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National Water Grid

Indigenous water values, rights, interests and development goals in the Southern Gulf catchments: A literature review and implications for future research

A technical report from the CSIRO Southern Gulf Water Resource Assessment for the National Water Grid

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Important disclaimer

CSIRO Southern Gulf Water Resource Assessment acknowledgements

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Aspects of the Assessment have been undertaken in conjunction with the Northern Territory and Queensland governments.

The Assessment was guided by two committees:

i. The Governance Committee: CRC for Northern Australia/James Cook University; CSIRO; National Water Grid (Department of Climate Change, Energy, the Environment and Water); Northern Land Council; NT Department of Environment, Parks and Water Security; NT Department of Industry, Tourism and Trade; Office of Northern Australia; Queensland Department of Agriculture and Fisheries; Queensland Department of Regional Development, Manufacturing and Water

ii. The Southern Gulf catchments Steering Committee: Amateur Fishermen's Association of the NT; Austral Fisheries; Burketown Shire; Carpentaria Land Council Aboriginal Corporation; Health and Wellbeing Queensland; National Water Grid (Department of Climate Change, Energy, the Environment and Water); Northern Prawn Fisheries; Queensland Department of Agriculture and Fisheries; NT Department of Environment, Parks and Water Security; NT Department of Industry, Tourism and Trade; Office of Northern Australia; Queensland Department of Regional Development, Manufacturing and Water; Southern Gulf NRM

Responsibility for the Assessment's content lies with CSIRO. The Assessment's committees did not have an opportunity to review the Assessment results or outputs prior to their release.

This report was reviewed by Dr Heather Stewart (CSIRO).

Acknowledgement of Country

CSIRO acknowledges the Traditional Owners of the lands, seas and waters of the area that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their elders past and present.

Photo

Lawn Hill Creek, Boodjamulla Country of the Waanyi People. Source: CSIRO

Director's foreword

Sustainable development and regional economic prosperity are priorities for the Australian, Queensland and Northern Territory (NT) governments. However, more comprehensive information on land and water resources across northern Australia is required to complement local information held by Indigenous Peoples and other landholders.

Knowledge of the scale, nature, location and distribution of likely environmental, social, cultural and economic opportunities and the risks of any proposed developments is critical to sustainable development. Especially where resource use is contested, this knowledge informs the consultation and planning that underpin the resource security required to unlock investment, while at the same time protecting the environment and cultural values.

In 2021, the Australian Government commissioned CSIRO to complete the Southern Gulf Water Resource Assessment. In response, CSIRO accessed expertise and collaborations from across Australia to generate data and provide insight to support consideration of the use of land and water resources in the Southern Gulf catchments. The Assessment focuses mainly on the potential for agricultural development, and the opportunities and constraints that development could experience. It also considers climate change impacts and a range of future development pathways without being prescriptive of what they might be. The detailed information provided on land and water resources, their potential uses and the consequences of those uses are carefully designed to be relevant to a wide range of regional-scale planning considerations by Indigenous Peoples, landholders, citizens, investors, local government, and the Australian, Queensland and NT governments. By fostering shared understanding of the opportunities and the risks among this wide array of stakeholders and decision makers, better informed conversations about future options will be possible.

Importantly, the Assessment does not recommend one development over another, nor assume any particular development pathway, nor even assume that water resource development will occur. It provides a range of possibilities and the information required to interpret them (including risks that may attend any opportunities), consistent with regional values and aspirations.

All data and reports produced by the Assessment will be publicly available.

Chris Chilcott

Project Director

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Shortened forms

SHORT FORM	FULL FORM
ALRA	*Aboriginal Land Rights (Northern Territory) Act 1976*
CLCAC	Carpentaria Land Council Aboriginal Corporation
DOGIT	deed of grant in trust
ILUA	Indigenous Land Use Agreement
IPA	Indigenous Protected Area
NAILSMA	North Australian Indigenous Land and Sea Management Alliance
NGNRM	Northern Gulf Natural Resource Management
NWI	National Water Initiative
NT	Northern Territory
PBC	Prescribed Body Corporate
RNTBC	Registered Native Title Body Corporate
SA	Statistical Area
WA	Western Australia

Preface

Sustainable development and regional economic prosperity are priorities for the Australian, NT and Queensland governments. In the Queensland Water Strategy, for example, the Queensland Government (2023) looks to enable regional economic prosperity through a vision that states 'Sustainable and secure water resources are central to Queensland's economic transformation and the legacy we pass on to future generations.' Acknowledging the need for continued research, the NT Government (2023) announced a Territory Water Plan priority action to accelerate the existing water science program 'to support best practice water resource management and sustainable development.'

Governments are actively seeking to diversify regional economies, considering a range of factors, including Australia's energy transformation. The Queensland Government's economic diversification strategy for North West Queensland (Department of State Development, Manufacturing, Infrastructure and Planning, 2019) includes mining and mineral processing; beef cattle production, cropping and commercial fishing; tourism with an outback focus; and small business, supply chains and emerging industry sectors. In its 2024–25 Budget, the Australian Government announced large investment in renewable hydrogen, low-carbon liquid fuels, critical minerals processing and clean energy processing (Budget Strategy and Outlook, 2024). This includes investing in regions that have 'traditionally powered Australia' – as the North West Minerals Province, situated mostly within the Southern Gulf catchments, has done.

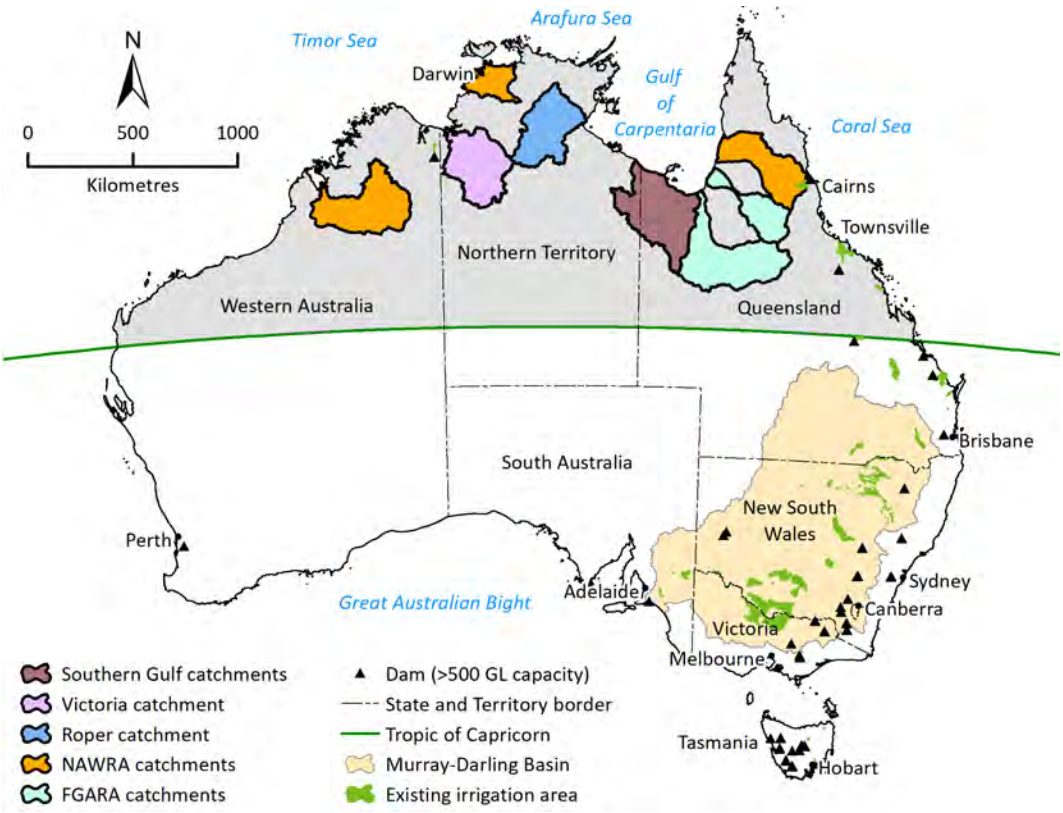
For very remote areas like the Southern Gulf catchments (Preface Figure 1-1), the land, water and other environmental resources or assets will be key in determining how sustainable regional development might occur. Primary questions in any consideration of sustainable regional development relate to the nature and the scale of opportunities, and their risks.

How people perceive those risks is critical, especially in the context of areas such as the Southern Gulf catchments, where approximately 27% of the population is Indigenous (compared to 3.2% for Australia as a whole) and where many Indigenous Peoples still live on the same lands they have inhabited for tens of thousands of years. About 12% of the Southern Gulf catchments are owned by Indigenous Peoples as inalienable freehold.

Access to reliable information about resources enables informed discussion and good decision making. Such information includes the amount and type of a resource or asset, where it is found (including in relation to complementary resources), what commercial uses it might have, how the resource changes within a year and across years, the underlying socio-economic context and the possible impacts of development.

Most of northern Australia's land and water resources have not been mapped in sufficient detail to provide the level of information required for reliable resource allocation, to mitigate investment or environmental risks, or to build policy settings that can support good judgments. The Southern Gulf Water Resource Assessment aims to partly address this gap by providing data to better inform decisions on private investment and government expenditure, to account for

intersections between existing and potential resource users, and to ensure that net development benefits are maximised.



Preface Figure 1-1 Map of Australia showing Assessment area (Southern Gulf catchments) and other recent CSIRO Assessments

FGARA = Flinders and Gilbert Agricultural Resource Assessment; NAWRA = Northern Australia Water Resource Assessment.

The Assessment differs somewhat from many resource assessments in that it considers a wide range of resources or assets, rather than being a single mapping exercises of, say, soils. It provides a lot of contextual information about the socio-economic profile of the catchments, and the economic possibilities and environmental impacts of development. Further, it considers many of the different resource and asset types in an integrated way, rather than separately.

The Assessment has agricultural developments as its primary focus, but it also considers opportunities for and intersections between other types of water-dependent development. For example, the Assessment explores the nature, scale, location and impacts of developments relating to industrial, urban and aquaculture development, in relevant locations. The outcome of no change in land use or water resource development is also valid.

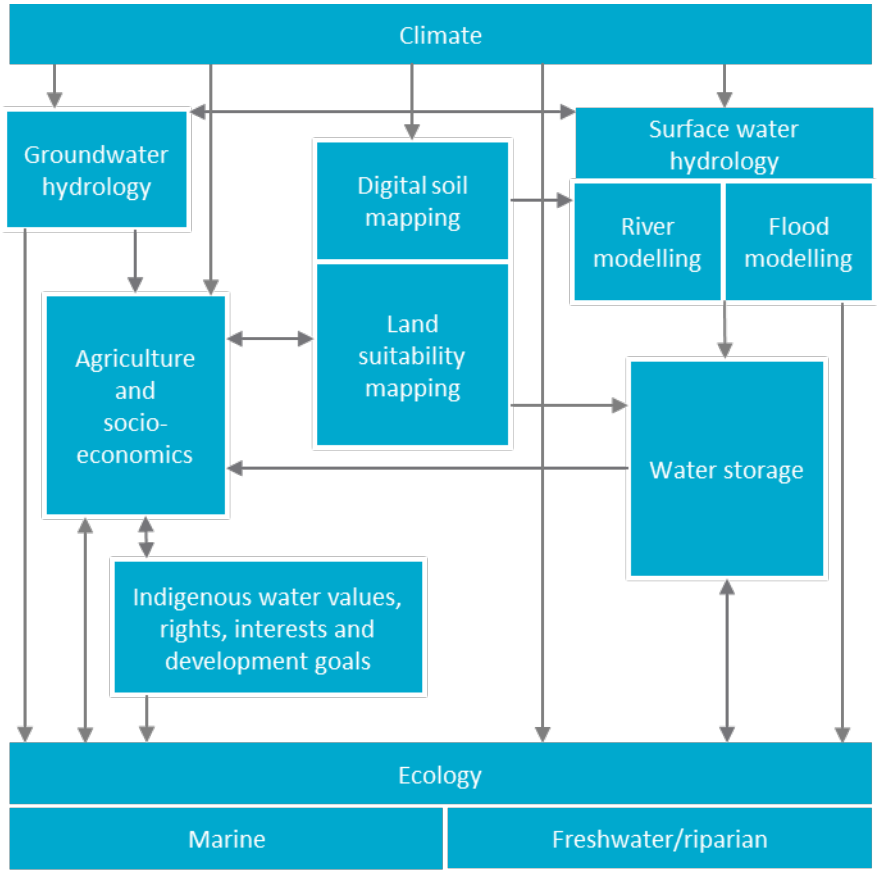
The Assessment was designed to inform consideration of development, not to enable any particular development to occur. As such, the Assessment informs – but does not seek to replace – existing planning, regulatory or approval processes. Importantly, the Assessment does not assume a given policy or regulatory environment. Policy and regulations can change, so this flexibility enables the results to be applied to the widest range of uses for the longest possible time frame.

It was not the intention of – and nor was it possible for – the Assessment to generate new information on all topics related to water and irrigation development in northern Australia. Topics

not directly examined in the Assessment are discussed with reference to and in the context of the existing literature.

CSIRO has strong organisational commitments to Indigenous reconciliation and to conducting ethical research with the free, prior and informed consent of human participants. The Assessment allocated significant time to consulting with Indigenous representative organisations and Traditional Owner groups from the catchments to aid their understanding and potential engagement with its requirements. The Assessment did not conduct significant fieldwork without the consent of Traditional Owners. CSIRO met the requirement to create new scientific knowledge about the catchments (e.g. on land suitability) by synthesising new material from existing information, complemented by remotely sensed data and numerical modelling.

Functionally, the Assessment adopted an activities-based approach (reflected in the content and structure of the outputs and products), comprising activity groups, each contributing its part to create a cohesive picture of regional development opportunities, costs and benefits, but also risks. Preface Figure 1-2 illustrates the high-level links between the activities and the general flow of information in the Assessment.



Preface Figure 1-2 Schematic of the high-level linkages between the eight activity groups and the general flow of information in the Assessment

Assessment reporting structure

Development opportunities and their impacts are frequently highly interdependent and, consequently, so is the research undertaken through this Assessment. While each report may be read as a stand-alone document, the suite of reports for each Assessment most reliably informs discussion and decisions concerning regional development when read as a whole.

The Assessment has produced a series of cascading reports and information products:

- Technical reports present scientific work with sufficient detail for technical and scientific experts to reproduce the work. Each of the activities (Preface Figure 1-2) has one or more corresponding technical reports.
- A catchment report, which synthesises key material from the technical reports, providing well-informed (but not necessarily scientifically trained) users with the information required to inform decisions about the opportunities, costs and benefits, but also risks, associated with irrigated agriculture and other development options.
- A summary report provides a shorter summary and narrative for a general public audience in plain English.
- A summary fact sheet provides key findings for a general public audience in the shortest possible format.

The Assessment has also developed online information products to enable users to better access information that is not readily available in print format. All of these reports, information tools and data products are available online at https://www.csiro.au/southerngulf. The webpages give users access to a communications suite including fact sheets, multimedia content, FAQs, reports and links to related sites, particularly about other research in northern Australia.

Executive summary

The Southern Gulf Water Resource Assessment examined the feasibility, economic viability and sustainability of water and agricultural development in selected catchments in the southern Gulf of Carpentaria - Settlement Creek, Gregory–Nicholson River and Leichhardt River, the Morning Inlet catchments and the Wellesley island groups[1] (the Southern Gulf catchments). One of the ten activities within the Assessment included research investigating Indigenous water values, rights and interests, Indigenous opportunities and objectives, and perspectives on natural resource development generally. The activity addressed information needs with respect to Indigenous water issues in the Assessment area to provide a set of pathway options for further research with Indigenous partners that will assist Indigenous Peoples in the study area, community and government in planning and decision making.

This report is based on a review of literature of Indigenous water values, rights, interests and development goals in the Southern Gulf catchments and of previous Indigenous activity reports about other catchments in the Gulf of Carpentaria - the Flinders, Gilbert, Mitchell and Roper catchments (Preface Figure 1-1). The review was undertaken in parallel with discussions with the Carpentaria Land Council Aboriginal Corporation (CLCAC) on appropriate consultation processes and a joint funding submission to undertake meetings with the directors of the five Prescribed Body Corporates (PBCs) represented by the CLCAC.

The literature review identifies themes on the key conditions, challenges and opportunities of Indigenous water values, rights and interests, and Indigenous goals and pathway options to test in future work with Indigenous collaborators. The limited research on the activity subject area in the Southern Gulf catchments has meant that the team drew from the main questions of previous activity reports.

There is a paucity of information on Indigenous water values, rights and interests and Indigenous goals in the Southern Gulf catchments. This review draws on the themes from the activity subject areas to situate the findings from the Southern Gulf catchments. It does this in the catchment summary chapter and in each chapter.

