Basin, only 3.5 percent of the population is Indigenous and in control of only 2 percent of the land base.

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In contrast to the dominant Western notion of water as a resource owned and/or managed by the state, with competing commercial, environmental, recreational, and cultural values, there is an overarching Indigenous view that water, which has multiple inseparable values, is created by ancestral forces. Cooper and Jackson (2008) illustrate this perspective in Wardaman creation stories from the Katherine region of the Northern Territory, where local narratives:

> Envisage a primeval epoch when there was only the ocean (saltwater) and a landscape of sand. From the actions of the Rainbow Serpent that lived in the saltwater, and other creation beings, the present landscape took shape in a series of events – a flood that covered the world and from which only a few survived in the highest places; the actions of the Black-headed Python, Walujapi, and Water Python, Kunitjarri, in creating the rivers and creeks which drained the land and established the division between land and ocean; and in actions which established the hydrological cycle of clouds and rain and, ultimately, the present physical forms of landscape, rocks, trees, animals and people. (p. 26)

These world-creating events have detailed local-level expression, manifested in a vast system of land-based cultural sites, connections, and networks underpinned by the cultural knowledge encoded in the song lines, some of which run for thousands of kilometres through the countries of many different cultural groups. The corporate organisation that was required to maintain such expansive, shared cultural traditions was itself both extensive and highly sophisticated, necessitating the bringing together of large regional gatherings of many different cultural groups on an annual basis to perform the major ceremonies (song cycles) and at the same time to mediate shared cultural, social, and economic interests in land and water.

Spiritual life and ritualised practices in many Australian regions continue to draw on water bodies and water symbols for inspiration (see for example Barber & Jackson, 2011; Weir, 2009). Water sources are powerful places in the cultural landscape, acting as points of concentration for the ancestral forces, and conception sites of immense importance to individual and group identity and social relations (Langton, 2002). Strang (2005) describes water's role in Cape York Aboriginal cosmologies:

> Aboriginal groups in Cape York share with other Australian Indigenous communities a cosmology in which the landscape and its waterway are the products of ancestral creativity, in what is locally known as the Story Time. Having formed all the water sources, as well as other features of the land, the ancestral beings "sat down", remaining in the land and water as sentient forces with the power to provide (or withhold) resources for the human inhabitants of the area. In doing so, they defined the spatial and social organisation of Aboriginal clans, providing each with totemic links to particular places and tracts of country, and to each other. (p. 369)

East Timor

East Timor constitutes the eastern half of the Timor Island in the Indonesian archipelago. Following 24 years of Indonesian rule and centuries of Portuguese colonial rule, it (re)gained its independence in May 2002. While the national languages are Tetum and Portuguese, at least 16 distinct local languages are spoken across different parts of the 13 administrative districts. The country has a population of approximately one million. Although subject to centuries of uneven Portuguese colonial rule, the occupation of the country by Indonesia from 1975 resulted in an intensified disruption of Timorese land and resource uses through forced population movements and relocation, ongoing military surveillance, and conflict with Timorese resistance forces (CAVR, 2006). Throughout the occupation, the Timorese suffered severe abuses of human rights and the loss of approximately a quarter of its population (CAVR, 2006). The eventual withdrawal of Indonesian troops in 1999 resulted in the widespread destruction of property and infrastructure (Tanter, Ball, & van Klinken, 2006). Hence, independent East Timor faces a suite of complex social and economic challenges as it rebuilds itself from bureaucratic and infrastructural ashes into a modern nation state (Hill & Saldanha, 2001; Philpott, 2006). Since 1999, two United Nations peacekeeping and state building missions (1999 – 2002; 2006 –

present) and the independent government of East Timor (2002 – present) have continued to struggle with enormous development and reconstruction challenges. The country is the poorest in Asia. Poverty estimates indicate that 49.9 percent of East Timorese live on less than US$1 a day (Directorate of National Statistics, 2007).

Resource management and conservation form a significant national priority in East Timor (Fitzpatrick & McWilliam, 2005), and the government has recognized in its national development planning the need to involve local communities in environmental governance (East Timor National Planning Commission, 2002). However, in relation to the detail of developing land tenure and resource management regimes, it is unclear at this stage what legal and administrative measures will be adopted to support and provide protection for the myriad of culturally distinct local communities – entities with their own governance structures and local knowledge systems (Fitzpatrick, 2002; McWilliam 2002, 2003; Ospina & Hohe, 2002). This process raises key issues for the ways in which local peoples are or are not being allowed to be active decision makers and participants in the development process at various stages (Howitt, 2001).

Similar to Indigenous customs and traditions elsewhere in the eastern archipelagic region (Fox, 1997), in East Timor, the Indigenous worldview is based in an understanding of place as enlivened by an ancestral and nature spirit world (Hicks, 1976). In this world, families of (usually) patrilineal lineages are organised around origin groups linked to particular sacred houses (uma lulik), and, in many cases, sacred springs or other water bodies, which embed these families in intimate, intergenerational social, political, and economic relationships with their extended kin from other areas. Links between these houses and with the surrounding environment are embedded in a world of obligation and reciprocity built around dualisms, such as male or female, wife givers or wife takers, younger sibling or older sibling, indigene or newcomer, political authority or ritual authority, visible or invisible, and a suite of environmental metaphors, such as trunk or tips, wet or dry, water or fire, raw or cooked—the harmonious (or conflictual) relations between which ensure the "flow of life" (Fox, 1980; Kehi & Palmer, forthcoming).

