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Appendix 5

Case studies: Introduction

The first three case studies focus on different aspects of river use, protection and management and the various institutional responses made by Indigenous communities to river and wetlands threats. They refer to a range of circumstances and contexts where pressure on water resources has been directly experienced or where renewed interest in water resource use, particularly from agricultural development, may put at risk particular environments and relationships to country.

Over ten years ago, environmental and social impacts arising from pastoralism, weeds, mining, tourism and fishing in the Kowanyama region of Queensland motivated the Kowanyama community to develop their capacity to manage their estates and assume greater control over riparian and wetland places of importance. This case describes the development of strategic, comprehensive, collaborative and locally popular approaches to natural and cultural resource management.

When plans for the intensification of agriculture were renewed in the Daly River region in early 2000, proposal details and the environmental and social implications were not well understood by the numerous traditional owner groups of the region (Jackson 2004a). This case describes the difficulties Indigenous communities faced in participating in multi-stakeholder catchment management processes, including water allocation planning. It also points to the capacity and willingness of Indigenous communities to develop new governance institutions to meet the demands of catchment scale planning.

Indigenous people have lived with the consequences of river regulation and substantial hydrological changes for over three decades in the Ord River area of Western Australia's Kimberley. Contemporary water resource management processes continue to be affected by the historical legacy of a major resource development that was planned and implemented with little consideration of the social impacts on Indigenous people. In this case, native title claims and a negotiated agreement have been pursued to redress this legacy and to achieve greater Indigenous participation in land and water use.

The fourth case study from the Fitzroy region of the Kimberley by Sarah Yu, is different in nature to the first three. It provides a detailed examination of the cultural significance of water to numerous Fitzroy Valley Aboriginal groups. This case study describes social organisation and customary governance arrangements over the river systems of the Fitzroy Valley. During the 1990s Nyikina-Mangala, Ngarinyin and other groups in the Kimberley were concerned about proposals to dam the Fitzroy and the alternative plan for extracting groundwater to grow cotton. Yu's focus is on the cultural perspectives

expressed by Nyikina-Mangala and Ngarinyin Traditional Owners, particularly the cosmological and mythological significance of water and water bodies located in their customary estates, as well as the patterns of resource use and governance that are evident today. Importantly, it details successful collaborations with hydrological scientists that drew upon Indigenous ecological knowledge to better understand the river system and groundwater-surface water interactions.

Kowanyama and the Mitchell River, Gulf of Carpentaria, Queensland: Indigenous management of waterscapes

The majority of the material for this overview has been obtained from the work of Veronica Strang, Noni Sharp, Dan Gillespie, Peter Cooke, John Taylor and Ross Johnston. Community-based action at Kowanyama has been documented in a number of articles and reports by these authors, as well as by Jim Monaghan. Reports obtained from the Kowanyama Land and Natural Resource Management Office (hereafter KLNRM) website were reviewed.

Kowanyama is an Indigenous community of approximately 1200 people (KLNRM 2003). The community is located on the south western side of the Cape York Peninsula. The Mitchell River flows from the Dividing Range in eastern Cape York through the savannah plains on the west of the Peninsula. It is one of the larger river systems of northern Australia and the areas around the estuary are referred to as some of the most biologically productive. (KLNRM 2003: 1).

Indigenous land holdings, which are a Perpetual Deed of Grant in Trust (DOGIT) from the Queensland Government, include the Mitchell River delta and the lower reaches of the Alice River. The community has control of approximately 4000 square kilometres (Monaghan 2001). Kowanyama is a former mission community containing three different language groups, the Yir Yoront, the Kokobera and the Kunjen people (Strang 2001a).

Land management of the Kowanyama DOGIT area is coordinated through the Kowanyama Land and Natural Resources Management Office under the joint authority of the Kowanyama Indigenous Council and the traditional land owners (Monaghan 2001). According to Monaghan (2001), key management principles of the office are:

- to be directed by the elected Council and the Counsel (sic) of Elders, and
- to encourage the full participation of all community members in order to build community capacity for land management (2001: 2).

Prior to European settlement the entire Cape York region was densely populated, containing at least sixty language groups (ibid). Strang (2001) describes the continuities between Indigenous social identity of today and that of previous generation's,

particularly the way in which the totemic associations with places and tracks created by ancestral beings provides each individual 'with his or her own location within a socio-spatial landscape' (Strang 2001a: 210).

According to the Kowanyama NRM Plan:

Kowanyama's Traditional Owners and their relatives continue to rely upon the Mitchell River, its tributaries and the lower delta system's rich natural resources for their current and future cultural and economic needs. The land and its rivers are a familiar landscape of traditional story places and sites of local historical importance, providing an essential resource for gathering, hunting and fishing activities (2003: 1).

A study of the wetlands by Monaghan (2001) identified the four ways in which the Mitchell River wetlands are central to the livelihood of the Kowanyama Indigenous community:

- the location of many sacred sites such as increase or conception centres, poison places or burials and are significant places of local mythology;
- wetlands are the focus of subsistence hunting and fishing;
- seasonal wetlands are important and productive cattle grazing areas, and
- seasonal patterns of inundation affect mobility around the landscape and access to traditional country from the Kowanyama township (2001: 2).

This last feature is a particularly important consideration in the location and the development of homeland sites in the customary estates of the landowners (ibid).

Until recently the region was described as remote, inhabited only by the Indigenous community, few pastoralists and fewer people working for various mining operations (Strang 2001b). A 'boom' in the tourist industry has seen increased pressure on fishing sites, national parks and other places of interest. Strang (2002) describes the effects of increased fishing pressure:

In the late 1980s the commercial fishing industry in the Gulf of Carpentaria was burgeoning, and the community found very quickly that their claim to the coastal waters – where the estuaries are a primary source of fish and other species – was poorly respected. The incoming fishing boats used huge nets which scooped up every type of fish and, as only a few profitable species were of interest to the crews, they discarded many of not most of this catch. Local Indigenous clans were outraged to find piles of dead fish on their beaches, fish which they themselves regarded as a key resource (2002: 16).

Appropriate customary management practice involves the maintenance of water bodies where they are kept clean and undisturbed. Kowanyama residents, when interviewed by Strang (2001a), revealed the considerable worry they felt for the river systems that were vulnerable to mining impacts upstream from Kowanyama, for example,

We got big mob river coming. We got the Palmer River, that comes into the Mitchell. We got the Alice River, that comes into the Mitchell. We got the Lynd, that comes into the Mitchell. We got the Walsh, that comes into the Mitchell. We see where that rivers come in, and they are mining up at the head of it. All kind of muck come down that river, just come into that one river, Mitchell River. And that Mitchell River feeding us ... Mine use too much water, muck up that water too. That's what we worry about, we worry about that thing, up this end here ... We want to keep that river clean for the future generations (Colin Lawrence in Strang 2001a: 222).

Strang (2001a) also describes the social impacts of tourism:

Economic concerns, though easily communicated, mask a more complex set of issues related to the conflation of social and spiritual identity and its location within the landscape. There are strong feelings, not only about competition for the resources, but also about being invaded by too many people.

Invasion by strangers is seen to endanger the well-being of both the resources and the community, threatening the equilibrium of relations between them. This balance is seen as being maintained by customary land management – the ritual and physical care of the land. In accord with general precepts of Indigenous land care, people in Kowanyama consider that 'proper' care of the land means maintaining a human presence within the country, and not allowing it to become 'wild' or 'dirty' (2001a: 220-221).

Pressure on water sources from upstream land use prompted them to initiate dialogue with other land and resource users, according to Strang (2001a):

The community is keenly aware that it has a limited amount of influence upon events – particularly those that occur 'upriver' – and believes that this is best realised through a constructive dialogue. Its response has been to initiate the Mitchell River Watershed Catchment Management Group... The MRWCMG contains a wide range of land and water users, but the major 'players' along with Kowanyama are the cattle station managers and owners; various conservation NGOs; Government departments such as National Parks and Wildlife and the Department of Environment and Heritage; and the mining industry (2001a: 219).

Kowanyama successfully opposed a number of mineral exploration proposals such that in 2001 mining on Mitchell River delta lands was prohibited (Sinnamon 2001). Pressure on key sites and places has also motivated people to develop their own institutional responses:

On achieving a degree of self-government in the 1980s one of the first things the new Council did to enable its management of the community and the reserve area was to set up a Land Management Office, and one of the first battles embarked upon by this office was the protection of water resources (Strang 2002: 18; see also Sharp 1998).