This review highlights the significance of cosmology and the Dreaming that is ingrained in knowledge of Country and customary practices. The deep attachments to customary Country are evident across the Assessment catchments. Indigenous lore is practised through the assertion of Indigenous ownership of land, water and resources above and below ground, and it entails a range of obligations and responsibilities to ancestors, descendants, neighbours, and those living downstream and in marine waters. These water-related obligations and responsibilities are challenged when water systems cross jurisdictional boundaries.

The importance of water – as life creating and sustaining, and its sacredness in the Dreaming – is a shared perspective across the catchments. A consistent finding across the Flinders (Petheram et

[1] Only those islands greater than 1000 ha are mapped.

al., 2013a), Gilbert (Petheram et al., 2013b), Mitchell (Petheram et al. (eds), 2018) and Roper (Watson et al. (eds), 2023) reports of the development options explored in this Assessment is that the option of major instream dams is the least preferred type of development of water resources. A variety of environmental and cultural risks were identified across the activity reports. Cultural heritage is a major piece of the combination of potential risks and impacts, followed by remote community health and wellbeing, that informs Indigenous objectives regarding development. The important role of water in development, and the perceived increasing demand by non-Indigenous business interests for water, as well as water insecurity in communities, require new capabilities and resources to establish enabling conditions for Indigenous decision making in future development.

Respondents across the Flinders, Gilbert, Mitchell and Roper catchments expressed their strong desire to be involved in water planning, and the importance of building cross-generational capability to engage in formal governance roles. Meeting customary obligations and responsibilities is an imperative in their priority role in water planning and allocation, prior to the inclusion of other interests and rights. The literature on Indigenous participation and interests in water planning in the Southern Gulf catchments is sparse. A shared finding across the activity is that Indigenous Peoples seek to be collectively involved in the continued protection, development and management of their catchment areas. Indigenous involvement in sustainable catchment development necessarily includes Indigenous Peoples' roles in water planning.

The review confirms that Indigenous objectives across the Assessment catchments combine economic viability and sustainability with a range of wider social, cultural, governance and environmental goals. Opportunities within each catchment and for groups will be unique to their particular historical, geographical, physical, cultural and human assets. Smaller-scale and locally driven opportunities were consistently favoured. On-Country enterprise goals across the catchments include pastoralism, tourism, natural cultural resource management, research partnerships and, for some respondents and corporations, diversification of businesses.

Research can productively engage in future development planning by testing and building knowledge of the resources, systems and capabilities needed for Indigenous Peoples and collectives, and participating meaningfully in decision making. Expanding understanding of the conditions for, and priorities and interactions of, the enabling factors for greater Indigenous participation in water resource development in the Southern Gulf catchments is a first step. These enabling factors include:

- recognition and resource rights
- development planning and Indigenous roles in development
- Indigenous water planning and allocation needs
- education and employment opportunities
- infrastructure
- residence
- knowledge to support future planning
- knowledge improvement and business development (particularly land-based business) needs
- natural cultural resource management

- partnerships and agreement making with non-Indigenous businesses.

This activity identified a set of pathway options for planning for sustainable Indigenous development that are grounded in reported ideas and aspirations in the existing available literature. Consultations at local and regional levels are required to confirm whether the pathway options presented here are important to prioritise from an Indigenous perspective. The pathway options include:

- steps to meet Indigenous needs in engaging with future water development
- best practice for enabling greater involvement of Indigenous Peoples in water planning
- catchment management planning processes for Indigenous and non-Indigenous Peoples
- strengthening Indigenous capabilities in natural resource management and planning
- options to improve opportunities for businesses to understand and invest in Indigenous Peoples and their lands and waters.

The Indigenous Peoples of the Gulf of Carpentaria are highly culturally and linguistically diverse, have historically distinct experiences of colonisation, and, depending on their geographic location, are subject to different state or territory laws. This literature review for the Assessment provides a subsample of this diversity as well as identifying some common principles, themes and issues for Indigenous Peoples at previously investigated locations in the Gulf of Carpentaria. In doing so, it shows that it cannot substitute for the detailed local and catchment scale activity that would be required in Settlement Creek, the Gregory–Nicholson River and Leichhardt River, the Morning Inlet catchments and the Wellesley island groups to successfully undertake catchment management, water planning, and water resource development in these locations. The scoping discussions and consultations undertaken by the Assessment with CLCAC and the PBCs from these areas indicate the importance placed on Indigenous-led and co-design approaches in any future activities.

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1 Introduction

1.1 Research context

Indigenous Peoples of Australia continue to seek sustainable inter-generational social and economic opportunities for themselves and their communities. To achieve this, they have established growing levels of formal recognition over the nation's natural resources through mechanisms like land restitution schemes and native title. Key Indigenous development objectives have been articulated in Indigenous-driven initiatives, and Indigenous leaders are navigating opportunities to have Indigenous values, rights, interests and development objectives acknowledged in national and regional development initiatives and planning processes (Committee on Aboriginal and Torres Strait Islander Water Interests, 2023; NAILSMA, 2008, 2009, 2010).

The creation in late 2017, of an Indigenous Reference Group to inform Australian Government approaches to northern development reflects ongoing needs for improved recognition and understanding of the potential role of Indigenous Peoples in future successful development initiatives. The Committee on Aboriginal and Torres Strait Islander Water Interests was established in 2023. It advises the National Water Committee on Indigenous water reform matters to guide reform that will secure the recognition of Indigenous interests in water.

Reflecting this multiplicity of contexts and interests in water, the CSIRO has undertaken Water Resource Assessments in several catchments across northern Australia. (See https://www.csiro.au/en/research/natural-environment/water/water-resource-assessment/nawra) to view the breadth of the research undertaken for the Assessments.) Past Assessments have reviewed the catchments of the Flinders, Gilbert and Mitchell rivers in Queensland; the catchments of the Darwin, Finniss, Adelaide, Mary and Wildman rivers in the NT; and the catchment of the Fitzroy River in WA. Each Assessment included a survey of Indigenous water values, rights, interests and development objectives across each of the nominated catchments.

This report is part of the Assessment for the This report is a thematic review of the findings from the Indigenous activity across the Assessment catchments. The results provide a foundation for future collaborative partnerships with Indigenous Peoples on water-related opportunities.

1.2 Key principles and issues

This section revisits key issues and principles provided in the Assessment reports to aid interpretation of the report content. Indigenous Peoples have lived in Australia for millennia and have developed strong custodial connections to and significant knowledge of landscapes and important places. The violence and dispossession that occurred during European colonisation had deep and ongoing effects on individuals, to their cultures and societies (Merlan, 1986; Powell, 2016; Roberts, 2005; Strang, 1997; Trigger,1992). In many cases the colonial process involved dispersal and dislocation from traditional lands (Merlan, 1986).

Nevertheless, Indigenous Peoples across Australia continue to assert and sustain cultural, historical and emotional ties to their traditional lands. Indigenous Peoples' ties and connections to their lands include a reliance on their land and waters for a range of practical, material and economic support. These lands are a major focus for contemporary social and economic development ideas and objectives. Indigenous Peoples understand themselves as members of a socially and economically disadvantaged group, but also as upholding a long tradition of custodianship and inter-generational responsibilities over their traditional lands and waters. They understand themselves as the first and continuing owners and custodians of the traditional lands they claim.

Indigenous Peoples have strong objectives for economic development and the opportunities it creates. Water resource development is a significant opportunity that can foster wider economic and social development. Examples of these opportunities are included in this review.

1.2.1 Country, culture and lore for Indigenous Peoples

The terms 'Country', 'culture' and 'lore' relate to critical concepts for Indigenous Peoples when communicating in English about their values, rights and interests. With respect to Country, Indigenous Peoples' identities in Australia are strongly connected to place or Country, and to the wider connected land and waterscapes (Bradley, 2010; Langton, 2006; Merlan, 1981; Morphy, 1991; Myers, 1991; Rose, 1996, 2004; Strang, 1997; Williams, 1986). The use of 'Country' also implies a sense of ownership by Peoples whose origins lie within that area, and a sense of responsibility for it.

Indigenous Peoples understand themselves as connected to their Country in a range of ways (Merlan, 1982; Munn, 1973; Myers, 1991; Rose, 2000). First, places are part of the network of kinship relationships understood to exist between humans, plants and animals, and other features in the landscape (Rose, 2005). Alongside this kin relationship, people connect themselves to Country through physical presence in the landscape, through knowledge of its characteristics (including seasonal and long-term changes in it), through practices and activities related to it such as hunting, singing and dancing, and through the relationships with other people that are formed through Country they share (Bradley, 2010).

The term 'culture' describes the knowledges, practices and relationships that bind Indigenous Peoples to one another and to the landscape (Merlan, 1981; Rose, 2000; Strang, 1997). It is a widely used term with a range of meanings (Head et al., 2005), but the Indigenous usage emphasises jointly held knowledge and collectively undertaken activity. A second important aspect of Indigenous understanding of culture is shown by the use of the English word 'lore' to describe these activities – 'culture' and 'lore' are sometimes used interchangeably by Indigenous Peoples (Barber and Jackson, 2011). This demonstrates that 'culture' in the Indigenous sense has legal, political and moral force – it refers to the guiding principles and commitments that should govern people's lives, not to the rapidly changing 'popular' culture often suggested by wider English usage.

In the same ways that change in non-Indigenous law should be and is governed by underlying principles that are far more stable, so 'unchanging' Indigenous lore is a dynamic tradition that has been obliged, and sometimes forced, to adapt to new circumstances for its existence to be

sustained. That adaptation process has been more or less successful depending on the circumstances, but it has always relied on stable and enduring principles (Barber, 2018).

The crucial sustaining roles of culture and Country, and of the lores and practices that are associated with them, also place a heavy obligation on current custodians to protect and pass on as much as they can to subsequent generations. In relation to Country (both land and waters), people consider themselves simultaneously as owners, guardians, custodians, advocates, beneficiaries, relatives and dependants. The terms 'Country', 'culture' and 'lore' are crucial to understanding Indigenous Peoples' responses to specific issues associated with traditional lands, including water and agricultural development.

1.2.2 Values, rights and interests

The phrase 'values, rights and interests' is critical in how this report discusses Indigenous Peoples' relationships with water and with the landscape. Each term in this phrase relates to a different aspect of Indigenous perspectives to be considered by those engaging with Indigenous Peoples. The working definitions adopted in this activity and in this report demonstrate how these terms express different aspects of Indigenous relations (Barber, 2013):

- 'Value' refers to what people consider important or worthy of merit and significance. It can also refer to underlying principles or beliefs that drive estimations of importance.
- 'Right' can refer to what is morally or ethically correct, but in this context also refers particularly to what is legally recognised as just and valid.
- 'Interest' refers to people having a share, involvement, concern or claim in something.

1.2.3 Contemporary Indigenous tenure regimes

Indigenous land access and tenure have been impacted by colonial history and contemporary regimes. The nature and extent of European intervention have impacted relationships of Indigenous Peoples to their lands in significant ways (Merlan, 1986). These impacts have significantly altered where Indigenous Peoples live. The patterns of residence and dispersal across the Assessment catchments reviewed for this report reflect a combination of involuntary relocation, voluntary movement to seek jobs and other opportunities, and kinship and family links. The concentration of people in particular places means that residential location can differ from formal group and tenure boundaries. This means that infrequently visited places may nevertheless be crucial in people's lives to sustain distinct individual and group identity and maintain connections to ancestors, to pass this knowledge to descendants.

1.3 Indigenous interests in land

The development of land rights in the NT by the Australian Parliament, enshrined in the *Aboriginal Land Rights (Northern Territory) Act 1976* (ALRA), continues to be influential in debates and initiatives regarding Indigenous land interests. The Act is a system for granting substantial rights (fee simple estates) over areas of land in the NT to trusts representing Traditional Owners. The trusts have considerable control, similar to that of freehold title held by property owners elsewhere in Australia, but property is collectively held and unable to be sold. Subsequent state-

based legislation in Queensland and WA had similar intent with respect to making land available to Indigenous Peoples for residential, cultural and economic purposes, but a far more restricted geographic, legal and/or procedural scope.

Although conferring powerful rights, these state and territory Acts did not represent formal recognition in Australian law of traditional Indigenous ownership – of native title. This recognition came from the High Court of Australia's 1992 decision in *Mabo v Queensland* (No. 2). This decision and subsequent legislation – the Commonwealth *Native Title Act 1993* – created a system for recognising Aboriginal native title across Australia (Waschka and Macintosh, 2024). The native title system provides formal recognition for traditional claimants, but it does not automatically generate consistent property rights like those coming from the NT land rights process. Rather, it recognises a bundle of rights defined by the laws and customs of the successful claimants as they can be demonstrated to the Court. As a result, it can enable recognition of rights that are foreign to Anglo-Australian property law. Yet it also requires an extensive burden of legal proof regarding the connection and continuity through time of Indigenous lores and customs. Where that proof cannot be demonstrated, such laws and customs remain unrecognised in Anglo-Australian law. By its nature, the system creates significant variations across time and space in the ability to recognise potential native title holders, and in the rights they can secure. This means all parties affected by determinations of native title need to pay close attention to the detail of each determination. Native title rights are necessarily limited as they are difficult to prove, and much has been extinguished by common law and legislation.

Significant drivers of interest in native title are the wider agreements such as Indigenous Land Use Agreements (ILUAs) that can emerge from such recognition, even prior to formal determination. ILUAs have been a crucial tool for the negotiation and management of pastoral, mining and industry relations.

In addition to these formally registered and enduring customary ownership regimes are community and individual freehold tenures and leases held by Indigenous Peoples and corporations, including pastoral and mining leases. By definition, formal legal recognition of customary ownership reflects patterns of customary connection, but pastoral leaseholders can include Traditional Custodians and Indigenous residents, both individually and in combination.

1.4 Indigenous interests in water

Under Anglo-Australian law, the rights to the use, flow and control of water rest with state and territory governments. State and territory water legislation specifies processes for water planning and approval regimes, as well as constructing water infrastructure such as dams and pipes. Indigenous interests in water were largely ignored until the recognition of native title, as native title can apply to water as well as land. Non-exclusive rights to use and access waters have been secured through this avenue, but past native title cases have determined that exclusive possession of water will not be recognised in Anglo-Australian law. Exclusive possession of land through native title can provide the practical ability to restrict access to water, but it is not exclusive possession of the water. As is the case for land, continuity in laws and customs in relation to water needs to be demonstrated for rights to be recognised.

A second means for recognising Indigenous interests in water is through water laws and statutes. Queensland and the NT are signatories to the National Water Initiative (NWI) (agreed in 2004 by the Council of Australian Governments with commitment by the Australian Government to renew the NWI: https://www.dcceew.gov.au/water/policy/policy/nwi) that emphasises Indigenous access to water; Indigenous representation in water planning; and the incorporation of social, spiritual and customary objectives in water plans. The NWI also highlights the existence of native title rights to water. The jurisdictions vary in the degree to which their statutes reflect the NWI. In the NT, cultural factors can be considered in current water planning frameworks, and strategic Indigenous water reserves or entitlements in water plans designed to aid Indigenous economic development. In Queensland, the relevant water legislation recognises Indigenous interests in, and connection to, water resources. In general, the underlying legal constraints are reflected in limited Indigenous roles in water planning and a partial consequence is that Indigenous knowledge of formal government-led water planning can be relatively low. Recent initiatives by the NT and Queensland governments are aimed at increasing Indigenous participation in that process.

1.5 Scope and methods for the literature review

This report is based on a review of literature that pertains to Indigenous water values, rights, interests and development goals and to natural resource development generally in river catchments in the southern Gulf of Carpentaria, understood here as stretching from the Roper catchment on the western side of the Gulf to the Mitchell catchment on the eastern side. This geographic area is broader than, but inclusive of, the catchments studied in other activities in the Assessment.

The Indigenous activity of this Assessment focused on a literature review of this wider geographic scope as on-ground fieldwork was not undertaken with Indigenous Peoples in the Southern Gulf catchments. CSIRO has strong organisational commitments to Indigenous reconciliation and to conducting ethical research with the free, prior, and informed consent of human participants. The Assessment allocated significant time to consulting with Indigenous representative organisations and Traditional Owner groups from the catchments to aid their understanding and potential engagement with its requirements. At the completion of the Assessment there were ongoing discussions with CLCAC on an appropriate process and a joint submission for a collaborative consultation approach. CSIRO met the requirement in this Assessment to create new scientific knowledge about the catchments (for example on land suitability and groundwater) by synthesising existing information complemented with remotely sensed data and numerical modelling

The literature review encompassed media, grey literature and journal articles to understand Indigenous water values, rights, interests and development goals in the Southern Gulf of Carpentaria. It drew significantly on reports from previous Agricultural and Water Resource Assessments in the Flinders (Barber 2013), Gilbert (Barber, 2013), Mitchell (Lyons and Barber 2018) and Roper (Lyons et al., 2023) catchments. The review sought to:

- establish themes that are common across the catchments on key activity subject areas
- contextualise factors to be considered in relation to the subject areas investigated in the activity

- develop early thematic alignments on issues to be considered and explored in future consultations.