During the 500 years of Portuguese colonialism, Timor experienced only an indirect and often tenuous foreign rule. This Indigenous worldview remained both strong and the paradigm around which daily political and economic life continued to revolve (Gunn, 1999). The violence and control of the Indonesian era (1975 - 2002) saw a widespread suppression of autonomous local rule. However, in the independence era there is currently a revitalisation of Indigenous custom and tradition relating to resource use, and local people in the districts are revelling in their freedom to re-instigate many practices which were repressed during two and a half decades of violent Indonesian rule (Barnes, 2011; Carvalho & Coreia, 2011; McWilliam, 2003; Meitzner Yoder, 2005; Oxfam & GTZ, 2003; Palmer, 2007a).

One of these increasingly revitalized traditions is the practice of tara bandu, which involves imposing ritual prohibitions on an area and protecting significant water sources (Bemalae Lagoon in the country's west is a famed example). The annual mechi or seaworm harvest in the Far East is another example of customary resource management practices with elders sanctioning the harvest (see Palmer & Carvalho, 2008). While not technically banned during the Indonesian occupation, such practices were effectively suppressed due the restrictive movement and congregation rules enforced by the Indonesian military and the consequences, potentially fatal, of gathering in large numbers to conduct ceremonies. Since independence, however, tara bandu and other such practices have reappeared in many communities across the country.

Across the wider region, water is understood as a communicator, a cleanser, and the purveyor of life and health; as well, in some cases, it is an ultimate destination in death (Jennaway, 2008; cf. Kehi & Palmer, forthcoming; Lansing, 2006, 2007; Palmer, n.d.). In this way water is viewed through the prism of relationship (for example, relations between the visible and invisible, life and death, water custodians and water users), not as a possessory form of individuated property. Such understandings create social, cultural, and ecological categories and forms of organization grounded in inter-dependent relationships; a ritual and political ecology

of water guides people in their ethical obligations to, and aesthetic interactions with, the environment and each other (see Palmer, n.d.).

For example, in Baucau, in the eastern part of the island, the karst spring systems that feed the traditionally irrigated rice fields on the northern edge of the Baucau Plateau are the focus of complicated local annual and seven year regional cycles of ritual sacrifice and ceremony. These rituals function to spiritually and literally open water sources by sending, receiving, dividing, and sharing water between springs and water channels, and consecrating and sharing the fruits of production between regional communities. In light of such practices, it is evident that Baucau's owners or custodians of the rice fields are holders of complicated socio-ecological knowledge, which functions to organize both irrigation co-operatives and rice growing practices. Indeed, these practices are not dissimilar to the "integrated system of ritualized ecological management" famously described by Lansing (2007, p. 14), in Bali with the local Baucau irrigation co-operatives and regional spring networks being reminiscent (at a smaller scale and without the direct Hindu influence) of Balinese subak (irrigation cooperatives) and associated water temple networks. From a local perspective, the regional karstic landscape creates a web of interconnected seepages and underground channels stretching from the central mountains to the plateau and marine terrace coastal zone, and complicated ritual and socio-ecological relationships between dry in-land and wet coastal-land farming communities (Palmer, n.d.).

Here, at the intersection of local traditions and resource governance, complicated processes create webbed networks of people, named water sources, rice fields, and other places drawing people together into collectivities to communicate and negotiate exchange with each other as well as deities, spirit beings, and ancestors (Hicks, 2007; Jennaway, 2008; Kehi & Palmer, forthcoming; Palmer, 2010, n.d.; Traube, 1986). At the intersection of cosmology, politics, and resource management (named water sources and water pathways) are origin narratives, social identity, and political authority for particular communities. Conversely, they also provide a meta-narrative for a more sinuous cosmopolitics comprised of spiritually-linked human and non-human agents, as well as a pragmatic need for fluidity in a region where water pathways are understood enigmatically and population movements have led to numerous contests over the control of land and resources (Palmer, n.d.).

Illuminating the above broadly similar "customary" understandings and management of water as both foundational to, and integrated within, holistic local and regional systems of inter-relationship and exchange (whether this be in Australia or East Timor), we now turn to a discussion of state sanctioned water governance and institutional reforms in these two jurisdictions, as well as the responses of Indigenous and local communities in these contexts.

Water Governance and Institutional Reform

Statutory Systems in Australia

Australia derived its legal systems from English models, including tenets relating to water. The common law systems for regulating water use reflected non-Indigenous environmental contexts and, as a result, these water laws imported regulatory forms, which were based on inappropriate assumptions (Godden, 2005; Taylor & Stokes, 2005). The British occupation of Australia entailed the dispossession of Aboriginal people who were deprived of much of their lands and mostly restricted to reserves set aside for their use. Over the course of two hundred years, the colonial system of common law water administration was gradually adapted to suit the continent's predominantly arid conditions. Throughout the nineteenth century, statutory frameworks for the public management of water were introduced and, in most jurisdictions, water was vested in government instrumentalities through specific legislation (Godden, 2005). Godden (2005) notes that the nexus linking water use to land as a basis for agricultural development remained during this period. Throughout the twentieth century, a complex institutional structure of multi-level water instrumentalities developed to meet the growing demand for consumptive water in the agricultural regions. Under that system of public control of water resources, private persons could exercise rights to access water resources on the basis of land access

rights (often limited to domestic and stock use), access rights under personal licences that were usually attached to the title of the land, or rights to receive a supply of water from a public water utility (Gardner, Bartlett, Gray, & Carney, 2009).