A land degradation workshop held in 1992 at the KLRNMO, to which pastoralists from the region were invited, identified damage to the margins of waterholes by stock and feral animals as a major land management issue (Monaghan 2001). Monaghan notes that impairment of water quality, loss of instream biota and weed colonisation were also identified as related problems. In response, weed control, bore management and cattle control have since become central to community land management strategies. Others include the management of coastal and estuarine fishers and the monitoring of the Mitchell River delta environment (ibid).

Soon after the establishment of the KLRNMO the need for a strategic plan and a community land information system were identified. The Plan has now undergone a series of iterations as a result of a review in 2000. The information system was set up in 1997. Information on community infrastructure, cultural sites, patterns of Traditional Ownership, seasonal environments, patterns of resource use and natural resource, including hydrology, soils and vegetation are all documented.

The current plan is available on the Office website (www.kowanyama.org.au). It identifies a number of directions for the future, including obtaining more information on the ecology and use of the Kowanyama wetlands to inform management strategies and integration of the cultural, physical and ecological components of the landscapes in the Kowanyama Information System in a form readily accessible to the community (Monaghan 2001).

Monaghan's wetland atlas and evaluation of value mapped the wetlands in the region and their use by the members of the Kowanyama community. Satellite imagery and aerial mapping were used and proved to be a useful means of eliciting information from a greater number of people than could have been possible on field visits (Monaghan 2001: 42). This report contains a fascinating account of the intensely human use of wetlands and the systems of resource governance, classified according to biogeographic zones. For example, Monaghan describes the customary regulation of hunting and fishing in the zone closest to, and including, Kowanyama township:

Hunting and fishing in this region are widely regarded as communal rights in Kowanyama. The Traditional Owners of this region monitor its use. Where transgressions occur such as camp debris or litter not being cleared up, wastefulness such as the dumping or spoliation of a fishing catch, or failure to share any successes in fishing or hunting, then offenders are either chastised or banned from the wetlands. Homeland groups monitor their country with levels of surveillance that ensure the movement of visitors to their country is common knowledge in the township within hours of their arrival. Surveillance is maintained for two reasons. To make sure that fish and wildlife are not being unduly taken and to ensure places that carry particular potency in local mythologies are not disturbed (2001: 43).

Numerous environmental changes have occurred to the wetlands and social impacts are discussed. The report addresses some of the problems encountered in mapping wetlands and classifying them according to a biogeographic framework, including abstraction. A monitoring program was recommended. It included the early identification of wetlands at risk and visual monitoring by community rangers. The need for quantitative assessments of weed infestation and cattle trampling (magnitude and spatial distribution) was also identified.

According to a report on Indigenous people and biodiversity conservation, the Kowanyama Land Management Office 'has achieved substantial respect and credibility for its professionalism and innovation in negotiations with external agencies and resource users such as the commercial fishing industry and tourism interests' (Gillespie 1998: 14). The attention this group has received is reflected in the number of reports documenting the Kowanyama community's achievements in response to environmental pressures and cultural concerns (Sinnamon 2001; Sharp 1998; Strang 2001a ; Gillespie *et al.* 1998). Gillespie *et al.* (1998)¹⁹ outline the successful initiatives taken for the period 1993-98:

- convening of a Mitchell River Watershed Management conference at Kowanyama, which resulted in the establishment of a catchment management group to manage the broader land and water use issues confronting the Mitchell River (the Mitchell River Watershed Management Group).
- purchase of two commercial barramundi licences
- conduct of helicopter surveillance flights over the Mitchell River delta to monitor compliance with commercial fisheries regulation
- the collection of camping fees from recreational fishers to fund helicopter surveillance

¹⁹ Based on Dermot Smyth's work prepared for the Cape York Peninsula Land Use Strategy in 1996.

- frequent liaison with the Qld Commercial Fishermen's Organisation, Fisheries Inspectors and the Qld Fisheries Management Authority
- the training of a Kowanyama community ranger to undertake the role of a fisheries inspector
- developing alliances with non-Indigenous fishing groups and regulating recreational fishing activity within the Mitchell River region.

Gillespie *et al.* (1998) attribute the success of the Kowanyama initiatives to the community's resistance to approaches by resource management agencies seeking to 'impose protected area regimes' or unbalanced and 'token' co-management arrangements (1998). It provides

a good example of a process whereby Indigenous people are empowered to define the natural resource management goals that suit their objectives and the needs of their community and to then put into action realistic programs that are positive for community development and the development of capabilities for future resource management needs. It is one response to the problem of empowerment of Indigenous people in situations where there are competing and pressing interests for the resources of traditional estates and where the need to respond to the external demands for information, or for community responses to proposals for resource use and development are ever present (1998: 14).

Daly River, Northern Territory

Introduction²⁰

An example drawn from the Daly River region of the Northern Territory illustrates the interest Indigenous communities have in improving engagement in water resource management structures and processes. In this case, Traditional Owners from seven language groups have come together regularly over the past year to contribute to the development of an integrated land-use plan, including a water allocation plan (see Jackson 2004a; 2005; 2006). Throughout the planning process, representatives of these different groups have affirmed their desire for a determining voice in catchment management structures and planning processes. A new catchment management group, titled the Daly River Aboriginal Reference Group, has been formed under the auspices of the Northern Land Council.

²⁰ This case study draws heavily on material published in Jackson 2004; 2005 and 2006.

Catchment planning and water allocation processes

The Daly River catchment lies in the north-western wet-dry tropics agro-ecological region (see Figure 1). The region's natural vegetation cover ranges from eucalypt forest to low open grassland. Beef grazing is the dominant land-use in the region, although dry-land and intensive irrigated cropping are of growing importance to the Daly River, and its confluent Katherine River. The catchment is sparsely populated but well serviced, and includes Katherine, the NT's fourth biggest urban centre, and two smaller townships of Pine Creek, a mining centre, and Nauiyu, a predominantly Aboriginal community. A number of small Aboriginal settlements are found in the area where at least ten Aboriginal language groups comprise approximately a quarter of the total population and own approximately 30% of the land-base (Griffith 2004).

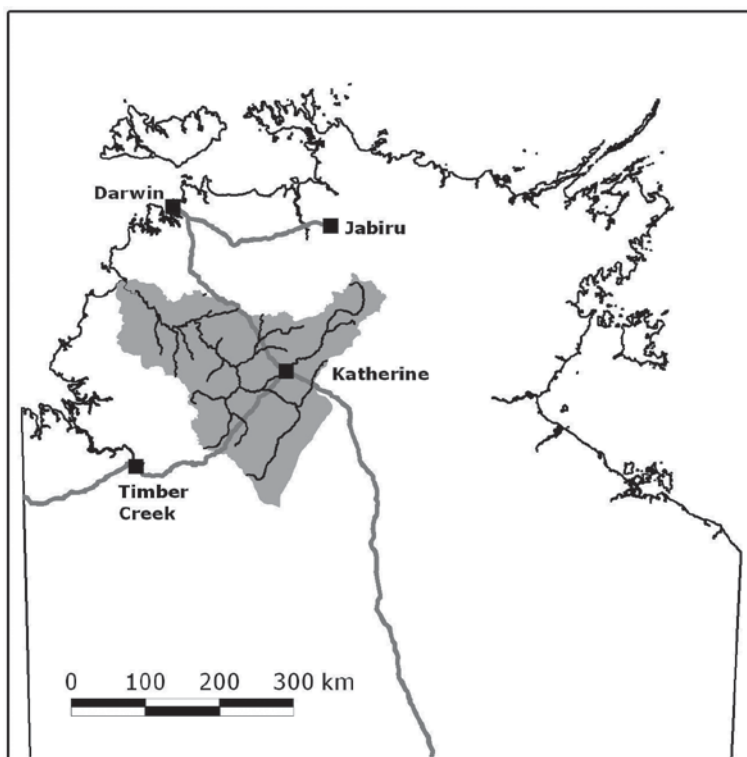


Figure 15 Map of the Top End of the Northern Territory showing the Daly River catchment

The Daly region is considered the most prospective region for development of the Territory's agricultural industries and has the 'potential to be one of the last regions in Australia to be cleared and developed for intensive agriculture,

both dry-land and irrigated' (Hristova and Murti 1998: 3). Throughout 2003, Northern Territory government plans to subdivide pastoral leases, clear land and develop mixed farms in the absence of a regional natural resource management plan generated considerable controversy. Of concern was the likely impact of water abstraction and land-use change on the unique values of the Daly River. The Daly has the largest flow of any NT river, with a dry season flow far in excess of any other. Water quality and reliability of flow is dependent on large groundwater supplies that also sustain the regions' many wetlands. The river is highly valued by a range of sectors for its constant flow, and for the provision of breeding areas, habitat and refuge for important aquatic populations of fishes, turtles, waterbirds and crocodiles. Recreation values are also

significant with the Daly described in public discourse as a 'Territory icon' and 'anglers Mecca' which affords fishers and campers the space to enjoy nature and 'escape from the daily routine' (Young 2004: i). The Daly River has been described as a 'significant ceremonial track' by the John Daly, Deputy Chairman of the Northern Land Council (Northern Land Council 2003). Impacts on the water table are perceived as a threat to the numerous sacred sites associated with the river. According to Daly (2003): 'water usage as planned will not only expose these sites visually, but will also make them prone to destruction' (ibid).