This literature review identified themes common to the Assessments, and pathway options that may be tested and prioritised from an Indigenous perspective through consultation and potentially co-investment to build options unique to Indigenous Peoples in the Southern Gulf catchments.

The literature review included topics on:

- colonial processes in the region, existing land use, ownership and management, in the form of a catchments description
- Indigenous values associated with water and riparian landscapes in the catchments
- cultural heritage issues in relation to water-related development
- Indigenous needs and objectives in relation to water planning and catchment management
- Indigenous needs and objectives in relation to water-related development.

A selection of comments from respondents in the Roper, Flinders, Gilbert, and Mitchell catchments are included in this report as examples of particular themes. These are supported by evidence from more limited literature from the Assessment area - the Southern Gulf catchments.

The report includes themes about processes to achieve development, types of desired development, the timing and level of consultation, Indigenous roles in project oversight, opportunities for Indigenous participation and partnership, potential social and environmental impacts, and economic development–related opportunities.

The report is intended to reach an audience beyond formal clients (including governments, local Indigenous elders and leaders, and the general public). It provides themes that can be the basis for future collaborative testing and verification with Indigenous local groups within the Gulf of Carpentaria catchments. This activity aims to assist non-Indigenous decision makers in understanding general Indigenous valuations of water, wider connections to Country, and the rights and interests attached to those. It highlights likely issues to be raised in future discussions with Indigenous groups about community planning, development proposals and Indigenous business aspirations.

The report also aims to assist Indigenous decision makers (local, regional and national) in understanding some of the common themes that relate to residential, ownership, natural and cultural resource management, and development issues for Indigenous Peoples associated with the catchments. It supports the importance of further Indigenous-led and co-designed work with Indigenous Peoples to build information that will assist Indigenous Peoples, partners and stakeholders to plan for future development in the region.

1.6 Summary

This report provides a review of the literature on Indigenous water values, rights, interests and development goals, and natural resource development generally. It draws on literature specific to the Southern Gulf catchments and the activity reports of previously conducted Assessments of the Flinders, Gilbert, Mitchell and Roper catchments in Queensland and the NT. It reports on:

- colonial processes in the Southern Gulf catchments, and existing land use, ownership and management
- themes that are common across previously activity reports from other catchments
- differences in results that are particular to the catchment development or tenure context
- early thematic alignments of issues to be considered and raised in future discussions with Indigenous Peoples in the Southern Gulf catchments about community planning, and water-related development proposals and Indigenous business aspirations.

The aim of this activity is to identify themes and concepts that can be tested, verified and developed through collaborative research with Indigenous Peoples in the Southern Gulf catchments. The scope and research context, as well as the concepts, definitions, and issues identified above, provide important context to interpret the themes developed from the review of the Indigenous activity reports. The next chapter provides a description of the Southern Gulf catchments.

2 The Assessment area

2.1 Introduction

This chapter provides information on the physical geography of the Southern Gulf catchments (Figure 2-1), contemporary Indigenous ownership, management and representation, and demographics. This information is in part a summary of material provided by other activities of the Assessment (Watson et al. (eds), 2024). This information is followed by a brief description of the colonial history of the Southern Gulf catchments, and Indigenous water development, values, rights and interests. The literature review encompasses the Assessment area as well as nearby catchments in the Gulf of Carpentaria. Previous reports about the Flinders (Barber 2013), Gilbert (Barber, 2013), Mitchell (Lyons and Barber 2018) and Roper (Lyons et al., 2023) catchments respectively provide further background information on this wider area.

2.2 Physical geography

The Southern Gulf catchments encompass the catchments of Settlement Creek (17,600 km^2), Gregory – Nicholson River (52,200 km^2), Leichhardt River (33,400 km^2), the Morning Inlet catchments (3,700 km^2), and the Wellesley island groups[2] (1200 km^2). Many rivers of the Southern Gulf catchments are reduced to a few scarce waterholes during the dry season. The region is characterised by a distinct wet and dry season due to its location in the Australian summer monsoon belt. The mean annual rainfall for the study area is 602 mm/year, 94% of which falls during the wet season (1 November – 30 April).

[2] Only those islands greater than 1000 ha are mapped.

Figure 2-1 Map of the Southern Gulf catchments study area

2.3 Pre-colonial and colonial history

Pre-colonial society

Pre-colonial Indigenous society is characterised by long residence times; a detailed knowledge of ecology and food-gathering techniques on which survival depended; complex systems of kinship and territorial organisation; communal and inalienable ownership of land; and a sophisticated set of religious beliefs, often known as the Dreaming. These Indigenous religious cosmologies provide a source of spiritual and emotional connection and guidance on identity, language, lore, territorial boundaries and economic relationships (Merlan, 1982; Rose, 2004; Strang, 2005). From an Indigenous perspective, ancestral powers are always present in the landscape, intimately connected to People, Country and culture. Mythological creators, collectively referred to as the Dreaming, have imbued significance to places through creation, leaving evidence of their actions and presence through features in the landscape (Martin and Trigger, 2015; Merlan, 1982; Rose, 2004). The cosmological belief of the Dreaming is present among many Indigenous groups. Totemic figures can be animals or plants, take human-like or inanimate object forms, or be sentient beings with agency to act (Martin and Trigger, 2015; Merlan, 1982). Those powers must be considered in any action that takes place on Country. Northern Australia contains archaeological evidence of Indigenous habitation stretching back many tens of thousands of years (Tacon, 2008), but gaps remain in the published archaeological record. Resource-rich riverine habitats have been central to Indigenous economies based on seasonally organised hunting, gathering and fishing. Rivers have also been major corridors for social interaction, containing many sites of cultural importance (Barber and Jackson, 2011; McIntyre-Tamwoy et al., 2013; Tacon, 2008).

In the late 19th century Roth (1897) documented a range of ethnographic data about Indigenous Peoples in the Gulf of Carpentaria and surrounding region, notably in the Cloncurry region. He detailed a variety of food-gathering practices, including the gathering of seeds, honey, edible plants, molluscs, crustaceans and insects, as well as the hunting of small reptiles and marsupials, birds and emus. These activities would have required the use by Indigenous Peoples of a diverse range of environments, and at times may have entailed the modification of those environments. The use of fire as a hunting and land management tool was widespread across Indigenous Australia (Gammage, 2011). Roth also documented protocols and prohibitions of social relations within groups and with animals. Trigger (1992) reveals that Aboriginal Peoples travelled to attend ceremonies on the mainland, and to and from the Wellesley Islands.

Colonisation

The first documented explorer of the Gulf Country was John Stokes, who led several expeditions into the region. He surveyed part of the Gulf Country in 1841, naming the region ‘Plains of Promise’ (Powell, 2016). Later, the Burke and Wills expedition encountered Kalkadoon People, whose contemporary territory incorporates areas of the Southern Gulf catchments (*Doyle on behalf of the Kalkadoon People #4 v State of Queensland* (No 3) (2011) FCA 1466). The second documented explorer in the Gulf Country was William Landsborough, who was commissioned by the Royal Society of Victoria to search for Burke and Wills in 1861 (Fauvenec, 1967). Landsborough camped on the Gregory River and remarked that it was one of the finest rivers he had seen (Powell, 2016).

The first confrontations relating to European exploration, settlement and the processes of colonisation resulted in significant levels of violence towards Indigenous Peoples. Continued conquest of Aboriginal Peoples and the control of their lands brought about the breakdown of the structure and function of existing Indigenous societies, including the decimation of language groups.

Access to land and water was critical to both enterprising pastoral interests and Aboriginal subsistence society (Merlan, 1986; Morphy and Morphy, 1981; Scambary, 2013; Strang, 1997). The damage and ruin to water sources caused by cattle restricted Aboriginal people's access to other resources on Indigenous lands, which intensified conflicts and led to Indigenous Peoples taking cattle for sustenance and in retaliation (McGrath, 1987; Merlan, 1986; Strang, 1997). Avoidance, armed defensiveness, skirmishes and violent clashes occurred in colonial relationships as a result of competition for food and water resources, colonial attitudes and cultural misunderstandings (Merlan, 1978; Trigger, 1992). Historical exploration and settlement were practices that placed a colonial overlay of interests and boundaries on Indigenous territories and resources (Scambary, 2013).

The opening of the Gulf Country to the pastoralism frontier occurred when search parties were sent from Victoria, Queensland and SA to find the explorers Burke and Wills after their disappearance (Scambary, 2013). Cattle arrived from 1861 onwards after the expedition parties identified fertile pastoral lands. Within 4 years, three stations were established in the Southern Gulf catchments: Beames Brook, Floraville and Gregory Downs (Scambary, 2013). Pastoral stations were first established in more accessible and watered lands. Aboriginal groups belonging to those areas bore the brunt of the displacement activity (Trigger, 1992). People moved in various directions to find refuge: some moved to the coast and others retreated to the NT. Gregory Downs station remains one of the larger stations in the catchments. The subsequent development of available pastoral lands in the 1860s and movement of stock in the region led to the establishment of Burketown on Gangalidda Country in 1865 (Martin, 2003). The breakout of fever led to the abandonment of Burketown as a commercial port; it has, however, continued to be an outback township.

The establishment of the Coast Track in 1872 invigorated a new focus on pastoralism in northern Australia, in the southern region of the Gulf of Carpentaria and into the NT. This attention to developing northern Australia was the start of violent relationships between Indigenous Peoples and settlers in the frontier (Roberts, 2005). The Coast Track remains notorious for the violence perpetrated against Indigenous Peoples during a period called 'Wild Time'. 'Wild Time' refers to the time between the beginning of White incursions to the different phases of interactions with Whites, to when Aboriginal people were 'quietened' – people moved to camps near stations and police depots (Trigger, 1992).

The Queensland Mounted Native Police was introduced in 1889 to protect the livelihood of the settlers and to stop Aboriginal resistance. Their means of protection and prevention were often violent (Scambary, 2013). The operation of the Queensland Mounted Native Police and the continued movement of large numbers of stock into the Gulf Country extended the ongoing violent interactions between Aboriginal people and white people until at least 1910, the closing of the 'Wild Time' (Kidd, 1997; Trigger, 1992).

The Queensland *Aboriginals Protection and Restriction of the Sale of Opium Act 1897* legislated for the protection of Aboriginal Peoples and triggered the establishment of Aboriginal reserve lands (Kidd, 1997). Under the Act, the Queensland Government could remove and relocate individuals and families, and regulate the employment of Aboriginal people in the pastoral industry (Kidd, 1997). The legislation was designed to reduce Aboriginal resistance to pastoral activities and stock loss due to changed resource conditions from the new settler interests (Roberts, 2005; Scambary, 2013). At the same time, the pastoral industry relied heavily on Indigenous labour and Aboriginal peoples' knowledge of Country to sustain itself. The earliest recorded use of Indigenous labour was in the Burketown area, in 1867 (Trigger, 1992).

The Act included a provision for establishing minimum wages, payable under agreed individual negotiations. The payment of wages was under the discretion of the Protector of Aborigines, who determined an individual's access to their wages. Wages were paid into trusts that Indigenous Peoples could not access, and in many cases, money did not reach the workers (Kidd, 1997). Unknowingly, individuals entered into agreements that indentured them to stations. In 2019, the Queensland Government agreed to pay $190 million in stolen wages to settle a class action by Aboriginal and Torres Strait Islander Peoples for unpaid wages dating back to the late 19th century and up to the 1980s.

Police stations were established along the Coast Track in the 1880s in response to station owner complaints of cattle stealing by Aboriginal people and to establish law and order in newly settled areas (Merlan, 1986; Roberts, 2005; Strang, 1997). The impacts of colonisation included the removal and dislocation of Indigenous groups from their territories. A series of large-scale movements occurred from the west to the east, down the Nicholson River, to Musselbrook and Lawn Hill creeks, and various stations (Trigger, 1992). As Trigger (1992, p. 26) outlines, ' A considerable number of Garawa and Yanula people moved east, often along the coast, to stations in Queensland, and many Gangalidda people joined those of other language groups in camps on the fringes of Burketown'. Waanyi People whose lands in the west had been taken up by pastoral stations, moved east in the 1890s drought to secure food supplies from depots and stations in Queensland, and to gain protection from the violence (Martin, 2003; Martin and Trigger, 2015). As a result of the application of the Queensland *Aboriginals Protection and Restriction of the Sale of Opium Act 1897*, the Native Mounted Police gave its attention to preventing the movement of NT-based Indigenous Peoples into Queensland (Roberts, 2005). Consequently, Waanyi People continue to live and manage their affairs across the historically established jurisdictional border of the NT and Queensland (Roberts, 2005).

A Presbyterian mission was established on Mornington Island in 1914 and at Doomadgee in 1936 (Long, 1970). By the 1930s, many Aboriginal people were living on the Mornington Island and Doomadgee missions. The missions remained in government control for 50 years, systematically dismantling the Aboriginal social and political systems, and kinship responsibilities (Long, 1970). The missions became important sources of labour for stations and protectors of Aboriginal Peoples (Long, 1970). Mornington Island and Doomadgee missions transitioned to community governments in 1978 and 1983, respectively (Memmott and Channells, 2004).

Development of water resources in the region intensified with the establishment and expansion of the mining community of Mount Isa in 1924 (Blainey 1974, cited in Mackenzie, 2008). Water supply was an issue for the Mount Isa community and mining activities from the beginning of its

settlement (Blainey 1974, cited in Mackenzie, 2008). Reliable water supply was critical for the mining operations and the community that would supply a labour force and broader services to the local industry (Kirkman, 1998, cited in Mackenzie, 2008). The mining industry has strongly shaped and influenced the governance arrangements for water supply in Mount Isa today.

2.4 Current population

The Southern Gulf catchments contain two very different areas: the urban city area of Mount Isa (>18,000 people) and the small towns and communities of Burketown, Doomadgee, Kajabbi and Gununa on the Wellesley Islands. The population of the catchments is approximately 22,500, with a population density one-sixteenth that of Australia as a whole. Of the settlements in the study area, only Doomadgee (population 1387 as at the 2021 Census) has a population greater than 1000.

The Southern Gulf catchments population has a much larger proportion of Indigenous Peoples (27.3%) than Queensland (4.6%) and the country overall (3.2%). The proportion of the population that is Indigenous is greater in the rural regions of the study area (62.2% in 2021) than in the urban area of Mount Isa Statistical Area (SA) Level 2 (21.40% in 2021). The people within the Southern Gulf catchments are generally younger than the Queensland and Australian means: 31 years compared with 38 years (see Lyons et al., 2024 in Watson et al. (eds), 2024).

The differences in the Assessment area between the urban Mount Isa SA2 region and the rural area, the rest of the catchment, is most distinctly demonstrated by income. The median weekly household income for the rural areas (Carpentaria SA2 region) was substantially less ($1279) than the Queensland and Australian medians in 2021, and the urban city of Mount Isa SA2 region ($2236) – a figure that is skewed by the mining industry. A similar pattern is observed for households on low incomes. Excluding Mount Isa, the proportion of households with low incomes (median <$650/week) in the Carpentaria SA2 region was substantially higher, and the proportion with high incomes (median >$3000/week) substantially lower, than the proportions for Queensland and for Australia as a whole. The reverse applies to the Mount Isa SA2 region.

Mining is the largest employer in the Southern Gulf catchments, with the majority of the labour force based in Mount Isa (Table 2-1). In 2021 approximately 30% of the labour force was employed directly in mining in a range of occupations including management, administration, professional and technical roles, and machinery operations (ABS, 2021a). Excluding Mount Isa, agriculture provides 17.5% of employment within the rural areas (Carpentaria SA2 region).

Table 2-1 Major demographic indicators for the Southern Gulf catchments

Source: Lyons et al., 2024 in Watson et al. (eds), 2024

INDICATOR	UNIT	CARPENTARIA SA2 REGION	MOUNT ISA SA2 REGION	SOUTHERN GULF CATCHMENTS†	QUEENSLAND	AUSTRALIA
Total population 2021	People	4921	18,317	22,493	5,156,138	25,422,788
Total population 2016	People	4828	18,342	22,292	4,703,192	23,401,891
% change in population 2016–2021	%	1.93	−0.14	0.90	9.63	8.64
Indigenous population 2021, as % of total	%	62.22	21.40	27.28	4.60	3.20
Indigenous population 2016, as % of total	%	67.03	16.60	23.98	3.97	2.77
Population density 2021 per 1000 ha	People	0.4	2666.4	2.1	29.8	33.1
Median age 2021	Years	30	31	31	38	38
Change in median age 2016 to 2021	Years	1	No change	No change	1	No change
Median weekly household income 2021	$	$1279	$2236	$2104	$1675	$1746
Change in median weekly household income 2016 to 2021	%	9.22	4.44	4.68	19.47	21.42
% of households with weekly household income less than $650/week	%	25.30	12.20	13.87	16.40	16.50
% of households with weekly household income more than $3000/week	%	12.90	33.30	30.38	21.90	24.30
Mean number people per household 2021	People	3.0	2.6	2.7	2.5	2.5
Change in mean number people per household 2016 to 2021	People	–0.2	No change	No change	–0.1	–0.1

SA = Statistical Area. † Weighted averages of scores for SA2 regions failing wholly or partially within the boundaries of the catchments.