Legislative regimes and water managers did not address either the environmental or social consequences of water resource development for Indigenous people during the first two hundred years of settlement. In facilitating agriculture, pastoralism, and urban development, the settler society greatly modified land systems and changed the quality, quantity, and flow patterns of rivers in all but a small number of Australia's remote drainage basins to the extent that, by the end of the twentieth century, sustainable water management was acknowledged as a major national goal. Problems intimately connected to water use, particularly for irrigated agriculture (drought, salinity, water scarcity), have since been more influential in bringing about institutional change (Hillman & Howitt, 2008; National Water Commission, 2011). Awareness of the physical limits to expanding demand for water from increasing numbers of interconnected users, coupled with greater scientific knowledge of hydrological variability, focussed public policy and research attention on water resource allocation institutions and integrated catchment management. Economic arguments relating to the cost of supplying water and maintaining a large irrigation infrastructure could be heard more frequently around this time, and an ideological shift in favour of market-based allocation emerged as the preferred mechanism for transferring water rights and achieving greater efficiency in the use of water.

Consistent with global neoliberal shifts in environmental governance (Bakker, 2007), private property rights were privileged over orthodox regulatory regimes, and market institutions were deployed as a means of improving the water sector. Economic doctrine predicted that trading water rights would redistribute water from low-value activities (e.g. water inefficient industries) to higher-valued uses (e.g., municipal domestic uses, more water efficient agriculture, and industrial uses) (Donohew, 2009).

Australia thus turned away from decades of administrative water allocation with the 1994 Water Reform Framework, which encompassed market-based allocation based on limited supplies and principles of sustainability and resource management. Competition reforms in other utility sectors (e.g. electricity) provided an impetus to change. A cap on diversions in the Murray–Darling Basin and the provision of water for the environment were accompanied by the separation of water access entitlements from land titles, consumption-based water pricing, more precise specification of rights, and the establishment of a market for water trade (Heaney, Dwyer, Beare, Peterson, & Pechey, 2006). Conversion of most of the former landholder, licence, supply, and public utility rights to access that have the legal character of private property (a water access entitlement) was a central feature of the reform (Gardner et al., 2009). Market-based and regulatory measures were to support environmental requirements (Godden, 2005). The public was to be widely consulted in developing water plans; however, at the policy level, the specific impact of these early reforms on Indigenous communities was overlooked (Jackson, 2011).

A turning point for Australian water governance came with the High Court's Mabo decision and Native Title Act 1993. In the Mabo decision, the High Court recognised for the first time the entitlements of Indigenous people to their traditional lands under their customary laws. When the Native Title Act was passed, the scope was defined to include rights over waters located within traditional estate boundaries. The Native Title Act confirms governmental ownership of water and minerals, while guaranteeing rights to customary use of resources for sustenance (hunting, gathering, and fishing). The right to protect sites or areas of significance that include waters has been recognised as a native title right (Bartlett, 2004). Such rights will be subject to existing laws and grants and are more limited in nature than rights attached to land. Legal specialists, such as McFarlane (2004) and Bartlett (2004), expect that native title rights to water will continue to be interpreted as non-exclusive and non-commercial in nature, i.e. for domestic and subsistence purposes only. But uncertainty about the extent and nature of native title rights remains high and there have been few achievements in the process (Strelein, 2004; Tehan, 2003).

Customary uses protected by the Native Title Act are often dependent on the quality and quantity of freshwater (Finn & Jackson, 2011); nevertheless, there is negligible formal consideration of water use activities on native title rights. Some commentators argue that Australian water managers are taking a narrow view of their obligation to protect native title from impairment by over-allocation upstream (Behrendt & Thompson, 2004; McAvoy 2006; Tan & Jackson, in press). This and other factors, such as the lack of procedural rights and questions about compensation, compound the uncertainty in native title.

An important phase of institutional evolution commenced in 2004 when Australia embarked on a national response to further adapt water governance regimes with an intergovernmental agreement, the National Water Initiative (NWI). This policy, developed to address environmental degradation of water resources due to inefficient uses and over-allocation of water, expanded the market-based agenda formulated in the 1990s. The emphasis given to market-based incentives has distorted the latest reforms, according to Godden (2005) who states that the "mechanism of the market that was promoted as the tool to resolve these problems appears to have assumed a life of its own" (p. 190). The development of water trading regimes and questions of security of entitlement for water users are to be given "first emphasis," and environmental protection is perceived to be an outcome of these processes "rather than a first imperative to be addressed" (p. 191).

Among many economic and environmental reform objectives (Connell, Dovers, & Grafton, 2005), the NWI negotiators intended to address the previous neglect of Indigenous rights and interests. The NWI explicitly recognises the special character of Indigenous interests in water, particularly native title rights (paras. 52-54). 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 titleholders for "traditional cultural purposes."