During the recent period of heightened public interest, catchment scale planning was seen universally as the key means of avoiding a repeat of the water resource management problems of southern Australia (see Harrison 2003: 3).

In late 2003 the NT Government announced a moratorium on land subdivision and clearing until an integrated land use plan was complete. A stakeholder forum, the Daly River Community Reference Group, was created to oversee the production of the plan within nine months and to build community capacity to engage in natural resource management in the region. A water allocation plan, already under preparation, was to receive input from the Community Reference Group.

The significance of water to Daly Aboriginal communities

In carrying out its task, the Community Reference Group was charged with identifying and examining the environmental, social, economic, cultural and heritage values of the region and 'the special connection that Aboriginal Traditional Owners have to the land' (Northern Territory Government 2004). A preliminary report on the cultural values by Jackson (2004a) found that water – its origins, features and appropriate use – is highly significant to the way of life, sense of identity, economy and cosmology of the Aboriginal language groups.

Many of the sacred sites are associated with river, their tributaries and water dependent ecosystems, such as billabongs in the Daly River region. Sacred sites are landscape features 'created either by the metamorphosis of Dreamtime figures into rocks, boulders, trees, etc, or by the action of such an ancestor, or ancestors, sometimes when interacting with each other' (Northern Land Council 2004: 25). Some of those ancestors were species that one would automatically associate with water - black water hens, barramundi, frogs, freshwater sharks, crocodiles or bamboo (ibid).

Hydrological processes are recognised as important to the health of the region's ecosystems by Aboriginal people consulted during the study (Jackson 2004a). This is consistent with reports from the Fitzroy region of the Kimberley, where:

... the importance of hydrology 'driving' ecology is not lost on the Aboriginal people. They are fully aware of the importance of flood flows and much of their hunting culture seems to associate a large flood with environmental 'health' of the river, particularly of the permanent pools (Storey, Davies and Froend 2001: np).

River flow is considered vital to the character of the river and the dependent wildlife. For example, activities that might stop river flow and disturb movement of fish and turtle are seen in a negative light. Climatic variations are also of considerable interest to Aboriginal Traditional Owners. One respondent wished to see dry years used as the basis for calculations of water availability to ensure that long term fluctuations in rainfall were taken into account (Jackson 2004a: 33). Wetlands in the traditional estates of the groups consulted were perceived to be sensitive to changes in groundwater levels from water abstraction. According to Jessie Brown, a Wardaman woman:

These two billabongs (on Florina station) are full all year around from the groundwater. Lilly root and fish depend on water. There's a Dreaming in the centre of the water (pers. comm).

Vibrant traditional narratives describe the creation of water features, such as the Flora River springs which feed the Daly River throughout the year. Wardaman people ascribe the functioning of the Flora spring system to a grasshopper lying under the ground 'pumping' the water out into the river (Jackson 2004a: 27). Wagiman people are also keen to retell stories accounting for the origins of the Daly River:

We've got a story for that river. That river been there for a long time, since before grandfather, grandmother' (Paddy Huddleston, 25 February 2004).

Stories such as these, and those relating to the widespread Rainbow Serpent tradition, retain their relevance and meaning to contemporary Aboriginal people in the region.

Rainmaking rituals were raised by one senior custodian in a meeting of Wardaman people. Ritual behaviour maintains the seasons and cycles of 'nature'. There is evidence of this aspect of Wardaman hydrological beliefs in rock art²¹ and rock incisions at Innesvale and Willeroo Stations:

Some of the sites ... had hundreds of 'cuts' incised into the stone. The Wardaman people believed that if enough 'rain cuts' were made, it would rain' (Ogden 1992: v).

²¹ Drew's analysis of rock art sites in Wardaman country found 47 Dreaming sites directly associated with springs, waterholes, billabongs, creeks or rivers (2001: 115).

Traditional narratives record the antics of ancestral beings, many of them animals. Encoded within these numerous mythological accounts is a water ethic. For example, a Wardaman Dreamtime story relates how the brolga took all the water away from the country to the sky leaving:

Nothing in the rivers, the rivers were empty. For billabongs, nothing. Small rivers, creeks, no water there...Without water the Dreamings were dying. Eventually the sand frog speared the coolamon containing the water and released it (Wardaman Aboriginal Corporation 2002: 4).

According to the story, all the animals gathered around the water and bathed: 'They were happy for the water' (2002:10). The animals were then able to go their separate ways and find a place to stay.

Poor water management in these narratives serve as an ecological parable, pointing to a strong awareness within Aboriginal societies of the need to cautiously manage and share water resources. Benigna Ngulfundi of the Daly River region explains how rules are interpreted from the antics of ancestral beings:

We have been told different stories about what happened when Dreamtime animals stole water. Sometimes it was just to make mischief but 'payback' for selfishness could also be a motive. The water was always recovered and the animals who stole it seemed to be sorry for the trouble they caused (2003: 13).

Indigenous representation and the Daly River Community Reference Group

In a large catchment such as the Daly there are numerous traditional land-owning groups and other affected Aboriginal people. Other regions in Australia have sought to ensure suitable representative structures for the negotiation of land use or land management agreements or informal arrangements. The Murray Darling Rivers Indigenous Nations, for example, was formed in 1999 as a confederation of Traditional Owners groups to provide a coordinated approach to policy development and River management (Morgan 2003a; 2003b).

During the Daly River catchment planning process the question of Indigenous representation in water and land use management structures arose as an important one. The preliminary report from the Northern Land Council (Jackson 2004a) recommended that consideration be given to ways of ensuring ongoing Aboriginal representation and participation in catchment management structures and adaptive management processes, including monitoring of change. This report also noted that Aboriginal people had not been involved in any of the scientific or economic research contributing to the formulation of development options.

When the Community Reference Group was established insufficient consideration was given to ensuring that all affected Aboriginal groups could contribute to the deliberations of a multi-stakeholder committee where Traditional Owners held only one place at the table amongst eighteen. Twelve representatives were selected to represent stakeholder sectors such as environmental NGOs, amateur fishermen, horticulturalists and Aboriginal land owners. Five members were drawn from the local community, although none of these positions were filled by an Aboriginal person, despite their considerable numbers in the region. The diversity of Aboriginal interests and inability of one person to act as a representative of all seven language groups limited the capacity of the Traditional Owners to contribute to the planning process.

Agricultural feasibility studies conducted by government agencies, for example, had not engaged with the Aboriginal communities, nor their representative bodies, in ways readily apparent. Such a background can, in part, explain how one Wagiman man at a meeting in December 2003 said that he had thought that the farming being discussed was in the Katherine area, and not in the Douglas area where Wagiman have traditional land interests.

Aboriginal people consulted during the course of Jackson's Daly research (2004a) expressed a sense of exclusion and isolation from contemporary land-use decisions. On occasion this was expressed directly, such as when one senior Wagiman man stated:

When those farms went through at Ooloo area, Stray Creek, they didn't give those Aboriginal people any news. They didn't tell any Aboriginal people about farms from Tipperary to Ooloo. They're going to make a big road. They didn't get a guideline from the Aboriginal. They should have proper respect. Aboriginal spirit all through the land. When they knock all the trees they destroy the country (Pine Creek, 24 February 2004).