2.5 Land use

The dominant land use in the study area is mostly cattle grazing on native pastures (77%) (ABARES, 2022). Conservation and protected land occupy 15.75% of the catchments, and water and wetlands occupy another 6.42%. In terms of land tenure, 12% of the Southern Gulf catchments is Aboriginal freehold (Figure 2-2).

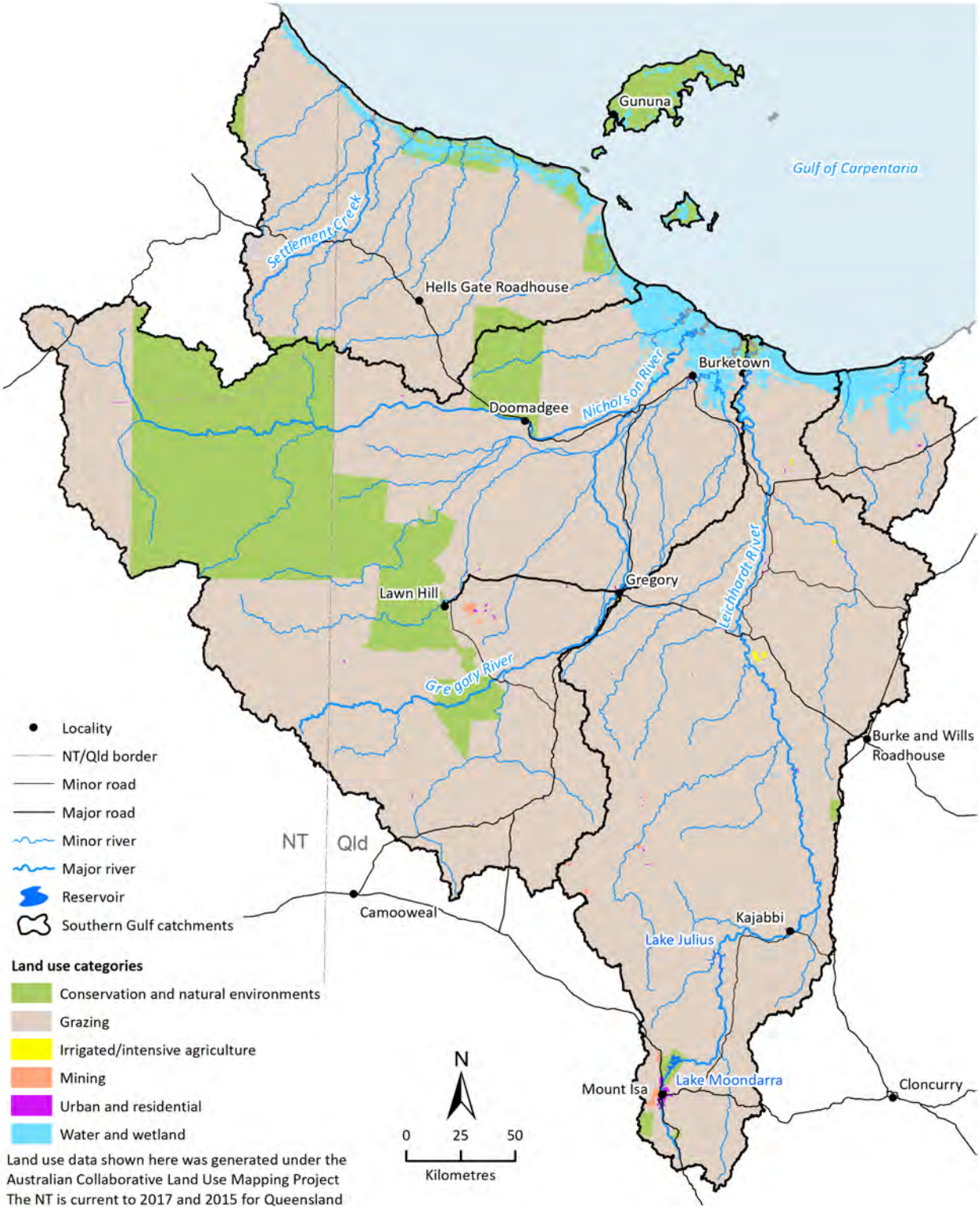

Figure 2-2 Land use classifications for the Southern Gulf catchments

Note: land use data shown for the NT on this map is current to 2017 and 2015 for Queensland.

Sources: NT Department of Environment, Parks and Water Security (2022); Queensland Government (2021)

2.6 Economic activity

Agricultural production in the Southern Gulf catchments is dominated by extensive grazing of beef cattle, valued at $242.7 million in 2020–21 (ABS, 2022). Dryland and irrigated agriculture constitute just 0.03% of the Southern Gulf catchments, with a total value of $0.9 million. The majority of production is from forage sorghum and hay, consumed locally, and there is at least one small-scale cotton (*Gossypium* spp.) venture in the catchments. There is currently no active aquaculture in the Southern Gulf catchments.

Mining is the largest industry in the Southern Gulf catchments and in Queensland, was worth $86.5 billion in nominal gross value added (GVA) terms in 2022–23 (Queensland Treasury, 2023). Most of the mining operations in the Southern Gulf catchments involve the extraction of copper, zinc, lead or silver. The North West Minerals Province within the Southern Gulf catchments is considered to be one of the world's most significant producing areas for base and precious metals (Queensland Department of Regional Development, Manufacturing and Water, 2021). About 75% of Queensland's base metal mineral endowment is located in this province. No mines are currently in operation in the NT part of the Southern Gulf catchments, although as shown in Figure 2-3 there are several current exploration licences for petroleum across the whole study region.

Both the NT and Queensland governments have programs to attract investment in critical mineral exploration and infrastructure. Critical minerals and strategic materials currently mined and/or the target of recent and current exploration programs in the Southern Gulf catchments include copper, zinc, phosphorus, the rare earth elements and graphite. See the companion technical report on agricultural viability and socio-economics (Webster et al., 2024) for a full list of critical minerals and strategic materials.

Tourism in the Southern Gulf catchments is made up of largely self-drive tourists, representing 87% of visitors to outback Queensland (Outback Queensland Tourism Association, 2021).

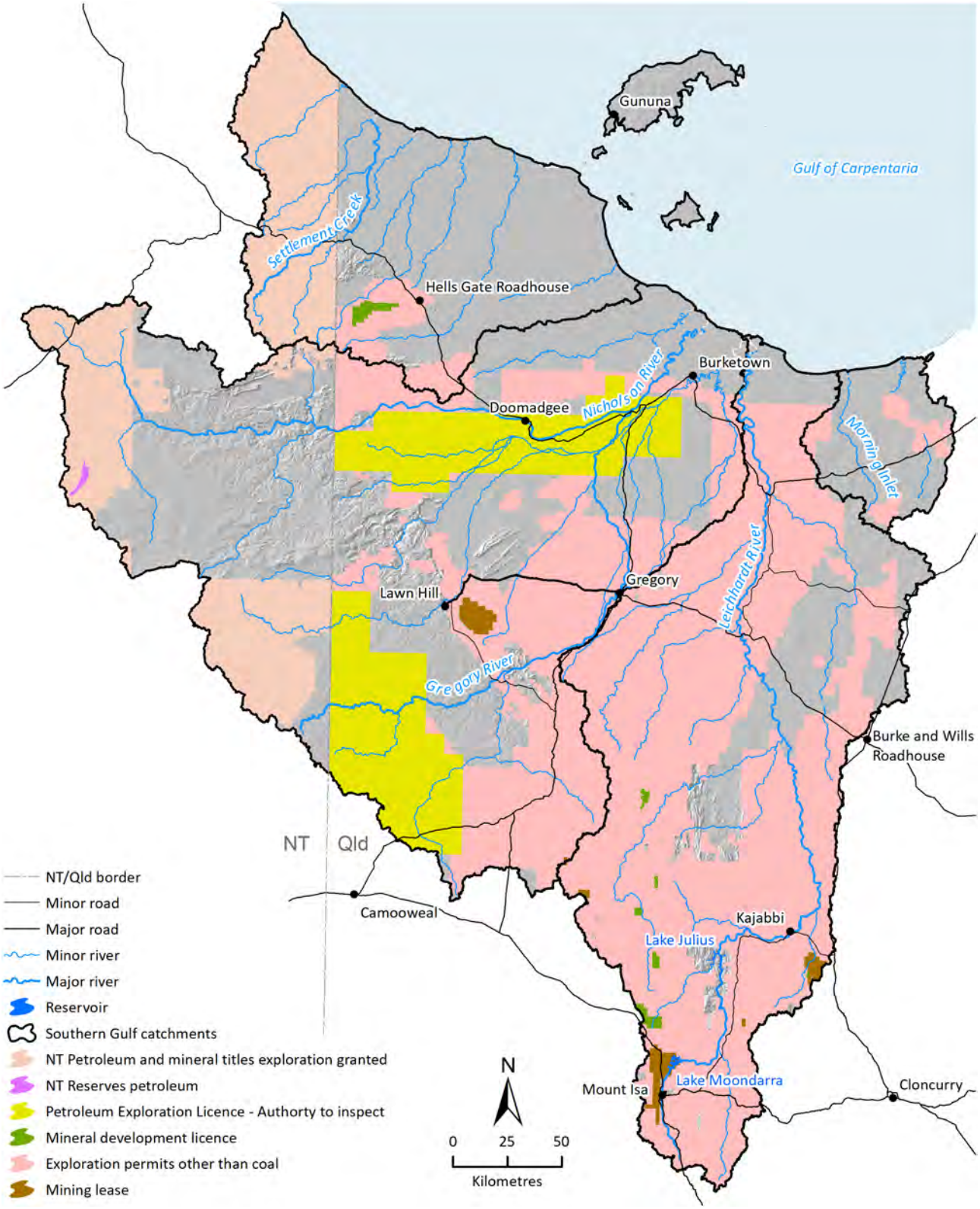

Figure 2-3 Mining and petroleum interests and leases in the Southern Gulf catchments

2.7 Water systems and use

Communities and industries in the Southern Gulf catchments source their water from either surface water or groundwater. Water is used for a variety of purposes including stock and domestic purposes, town and community water supplies, and industries such as agriculture and mining.

Where surface water is used, water is pumped from the occasional dam or stream. The Mount Isa water supply relies on a major water transmission pipeline, supported by pumping stations, to transfer water from the dams on Lake Julius and Lake Moondarra for treatment prior to its distribution. If groundwater is required, and in large amounts (tens to hundreds of megalitres each year) – for example for town and community water supplies or irrigated agriculture – water may be pumped from a borefield consisting of multiple connected production bores.

In some areas of the catchments, water use is under a water plan. Each plan covers a different extent and may overlay another plan area. This may include the Gulf Water Plan area for surface water, and the Great Artesian Basin and Other Regional Aquifers Plan area for groundwater (see Vanderbyl (2021) report on water entitlements in the Southern Gulf catchments).

2.7.1 Surface water

Surface water licences with a volumetric entitlement are for a variety of locations and sources across the Southern Gulf catchments. Currently, 27 unsupplemented surface water licences with a volumetric entitlement have been granted across the Southern Gulf catchments (Vanderbyl, 2021). These have been granted for a combination of uses, including agriculture and aquaculture, across various parts of the catchments and have a combined total of about 38,000 ML/year (38.0 GL/year)(Vanderbyl, 2021). The largest entitlements (between 1000 and 8000 ML/year) have been granted for use in agriculture.

Some moderate entitlements (between 400 and 1000 ML/year) have been granted for town and community water supply at Mount Isa, Gregory and Kajabbi (Vanderbyl, 2021).

Supplementary water entitlements are supplied by Lake Julius (48.85 GL) and Lake Moondarra (26.3 GL). These entitlements are used for Mount Isa town water supply and industrial use, and supplied to Cloncurry and Ernest Henry Mine via the North West Queensland Water Pipeline from Lake Julius.

The Water Plan (Gulf) (Queensland Government, 2007) also includes a number of unallocated water reserves in the Southern Gulf catchments. There are Indigenous reserves (Indigenous unallocated water) in the Morning Inlet (50.0 ML), Settlement Creek (1.5 GL) and Gregory River (1.0 GL) catchments. There are no current active groundwater or surface water licences in the NT part of the Southern Gulf catchments.

2.7.2 Groundwater entitlements

Groundwater licences with a volumetric entitlement also occur at a variety of locations and from a variety of sources for different uses across the catchments. Currently 13 groundwater licences

with a volumetric entitlement have been granted for a variety of applications. Collectively, these licensed groundwater entitlements have a combined total of about 3.5 GL/year.

The largest entitlements (150 to 1400 ML/year) are associated with industrial use in mining, with the water sourced from various aquifers. Two licensed entitlements of about 100 ML/year have been granted for town and community water supplies at Burketown and Gununa (Mornington Island). Both licences have been granted for groundwater sources from the Gilbert River Formation of the Great Artesian Basin (Vanderbyl, 2021).

2.8 Contemporary Indigenous ownership, management, residence and representation

Despite the tensions, disruptions and trauma that stemmed from colonisation, Indigenous Peoples remain closely tied to their territory associations, ceremonial relationships, and genealogical and historical residential ties (Martin and Trigger, 2015; Trigger, 1987, 1997). Some of these connections are formally recognised by the Australian state, and confer particular rights and interests.

2.8.1 Indigenous ownership

The Indigenous language groups of the Southern Gulf catchments are:

- Leichhardt catchment – Kalkadoon, Mitakoodi, Wakabunga, Mayi-Kutuna, Mayi-Thakurti, Mayi-Yapi, Mayi-Yali and Kukatj
- Nicholson catchment – Waanyi, Garawa, Wakabunga, Nguburinji, and Gangalidda
- Wellesley Islands – Lardil, Yangkaal, Kaiadilt
- Settlement catchment – Garawa, Gangalidda
- Morning Inlet catchment – Kukatj.

Patterns of ownership and language affiliation follow features of the landscape and waterways, and are reflected in the place names and songs of significant Dreamings and totemic figures. Formal boundaries are negotiated between groups. In some areas, there can be overlapping claims and sharing of territories. The process of colonisation has also shaped land interests. Residential information regarding the identification of potential owners and interest holders is provided by registered organisations such as CLCAC, Queensland South Native Title Services and PBCs such as the Kalkadoon Native Title Aboriginal Corporation Registered Native Title Body Corporate (RNTBC).

Across Australia, the primary form of recognition for Indigenous interests is native title and associated ILUAs. Native title consists of a bundle of rights (such as access, hunting and fishing) determined through a legal process. The Australian legal system formally recognises Indigenous exclusive native title interests in 10.83% of the Southern Gulf catchments.

Native title, the Queensland *Aboriginal Land Act 1991* deed of grant in trust (DOGIT) framework, ALRA, national park co-management and ILUAs are the formal ways in which contemporary Indigenous Peoples of the Southern Gulf catchments exercise some degree of management control over large areas of their traditional lands and have ownership. In the NT Government

jurisdiction of the Nicholson River, Waanyi Garawa Country, ALRA provides a form of collective freehold ownership. The entire Waanyi Garawa Aboriginal Land Trust, an area of some 11,000 km^2, is an Indigenous Protected Area (IPA): Ganalanga–Mindibirrina IPA (Figure 2-4). Within Queensland, Doomadgee and Mornington Island and the surrounding islands have been granted DOGIT, a legal framework that enables Indigenous Peoples to 'self-manage' their communities.