Federal and state governments reformed their water statutes to implement the NWI; however, there is no easily identifiable Australian model of water resource legislation. Australia's approaches to Indigenous access to water, as a result, are inconsistent, ad hoc, and underdeveloped (Tan & Jackson, in press). McFarlane (2004), Jackson & Morrison (2007), and Jackson et al. (2012) note certain challenges and impediments specific to the treatment of Indigenous interests in water management, including the neglect of commercial interests in policy definitions of water property, lack of mandatory measures, and insufficient attention to genuine community partnerships with Indigenous communities in water planning. These analyses all conclude that Indigenous Australians face a high degree of competition and contestation over water in the absence of a policy or legal framework that prioritises their rights or interests. Further, they unanimously conclude that Indigenous expectations to directly participate in water management institutions are not being met (Jackson et al., 2012; National Water Commission, 2011). Of particular note is that the policy has had a negligible effect on the distribution of water to Indigenous people. According to estimates by Jackson and Langton (2012), Indigenous-specific water entitlements represent less than 0.01 percent of Australian water diversions.[2]

[2] This estimate of "Indigenous-specific" water entitlements does not include provision of water under licence for irrigation, pastoral activities, or industrial use, which, although not well documented, is acknowledged as small in the agricultural heartland of Australia, the Murray Darling Basin. Provision of water for these licensed purposes is available to any Australian person or entity – whether Indigenous or otherwise – to buy at market prices or inherit with land titles granted prior to the separation of land and water titles.

Community Strategies to Maintain Control of Waterscapes

Indigenous people have responded in a variety of ways to the limited statutory recognition of customary water rights and underpinning systems of management in Australia, ranging from policy advocacy to engaging in conservation management activities. A number of Indigenous NGOs can be seen participating in water policy debates in order to have a determining say in the definition and distribution of benefits that flow from access to water and asserting their rights to commercially valuable resources, while others have placed greater emphasis on community-based efforts to manage threats to aquatic ecosystems and the lifeways they sustain, using their skills and knowledge to restore the health of aquatic ecosystems to standards set by local communities. In 2009, for the first time in Australia, the Federal Water Minister established an Indigenous advisory group (First People's Water Engagement Council), to provide space for Indigenous perspectives and policy positions to be voiced. Notwithstanding the existence of this national group, geographic differences are apparent in the focus and influence of these efforts with remote Indigenous communities in the north of the country being more able to exercise control over natural resources than their counterparts in the settled agricultural regions of southern Australia (Jackson & Langton, 2012).

A group particularly effective in their role as "water policy entrepreneurs" (Meijerink & Huitema, 2010) is the Indigenous Water Policy Group formed and supported by the North Australian Indigenous Land and Sea Management Alliance (NAILSMA). This non-government organisation is attempting to build the capacity of Indigenous land-owning groups in northern Australia to respond to the rapidly transforming legal and economic landscape as water law in the county's north is brought into line with national policy and water trading is promoted as the most efficient mechanism for allocating water (see Jackson & Altman, 2009; Nikolakis, 2011). Leading up to the World Water Forum of 2008, the group convened an international meeting of Indigenous advocates in Australia, which resulted in the Garma International Indigenous Water Declaration (www.nailsma.org.au).

NAILSMA has also released domestic policy statements (see the Mary River Declaration, 2009) and is advocating the declaration of Strategic Indigenous Reserves in a number of Northern Territory water allocation plans. One of these plans, the Mataranka Tindal Aquifer Plan, currently in draft, contemplates an allocation of as much as 25 percent of the consumptive pool to Indigenous land-owners (Department of Natural Resources, Environment, the Arts and Sport [DNRETAS], 2011). The water would be available for commercial use in horticultural activities and temporarily traded when water markets are established (Nikolakis, 2011).

In response to the environmental and social impacts of land and water degradation, a number of Indigenous organisations and communities are pursuing biodiversity conservation activities on their lands under their own initiative or in concert with state water or land management agencies (Altman et al., 2007; Putnis, Josif, & Woodward, 2007). Local systems of customary law dictate that traditional landowners have a substantive role in land and water management; hence, Indigenous people expect to participate fully in environmental management decisions. As a result, there has been a tremendous growth in community-based Indigenous natural and cultural resource management, much of it funded by the Commonwealth Government's environment agency; for example, there are currently approximately 500 Indigenous people working in land and sea management groups in the Northern Territory (Putnis et al., 2007).

Local responses to land and water management pressures, such as weeds, pollution, and land clearing, have been diverse, ranging from leaseback of protected areas to government conservation agencies and self-declaration of inalienable freehold land to be included in the conservation estate as Indigenous Protected Areas, to the small-scale community activities undertaken by Indigenous "Ranger" groups. During the last decade, many community-based organisations have expanded their focus on co-management of protected areas to include more strategic and comprehensive catchment-scale approaches to tackling threats to the waterscapes of their customary estates (Jackson, Storrs, & Morrison, 2005). Many of these organisations are now evolving into social enterprise organisations capable of generating income and employment for people in

remote regions (Putnis et al., 2007). The expectation is that if Indigenous groups can attract payment for the environmental services they provide on an equitable basis, then this funding could ameliorate Indigenous poverty while simultaneously addressing the investment deficit in environmental management on the Indigenous estate (Altman et al., 2007; Muller, 2008). However, the sector faces a number of significant constraints: the funding base is inadequate and insecure; time frames are short and approaches ad hoc; eligibility criteria are constantly shifting; reporting requirements are burdensome; and the lack of recurrent core funding constrains the Indigenous sector in its efforts to respond to environmental problems and meet the social and cultural responsibilities of Indigenous community members.