The desire to respond constructively to the issues under consideration was expressed by numerous Aboriginal people during the planning process. For instance, one man at the Wadjigan/Kiyuk consultation, when discussing the concerns of Aboriginal groups upstream, asked 'how can we support those people?' (Belyuen, 6 April 2004). A number of groups wanted to see all the Aboriginal groups with interests in the Daly and its tributaries getting together to hear each other's perspective. This idea was initially raised by John Daly, Northern Land Council Deputy Chair, in mid 2003. It was again raised at the Northern Land Council Darwin Daly Regional Council Meeting in October at Pine Creek, by Malak Malak people in October 2003 and by Wardaman people at a Katherine consultation in February 2004. At a Katherine consultation, interest was expressed in talking to the Daly groups at a 'big meeting of all the river people to straighten us up along the river' (Neville Brown, 23 February 2004). A few of those attending meetings spoke positively of the opportunity to participate in the planning

process, in working together and learning more about catchment issues as natural resource management processes continue to evolve.

Bill Harney of the Wardaman people affirmed the need for Aboriginal people to understand the issues and to contribute to public debate:

We've got to talk about it over and over to be sure everyone understands. People need to hear about it and think (Katherine, 20 April 2004).

These suggestions and the recommendations of Jackson (2004a) were acted upon by the Community Reference Group in its report to Government in late 2004. The CRG recommended that:

A Daly Catchment Aboriginal Reference Group, consisting of Traditional Owners, should be formed to advise the Community Reference Group in the short-term and the Daly Catchment Management Authority in the longer-term. The Reference Group should be in place to assist consideration of this draft report by Aboriginal people during the public exhibition period and remain in place to provide input to the Daly Catchment Management Authority. This Group needs to be fully resourced to develop its planning capabilities, which should include cultural landscape mapping and protection as well as economic and environmental (including water resource) planning.

In response, the Northern Territory Government accepted the recommendation to establish and resource a reformed Aboriginal representative structure. This group would be comprised of two representatives from each of the ten groups in the area and supported by the Northern Land Council. There was interest amongst the Aboriginal groups in a model that allows for an older and a younger person to represent each group in consultations and negotiations over the plan.

It is still not yet clear how the current Aboriginal Reference Group will engage with any future catchment management body or authority should one be established. Options discussed in late 2004 included half the Aboriginal Reference Group joining the Catchment Management Group. This model for a catchment management authority with equal numbers drawn from Traditional Owner expertise and non-Indigenous expertise was mooted as the ideal at a consultation meeting with Aboriginal groups in late 2004. The rationale for equal representation was given by Don White, a Marranungu man:

These Europeans, they don't know about our area, our sacred sites. These seven (language) groups they know their sacred sites, they can help the catchment management authority....They can learn from us - like two-ways – we can learn from them and they can learn from us (5 October 2004, Douglas River).

At the time of writing, the Daly River Aboriginal Reference Group had met on four occasions since it was established in mid 2005. Contributing to the development of the Daly River water allocation plan is a current priority.

Ord River, WA: agricultural water use and Indigenous interests

The Ord case offers an insight into the nature of Indigenous interest in river use and management in a context where the river system has experienced substantial modification. The Ord River is the second largest in the Kimberley. Agricultural development in the Ord region commenced in the 1960s when two dams were constructed and land irrigated for cotton, sugar and other crops. Hydro-electric power is generated by water from the Argyle Dam²².

The agricultural development has not lived up to community expectations (Davidson 1972), although crop improvements were experienced in the 1980s. Recent developments will see the area under irrigation expand significantly. The State Government has negotiated a land use agreement with the Miriuwung Gajerrong Traditional Owners.

The social impacts of the Ord project is worthy of more detailed examination for it illustrates the legacy of poorly planned water resource developments. Little regard was taken of Indigenous interests and consultation during the process of project planning and implementation was negligible (Barber and Rumley 2003). The project has had enduring negative social impacts and has contributed to the dispossession of a number of Indigenous groups, including the Miriuwung and Gidja (Langton 2002). Construction of two dams and the creation of two lakes altered the landscape and 'put lands flooded by those waters beyond the reach of native title holders' (Lee cited in Langton 2002: 51).

The flooding associated with dam construction inundated and/or damaged significant sites, graves and areas of economic, social and cultural value (Barber and Rumley 2003). Barber and Rumley noted:

...the sense of loss of country was/is very painful to Indigenous people... The loss of land to artificially-created lakes and farmland disrupted Indigenous connections to land in a spiritual, cultural and material sense. Not only were sites inundated, but Indigenous access was cut off, thus increasing resentment about restrictions on traditional activities. Hunting, fishing and gathering become problematic with a consequent impact on diet and health (2003: 31).

²² The project commenced in 1963 with the commissioning of the Kununurra Diversion Dam and the allocation of 12000 has of farmland. Four stages were envisaged, with subsequent stages being the construction of the main dam forming Lake Argyle, and the further expansion of the irrigated farmland up to 72,000 ha.

The unregulated Ord environment, as described by older Indigenous people to Barber and Rumley (2003), reveals a profound difference in environmental evaluations across cultures. Within the non-Indigenous population building dams and undertaking irrigated agriculture tend to be viewed as processes that open up the frontier, bring innovation and promise to a region previously unproductive and lacking development (Arthur 1997). Since construction of the dams, a number of ecological and land use changes have created an environment which is now typically described by Indigenous custodians as 'closed up'. Regular water flow and an absence of annual flushing have produced vegetation patterns not previously seen. Weed infestations also make access difficult (e.g. cumbungi and Noogoora Burr).

Where this growth is particularly dense, Traditional Owners not only have difficulty getting to the riverbank but also expressed concerns about the increased protection it affords to crocodiles which can easily remain hidden in the reed-like growth (Barber and Rumley 2003: 22).

Some environmental features have been surrounded by fields or enclosed under forms of tenure not conducive to Indigenous access. Access to the river has been adversely affected by the enclosure of many properties by fences (Barber and Rumley 2002). Disruption to natural drainage resulted in the disappearance of billabongs created by the Dreamings (Barber and Rumley 2003: 21). There is also concern for the billabongs in the Weaber plain that are now permanently filled by water from the diversion dam. Fishing has been made less attractive for Traditional Owners through loss of access and privacy as the non-Indigenous population has increased its fishing effort:

Some landholders appear to be treating the river frontage as private property by barring access to the river, forcing Traditional Owners to travel further to gain access to the water. Other uses of the river are also confined by the arrangement of fences and farmland thereby creating significant competition for those parts of the river which are accessible. In this context the Traditional Owners must compete with other recreational users of the river for a limited number of fishing locations (ibid: 23).

In the last few years attempts have been made by the Western Australian water resource agency, then known as the Water and Rivers Commission, to identify Indigenous interests in both the Ord (Barber and Rumley 2001) and Fitzroy Rivers (Toussaint *et al.* 2002). In 1999 the Water and Rivers Commission released a Draft Interim Water Allocation Plan. Western Australia's Environmental Protection Agency observed that no account had been taken of the rights and interests of native title holders/claimants. In response, in 2003, the Water and Rivers Commission commissioned the Kimberley Land Council to conduct a study of Indigenous values of the Ord River and wetlands

for consideration in the development of a Final Water Allocation Plan expected in 2006. It was anticipated that the study would also ‘acknowledge past effects on Indigenous people of the damming of the Ord River’ and ‘provide information and recommendations, which will facilitate Indigenous involvement in waterway management’ (Barber and Rumley 2003: 7-8).

The study brief reveals the interest shown by the Water and Rivers Commission in knowing how to treat information provided by Traditional Owners appropriately, including intellectual property rights of informants and cultural sensitivities. Further, they were seeking an ‘Indigenous-derived framework for understanding water as a cultural and natural resource’ (ibid). The report also sought to identify and document significant environmental features dependent on surface water and make recommendations regarding the minimisation or avoidance of damage to those places.

The subsequent report was prepared by anthropologists Kim Barber and Hilary Rumley (2003). It proposes the establishment of a Heritage Agreement with Traditional Owners as a mechanism for identifying places of importance and agreeing to suitable protocols for protection of sites, as well as intellectual property. Traditional Owners recommended that there be no disclosure of detailed information relating to specific river places or locations; rather they preferred to respond on a case-by-case basis to requests for information:

Preliminary discussions with the TOs and their advisors indicated that the TOs required the detailed information relating to this study, held by themselves and provided to the consultants, be kept confidential and only be used for purposes of their choosing, particularly in the context of ongoing native title claims and heritage matters. Through this mechanism the TOs intend to protect their intellectual property rights and their sensitive cultural information (2003: 9).