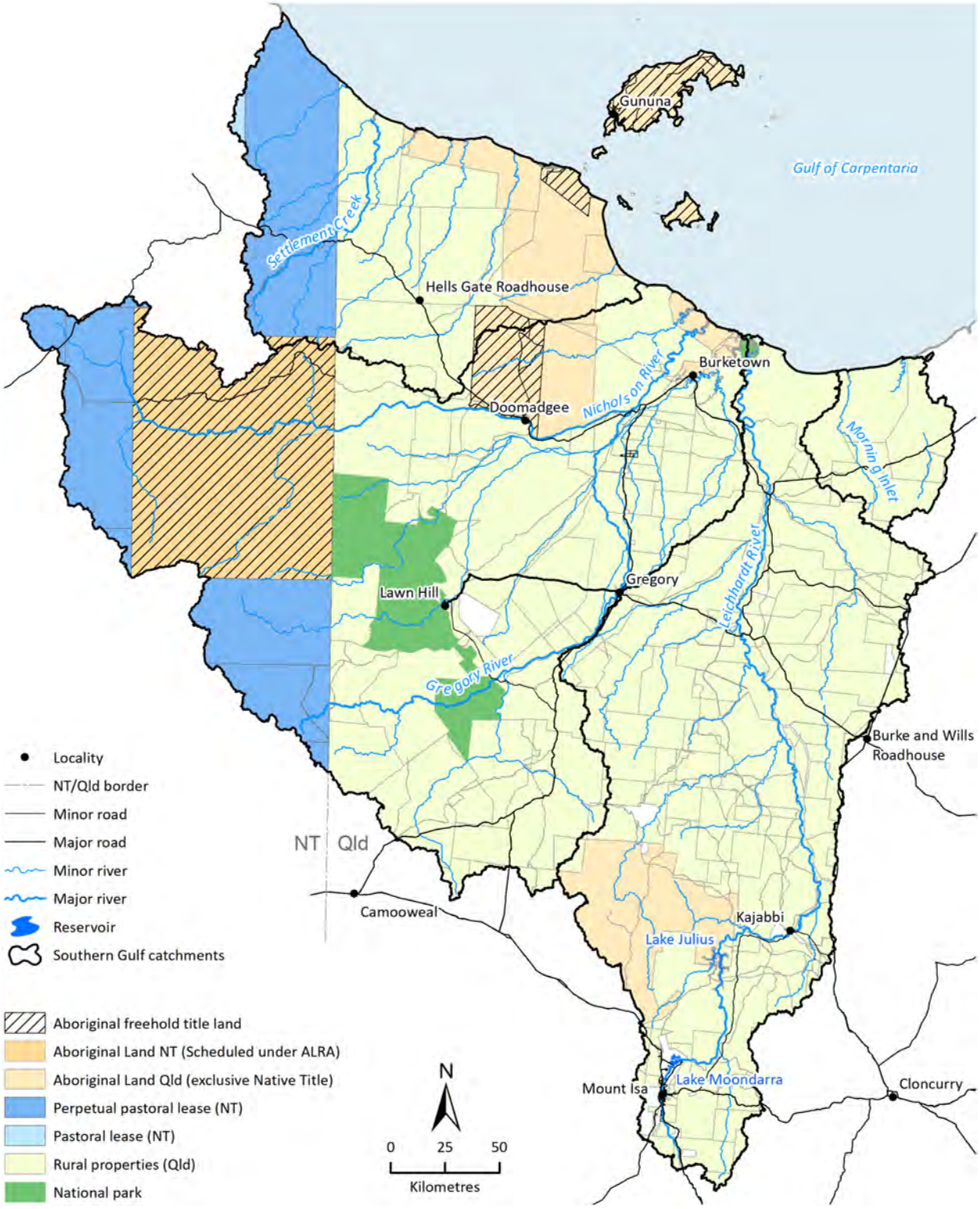

Figure 2-4 Aboriginal freehold titles within the Southern Gulf catchments

ALRA = Commonwealth *Aboriginal Land Aboriginal Land Rights (Northern Territory) Act 1976*; ALA = Queensland *Aboriginal Land Act 1991* deeds of grant in trust (DOGITs) within the Southern Gulf catchments.

Indigenous Peoples of the Southern Gulf catchments in Queensland exercise some degree of management control over large areas of traditional lands through native title determinations (Figure 2-5). Native title (non-exclusive) areas in the Southern Gulf catchments include the jointly managed Boodjamulla National Park (Lawn Hill), several extensive pastoral holdings, the Bidunggu Aboriginal Community on the Gregory River, the Wellesley Islands and seas connecting them to mainland, and parts of the mainland that have been designated IPAs. By definition, native title is based on patterns of customary ownership of lands and waters.

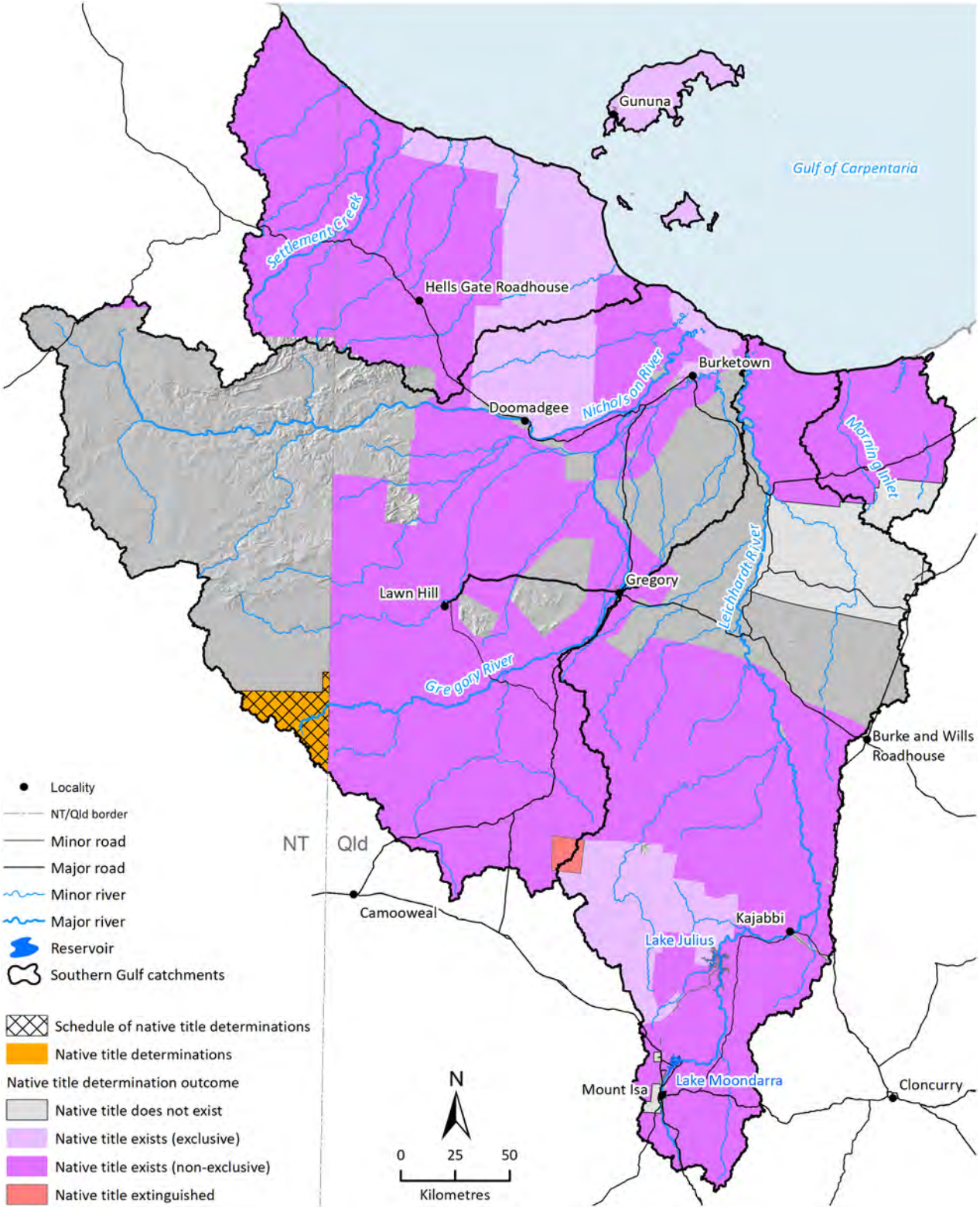

Figure 2-5 Extent of native title claims and determinations over the Southern Gulf catchments

Formal Indigenous management systems in the Southern Gulf catchments include joint management of Lawn Hill Gorge, Boodjamulla National Park and the IPAs of Thuwathu/Bujimulla (marine), Nijinda Durlga and Ganalanga–Mindibirrina (Figure 2-6).

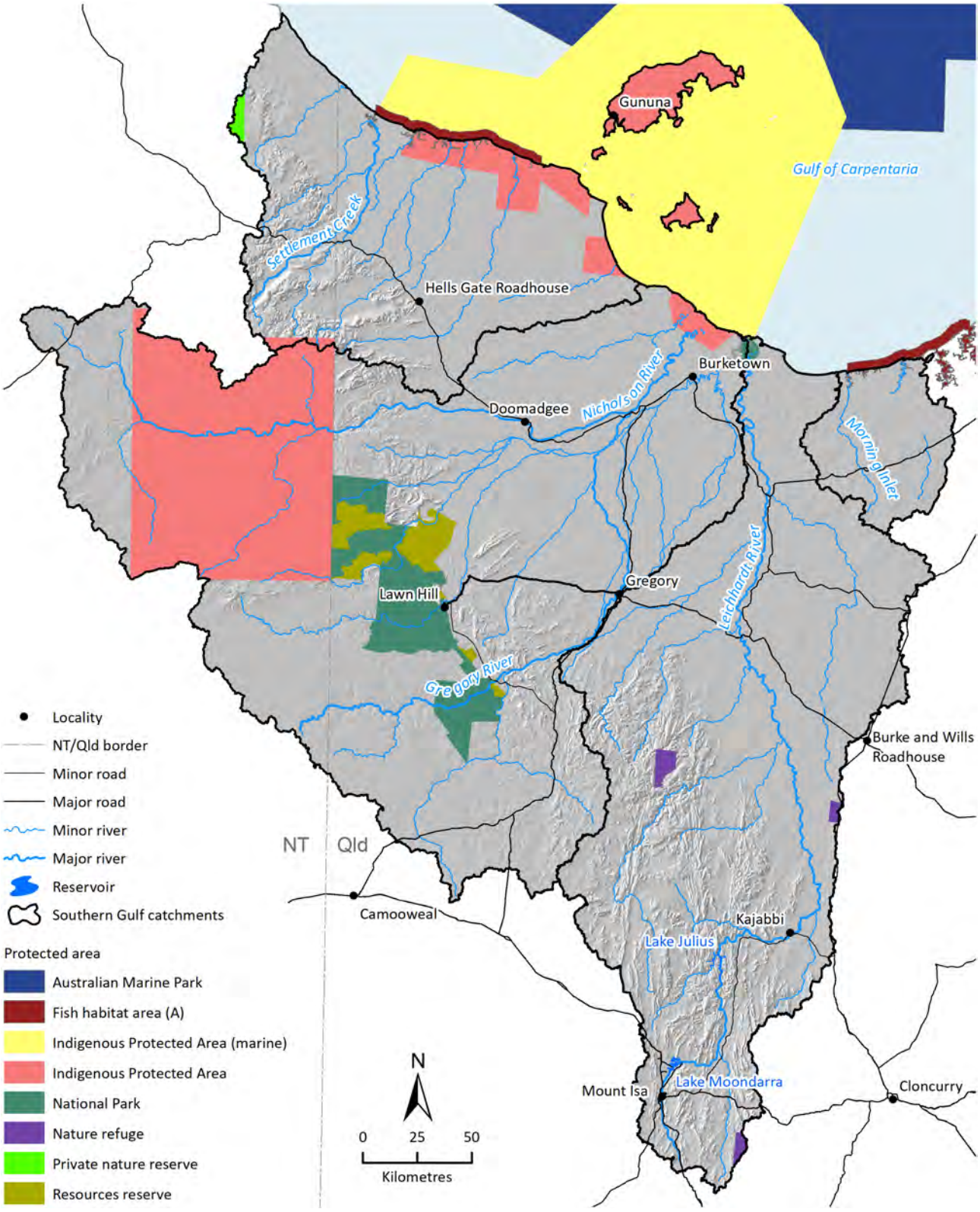

Figure 2-6 Indigenous protected areas in the Southern Gulf catchments as of April 2020

Data Source: Collaborative Australian Protected Areas Database (CAPAD) - (2020) from commonwealth, state and territory governments, non-government organisations, Indigenous and other protected area managers.

Augmenting the formal native title claims are registered ILUAs. ILUAs are voluntary registered agreements between native title claimants or holders and other interested parties to use and manage land and resources. ILUAs occur in 47.1% of the Southern Gulf catchments, and grazing and mining are the main land uses in these areas (see Figures 2-2 and 2-7). In addition to these formally registered and enduring native title areas are pastoral leases held by Indigenous Peoples and corporations, which confer rights relating to the ways in which land may be held and used. Pastoral leaseholders can include Traditional Owners and Indigenous residents, individually and in collective entities. The ownership of Lawn Hill and Riversleigh Pastoral Holding Company Pty Ltd was transferred to the Waanyi People under the Gulf Communities Agreement, which provided the native title approval for the development of the Century Mine zinc mine. The Waanyi People Native Title is the most extensive determination in the state.

Over 50 ILUA arrangements exist in the Southern Gulf catchments; they relate to pastoralism, mining, conservation, commercial fishing, local shire business and energy infrastructure. ILUAs relating to pastoralism are most common, followed by mining. Mining ILUAs cover the greatest area at 24.2% of all ILUA types combined. Figure 2-7 shows the regions and types of practice that are related to the ILUAs.

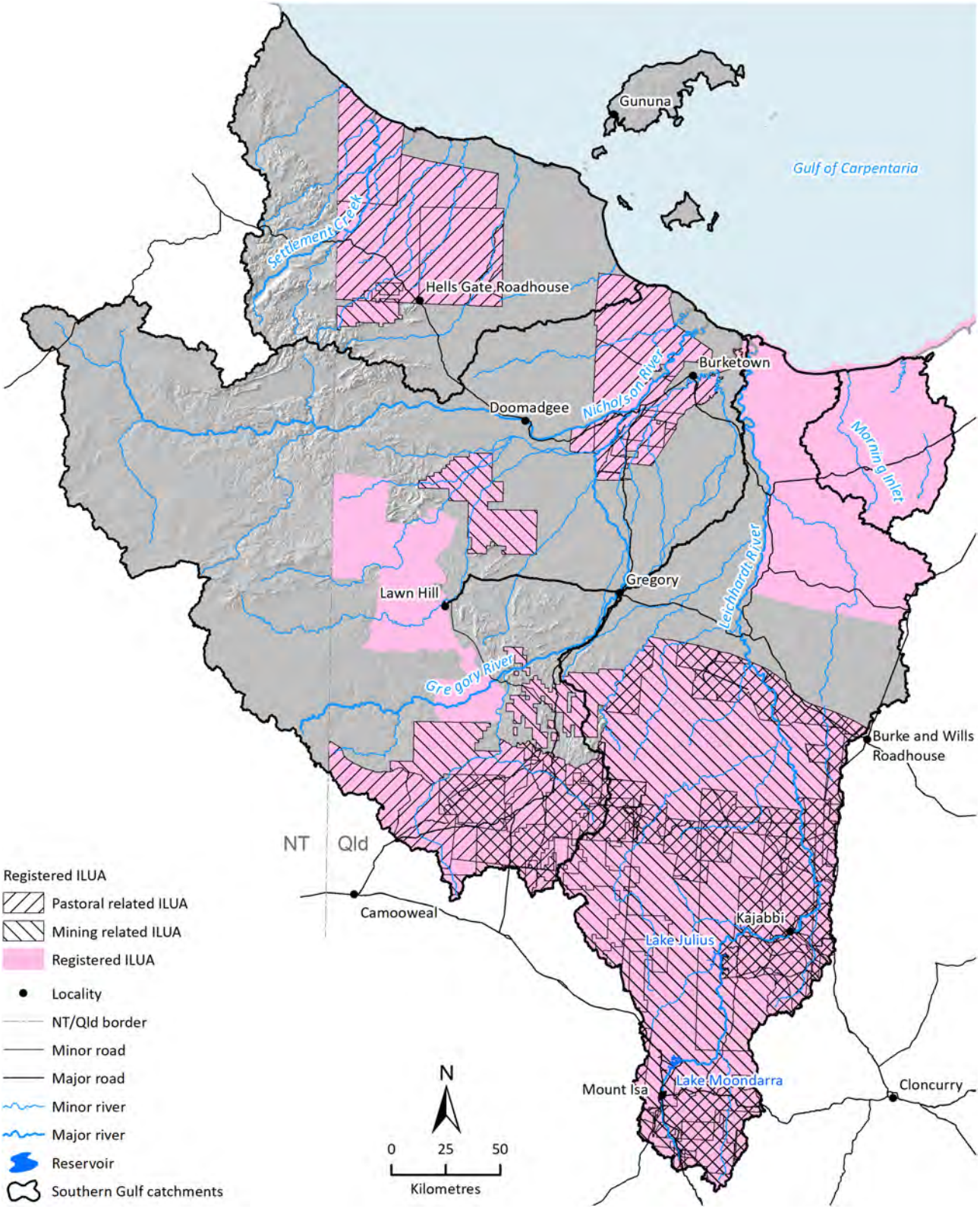

Figure 2-7 Indigenous Land Use Agreements (ILUAs) in the Southern Gulf catchments

Total extent of all ILUAs is shown in pink. ILUAs cover a range of activities including the energy sector, industry (fishing) and local government. One single area may be covered by multiple ILUAs, only mining and pastoral ILUAs are highlighted by hatching.