Statutory Systems in East Timor

East Timor's water governance systems are rapidly transforming as a result of international interventions (NGOs, multilateral banks, international treaties, and conventions), the growth of the private sector, and the reconstruction and development agenda of the government of East Timor. Since its independence, with heightened awareness of the need to conserve variable and limited water supplies and with water and sanitation services either non-existent or in critical disrepair across much of the country, Timor has been in the process of developing a national water supply policy and instituting statutory water resource management (see "East Timor National Water Supply Policy," 2010). According to the Timorese constitution, all water resources are owned by the state, and recent policies attribute responsibility to the state directorate of water resources management for ensuring that water resources are regulated, allocated between competing demands, and protected from contamination (Ministry of Infrastructure, 2010). Donor banks have supported resource assessments to better understand the characteristics and limits of water resources, especially the country's substantial groundwater resources (Furness, 2004). The increase in the number of stakeholders in the water sector, including international donors[3] and the private sector, has highlighted the need for an umbrella water policy to integrate across sectors, clarify roles and responsibilities, and prioritise competing objectives (Ministry of Infrastructure, 2010).

A Water Services Decree was promulgated in 2004 to guide the water sector in its strategic planning and day-to-day activities, and relevant water directorates are now in the process of revising that law and fashioning a national water policy using the global water tool kit (Integrated Water Resources Management) (Ministry of Infrastructure, 2010). It is significant to note here that, in the drafting of relevant laws and policies, international advisors have been careful to pay attention to the need to transform the water sector according to international "best practice" treaties and conventions. At the same time, it is also acknowledged that all aspects of water sector development must proceed from a very low base and that there is a desperate need to facilitate, as quickly as possible, the provision of basic services to alleviate the considerable burden and health risk faced by families and communities with difficult, little, or no access to a domestic water supply.

Yet, it must also be noted that, despite the fact that international donors have directed significant resources at the sector, water programs and projects have struggled to achieve sustainable results. For example, outside urban areas the model of water supply management adopted by the development industry in East Timor (and indeed elsewhere as discussed above) has been based on community participation (McGregor, 2007; Schoffel, 2006). This was due, partly, to the structural limitations of developing much needed state-operated water and sanitation services (including lack of technical capacity and operating funds) (Schoffel, 2006). In 2006, the Asian Development Bank published a consultant's report titled "East Timor: Community-Managed Water Supply and Sanitation" (Schoffel, 2006), and, interestingly, the report was scathing in its analysis of the effectiveness of what is considered internationally to be a model of "best practice" community participation in water supply management (Schoffel, 2006). In contradistinction to most critics of the failure of

[3] The government has pledged to meet its Millennium Development Goal target to provide 75 percent of the rural population and 86 percent of the urban population with access to safe water by 2015 (Ministry of Infrastructure, 2010).

community-based development in East Timor, the report concludes that the issue is not one of a lack of community education, which most proponents of the model argue can be addressed with the investment of more time and follow-up resources (Schoffel, 2006).

The report does not discuss the existence of customary water use groups, their governance processes, or, indeed, locally enforced practices such as sanctions (see above and Costin & Powell, 2006; Palmer n.d.). Rather, Schoffel (2006) concludes that the model of community participation, planning, and management was itself the problem. In all community water projects surveyed in East Timor, Schoffel (2006) found that, despite the assumptions embedded in the model, there was no evidence that people in these communities will "voluntarily obey collectively agreed rules to equitably share, pay for, and take care of common property without sanctions to enforce the rules" (p. 11). Hence, the report concludes that "piped water supply systems are unlikely to be sustainable in any circumstances in East Timor without an established and qualified institution that is empowered by the state to manage them, carry out repairs and maintenance, collect user fees, and impose regulations on use and sanctions on abuse" (p.15).

In contrast to the above report, another report funded by the Asia Development Bank does mention the significance of traditional beliefs, customs, and practices to the management of Timor's water resources (Costin & Powell, 2006). At one point, it reports on concerns about the high rate of project failures, associated problems with water users groups, and the need to better understand the influence of "tradition" at this interface (Costin & Powell, 2006). It also states, however, that "the influence of 'traditional' beliefs and practices associated with water use and allocation in urban environments is largely invisible to most residents, if they exist at all" (Costin & Powell, 2006, p. 72). Yet, research conducted by Palmer (2010, 2011) in the country's second largest centre of Baucau indicates that, in this urban centre at least, concerns about the customary use and allocation of water remain a foundational aspect of local social and political life.

Recognition of the importance of water-related custom and tradition is also present in a draft version of the state's water resources law recently viewed by the authors (Ministry of Infrastructure, 2012). In relation to customary law the draft states that:

1. Prevailing customary law within the scope of this Law is recognised and shall still apply unless it conflicts with the enforcement of this Law in accordance with the purpose stated in Article 2.[4]
2. Access, distribution, use, and charges or contributions for such use of water regulated by customary law shall be fair and equitable both within and between communities.
3. Disputes related to sub-article 2 shall be resolved in accordance with prevailing principles and procedures of customary law.
4. Where dispute resolution in accordance with prevailing principles and procedures of customary law fails, communities or directly affected parties may bring the dispute to the responsible member of the government for a resolution.
5. Dispute resolution by the responsible member of the government shall be based on the purpose and provisions of this Law.
6. Resolutions made by the responsible member of the government may be brought to the Courts of Law.