It further recommends the creation of an Indigenous Native Title Reference Group comprised of Traditional Owners to consider issues such as a heritage agreement, water quality, access and commercial and recreational use. It was suggested that the group be provided with technical and administrative support by the Water and Rivers Commission. This group would play a vital role in providing Traditional Owner input into management issues within the Ord River area and in particular, the final Water Allocation Plan.

The rest of the report is devoted to describing the Indigenous values associated with the landscape, historical and contemporary use of water in the lower Ord valley and institutional arrangements.

The TOs expressed concern for those billabongs which did not disappear with the creation of the scheme. They are concerned that the effective cessation of the flooding of the lower Ord Valley has had an impact on the levels of various billabongs causing them to fill less frequently...

Within this altered environment, traditional vegetable foods and animal species are still found by TOs. The hunting and gathering of fauna and flora, however, is not as effective or efficient in the post-Dam environment since a number of traditional strategies cannot be used and, as noted, access to the river is limited (2003: 22).

Concern about the long-term health of the river, creeks and billabongs in the area was expressed to the authors, especially water quality and pollution (2003: 23). Pursche (2004) lists the concerns as expressed by Miriuwung people during her study for the Ord Bonaparte Project. According to Pursche, these comments are relevant to the area from the southern end of Lake Argyle to the lower Ord River:

- Country has been drowned by Lake Argyle
- Too many weeds along the river banks and you can't get access to it now
- Not enough places for Miriwoong people to go along the river for fishing and relaxation
- A lot more crocodiles than there used to be before the dams
- Dunham river is dirty because of run off from Packsaddle Plain farms
- Changes to the river means there are now no sandy banks and waterholes to go fishing in
- Not as many galahs or cockatoos as there used to be
- Not as many wallabies as there used to be. Used to be big mob on the lower Ord
- Country bugged up from lake (talking about Bow and Ord junction). Used to be all red dirt here and paperbark and bloodwood
- River used to have sandy banks. You could hunt this side and the other
- Used to be emu here not any more, down the bottom of the Lake they are still breeding
- Magpie geese never used to be here, since the Lake there is big mob here
- Some bream have red and yellow spots on them since the dams put in
- We don't like to fish in the river because we are worried about poisons from the farms

- People worried about diesel from boats
- Too many rubbish trees along the edges of Lake Argyle
- Too many cats here now
- Donkeys are here but not as many as there used to be (2004: 94)

Barber and Rumley assert that the Ord River development has had a profound effect on Traditional Owners' world view, for instance, their understanding of the 'potential of humans to alter the landscape' has been transformed (2003: 25). This transformation has had a political impact on the groups concerned, for they now believe that in order to 'maintain their rights and interests, including the environment of the study area, they need to be assertive' (ibid). Lodging native title claims and negotiating a land use agreement with the State Government is a manifestation of this assertiveness.

The Barber and Rumley report reveals the scope of socio-economic impacts arising from a major agricultural development (see also Pursche 2004; Trayler and King 2001), albeit one that was developed many decades ago before native title had been recognised. Nonetheless regard should have been taken of Indigenous interests and yet there was little or no consultation undertaken with Indigenous people during project planning and construction (Barber and Rumley 2003: 30). It notes that there are few studies of the social impacts of the development, particularly changes in the hydrology, on the Indigenous communities of the region. It points to the need to better understand the social impacts of hydro-development proposals prior to their implementation. Their report also highlights the current limited involvement of Traditional Owners in contemporary management of the Ord:

As a consequence they are impeded in their ability to oversee specific developments occurring in the study area which impact on their interests. This situation is also a consequence of the structure of the overall management of the Ord River.

The current management structures of agencies with interests in the Ord River are fragmented. No single agency has overall control or oversight of activities within the Ord Valley nor do there appear to be arrangements in place which would allow organised cooperation in Ord management issues.

The role of the TO's in the context of the overall management of the Ord River is therefore reduced to being one amongst a plethora of other interest or lobby groups...

In contrast to the non-Indigenous management structure, the structures based in claimant's traditional law and custom, theoretically enable the claimants to manage all cultural and physical resources within the Ord Valley (2003: 26).

The authors note that the full set of rights and interests claimed by Traditional Owners were granted by the federal Court (Ben Ward & Ors 24th November 2001), including rights to possess, use, access and enjoy the determination area, to use and enjoy, and trade in resource of the determination area, and a right to receive a portion of any resources taken by others from the area. The findings of the Federal Court were overturned on appeal, and were subsequently limited. The discordance between the two systems of law, including management control accompanying property rights, is great:

It is clear that there is significant disjunction between the rights accorded to TOs by their tradition and the way in which TOs are engaged by European agencies... Outside of litigation the TOs have virtually no formal avenue by which their interests and views can be accommodated in the ongoing day-to-day management of the Ord River valley (2003: 28, 48).

Both reports on the Ord (Barber and Rumley 2003; Pursche 2004) emphasise the requirement for equity of access to information, resources and policy input:

For Indigenous people, this has not been the case. Where information is available, it is often not presented in ways that are conducive to Indigenous ways of learning or show no respect for Indigenous land management expertise. Rather it seeks to impose a compartmentalised way of looking at the environment and its resources by promoting Western scientific thought and practice. There is minimal institutional support provided to Indigenous people from the East Kimberley to learn about government and non-government NRM initiatives, or to be involved in decision-making about the future sustainable development of the region (Pursche 2004: 22).

Fitzroy River, WA

The following case study was written by Sarah Yu.

Indigenous people in the Fitzroy valley of the Kimberley have also experienced water resource developments and their environmental impacts. The Camballin Irrigation Project in the West Kimberley, developed in the 1960s, was conducted without regard for Indigenous interests (Yu 2000). As with many north Australian agricultural schemes, the project failed leaving an un-rehabilitated landscape and abandoned infrastructure. Environmental impacts have been felt by the Jarlmadangah Indigenous community. The area affected is described by Ivan Watson as 'scoured to the billyo, because of the levee banks that they saw fit to put in' (cited in Toussaint *et al.* 2001: 27).

As Yu explains, the Traditional Owners of the Fitzroy valley have opposed more recent development proposals for dams and irrigated agriculture. Their actions should not be portrayed as anti-development, rather Yu argues that Traditional Owners wish to maintain the integrity of cultural management systems by linking customary and scientific

approaches to land management strategies, and developing appropriate economic projects to engage and train their young people. They have participated in a number of projects with biophysical scientists to record their knowledge, learn and teach.

The following case study material represents an abridged version of a report prepared for this scoping study by Sarah Yu. The full version is available from the authors. Sarah Yu has conducted other studies of the significance of water and rivers to Indigenous people in the west Kimberley (see Yu 2000).

Introduction

The river. That's our life

That's the main one for everyone.

It's there for our young people.

They take over²³.

The Fitzroy River, in the Kimberley region of north-western Australia, travels through the traditional countries of many language groups, and the complexity of cultural relationships to the river country has been further compounded by the historical relocation of desert groups on the station properties along the river. Whilst each group has distinct cultural responsibilities and articulates their relationship in varying ways, the groups are united through a system of Law that weaves together complex narratives and rituals required for the sustenance of the river country and its complex ecosystems. There is no single name for the river except *marduwarra*, which is a generic word for river. Rather, the Fitzroy River is conceptualised as series of linked narratives which arise from the many permanent pools along the riverbed and, which are subjected to the seasonal processes of flooding (*warramba*) and receding waters.

Physically, the Fitzroy River is a major anabranching system characterised by a braided main channel, billabongs on the floodplain and significant lowland floodplain storage. The river flows are highly unpredictable and ecological processes are typically described as “boom and bust” corresponding broadly to “wet and dry” periods²⁴. The country of the river and its tributaries is also dotted with natural spring systems which as permanent water sources are also culturally significant. Recently there have been a number of development proposals for irrigated agriculture in the Fitzroy catchment, which would require mechanisms to impound (i.e. dam) and regulate the river flows, and therefore threaten to create enormous impact on the cultural and ecological values of the river system.