2.8.2 Indigenous population and residence

The Indigenous population made up 27% of the total population of the Southern Gulf catchments in 2021 (ABS, 2021b). This percentage includes Indigenous Peoples who are part of the recognised local ownership groups identified above and residents who identify as Indigenous but have their origins elsewhere. Many Traditional Owners may primarily reside outside the traditional lands to which they have formal ties. As such, these administrative data do not account for the complexity of Indigenous Peoples' social, linguistic and economic relations. Indigenous communities in the Southern Gulf catchments face a range of social and demographic challenges, including significant unemployment, poor health and housing, and structural impediments to economic participation, including remoteness and social and family units under high levels of stress.

Approximately 60% of the population of the lower section of the Southern Gulf catchments identify as Indigenous. Mornington Island and Doomadgee residents are predominantly Indigenous Peoples, and they live in some of the Assessment area's poorest townships (Everingham et al., 2013). High proportions of the population identify as Indigenous in several other settlements and outstations across the catchments. Only 21.40% of the population of the Mount Isa SA2 region identify as Indigenous (Lyons et al., 2024 in Watson et al. (eds), 2024).

A review of annual reports (CLCAC, 2021; 2022) and a Social Impact Assessment of the Century Mine by The University of Queensland (Everingham et al., 2013) highlighted the importance of creating local opportunities, including employment, capacity building for Indigenous owners and building assets on traditional lands, such as the Lawn Hill and Riversleigh Pastoral Holding Company Pty Ltd.

2.8.3 Indigenous governance and representation

CLCAC and Queensland South Native Title Services are the two major agencies representing Indigenous rights and interests within the Southern Gulf catchments. The latter focuses mainly on native title services. CLCAC has an economic development unit supporting PBCs to plan commercial opportunities and has an established land and sea ranger program. CLCAC collaborates with the Northern Land Council in relation to the Waanyi Garawa Rangers working on the Waanyi Garawa Aboriginal Land Trust. Indigenous Peoples are formally involved in land and sea management through the Wellesley Islands Rangers and Gangalidda Garawa Rangers, and within the two pastoral stations of Lawn Hill and Riversleigh (CLCAC 2014a; 2014b; 2016a;2016b). Indigenous land-owning groups form diverse organisational and political structures as part of their native title roles and economic development planning. In the southern region of the catchments, Kalkadoon Native Title Aboriginal Corporation RNTBC offers land and resource management and employment services for its members on commercial operations on its traditional lands. PBCs and land councils can act for Traditional Owners with respect to Indigenous access, participation, partnerships and ownerships.

2.9 Indigenous water values and perspectives on development

2.9.1 Indigenous water values

Documentation of Aboriginal oral histories across Australia demonstrates Indigenous Peoples' connections to waters and lands, and how water is a significant feature of Indigenous cultural landscapes (Martin and Trigger, 2015; Strang, 2005; Toussaint et al., 2005). Aboriginal histories share a conceptualisation of water sources, rivers and lands as having been derived from the activities of mythic beings in the Dreaming (Barber and Jackson, 2011; Keen, 2003; Martin and Trigger, 2015; Morphy, 1991; Tacon, 2008). Dreaming necessitates sociocultural institutions and protocols that govern the use of water, determined by spiritual entities in the landscape (Martin and Trigger, 2015; Morphy, 1991). Language place names are often strongly associated with places of fresh water and ancestral connections (Merlan, 1981; Trigger, 1987). In the Gulf Country, many Aboriginal place names can be referenced to freshwater sources (Martin and Trigger, 2015). Important places of water, waterholes and springs can also hold art sites of Rainbow Dreaming (Martin and Trigger, 2015; Tacon, 2008). Dreaming connects Indigenous Peoples from the sea to inland regions, with recountings that tell of mythic beings adopting languages belonging to each territory and group (Martin and Trigger, 2015).

Contemporary Indigenous water values stress the importance of secure water supply and good-quality water for healthy landscapes, and remote community health and livelihoods (Barber, 2013, 2018; Barber and Woodward, 2018; Lyons and Barber, 2018). Indigenous water needs include those for cultural reproduction, pastoralism, tourism, hunting and fishing, agriculture and natural resource management. In the Southern Gulf catchments, Indigenous water values have been affected by the loss of language groups, dislocation from ancestral territories and pastoralism (Memmott and Channells, 2014). Indigenous involvement and ownership of pastoral leases across the catchments over the years have shifted how water is valued by Indigenous groups and their members, with increasing emphasis on water places for pastoralism(Martin and Trigger, 2015; Scambary, 2013). Some Aboriginal corporations have negotiated access to water places for Traditional Owners to fish and hunt. The literature demonstrates that water supplies to significant Dreaming sites, and Indigenous perspectives and beliefs about underground water, remain critical to decisions about types of water harvesting techniques, their use and perceived impacts from long-term use (Martin and Trigger, 2015).

2.9.2 Indigenous cultural heritage

Indigenous cultural heritage relates to archaeological sites, places associated with traditional knowledge, and places of historical or contemporary significance. Aquatic places and systems strongly correlate with cultural heritage. Any development interests in these areas will likely hold places of cultural heritage significance and require negotiated conditions between Traditional Owners and leaseholders. Early scoping of cultural heritage conditions and requirements will aid consultations between development proponents and Traditional Owners. For example, the Lawn Hill and Riversleigh Pastoral Holding Company Pty Ltd acquired by the Waanyi People under an agreement with Century Mine includes places of significant cultural value (Everingham et al., 2013). Under the agreement, Century Mine retains access rights for exploration with the mining company. In the southern part of the catchments, Kalkadoon Native Title Aboriginal Corporation

RNTBC provides cultural heritage services in the mining and pastoral sectors. A priority of Indigenous land-owning groups of the Gulf Country is to have access rights to pastoral properties to sustain cultural heritage and customary values and roles (Memmott and Channells, 2014).

2.9.3 Perspectives on water and irrigated agricultural development

Traditional Owners and communities in the Southern Gulf catchments face increasing outside interest in irrigated agriculture and water extraction in their region (CLCAC, 2022). Water monitoring is a priority in order to understand the impact of water-related development and threats that may affect Indigenous Peoples' relationships with Country and community wellbeing. For example, CLCAC initiated a water quality monitoring program to gather baseline data and identify any impacts to fresh and saltwater systems caused by contamination, altered water flow and saltwater incursion into freshwater environments. The monitoring program was implemented with the Australian Rivers Institute, Griffith University, and included a capacity-building component.

2.9.4 Indigenous interests in water planning

Regional land and water planning is an emerging priority for other Indigenous Peoples with rights and interests in the Southern Gulf catchments. They have concerns that water extraction for irrigation may adversely affect existing pastoral enterprises and Indigenous communities, as well as their future development options (Southern Gulf National Resource Management, 2016).

Water planning is understood as one way of managing water development risk and advancing sustainable management, but it also has challenges. The NWI guides and sets the goal for recognising Indigenous Peoples' values and interests in water in terms of access and management. It considers Indigenous customary objectives, economic development interests, native title needs and Indigenous representation. The Water Resource Plan (Gulf) 2007 is being renewed by the Queensland Government. Engagements are being facilitated with Indigenous Peoples through land councils and Aboriginal corporations. Recognising and incorporating Indigenous interests in contemporary water planning processes when there are competing water demands is challenging because of the limited knowledge of Indigenous interests and how to accommodate their perspectives. The involvement of Indigenous Peoples in water monitoring programs and their expressed concerns about different water extraction methods demonstrate their interest in maintaining sustainable supplies of good-quality water for diverse interests and values.

2.10 Indigenous development objectives

Exclusive native title determinations and large areas of Indigenous-owned land and ILUAs mean that communities in the Southern Gulf catchments have access to capital, land and resources. However, as a group, Indigenous Peoples in the study area remain socially and economically disadvantaged.

Economic development is a key objective of Southern Gulf catchments Indigenous groups. This has been articulated in documents produced by the CLCAC, including its Strategic plan 2021–2025 (Carpentaria Land Council Aboriginal Corporation, 2021b), annual reports (Carpentaria Land

Council Aboriginal Corporation, 2021, 2022), PBC land and sea Country plans, Land and sea management 2014 (Carpentaria Land Council Aboriginal Corporation, 2014a, 2016a, 2016b), Social investment prospectus 2014 (Carpentaria Land Council Aboriginal Corporation, 2014b), Indigenous economic and business development opportunities in the Gulf of Carpentaria region (Carpentaria Land Council Aboriginal Corporation, 2013a), Carpentaria Land Councial Aboriginal Corporation destination and product development plan (Carpentaria Land Council Aboriginal Corporation, 2013b). These documents provide details on Indigenous economic development goals.

A key feature of Indigenous development objectives in the Assessment area is the diversity of development interests. These are broadly categorised into four key sectors (Carpentaria Land Council Aboriginal Corporation, 2021b):

- resources
  - mining rehabilitation and land management activities
  - employment in mining operations
  - asset acquisition and development
- land and sea management
  - management of IPAs
  - carbon abatement
  - fisheries compliance and monitoring
- pastoralism
  - Lawn Hill and Riversleigh Pastoral Holding Company Pty Ltd
- tourism
  - ecotourism
    (Gangalidda and Garawa Native Title Aboriginal Corporation, 2014; Carpentaria Land Council Aboriginal Corporation, 2021; Queensland Department of Environment and Science, 2023)
  - ecotourism and business development opportunities (particularly proposals that acknowledge the role of the Waanyi People as Traditional Custodians, respect their lore and culture, and provide opportunities for them to improve social and economic outcomes. This core objective of the Waanyi Strategic Plan 2020–2025 can potentially improve social and economic outcomes for the Waanyi People and other Queenslanders (Waanyi Native Title Aboriginal Corporation RNTBC, 2020)
  - Gulf Region Aboriginal Corporation Birri Fishing Lodge on Mornington Island (which could be re-established as a viable tourism entity)
- service delivery
  - Indigenous-owned Gangalidda Garawa Services Pty Ltd's Jigija Indigenous Fire Training Program (which provides fire management and mitigation training in the traditional Country of the Gangalidda People).

These sectors represent a continued focus on supporting a strong, sustainable region. Expanding sustainable economic opportunities that mobilise Traditional Owners' values, interests and rights broadly across the Assessment area requires partnership and collaboration. The CLCAC Economic Development and Business Support Unit has a role in enabling, generating and sustaining a wide

range of opportunities. It works with its partners, stakeholders and the community to benefit the Southern Gulf catchments' people and communities (CLCAC, 2021b).

2.10.1 Partnerships and planning

Indigenous Peoples in the Southern Gulf catchments possess diverse natural, historical and cultural assets. Indigenous corporations such as CLCAC and Kalkadoon Native Title Aboriginal Corporation RNTBC have established partnerships across the private, government, non-government and research sectors, for example:

- Century Mine under the Gulf Communities Agreement
- universities for marine and water-related ecosystem monitoring and research
- Indigenous and non-Indigenous pastoralists
- natural resource management agencies, including Southern Gulf Natural Resource Management.

The Indigenous Peoples of the Gulf of Carpentaria are highly culturally and linguistically diverse, have historically distinct experiences of colonisation, and, depending on their geographic location, are subject to different state or territory laws. This literature review for the Assessment (see Lyons et al. 2024) provides a subsample of this diversity as well as identifying some common principles, themes and issues for Indigenous Peoples at previously investigated locations in the Gulf of Carpentaria. In doing so, it shows that it cannot substitute for the detailed local and catchment scale activity that would be required in Settlement Creek, the Gregory–Nicholson River and Leichhardt River, the Morning Inlet catchments and the Wellesley island groups to successfully undertake catchment management, water planning, and water resource development in these locations. The scoping discussions and consultations undertaken by the Assessment with CLCAC and the PBCs from these areas indicate the importance placed on Indigenous-led and co-design approaches in any future activities.

3 Culture, people and Country: learnings from catchments in the Gulf of Carpentaria

3.1 Introduction

This section highlights the importance of cosmology and the Dreaming, which are embedded in knowledge of Country, and customary practices, which are part of and stem from knowledge about Country. Previously conducted Assessment activities explored Indigenous principles under the headings of culture, people and Country. As stated by Barber (2013), culture encompasses religious beliefs, the landscape (known as the Dreaming), and expressions of knowledge and practices that include ceremony, hunting and fishing. As demonstrated in the literature review in Section 2.3 on the Southern Gulf catchments and in consultations with Indigenous Peoples in the Flinders and Gilbert, Mitchell and Roper catchments (Section 3.2, Section 3.3 and Section 3.4), knowledge of Country informs access and ownership, and how Country is looked after. Country relates to and holds information about ownership, language group boundaries and care for the land and water.

3.2 Culture

3.2.1 The Dreaming and the life-giving and sustaining role of water

Across the four activity catchments the shared significance of the Dreaming was highlighted in the connections made by Indigenous Peoples with ancestral beings that are sustained in and through water. Respondents from across the four catchments shared stories of the Dreaming that are implicated in the creation of the landscapes and in particular to water places. As was summarised by Toussaint et al. (2005) and Strang (1997) the beliefs of the Dreaming mean that the landscape is understood to be active and responsive to human life and actions. This requires that people must be aware of their conduct, make decisions according to their beliefs in the Dreaming and be concerned about the activities of others on their lands and water. Martin and Trigger (2015), Memmott and Channells, (2004) and Tacon (2008) call attention to the continuing importance of the Dreaming to Indigenous Peoples' practices and relationship to water places and marine spaces in the northern reaches of the Southern Gulf catchments.

The Dreaming underlies belief systems and cosmologies, and has meanings unique to particular places, the custodian of those places and their relationships, as demonstrated by comments shared from the Flinders and Gilbert, Roper and Mitchell catchments (Barber, 2013; Lyons and Barber, 2018; Lyons et al., 2023) and the Southern Gulf catchments (Trigger, 1997):

It is important for life, culturally water plays a very important role in Indigenous culture. We look at water as life, like giving birth and stuff like that. Water come from us as a kid. It is water Dreaming – like when you dream about water that's where you come from; it's your Country – it's your Dreaming. So, it's in our Dreaming. It is big part; it is not only for drinking, but also in the Dreaming. A lot of people say it's Rainbow Serpent, but it is a gift.

(Ngalakan Traditional Owner and community leader)

They are part of our Dreaming, the serpent in that downs Country, where it gets really hot. The Flinders always has the waterholes here and there. We find a lot of activity on the riverbank camps and scatters. The river was the main one, part of our living, our Dreaming.

(Senior Wanamara A)

In traditional Kunjen people's Country is Rainbow Story Place that is accompanied by a story describing the rainbow moving underground with great force that breaks the roots of trees and carves the river into the landscape and water swelling behind the serpent 'Ewarr … that's the Rainbow, [or] Anganb, An-ganb. He bring flying fox … carry him in a bag, inside him … Go underground … Water follow him behind … breaking all the root.'

(Lefty Yam, quoted in Strang, 2002, p. 7)

I'm Mr [Balyyarinyi]. Well I'm main Junggayi [custodian] and the Bujarda [Snake Dreaming figure] bin start [at] Janaruwa [a place within the land claim area] and he went to Wulgurrinji … He bin go all the way … bin fly … [and land at another site]. They bin stop there and … open out all this plain now …

(Mr Balyyarinyi, quoted in Trigger, 1997, p.92)

3.2.2 Indigenous knowledge expressed through care for Country and customary practices

Indigenous knowledge was expressed by respondents in previously conducted Assessment activities through the sharing of stories, belief systems and principles of life; the protocols about appropriate behaviour on Country; or the detail of activities undertaken on Country or in individual reflections on the way knowledge is governed and practised in different cultural and daily settings. Participants in the activities expressed how culture is practised in certain ways and bound to places. The activities included dancing, singing, the avoidance of places or talking to ancestors while on Country. Hunting and fishing, and the way people continue to subsist on riverine resources, were stressed as key to continuing cultural and kinship connections.

Memmott and Channells (2004) describe, for the Southern Gulf catchments, the sea knowledge system of Gangalidda and Garawa Peoples, their connection to places, knowledge of geomorphic features and the practice of trade between groups.

The comments below share some of the diverse expressions of connections in each of the Assessment catchments (Barber, 2013; Lyons and Barber, 2018; Lyons et al., 2023):

Water is important because we got tidal water. Tidal water goes as far as Roper Bar upstream to Mataranka to where the streams are fed and into the tributary where the Roper that stops flowing – we know that if it doesn't flow well, we won't have any migrating fish or animals to move around using water [as a vehicle to move around] and also to breed and then it comes back to cycle.

(Winston Thompson, Ngalakan Traditional Owner and community leader)

I've lived on the Mitchell [River] and fished on the Mitchell, fished and hunted stingray, turtles. Saltwater supermarket. The Palmer [River] was the freshwater supermarket …

(Western Yalanji Director C)

Our elders would come down to the river and share [their knowledge]. Even from other areas they would share our stories … They would teach you about lore, how to respect Country, how to introduce yourselves, our ancestors, so no harm would come to us. I let them know who I am, my family. Follow the protocol.