The draft further proposes to recognise and incorporate into regulatory law the above mentioned traditional resource governance system known in Tetum as tara bandu. Yet, in order for this to be more than a superficial reckoning, we will argue below that the state will need to give more consideration to the interaction between customary and statutory principles and be prepared to compromise power and share

[4] For example, Article 2 (a) refers to the purpose of the law being the need "[t]o ensure that the water resources of East Timor are managed in an efficient, equitable, and sustainable manner to meet the social and economic needs of present and future generations while protecting the environment and cultural values of East Timor."

resources to a much greater extent than the draft law currently envisages. For example, at the same time as it recognises a role for tara bandu, the law also proposes designating legal "owners" for all elements of the water supply system and imposing a state cost recovery tariff on water use (Ministry of Infrastructure, 2010). It is unclear what the implications of these measures will be for extant customary systems of water resource use and sharing.

Community Strategies to Maintain Control of Waterscapes

It is obvious that, in the realm of water governance in East Timor, there is an urgent need for a greater understanding of the ways in which alternate practices and claims to resources can lead to more integrated, sustainable environmental management practices (Altman & Jackson, 2008; Lansing, 2007; Strang & Toussaint, 2008). With ritual at its core, the customary economy is embedded in reciprocal social relations where local resources (land, water, trees, fields) are understood as relational fields "whose offerings to humans must be compensated through sacrifice" (Yang, 2000, p. 482). It is an understanding of power and of the world, which enlivens and connects both place and people. As such, a framework is needed for working through critical environmental governance challenges in the region and enabling effective decision making over resources and their allocation. Such a framework must take into account a broader socio-cultural understanding of interdependence at the social, economic, and environmental level.

As discussed above, with the support of elements of Timorese civil society, many communities have begun to make use of the "power of spectacle," staging events, such as tara bandu, as public performances to be captured on film and radio by a burgeoning media interest in Timorese cultural traditions. Many such events are also significant as the self-conscious expansion of the local political and ritual spheres into the national body politic (see Barnes, 2011, Palmer, 2007a; Palmer & Carvalho, 2008). In these circumstances, local communities are seeking an active role in the designation and management of their community lands and waters, and demonstrations of extant resource management capacities through practices, such as tara bandu, are highly important political interventions.

Whilst these interventions seem to be gaining traction in East Timor's developing formal resource management sector, it is also clear that such instances of customary governance are valued by the state as local mechanisms "to conserve and promote the environment and the preservation and sustainable use of natural resources" (Ministry of Infrastructure, 2012, Article 10 (2) of the Draft Water Resources Law). However, from a local standpoint, tara bandu is not just about conserving and promoting the environment and the preservation and sustainable use of natural resources, rather it is more broadly interpreted as a practice which regulates a range of place-based social and environmental relationships. While local communities are able to attract support for, and are encouraged to carry out, tara bandu activities perceived as environmentally beneficial by the government and civil society, tara bandu is for local communities as much about the management of people's behaviours and local governance systems as it is about environmental management (Barnes, 2011; Comissao Justica e Paz Paroquia Viqueque, 2005; Palmer, 2007a). In this sense, there is no separation between a community's natural, cultural, and economic resources. Representing practices drawn from the customary realm as one-dimensional tools for nature or water conversation, elides the social and political complexities, which constitute both their "traditional" and modern day character.

Elsewhere in the region, Zerner (1994) has written about the risks of customary systems becoming beholden to external regulatory control whereby "the complicated ritual nexus in which these practices are embedded has been reduced to a sparse, functional system" (p. 107). It is at this stage unclear whether the conversation in Timor between customary practice and the "outside" world will allow for maintenance of local direction and control or whether customary practice will succumb to external manipulation. While in some parts of East Timor, such as the Oecusse enclave, the process of collaboration between state and customary authorities over natural resource management has worked largely to the benefit of local peoples and the nation state (see Meitzner Yoder, 2005); in other areas, particularly around the nation's capital, there has been a problem of selective use of the process by government authorities (cf. Meitzner Yoder, 2005). In these

cases, the government has become involved with tara bandu ceremonies and provided money and animals for the rituals, but has not followed through the process beyond the staging of a ceremony. In the independence era it is expected by local peoples that, if the state and local communities are to achieve their aims – mutually harmonious relations – such financial support would be ongoing rather than event-based, and the government would recognise that such processes need to be fully engaged with, and led by, those properly appointed and supported at the local level (Palmer, 2010). As a result of the aforementioned momentary engagements, in some cases, local peoples have not taken the process seriously and prohibitions have been breached or set aside shortly after (D. de Carvalho do Amaral, personal communication, 2008). In other cases, collaborations have selectively focused on particular environmental elements of the tara bandu process, and this failure to engage with the full spectrum of what are usually social and environmental prohibitions has weakened the bandu implementation. In some areas, hostility toward such practices by representatives of local churches continues to actively undermine their implementation.

Discussion

A comparative analysis of the multiple water governance systems of Australia and East Timor reveals many lessons to be shared between those two countries, as well as lessons for other nations facing water resource pressures and transformations in their management institutions. In both countries extant "modern" customary systems are struggling for visibility amidst the formal embrace of a globalising water sector drawing its legitimacy from integrated water resources management toolkits and neo-liberal economic doctrine. This struggle for recognition is consistent with reports in the literature which suggest that, at best, Indigenous rights and water management practices are paid lip service by governments and, at worst, they are deliberately obstructed by national legislation and intervention policies (Boelens & Solanes, 2002).