²³ Margaret Kunjuka, a Nyikina woman now living at Looma community 1.11.00

²⁴ Storey *et al.* 2001

My research for this case study was undertaken in two projects between 2000 and 2004. In 2001 The Fitzroy River Cultural and Ecological Values Study was commissioned by the Western Australian Government's Waters and Rivers Commission (WRC) to assist in the preparation of a water allocation plan for the Fitzroy River. During this project I worked with the Nyikina –Mangala people to report on the cultural values from the mouth of the river to Mijirayikan (Broken Wagon Pool), on Paradise station, culturally considered to be the spiritual source of the Fitzroy River, and which also marks the boundary of the Light and Heavy Nyikina. I also worked with the Ngarinyin people who are the custodians for the Hann River, one of the tributaries that forms the Fitzroy River.

Later, in 2003-4, I worked again with the Nyikina-Mangala group when the Tropical Savanna CRC funded the Kimberley Land Council to design a study of the culture, hydrogeology and ecology of the Geegully Creek and the surrounding Edgar Ranges. The resulting Walangkarr Jirrkaliy Healthy Country Project engaged TOs and scientists to provide:

- Assessment of the “health” of *Walangkarr Jirrkaliy* country, with reference to previous and current land and water uses, in terms of Indigenous tradition and contemporary management;
- Baseline survey of flora and fauna, and broad-scale assessment of the relationship of wildlife populations and habitats with fire regimes, water availability, and introduced plants and animals;
- Documentation (in Traditional Owner terms) of ecological processes such as the seasons and seasonal change, fire, and water, and their implications for management, and
- Expression of community aspirations for sustainable management of *Walangkarr Jirrkaliy* country, outlining proposals for ongoing management and potential partnerships.

The final report²⁵ for this project is held by the Kimberley Land Council.

In preparing this case study the senior people from each of the language groups who had provided the original information were consulted again and each gave approval for their cultural information to be made available for this report. Due to the immediate pressure from the various dam proposals, there were many community meetings during the research period (2000 – 2004) and both projects gained full community support as they provided the opportunity to record the cultural significance of the river and other

²⁵ Yu, Sarah 2004 *Walangkarr Jirrkaliy Healthy Country Final Report*, prepared for the Land and Sea Management Unit, Kimberley Land Council (Broome) and the Cooperative Research Center for Tropical Savannas Management NT University, Darwin).

fresh water sources and to collaborate with scientists. The community was keen to inform themselves about all aspects of the river and its ecosystems.

River country: a cultural view

Indigenous people along the Fitzroy River and its tributaries have rich cultural beliefs about the creation of the river and its tributaries, the riverine environment and the seasonal changes in the river country. As with most Indigenous societies, the creation of the river is associated with the activities of mythical beings or serpents in the creative epoch referred to in English as the 'Dreamtime'. In the languages of my research areas it is called *Pukarrikarra* (Mangala), *Bukarrarra* (Nyikina) and *Ngarranggani* (Ngarinyin).

It is by reference to the concept of the Dreaming that the people of this region articulate their cultural beliefs and understandings of the universe (and all its elements) and explain all aspects of their societies. Although it often refers to events of a distant time period, the concept of the Dreaming continues to be shaped (informed and transformed) by contemporary experiences and is a continuous presence in people's lives.

Identification and discussion of cultural values of the Fitzroy river country such as the narratives, rituals, ancestral beings, totemic tracks, paintings and other elements intrinsic to Indigenous notions of landscape, have no meaning without establishing their relationship to the fundamental concept of *Pukarrikarra/ Bukarrarra/ Ngarranggani*. This concept defines the landscape and people's relationship with country, and in this sense the river valley basin can be defined as a cultural landscape to the Indigenous people, as much as it is a physical one.

Despite a universality in conceptual understandings of the river country, there nevertheless is great regional variation in cultural detail. There are differing narratives and traditions, with many subtleties and variations, through which each of the groups along the river system explain the origins, and the continued cultural significance of the river and its ecosystem.

Nyikina side

The river country, from the mouth of the Fitzroy to its source in the high country, is rich in resources, which were seasonally exploited by Indigenous people. Throughout the Fitzroy River Valley there are a range of permanent water sources, including springs, permanent riverine pools, soaks and jila (permanent water sources), which were investigated. Usually these sources are discrete and separate but in some areas, such as Kalayanmayi pool where a spring is underneath a permanent pool in Jirrkaliy creek, two types of water sources are in the one location.

Fundamental to these beliefs of those who live in the valley is the creation and maintenance of the Fitzroy River and its tributaries.

The lower Fitzroy Valley region is the traditional country of the Little Nyikina and Mangala speakers. It includes the vast floodplains surrounding the main river and creeks and the sprawling mudflat plains of the mouth of the river. There are a number of named tributaries running into the Fitzroy – Manguel Creek, Geegully Creek, Uralla Creek, Nerrima Creek to name a few. The eastern boundary of this research area is Mijirayakan, Broken Wagon Pool, a site considered by the Nyikina to be the origin of the Fitzroy River.

According to the Nyikina and Mangala peoples the Fitzroy River was created by a snake/serpent that was speared by Wunyumbu at Mijirayakan who was fishing in the pool using the poison from the *majala* tree²⁶. The serpent reared up with Wunyumbu's spear in his head and the track of his tail became the river and the mouth of the river. From Mijirayakan, Wunyumbu travelled on the serpent's head as the snake carved out the river as he travelled upstream. Although the Wunyumbu story continues custodianship of the narrative past Mijirayakan lies with the Heavy Nyikina people, who were not consulted in this project. Furthermore, it is apparent from Sullivan's research (Toussaint et al 2001) that the Wunyumbu story changes as one travels up the river. The Light Nyikina describe Wunyumbu as a man. Significant in Darby Nangkiriny's story is that Wunyumbu brings branches of the *majala* (freshwater mangrove) an extremely significant plant for the river people) from Murru-murru (Cuttings near the mouth of the river) to poison the fish. As a result the *majala* tree now grows along the riverbanks.

As with most oral accounts there are many variations on the Wunyumbu narrative, some of which have been previously recorded. Pertinent in the story is the spread of the *majala* tree, a multi-purpose plant vital to subsistence along the river. Wanbanan²⁷, a Nyikina elder explained the significance of the *majala* tree:

You can use the tree for getting poison for fish. You cut the tree for firewood. You can make a raft to cross the river and go and get sugarbag on the other side. You use it to make fire. That tree. He's the boss. No other tree is the boss of the river. Majala tree. That's the main one. He grow right along the riverbanks, both sides. I use the word from the old people. My word comes from them.

As a poison, the *majala* only affects fish by taking out the oxygen from the water. This stuns the fish, which float to the surface. Although the poison does not affect humans the Wunyumbu narrative relates how the Nyikina were careful not to pollute the pools with the *majala* poison. They built a wall to separate the poisoned water from the clean water.

²⁶ English name is Broken Wagon Pool and is located on the Fitzroy River on Paradise Station.

²⁷ George Riley Wanbanan, Derby, 24.3.98

The Wunyumbu story is celebrated regularly in the Walungari rituals of the river country, which mark the initiation of young boys. Songs sung during the ceremony recount the creation of the river and surrounding country, specifying features such as hills near Camballin, ridges on Mt Anderson station etc, and celebrating the travels of Wunyumbu as he walked to Mijirayikan and beyond. Darby Nangkiriny explains that:

Walungari Law initiation songs, all got meaning. Everytime we sing that song we teach the kids about the country, how it was made. How the fish got in the river²⁸

Ngarinyin side

The upper reaches of the Fitzroy Valley basin where the Hann River flows into the Fitzroy are a maze of small creeks running into the larger rivers cut in many places by deep gorges. As with the Lower Fitzroy, the rivers and creeks are marked by permanent pools, which support rich vegetation of trees and pandanus palms in the drier months. In the wet, the warramba flows in spurts of a week or so, and then the floodwater quickly drains and the cleansed pools remain.

The river pools, billabongs and springs are equally resource rich in the high country. However, the larger migratory fish such as barramundi, are not found at the top of the Hann. Significant in the ranges landscape are the numerous caves that provide shelter and are home to resident Wanjina, the creators and protectors of the country. Such cave sites are the religious centres for each of the clan groupings (*dambun*) of the Ngarinyin people.