(Wakaman Traditional Owner C)

That bush is still used, for hunting kangaroo and goanna. Fishing in the waterhole. We are living here now, but we go when we are visiting family.

(Senior Yirendali C)

I always go fishing. I love fishing. I get mussels and crab. We have another traditional Country on the coast that's where we go to get all the mud crabs and go fishing. We normally use the plants for bush medicine. When COVID came through everybody was living on bush medicine.

(Traditional Owner (neighbouring group), community leader and Ngukurr resident 2)

3.3 People, identity and kinship

The key themes relating to people and culture were identity and kinship, geographic obligations and responsibilities, and inter-generational responsibilities. In the Southern Gulf catchments, 'Aboriginal connection to sea Country has resulted in very long associations between groups of people, and their descendants with particular coastal and marine areas' (Memmott and Channells, 2004, p. 8). Language groups on the mainland and islands have ongoing inter-generational and geographic obligations and responsibilities established through ancestors.

As detailed in the Flinders and Gilbert, Mitchell and Roper activity reports, and in the land and sea management plans of Indigenous groups in the Southern Gulf catchments, culture is both informed by and informs the people who hold and embody culture. Across the Assessment activity, respondents shared how individual identities emerge from relatedness to culturally important places and sites, and to important species. The comments shared below demonstrate some of the diverse ways that responsibilities are sustained through individual and collective identities:

Sea Country for Garawa People is very important. The Shark Dreaming runs through the water and connects us with our neighbours and sea Country. Seagrass meadows in Garawa sea Country are significant habitats for many aquatic species. They provide essential food sources for dugongs and several marine turtle species of high cultural and scientific significance.

(Gangalidda and Garawa Native Title Aboriginal Corporation, 2014)

My younger life I was bought up on the eastern coast on Yarrabah. As I got older a lot of fresh water has come into play, I'm up here all the time on my Country. Yarrabah is not my Country, I was sent there, the stolen generation. I was born there … I still do a lot of business for my two countries, Mbabaram and Kuku Djungan.

(Mbabaram Director C)

We got one culture, one governance – this your structure this how it works and this your land … Once you occupy that land you there for life. Then from that block of land then people [future generations] create another block, that's our storylines start they still the same. The lore still the same, just different dialects. Nothing changes and it very strong.

(Winston Thompson, Ngalakan Traditional Owner and community leader)

Water connects people, it has to, Djungan we do [connect to] all the time because of the people's forced removal. A lot of Djungan and Yalanji people were sent to different places like Mona Mona, Woorabinda, Palm Island, Mareeba and they were always pining to be back on the Mitchell River or to be back on Palmer River, their Country that is always identified by the river. The people know where they belong when they identify with the stretch of water of their area.

(Western Yalanji Director E)

Traditional Owners of the Roper catchment expressed their identity by their kinship, location and enduring connections on the river. They consider themselves to be part of larger language groups, while also holding separate identities that are associated to places, waterways and billabongs:

We live in one area, we will have a talk and we go back and forward. We all one mob, we all grew up on Country. We all Mangarrayi. We manage this area because we live here; people come and go but we live here.

(Mangarrayi Traditional Owners Group 2)

3.3.1 Geographical and inter-generational obligations and responsibilities

The responses from participants demonstrated that obligations to care for Country properly for past and future generations, and geographic responsibilities to neighbours and downstream groups, are important relationships that form and are formed by people's identities. Cultural and personal ties, and connections and identity, generate obligations and responsibilities. As shared below, obligations are to other living relatives strongly connected with that Country, ancestors and future descendants.

In the coastal region of the Southern Gulf catchments the Kuktaj, Gkuthaarn and Kurtijar have strong cultural, linguistic and geographical connections north and east of their territories that impart responsibilities, and shared knowledge and customary practices (Memmott and Channells, 2004).

The following comments from previously conducted activities share some of the perspectives from across the catchments relating to inter-generational responsibilities and their expressions through appropriate actions and protocols through and within the landscape (Barber, 2013; Lyons et al., 2023):

I'm a heritage officer, but I'm standing there with an initiated loreman behind me, with the elders behind me. The river systems are the lifeblood of the land.

(Senior Mitakoodi C)

Water is important for groups. Water represents our ceremonies, our lands and our kids' futures.

(Bulman resident, Traditional Owner (neighbouring group) and community leader)

Our serpent, he is a traveller, he created all those rivers and channels. We don't own the Country, we are looking after it, for the future generations.

(Senior Yirendali C)

Obligations relating to near and direct relatives, neighbours and to those who occupy land downstream was a shared theme across the catchments. Of particular importance to participants are the responsibilities to those living downstream. The groups upstream have a responsibility and obligation to groups downstream that they perform through their practices to look after and sustain water flow and health. Below are some of the comments from the activity revealing concerns that relate to Indigenous Peoples, non-Indigenous Peoples and industries:

People are pushing cotton but I am worried about the chemicals. They say they can use genetically engineered cotton, but generally cattle and cotton don't mix. The Flinders is a major river system for the Gulf, and the chemicals can get into the cows and into the food chain. The flows into the sea are also an important issue. If we have a drought on the Country, we also have a drought in the sea. The Gulf needs the water.

(Senior Kurtijar B)

Downstream, well there is a cattle industry on the Gilbert [River], businesses down there. They are a neighbouring tribe, we got to stop a lot of things happening here.

(Senior Ewamian E)

Downstream, we got to think about that. Some of the family are from around this area. My wife is from the Delta area.

(Senior Tagalaka D)

If you stop the natural flow, you stop the fish and the breeding system, the prawns and other things. They need fresh water to breed, migrate. Different chemicals, and pests and weeds, they are also the issue. Rubber vine, we have been trying to get on top of it for 10 years. The [Delta Downs] property was sold because of it, you could not get to the river, you'd get jerked off the horse. But if people upstream don't do it, it just comes back …

(Senior Kurtijar A)

The Western Yalanji area from Rifle Creek back, the whole catchment, it's our responsibility to care for that Country so that it doesn't affect people downstream. It starts at Mt Carbine, it's always been an issue, if anything happens up the top end it always affects the bottom end. Whatever we do it has to be environmentally and culturally sound.

(Western Yalanji Director E)

When you look at us, we all Indigenous here. All our waterways are important to us. That songline across the land, it's in the lagoon, billabongs, you name it. We got song to it, right up to the saltwater. We freshwater people, everything run that way towards Ngukurr, same songline takes us down there. Not long ago they got this family from Beswick, it another songline, waterline there, they connected to my missus. Songline run every way; that's how we all connected.

(Dalabon Traditional Owners Group 1)

Because we down the bottom part of the catchment and whatever happens everywhere and tribes on this bottom part of the catchment will be affected. Whatever happens on top, we at the end of line we'll get affected. That maybe pollution, more water coming down, whatever, we gonna cop it. Whatever happens on top, whatever agreement, whatever activities, we're downstream and we will get affected more. Water is important for connections through the rivers. Where the songline

went through, the Dreaming went through. All totems participate in those [water-related] areas. There is drinking waterholes and hunting grounds and conservation, so water plays a bigger part even with gatherings and hunting.

(Ngalakan Traditional Owner and community leader)

The characteristics of culture that relate to knowledge, customary activities, and the responsibilities and obligations to future generations and geographic neighbours relate to a strong sense of prior Indigenous ownership of Country.

3.4 Country ownership, boundaries and access protocols

Indigenous Peoples understand and express their custodianship in terms of the prior and continuing owners of the traditional lands they claim (Barber, 2018). Boundaries in pre-colonial time were unlikely to be as distinct as those demarcated using today's mapping methods for native title processes; however, owners today are known locally. In the Southern Gulf catchments the rivers mark boundaries between language groups and important ceremonial sites (Memmott and Channells, 2004; Trigger, 1987).

The comments below demonstrate a sense of ownership and responsibility for resources, internal knowledge of demarcations and how responsibility is demarcated based on geographic features, particularly rivers (Barber, 2013):

We got our boundaries. The high points, like the mountain ranges. The high points and the rivers. The river is a boundary. But we share the river itself. In the past, there were rules about using and sharing, the water and the fishing. I heard about those old people, growing up on the river, catching fish with a spear or with their bare hands.

(Senior Ewamian C)

The rivers are also part of the boundaries between the Peoples.

(Senior Mitakoodi D)

The river systems identify our boundaries. They are part of our Dreaming.

(Senior Wanamara A)

Creeks and rivers, that's all for the boundaries. My father used to tell me, the Tagalaka and Kurtijar worked together for years like this [clasped and intertwined hands]. We are married into each other. My grandmother, she told us about the boundaries of the Tagalaka people. About the lands up the Norman River, to Woolgar Mine – the site of some trouble – east to the Gilbert [River]. They used the rivers as a boundary, that's why we used the river as a Tagalak boundary. We met with the Ewamian, did our research the old blackfella way, walking the Country. Seeing where they cut the bark for the canoe, cut the trees. Down here [Normanton] they could not use them easily. Too many crocs. But up there, you could see them.

(Senior Tagalaka C)

For the Garawa People, their land and decision-making processes have been challenged by state borders that cuts across their customary Country:

It is these lores that have drawn the boundaries of Garawa Country, and which our neighbouring tribes and ourselves govern Country with. For us, the border marking the divide between the Northern Territory and Queensland is incompatible with the way our Country should be governed and managed. It has divided our Country in two. Our people have been restricted in their right to participate and make decisions for Country because they live in a different jurisdiction [Queensland or the NT].

(Gangalidda and Garawa Native Title Aboriginal Corporation, 2014, p. 41)

3.4.1 Access to Country

For Indigenous Peoples, lack of legal ownership rights limits their ability to exercise their lore-based protocols to manage access and look after Country. This is equally applicable to Indigenous constraints to access Country. Colonisation continues to affect Indigenous access to Country and fulfillment of obligations and responsibilities associated with ownership. Across the Flinders and Gilbert, Mitchell, Roper and Southern Gulf catchments is a similar theme of complex colonial histories and evolving relationships between Indigenous Peoples and pastoral leaseholders (Barber, 2013; Lyons and Barber, 2018; Lyons et al., 2023; Memmott and Channells, 2004; Scambary, 2013). These include Traditional Owners who have experienced long-term employment in the pastoral industry, some who grew up on pastoral stations, and others who have amicable relationships with pastoral owners and managers. Historically Traditional Owners' access to rivers and water sources has been restricted. Across the Flinders and Gilbert, Mitchell and Roper catchments pastoral access remains an ongoing concern for many Traditional Owners (Barber 2013; Lyons and Barber, 2018; Lyons et al., 2023):

Them [stations managers] there, we have to ask them to go fishing onto our land. They own it because they paid money for it.

(Wakaman Traditional Owner A)

25 years ago I seen it up there. I want to take my kid and show him, but I got to get a permit [permission from the farmer] to go back. I know I am from that Country, but I got to get a permit.

(Senior Ewamian E)

Pastoralists have put up fences so people can't go into there [the river bank].

(Mbabaram Director D)

When the white man took over, then the old people weren't allowed to tell us much. When you are in an Aboriginal reserve, you could not move much. They were all sent where they were told to go. Until Dad got an exemption under the Act. But when we was kids we'd go out hunting and camping, getting goanna, killing birds with a shanghai [slingshot]. We'd see Little River, or the Gilbert River on school holidays.

(Senior Tagalaka D)

Access can be hard. I've seen a lot of my Country doing clearances for roads and that, but there is so much that we can't get to, that needs to be checked. People knew where all these significant places

were, and there are lots that have been documented, but lots where we have not been. We need money and we need access.

(Senior Yirendali C)

[There is] no manager at Elsey station. It used to be a cattle station but not anymore. We don't know what the people on the mango farm do with looking after Country. That's why we want Aboriginal people to go to the farm so they can check on our cultural sites to make sure they are not being damaged. The whole community, we all family here. We work with our ranger to look after Country, all of us. NLC [Northern Land Council] always come and involved as well.

(Mangarrayi Traditional Owners Group 1)

3.5 Looking after Country: cultural heritage management and caring for Country

Contemporary caring for culture often relates to Indigenous custodians being actively involved in cultural heritage management, and land and environmental management. Caring for Country encompasses the interrelatedness of culture, people and Country, meaning that caring for one element necessarily means caring for and about the others. Two important elements of contemporary caring for Country are cultural heritage management, and land and environmental management.

3.5.1 Cultural heritage management

The previous Assessment activities identified cultural heritage as a significant issue across the Assessment catchments. Interviews highlighted concerns of ongoing damage to known sites and the need for information in relation to heritage values of traditional lands and waters that are subject to potential development proposals. As Barber (2013), Memmott and Channells (2004) and Trigger (1992) point out, depopulation of places through colonisation and restrictions to access lands over extensive periods under new tenure and residential regimes, have decreased the baseline knowledge of places among the Indigenous population. Indigenous Peoples' capacity to respond knowledgeably to development options and considerations of potential future risks has been hampered by ongoing restrictions to access Country and maintain cultural ceremony on Country.

In the Southern Gulf catchments a priority for land-owning groups is secure access to pastoral properties to sustain cultural values and maintain their customary practices (Memmott and Channells, 2004). Cultural heritage protection in mining operations is a significant and ongoing concern for Traditional Owners (Everingham et al., 2013). In the north of catchment, the CLCAC is supporting the rangers to monitor water quality in the rivers as part of their wider obligations to take care of their Country and sustain their cultural heritage assets and values.

Across the previously conducted activities, interviewees expressed a strong desire to protect cultural heritage knowledge, and participate in its recording and management (Barber, 2013; Lyons and Barber, 2018; Lyons et al., 2023):

We have so much to do in terms of mapping those areas. We are still in the process, 4 or 6 years and still going … But there is not enough time to get all this mapped. This is where our things are,

but the water will go over that. Like the conservation mob, they want to look after plants and stuff but don't worry about the ancestors. I'd like to see all my old ancestors protected too.

(Senior Ewamian C)

They need to look after the water, monitor it. If they pollute the rivers, it will also kill the fish. The rubber vines choke the native trees. We've got to be able to manage it.

(Senior Yirendali A)

If you don't worry about it, there will be nothing. If the miners want to move a tree, we won't let them. We don't let them knock it down, just to put in a road.

(Senior Mitakoodi B)

The TOs, the Traditional Owners. When we go fishing, we go and check places. I look at the water, if it's high. I look at bush tucker. The Mangarrayi Rangers look after these places.

(Mangarrayi Traditional Owner 3)

There are certain places for men and women businesses. A lot of that has gone missing in the stream of time but there is continuation like I pick up one good ochre [for painting]. Even if we're not there anymore we can continue it [collect ochre] when we visit. We get our gum for our spear and woomera, and we get our wood for our clap stick. I dig gum out from along them trees. We're still spear makers not just for corrobboree but to go and hunt. The resources are next to the major watercourse. Put in a dam will put a restriction on access to things like that.

(Western Yalanji Elder F)

There are several components of cultural heritage management according to McIntyre-Tamwoy et al. (2013) and Barber (2018):

• archaeological sites (such as artefact scatters, hearths, stone tool knapping areas, scarred trees and stone arrangements)

• places associated with traditional stories or traditional knowledge

• places of historical importance

• places of contemporary importance (e.g. for Indigenous customary and recreational uses, educational opportunities and the resources they provide).

The way groups engage with these components is unique to their culture, geography, relationships, governance, society and histories, as demonstrated in the following quotes from the Mitchell and Roper catchments (Lyons and Barber, 2013; Lyons et al., 2023):

Mangarrayi Trust Area. We [Mangarrayi Rangers] have been doing samples for water testing to see if animals can live in the water. Test to see if water going down, once it goes down, we must wait for next year water – big rain to fill it up. From here Elsey to the top, they starting to drop [water level] all the small creeks are starting to drop. Most of the water flows under and comes out on the other side. Mole Hill we do not know if it is coming from underneath. We check make sure cattle do not smash the spring waterhole, where the water comes bubbling up. Make sure the cattle do not get stuck in the spring hole because they will die in there. That will save our springs and the water.

[Mangarrayi Ranger 1]

As a PBC we try to maintain and look after and manage our cultural heritage site over the last 25 years because of our cultural heritage body registration. The state government act allows us to manage and look after these sites a little better than what they were before. We've been on to most of them and the best way to protect these sites is to identify and map them. Whenever industry wants to do an activity on Country they need to contact us as the PBC, as the cultural heritage body … It's not about locking away the Country and not letting economic development occur but protecting what cultural heritage we have left and any future development or damage.

(Western Yalanji Director B)

A second component of Indigenous responsibilities to look after Country is land and environmental management. Caring for this aspect of Country involves being physically present, understanding the nature of the system, monitoring it for change and ensuring appropriate conduct.