In evaluating the direction of water governance reform, there is a need to place changes and developments in their specific political, cultural, and economic contexts. At an international level, Australia is often seen to have an effective "model" for water law, policy, and management (Godden, 2005), and Australia considers itself at the forefront of the reform paradigm, having over-allocated its resources and brought about environmental crisis by developing its advanced agricultural sector. In many of its responses, such as integrated basin planning (Garrick & Bark, 2011), Australia has been regarded as a leader; whereas, East Timor is in the early days of developing the state institutions to address its acute water supply deficiencies and basic development needs. Australia has far greater resources to devote to the management and reform of its water sector than does East Timor, which confronts fundamental need amongst its population. The basic water needs of subsistence and small-scale farm communities, in addition to meeting the needs of urban society (especially sanitation systems), have preoccupied policymakers more so than their Australian counterparts. Perhaps as a consequence of the manifest development need, social equity concerns are more explicit in the policy documents of East Timor, compared to those in Australia where institutions show "little formal recognition" of the issues of social equity "beyond a rather vague exhortation to ensure sustainability" (Godden, 2005, p. 203). Just as Australian state institutions are relatively more well resourced than those of East Timor, so too are its Indigenous communities and their representative organisations. This is reflected in the nature of their strategies to respond to, and advocate for, change, although, perhaps, not in the effect they have on final outcomes.

Common to recent governance reforms in both countries is the apparent influence of sustainability principles, such as user fees and the need to meet the water requirements of the environment. Australian reforms reflect a far stronger trend towards market-based regulation of natural resources than do those in East Timor. Efficiency concerns have provided a strong impetus for Australia's reforms, and this is reflected in the attention given to expanding trade in water and the need for security of access to the water resource for the water consumer. Policy developments in East Timor suggest that the state does not wish to relinquish its controlling role in water allocation to private interests operating in a market to the extent seen in the evolution of property rights in Australia.

The East Timor experience shows that, in attempts made to date to formally engage local customary systems, the tendency has been for a superficial engagement – one that often does little more than abuse the access to extant social capital, using local ceremonies as an occasion to pursue national political and resource management agendas. Yet, coming to nationhood later than most, East Timor is in a unique position to learn from the mistakes of other postcolonial and post conflict states, as well from progressive developments. One such progressive example can be seen in the recent actions of Australia's Indigenous NGO sector, which is beginning to have an influence on water policy and planning, particularly the allocation of commercial water rights in northern Australia, and is rapidly developing its capacity to address environmental problems on estates owned by Indigenous peoples in accordance with local decision-making and cultural prerogatives. Indigenous organisations in these areas are building negotiating power at a catchment scale to defend the systems, which form their livelihoods and part of their identity.

Australian governments too have only superficially engaged with Indigenous water resource governance systems. The history of over-allocation and exclusion of Indigenous rights and interests in Australia's case serves as a warning to other regions developing and reforming their water management institutions. Such experience tells us that water reformers must attend to ethical concerns and complex inter-relationships between people and water, as well as efficiency and sustainability goals. In response, they must put in place measures to address Indigenous and local needs, understandings of water, and relationships with water prior to the establishment of a property-based entitlement, or they risk excluding Indigenous or local groups with insecure tenure to land and water and undermining extant or resurgent customary governance ideals and processes. The explicit attention given to the role of social tenure in East Timor's draft laws and foundational policies might enable its institutions to structurally recognise local and Indigenous water management rules and rights before control over resource rights is granted to other parties.

In the agricultural regions of southern Australia, the water entitlement framework has entrenched inequitable patterns of water distribution established during the first two hundred years of settlement, thereby significantly limiting Indigenous access to water. In the Murray-Darling Basin, Australia's largest agricultural zone and one where Indigenous people are politically marginalised by the dominant population (see Jackson, 2011; Jackson & Langton, 2012; Weir, 2009), water supplies are fully allocated, almost exclusively to non-Indigenous landowners and water users. To address Indigenous customary rights and needs only recently recognised by Australia's High Court and its current national water policy, Australian states would need to prioritise Indigenous water requirements and reallocate water entitlements – a strategy which is highly politically contentious (Grafton & Connell, 2011).

In East Timor, common understandings of water form an integrated complex, fused together by the interconnected spiritual, political, social, and ecological domains and syncretic realities associated with water (see Kehi & Palmer, forthcoming; Palmer n.d.). The case, therefore, invites a reframing of concerns about the distribution of water that are particularly prominent in Australia in order to foreground an ontology of reciprocal ethical relations grounded in an intimate attention to the symbolic and spiritual, as well as the political, social, and environmental realms. Insights from studies of East Timor's water cultures are, therefore, highly relevant to international water policy, which needs to acknowledge widespread human attachments to, and needs for, water (see Boelens et al., 2006; Strang, 2004), and extend well beyond the strictures of narrow economic reformist agendas and technocratic global resource management toolkits so popular in many parts of the world.

A further observation emerges from the comparison between Australia and East Timor. In both countries, even if recognised, local customary water uses are not granted a priority in state systems of allocation. Although Indigenous rights to water are recognised by Australian common law and federal statute, Indigenous people have, for some time, confronted a narrow legal interpretation of their rights and interests in resources, such that most current definitions of customary rights preclude a commercial interest in natural resources (Langton, Mazel, & Palmer, 2006). Indigenous water rights, for example, are currently limited to subsistence use (Jackson & Langton, 2012) and, in a manner, consistent with international trends in water law

(Burchi, 2005). Australian judicial interpretations circumscribe and demarcate subsistence or customary use as uses that are outside, even irrelevant to, the formal economy. Likewise, as the East Timor experience shows, subsistence water use, even when it is clearly for "productive" agricultural purposes, is not granted a high priority in state systems of natural resource governance.