The Ngarinyin believe that the Hann River, a source of the Fitzroy River, was created by snakes referred to as *unggud/wunggurr/unggurr*). Whilst there appears to be some confusion in the literature as to which term to use I have chosen to use *unggud* as this is the expression used by people participating in this project. Pansy Nulgit explains:

*Unggud is for everybody... like a snake. She put the water everywhere. She make the rain, make storm get up*²⁹

Unggud, as metaphysical serpents, are believed to live permanently in deep pools, but can leave the water, make nests to lay their eggs and travel underground. However, *unggud* is a polysemic term that, among other concepts, refers to the metaphysical snakes who inhabit and created the pools, the conception spirits of humans who arise from these pools, and more generally the powerful, creative energy responsible for life. Interestingly *unggud* are female, capable of carrying eggs, which are responsible for

²⁸ Darby Nangkiriny, 1.11.00, Jarlmadangah community.

²⁹ Pansy Nulgit, Kupungarri community, 7.11.00.

the increase of species, including humans, in the pools where they reside. The waters created by *unggud* are also said to have healing powers for the countryman of the area³⁰.

However at the same time the Ngarinyin believe that Wanjina also created the rivers. In Ngarinyin cosmogony the relationship between Wanjina, *unggud* and the river is as elemental as it is complex, and often difficult to differentiate. Another elder says:

*Talking about this snake and the Wandjina travelling together... when they travelling, they make water, putting water, otherwise we have no water... they bring down the rain, and make the water and the river..*³¹

The Ngarinyin believe that all permanent pools, whilst being inhabited by *unggud* also have Wanjina who reside in and created caves next to each *unggud*. The renowned Wanjina paintings are also believed to have been made by each Wanjina to mark his home. David Mowaljarlai, one of the founders of the Ngarinyin Bush University, explains that “there is never a cave, a painting site without *unggud* water”³². Mowaljarlai (1992:179-182), spoke about the responsibility his people are born with to look after the country, both its cultural and physical dimensions, and further elaborates on the concept of *unggud*:

One of the most important things to understand about the Indigenous culture of the northwest Kimberley is that everything was created by Wandjina Wandjina came from the wind and traveled the land and made this earth, and sea, and mountains, the rivers, the waterholes, the trees, the plants, the animals, the language and then the people. Wandjina made everything. Wandjina gave us the Law to follow and gave us the land. ... All that they created is Unggud: spiritual, and possessing powerful energy. ... The Wandjina divided the land into grid blocks ... This is our Dambun an area which each family group is personally responsible for. Each Wandjina is a part of a tribe that belongs to a particular Dambun, grid block. The sum of these Wandjina all over the grid is the creator, Wandjina.... this is a Dambun path... this is where Wandjina made trees and birds and animals... He made man now because he created birds and trees, river, grass , everything. Then he said, ‘Righto, I’ll give these mans a managing of nature’. So what he did, is divided these little blocks... he said all people were given jobs to look after nature.

Within our Dambun we have many responsibilities. We are charged with the care of all that land and everything that lives upon it. These responsibilities include performing ceremony and song for each area, for burning the country at the right times of year, caring for our burial sites, and art sites and our increasing areas.

³⁰ Mowaljarlai and Malnic, 1993:81.

³¹ William Bunjuk, Lawley River, June 1998.

³² Mowaljarlai and Malnic, 1993:81.

Desert groups and the river

In the Lower Fitzroy region there are now at least six Indigenous communities, varying in size from Looma (over 300) to smaller outstation communities such as Bedenburru (approximately 15 – 20). Members of these communities, as well as those people who travel out from Derby and to a lesser extent Broome, regularly exploit the river resources. Although the communities are located in the traditional country of the Nyikina, the river country of the lower Fitzroy River is now also populated by desert people, such as the Walmajarri and Mangala, who came or were brought in during the development of the pastoral industry.

Most of the Mangala who originate from the country from Edgar Ranges to Pikarrangu (Joanna Springs in the Great Sandy Desert) migrated to the river country before World War II, travelling north and west via the government post at Udialla and Luluigui station. The desert people continued to work on the stations along the river- Yeeda, Mt Anderson, Luluigui, Liveringa, Myroodah and Nerrima. When Udialla was disbanded after World War II many Mangala people were transferred to La Grange mission, though some returned to Looma when the community was established in the 1970s.

Today these groups now share cultural responsibility for the care of the river country with the Nyikina. Through connections such as the birth of their children, conception totemism, the death and burial of their elders and the responsibility in the Law the people of desert are now acknowledged as custodians of the river country. This is particularly so in areas such as Myroodah where the numbers of Nyikina people traditionally connected to this area have declined. This process of transferring cultural responsibilities and custodianship is recognised among the Indigenous people as a legitimate traditional process and has previously been discussed by Kolig and Arthur in a number of reports and articles³³.

³³ See Arthur, 1987, Capelle, 1981; Kolig, 1972, 1980, and 1981.

Common cultural elements

Named places

To the Nyikina, Mangala and Ngarinyin the river is known as a single generic phenomenon – *marduwarra*, and also by the numerous named places along the river, signifying permanent pools, fishing places, *Bukarrarra* places, resource places and so on. Many of the European names for sites on the river reflect Indigenous origins although they are mispronunciations of the Indigenous names.

Attached to each of the named places are a myriad of connections ranging from the *Bukarrarra* narratives, the places of birth, death and conception of ancestral and living relatives, and other historical and environmental events. The river landscape is thus imbued with cultural meanings that are continually being reaffirmed, interpreted and transformed by each generation. In this way the events and activities from *Bukarrarra* are not only a part of a distant past, they are the continuous present.

Living water and *unggud*/*jungurrungu*

In both groups all permanent water sources, including riverine pools, springs and *jila*, are referred to as 'living waters'. To the Indigenous people these waters are living entities considered ultimately to be a source of life.

Animating permanent water sources are *unggud* or *jungurrungu*, who although originate in *Bukarrarra*/*Ngarranggani* continue to live permanently in these water places. The life histories of the people living along the river are dotted with first-hand accounts of the activities of the *jungurrungu/unggud*, who are considered dangerous beings. Visitors to new country, particularly water sources inhabited by *jungurrungu* are extremely cautious. People often relate eyewitness accounts of sightings of *jungurrungu/unggud*. For example, Annie Milgin spoke of the *jungurrungu* at Kunyunu-nyunu-kurtany:

Just around the corner near the fence we saw that jungurrungu. He must have been sleeping outside [the water]. When we arrive, the car stop. We heard a big noise as he splashed into the water. He cut the water open and a big splash which came up to us. There was a rainbow and fog above the splash³⁴.

As in other areas of the Kimberley the *jungurrungu* are responsible for rain and the replenishment of water in the region. Those inhabiting certain springs and *jila* were visited to perform rainmaking ceremonies. So intertwined are the phenomena of water sources and snakes that it is often impossible to distinguish between the two in Indigenous interpretations of their country.

³⁴ Annie Milgin at Kunyunu-nyunukurdany, 4.11.00

Conception – jariny, wunggurr, unggud

Nyikina believe in an inseparable connection between water sources and the conception place of every individual. Capell (1952) points out that when people are asked where they come from they use the following expression:

where-from water you-came?
*Djanabu we:la njimbulan?*³⁵

Capell (1952:357) goes on to explain that the Nyikina believe in the existence of spirit children which they call *rayi* (meaning invisible) and that *rayi* live in water (*we:lan ingan*) having been placed there by the rainbow serpent Jungurugu (i.e. *yungurrungu*). Contemporary Nyikina and Mangala people continue to stress that one of the most important man-land relationships is the connection to one's *rayi* place, referred to as *jariny*.

It is through *rayi* that each individual is connected to *Bukarrarra*, and it has created the necessary cultural connections for the desert people who now live in the river country. The Ngarinyin also believe that these permanent pools, referred to as *unggud* are literally a source of life. They believe that the spirits of children are made by *unggud* which are then found by the children's father, most often (but not always) in the *dambun* of the father. The site of a person's *unggud* is a crucial element of Ngarinyin land tenure.

Seasonal cycle

Traditionally people moved from camp to camp utilizing the riverine resources in seasonal patterns. In the station times, people would walk to the river whenever possible – after work or on Sundays – to go hunting. Similar patterns exist today as people continue to subsist on river resources. Along the river people go fishing, often referred to as hunting, whenever possible. If school, work and other responsibilities did not prevent it, people would go fishing everyday. The riverine resources such as fish, crocodile, turtle and cherabun remain a vital part of the Indigenous diet, especially for those living on the meagre incomes provided by CDEP and pensions. On the weekends most community and family vehicles set off for the river and families will stay all day, sometimes fishing late into the night. Rarely do people take more than a bag of flour, tea, sugar, milk and salt on fishing trips. The river provides fish, goanna, turtle, crocodiles, mussels and cherrabun. Those with guns will also hunt for turkey, emu and kangaroo on the way to the fishing spots.