Yet, we argue that, in these two cases, Indigenous and local modes of interacting with resources and each other are at once customary and modern, subsistence and market-based. Indeed, from an Indigenous or local perspective the boundaries between the state, market, and customary realm are porous and fuzzy, as with its supposed nemesis subsistence use, all are firmly grounded in principles of exchange (see Altman, 2010; Curry, 2003; Langton et al., 2006; Palmer, 2010). The critical point here is the necessity for broader recognition of deeply embedded local and Indigenous socio-ecological exchange relationships. As Curry (2003) has written in another context, "without exchange, the quality of life declines, social relationships are suspended, and opportunities to resolve conflicts decline. In short, exchange makes community, and, without exchange, there can be no community" (p. 417). Given the well documented resilience of many such socially embedded economies (Curry, 2003; Langton et al., 2006; McWilliam, 2011; Palmer, 2010; Yang, 2000), it is also very possible that the same intricate political and ritual ecologies which have long fashioned and maintained space and place in these localities could be potential agents for the transformation of market and state configurations of water resource management in East Timor and Australia.

Conclusion

We argue here that the state needs to recognize and make visible complex processes of change, interdependence, exchange, and ethical decision making, which have long been relevant to creating viable Indigenous and local livelihoods and socio-ecological modes of water governance. In such cases, as in East Timor, resurgent customary resource management practices, like tara bandu, are important for communities continuing to exercise de facto governance and ownership rights over areas of "social tenure" (Wallace, 2007). As such, we concur that a fruitful approach to recognizing a "legal space" for custom is to acknowledge in resource management regulations the role of broadly interpreted customary governance mechanisms in the regulation and sharing of land and resources. Indeed, the Australian experience, particularly in northern Australia, and the new draft water resources law in East Timor goes towards recognising the role of social tenure in the management and regulation of water resources. Such policy and legislative processes give recognition to locally relevant institutions of resource governance, whilst refraining from the specific definition and "capture" of such practices or the alienation of community from communal lands and resources. In this way, extant land and resource management institutions can become tools for land and resource regulation, also enabling formal recognition of the fact that "community" is a notion that extends well beyond simply defining a customary land-owning group or a community bounded by place (as is usually the case, for instance, in Indigenous land rights legislation). In these arrangements, context-specific agreement making will be an important mechanism to carry forward relations with a range of non-community water "users."

The implementation of resurgent tara bandu practices in East Timor and the recognition and support of Indigenous water governance initiatives in Australia face, of course, a myriad of challenges. As well as the challenge of collaboration among diverse stakeholders due to colonial and postcolonial abuses of ritual activities for the short term gain of the state and other "outsiders," communities also face a suite of issues relating to the absence or loss of knowledgeable ritual leaders, livelihood and financial constraints, illegal commercial resource extraction activities, and failures of mainstream resource managers to fully link resource management into the realm of social and political, rather than regulatory and scientific, relationships (Jackson, 2006; Palmer, 2007b; Palmer, 2010; Palmer & Carvalho, 2008). The state and community level embrace of tradition must also be tempered by the fact that there was never a "golden age" of harmonious local cooperation and environmental protection; rather, there were, and always are, varying degrees of resource protection and exploitation, as well as "uncertainties, disharmony, and disruption" (Mosse, 2003, p. 4) and cooperation. This reality was, and remains, a part of the ongoing processes of social and political negotiation,

which address the changing economic circumstances of resource use. The important point is not that conflict or unsustainable resource exploitation was absent, but that the "customary" repertoire had and still has complicated and nuanced mechanisms to address such issues. A repertoire which, in addition, has always involved some degree of engagement beyond the local and which is embedded in a long history of regional and more recently nation-state level influences and dialogues (see Langton et al., 2006; Palmer & Carvalho, 2008; cf. Tsing, 1993; Zerner, 1994). Consideration of the issue of the maintenance of customary authority, potential state payment to customary managers for provision of environmental services, and the recognition of the economic value of sustainable management of water resources for subsistence, commercial, and cultural values is likewise critically important and complex. The suitability and trajectory of such pathways will need to be carefully considered and implemented in the context of local and regional environmental and cultural specificity and historical and present day circumstances. Careful attention must also be paid to the broader implications of bringing the complex ethical interrelationships, which characterise the arrangements of social tenures squarely into the market and administrative sphere.

While we support the formal state recognition of customary governance practices, we suggest that the multiple players involved in such water conversations must embrace the risk and uncertainty in resource management collaborations, as well as accept the messiness of the diverse representational practices that characterize the "intercultural" resource management domain. Critically, we suggest that, rather than focusing on a need for state-led governance and control of local level water management activities, successful outcomes from such collaborations depend on the decentralization of management and decision-making responsibility and adequate resourcing of the very livelihood and cultural practices which underpin relevant local instances of water resource governance. Dynamic and adaptive local traditions can only be truly effective when there is a long-term commitment by those from outside the immediate community, who also stand to benefit from the outcomes of such practices (environmental protection, social cohesion), to support and resource the process. As Unruh (2008) writes, an acknowledgement of the benefits of "working with the grain" and of building on existing practices is critical to the task of creating successful long-term governance systems (p. 113). Proactive governance arrangements instigated by local peoples themselves need to be acknowledged as legitimate, and governments need to begin trusting in the capacity of local communities to manage themselves and their territories. This includes assisting, to some extent at least, with the financial and other resources needed for successful environmental governance.

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