Traditionally people fished with spears or used a fish poison from the *majala* tree to stun fish in the permanent pools. The *Wunyumbu* story indicates how people were careful to

³⁵ Capell, 1952: 357

build *jarti-jarti* (walls) to prevent contamination of the whole pools. This technique is used all along the river and the *majala* tree (*malawa* in Ngarinyin) is revered by all. Another traditional technique was to use rolled up grasses as a form of dragnet to herd the fish into a shallow area of a pool to trap the fish. Today people fish in the same patterns adapting modern technologies of fishing lines and throw nets to traditional techniques.

River resources are also extremely important for those for those in mourning. Close relatives of the deceased undertake a taboo — *jaginy* — of not eating red meat. At such times fish, goanna and cherrabun are vital for maintaining a balanced diet as some people will maintain *jaginy* for two or more years.

Protecting the water sources

The Indigenous groups of the river believe that it is their responsibility to ‘look after’ the river country so as to maintain the replenishment of seasonal resources upon which they are dependent. This is primarily achieved through ritual and song and “talking to the country”, but also through conservationist practices, such as never wasting fish, leaving excess bait for crocodiles, and only taking enough to satisfy immediate sustenance needs.

Universally along the river, certain pools and rocks are associated with the increase of natural phenomenon. For example one aspect of Wanjina associated with the permanent pools (*unggud*) is the increase of all natural species of the river country. Mowaljarlai (1992:186) explains the importance of increase stones and their relationship to Wanjina and the role of *dambun* to ensure the efficacy of the increase stones:

Each Dambun contains different and very special increase stones, which are important for hunting, for ceremony, and as signal markers for travelers. These stones must be constantly maintained. They are knocked down by the rains and floods, or by kangaroos, donkeys and cattle.

Significant in the context of considering the possibility of damming the river, is the assertion by Ngarinyin that the river(s) must ‘run free’ so that the spiritual force of the river is not interfered with or blocked, and so that the increase of all species is maintained.

Working with scientists

In both research projects the following principles were adopted:

- To work collaboratively with scientists, and
- To involve young people in the research and field trips.

Given the minimal budgets, this team work enabled the fieldwork to be streamlined as the Traditional Owners were able to take the scientists to appropriate water sources, and were able to describe the physical changes to the ecosystems, for example by identifying extinct and threatened species and the effects of not burning the country. At each site there was a cross-cultural interaction as the TOs and scientists exchanged their stories about the area. In this environment of mutual exchange both groups were able to learn more about the ecosystems and the interrelationships between species and climatic events. Together they were able to identify land management issues, determine future requirements, and establish the geoheritage and environmental significance of the river country according to national and international protocols. (See Appendix 3 for an example of how the scientific research was presented as a series of 'stories' for the TOs, many of whom are illiterate).

Documenting environmental change

There is a marked contrast between the environmental state of Upper Fitzroy and Hann River region compared to that of the lower Fitzroy, which has suffered from the development of the pastoral and agricultural industries. The Hann River, despite the presence of cattle, has remained relatively pristine, although there are some instances of increased erosion due to the impact of cattle, road building and mining exploration.

Most significant in the degradation of the Lower Fitzroy are the impact of sheep and cattle and poor management of the industry, the development of the Camballin irrigated agriculture project and the building up of the Derby-Broome Road on the west side of Willare Bridge.

Older Kimberley Indigenous stockmen, who have lived on the country since birth, are most qualified to comment on the changes to the river because of their first hand knowledge of the land over a long period of time. Ivan Watson's account can be found in Marshall (1988).

Whitefellas have been bringing in plants from all over the country and overseas. They introduced the Kapok bush too and that's really gone wild up here.... Native grasses such as Birdwood and Spinifex still make up the majority of the grasses around here, but I'm very concerned about our native grasses disappearing. We don't see much Pigweed, or Parrang Parrang³⁶, around here anymore.

It doesn't matter where the Whitefellas go, always bulldozers, graders, and roadmaking follows behind. Actually, they're changing the country considerably.

³⁶ These grasses also provided seed for grinding to make traditional damper.

When they put roads over watercourses, it changes the flow of the water throughout the whole area. And of course, that's how erosion starts....

They don't know anything about the environment up here, nor did they bother to ask any old hands around town. I'd like to know how much more river frontage they're going to damage. ...

After the water got so high they couldn't control it, some bright spark hit on the idea that they should release the river by dynamiting a section of the new road. So that's what they did. But that didn't just release the built-up water, it siphoned out everything upstream. It siphoned out big waterholes that generally hold water after a big flood. They just weren't there after the '86 flood. It drained almost everything. It was a corruption of the whole river frontage! It gouged out many, many parts of our country...

With the way they've designed that new "all weather" road, I reckon the Cockatoo Creek will finish up being a full face river before long (Marshall 1988:173-181)..

These comments were recorded in 1987. According to the people who participated in this project the river had continued to deteriorate. More of the named permanent pools have started to fill up with sediment. It is now impossible to get to some popular fishing places because of the erosion and scouring. Many of the named islands that used to remain after the flood are disappearing, and the river is getting wider, shallower and the flood water moving faster.

At the mouth of the river the country is also radically changing. Lucy Marshall who has lived in the river country all her life explained that the mouth is getting bigger, flatter and wider. It is difficult or impossible to travel over some of the mud flats to get to named fishing places, and the salt water inundation is encroaching up the river. She says that in a number of places they "can't find the living water [permanent pools] anymore".

However, the most dramatic changes to the river have occurred at Camballin as a consequence of the failed attempts to develop large-scale irrigated agriculture on the floodplains of the Fitzroy River. Remnants of the project, including extensive levy banks, dam walls, a barrage across the river and a variety of pump casings, culverts, roads, channels etc, have not been dismantled³⁷, nor has any attempt been made to rehabilitate the country. Consequently this debris continues to detrimentally affect the course of the river and impacts on the annual flooding of the Lower Fitzroy.

³⁷ LWA is funding a project by the KLC and Murdoch University designed to mitigate the impacts of this barrage on fish movement.

Planning for the future

We frightened longa that dam. We don't want to lose our history. I never make 'em up story myself. I get 'em from old people³⁸.

The river people share a holistic view of the river in which it is believed that large scale activities, such as dam building, on any part of the river will have a detrimental impact, both culturally and physically, to the river country and to the well-being of the Indigenous communities who live in the river country. In particular, they do not want their 'stories', associated with each part of the river, to be 'covered up' and lost, as occurred with the building of the Lake Argyle dam. Previous experience of dam projects such as the Camballin Irrigations Scheme, and, by default, the upgrading of the Broome Highway, have also convinced Traditional Owners that large scale projects that significantly interfere with the natural flow of the floodwaters do not work.

This does not, however, presume that Indigenous people of the Fitzroy Valley are anti-development. They are keen to investigate ways in which they can 'make a living' from the river country, using their culture as a foundation, which Peter Yu, Chairman of NAILSMA, refers to as 'culture based economies ... which support the credibility and integrity of cultural transactions locally and across the north, and lead to innovative commercial opportunities' (Armstrong, 2005). This position was formally adopted at the recent Kimberley Appropriate Economies Roundtable forum held in Fitzroy Crossing, October, 2005, where cultural maintenance was given priority in the discussion of management and development projects along the Fitzroy River. As the two projects discussed in this case study reveal, the Traditional Owners wish to maintain the integrity of cultural management systems by linking customary and scientific approaches to land management strategies, and developing on-going projects that engage and train their young people.

The experiences of these two research projects and many others in the Fitzroy Valley confirm issues raised by NAILSMA (Armstrong, 2005). One of the best ways for people to 'look after country' is to be able to 'work on country' through resource management and documentation projects, or through cultural enterprises such as cultural tourism or art projects. Developing partnerships between the relevant Indigenous people and researchers or developers, is one of the most sustainable ways to proceed. If such partnerships are to succeed, they must include respect for the cultural values and protocols of the Indigenous people, who see themselves as the original caretakers of the river, as a guiding principle for the management of the river resource.

³⁸ Pansy Nulgit, Winjilangarri, 711.00.