3.5.2 Managing others on Country

Attachments to traditional Country and to a sense of obligation to neighbours and cultural connections across the landscape lead to continuing efforts to manage natural and cultural resources. The activity identified four related points on the expectations of managing others (e.g. non-Indigenous businesses) on Country whose activities have the potential to impact lands and waters. Barber (2013) outlines these points as the:

- need for early and ongoing consultation and communication
- need for free, prior and informed consent
- need to comply with requirements and obligations set down in agreements, policies and laws
- principle of compensation for non-compliance with the terms of those agreements and/or extraction of resources that derive profits.

A significant barrier to the complete participation of Traditional Owners in planning and decision making is the complex bureaucratic and technical engagement process, even with early consultation. There's a shared concern throughout the catchments where the activity was previously conducted that conditions are not consistently met following consent, particularly regarding development projects.

Memmott and Channells (2004) identifies key regional issues in the south-eastern Gulf of Carpentaria that align with concerns raised in the previous activities. Pivotal to these is respect for Aboriginal lore for all people working on Indigenous lands and waters. The following remarks from Traditional Owners across the catchments illustrate the kinds of issues they face concerning local non-Indigenous activities:

This river [Roper] and for 20 kilometres is Aboriginal lands. On that side you got land that's been given back to Aboriginal people, native title. The other side of the river you got national parks, then you got pastoralists leases, and all other agreements with pastoralist and TOs [Traditional Owners]. So, you got a mixture. As a councillor doing council services. we are having difficulties on where you can service and where you can't. Similar to the roads, we can only go that far on the roads then the other side you can't touch it because it's pastoralist or something like that. Who controls that area looks after it … [T]his where consultation is not coming back to the people. And

it's all falling back to NLC [Northern Land Council]. They are not consulting with anybody about the mine that is happening soon because it's on pastoralist lease area. You got Traditional Owner for that area, but it is still under pastoralist lease agreement. I don't know who controls that, is it NLC, or the pastoral lease or the TOs?

(Ngalakan Traditional Owner and community leader)

I'm really worried about those miners, they never employed Traditional Owner from Chillagoe, man or woman. I asked them where you getting your water from, they said from the lagoon from out the back. I was mad they were getting water from my Country. Where they were pumping that water it was a sacred site.

(Wakaman Elder B)

There could be a lot of people buried up there, we don't know. We did not get told about that. We heard a bit about it, but not that much. It would be a shame to lose it all … Only last week, some of the elders were talking, we need to be walking there, when there is holidays on. We should, as Tagalaka people, go on the land, identify some of the places where this might go on. [Name of Individual] said they had some people. In the old days, when people died, you just buried them where they are. Family from our side. There could be a lot of old people up there. Even people from Chillagoe. When you stop to think about it, people moved around, people lived off the land, healthy. There could be burials of family from elsewhere there too.

(Senior Tagalaka D)

We [Mangarrayi Traditional Owners] are leasing Elsey station at the moment. We got one person leasing 'Junction Bore' which is past Elsey station. We got rangers who look after Mataranka Springs, but we got problems with the Elsey line. We got mango farm, but two watermelon farms started without going through us. We got a problem with that. About the water issue we got problem with that, people coming in and wanting to grow stuff. People just come in without asking us. We got a problem with that.

(Mangarrayi Traditional Owner and Minyerri resident 1)

3.5.3 Managing access through Indigenous Land Use Agreements: opportunities and challenges

One approach to managing access across the Assessment catchments is through ILUAs. In 2016, over 60% of the Mitchell catchment was under an ILUA. In the eastern Gilbert catchment, the Kidston Station ILUA, signed in 2004, was reported as the first instance of a collective of graziers signing a formal agreement with traditional Indigenous landowners to enable access to multiple pastoral properties for camping and hunting. The agreements were voluntary commitments but, in an effort to protect significant sites from damage, also included steps for pastoralists to consult with elders before making improvements to the property. The majority of ILUAs in the Southern Gulf catchments relate to pastoral activities; however, mining ILUAs are larger by land size (Section 2.8.1).

Respondent comments about ILUAs from three catchment activities indicate their political and practical importance from an Indigenous perspective, their potential utility for other land-users as well as the potential problems in the ILUA process to reach an agreement:

When the ILUAs came in, I remember one pastoralist was very concerned, he thought they would take his Country and his stock. But the ILUA is just for access, for hunting turkeys and fishing where our people used to.

(Senior Tagalaka C)

The PBC plays a big role identifying areas of significance … some trees are markers. The elders used them 'in the day'. To them it's sacred, same as sites. We're going through a process of how to protect that site. To section off that area so no one can go through to damage it.

(Muluridji Directors (Group))

Access is still a big problem. The ILUA is there, and we want those agreements. But a lot of places don't want to sign them, and every pastoralist has got a different idea. The bloke down the road has a different idea, the bloke next to him different again. We need to do those negotiations, but sometimes we can only do it on the weekends. A lot of them are up for renewal. But a lot of people don't want blackfellas on their property. There could be a sacred site and burials and we can't see them. We do the right thing, ring them in advance, tell them how many people. One bloke, he wants to show his property to tourists and they won't go there to look at cattle. He's going to show them the heritage sites and the rivers, but he is not letting us on to see our own places.

(Senior Ewamian C)

ILUAs continue to be important for a range of applications, including for managing mining arrangements. In terms of water planning, ILUAs have also been discussed as a possible means for managing water allocation issues within Indigenous groups themselves as well as between Indigenous groups and other water users (CLCAC, 2021).

3.6 Conclusion

This chapter outlined common themes on key issues and principles from the Indigenous activity across the Flinders and Gilbert, Mitchell and Roper catchments. Below are the themes that can be further explored and tested in relation to water-related development with Indigenous Peoples in the Southern Gulf catchments:

- the types of recognition of Indigenous cosmological and religious beliefs and associated customary practices and lores that relate to Indigenous Peoples' inter-generational and geographical obligations and responsibilities
- specific countries of group ownership and boundaries that entail particular authority and control of groups and people and their relation to:
  - issues of access to customary lands that are owned and managed by non-Indigenous Peoples
  - desire for an ongoing role in environmental conservation and land management
  - cultural heritage and understanding, and preserving the past history of Indigenous use of the landscape
  - expectations regarding the conduct of non-Indigenous Peoples operating on Indigenous lands, summarised in the activity as consultation, compliance and compensation

- the role of ILUAs and other types of agreement making to provide both an opportunity to manage and enable access as well as negotiate opportunities to manage resource use, development processes such as cultural heritage management; and enable new opportunities that facilitate land and sea management initiatives and build the conditions for Indigenous development goals.

The next chapter outlines common themes on Indigenous perspectives regarding water and agricultural development.

4 Types of development, and water extraction and development: learnings from catchments in the Gulf of Carpentaria

4.1 Putting the importance of water into perspective: water is life

The overall importance of water is evident from the literature on the Southern Gulf catchments and from participant statements across the four Assessment activity catchments. Participant comments communicated the dependence of life on water, its sustaining role for animals, plants and people, culture and connections as well as ongoing relationships that depend on its seasonal flows and presence:

We have always had a close connection to waterways where we fish and camp as it provides us with our livelihood, such as fish and freshwater turtle. There are many water places that are connected to certain Garawa families, and we also have many culturally important sites and tracks (Dreaming and walking tracks) connected to water places that our ancestors have used and we continue to use.

(Gangalidda and Garawa Native Title Aboriginal Corporation, 2014, p. 13)

Water is a matter of life and death, an important commodity, especially in the Downs. The rainforest area has creeks everywhere, but the Downs can be drought Country. Only some waterholes are permanent, there are sacred spots near there. Water is needed for hunting, the animals would go there. It is a cycle that water creates, part of Aboriginal culture. Water is very important.

(Senior Wanamara A)

Water is worth more than money. There are two good things about water, it can give life if it is respected, and take life if it is abused. A lot of people are careless, not thinking, drowning in the floods. Water gives life to everything, plants, bird life, animals, humans. It is the main resource for everything really.

(Senior Kurtijar A)

Water is the survival of life. It is one of the main elements of the world. Water and fire, that was how my people controlled the habitat. Water is the richest thing going.

(Senior Yirendali C)

Water is our life. We use water to drink, wash, kids to swim in and the animals to drink and everyone else that uses water. We use water for cooking. We use water for ceremony. That's why water is important to us [and] all the plants and trees around it. It keeps the land safe and cool.

(Bulman resident, Traditional Owner (neighbouring group) and community leader)

… our people, Indigenous Peoples understand that water don't run permanently. They form waterholes, animals go there, that's part of the food chain and they will spear and hunt whatever

comes there. When you look at history of dispossession of this country it always took place on the rivers and coastal area. The best properties that exist today are always situated on the bank of a river. Not only did TOs [Traditional Owners] know the value of that water, non-Indigenous Peoples, farms and cities and towns are situated around water systems.

(Kuku Djungan Director B)

Water is about life and is for Country that encompasses animals, plants, agricultural production for nature's own sake and is also about Traditional Owners' relationship to Country. Water is important for fish. Cattle too need that water, feral pigs, wallabies.

(Kowanyama Director F)

Understanding the need to sustain water sources and its quality for life creation, growth and maintenance, as well as livelihoods based on its variability in the landscape, inform people's perspective of how water can be used, and the acceptable and appropriate ways to extract it. These issues were a key focus of the previous activities that are not yet understood and explored in the Southern Gulf catchments. A summary of the different types of water-dependent development sectors in the Flinders and Gilbert, Mitchell and Roper catchments is present below. These industries are similar to the current land use types in the Southern Gulf catchments (Section 2.8.1).

4.2 Types of development

Several forms of on-Country development featured across the Flinders and Gilbert, Mitchell, Roper and the Southern Gulf catchments. These are pastoralism, mining, cultural tourism and aquaculture. Pastoralism, agriculture and mining featured as the main development activities associated with water assets and water extraction. The view of research participants across the catchments was consistently a preference for smaller-scale development and active local capacity building and decision making than for larger projects resourced and governed by external investors and interests. Indigenous Peoples are less likely to benefit from larger projects because of their higher vulnerability, sensitivity and likely exposure to environmental, cultural and social impacts (Barber, 2018; Lyons and Barber, 2018). Consultations with Indigenous Peoples in the Southern Gulf catchments will aid understanding of the nuances of risks and opportunities of different scales of development. The following section outlines some of the potential opportunities for, and key cultural and environmental impacts from, industries across the catchments.

4.2.1 Pastoralism

Pastoralism is a historical established industry across the Flinders and Gilbert, Mitchell, Roper and Southern Gulf catchments that continues to be a source of income and identity for people and an economic proposition for those still involved in the pastoral industry. It has influenced the values people hold for water. In the Flinders and Gilbert, Mitchell and Roper activities participants expressed concerns about pastoral intensification including regional water availability of water, erosion and the spread of weeds, and water quality issues such as salinity and chemical use.

Considerations in the sustainable future of this industry across the catchments reflect historical and ongoing involvement and oversight problems for Indigenous Peoples, including monitoring:

It's the life blood of the land. It's important to keep the station alive. In the past those permanent water sites developed cultural significance because they were permanent.

(Gumi Junga and Jawi Yabba Warra Aboriginal Corporations Director H)

If we haven't got water we've got nothing to live on. All our cattle would die, that's what we depend on. It is important, real important.

(Gumi Junga and Jawi Yabba Warra Aboriginal Corporations Director J)

We need to document all these people coming in, doing projects there and there. The main concern is to engage with pastoral lease holders. It is a big country and we can't get around.

(Senior Yirendali C)

We've had Dreaming sites already damaged from pastoralists.

(Senior Mitakoodi B)

The cattle station take water from the river, making it dry. They use bore water and solar panel to pump water out. Mining is using the river water to wash things down – that's why river water is going down. They are wasting water … If the station uses water from the lagoon it will go dry. The mango farm using too much river water. Crescent Lagoon is where we go fishing; the station takes water [from the lagoon]. Warlock station has two bores. Water is important for community.

(Mangarrayi Traditional Owners Group 2)

In the Flinders catchment, the scale of pastoral operations and the potential damage they generate constrained monitoring and oversight by Indigenous Peoples. Of particular concern to participants was the damage to cultural heritage, as shared by a senior Mitakoodi member (Barber, 2013):

Pastoralism does more damage than anybody else, because they are all over. The miners and the government are ok on cultural heritage, they want the surveys, but the pastoralists aren't always as good. The cattle wander through the rock shelters. But the area is so big, you'd need 40 rangers to cover it. We get on good with some of the pastoralists. But the fence lines, the bores and the tanks can do lots of damage. The problem is too broad to deal with. We are working with the pastoralists on riparian fencing, a project in conjunction with SGC [Southern Gulf Natural Resource Management formerly Southern Gulf Catchments]. It is important to educate the pastoralists about the damage.

(Senior Mitakoodi C)

In the Southern Gulf catchments, access to pastoral leases through ILUAs is critical to fulfilling customary responsibilities and has been enabled through fee-for-service arrangements with station owners and managers (CLCAC, 2021).

4.2.2 Mining

Mining development is active in all of the studied catchments including the Southern Gulf catchments. In 2010, Century Mine was charged over the discharge of contaminants into the local waterway in the 2009 wet season. The event raised concerns among Indigenous Peoples across the region about current mining operations, including legacy issues and the types of landscape-scale changes that new operations are causing in the region (Martin and Trigger, 2015).

Participants from across the previous activity catchments expressed a range of concerns of the impacts of mining, from contamination of water sources and the overuse of water for mining operations, the cumulative impacts of mining and other industries on water, to disturbance and damage to cultural sites, and to vegetation and animals. As with other established industries, the prohibition of access to places, lack of knowledge of how much water is being used and absence of water quality monitoring for regular reporting to Traditional Owners are interrelated issues in large-scale resource development projects:

Most of Bonney Glen we use the water just for cattle but there's miners out there too. They use the water for mining, that's the biggest.

(Gumi Junga and Jawi Yabba Warra Aboriginal Corporations Director J)

That's going to increase rapidly in the future because we've now got eight new mining alluvial leases just been put into this catchment, here in Bonney Glen, in the Palmer River … They are all going to have their water. They are all going to put little dams or bore in, that will change the water resource. We're not sure how that will impact on us.

(Gumi Junga and Jawi Yabba Warra Aboriginal Corporations Director H)

Station manager is already using the river water for cattle. That river water is coming through the mining mob. They are sharing the river water. We have asked them if they will share their river water with us. Right now, the mine digs a dam so they can keep water the whole year. They pump water from the river. They have a dam there for bathing. This other dam is for mining … They already have water to wash and clean the ilmenite [titanium ore].

(Roper Valley Group 1)

We only use spring water, for town plants and animals. We don't know how much spring water we got. We can use bore water for vegetables. We don't want any mining here; they destroy too much. Agriculture is OK, but with bore water.

(Bagala Group 2)

Groundwater important for Mataranka, for community. Yes can use groundwater for farming, TO [Traditional Owner] and white fella. Not [for] mining.

(Mangarrayi Traditional Owner 3)

In the Mitchell catchment, concern was also raised about Traditional Owners seeking to establish mining operations on Country. The comment below shows that there are diverse views within groups and in catchments:

Mining, [w]e see that they don't care about Country, they take and grab, and they don't engage us. They only engage us through native title act to clear land. After that they see that we interfere with

their progress. Our problem is that our people are using native title to secure land for themselves to mine. This is frightening for us, we're becoming miners.

(Kuku Djungan Director C)

A key issue raised in the Mitchell activity is the legacy effects of mine closure:

Mining has been here over 25 years and we have got nothing out of it. We have seven species of marble, and my mother would be turning in her grave to see how Country is dug up today. When I come here and I see big holes and all the mining equipment just dumped, people just left behind. That is not respecting Country.

(Wakaman Traditional Owner C)

Like the pastoral and agricultural industries, mining provides employment opportunities for Indigenous Peoples living across the Assessment catchments; however, it is regarded with great caution.

4.2.3 Ecological and cultural tourism

Indigenous Peoples have a key role in the regional economy through art, tourism, mining and the pastoral industry, and seek to be engaged more deeply across sectors. Start-up conditions for Traditional Owners to engage in these industries remain challenging. In the Mitchell catchment Traditional Owners highlighted the limited opportunities for cultural tourism alongside one of the main attractions in the catchment, the Chillagoe–Mungana Caves National Park. In the Gilbert catchment the diversified business model of Cobbold Gorge, a major attraction in the region, combines cattle production and tourism, and is one pathway for business development for a Ewamian Traditional Owner (Barber, 2013):

We got some cattle here [at Tallaroo], just a few, and maybe, in the long term, tourism, nurseries for native plants that kind of thing. This is a good place for biodiversity, birdlife, nature. Look at Cobbold Gorge, they got cattle, tourism, a good mix.

(Senior Ewamian C)

In the Southern Gulf catchments the CLCAC is supporting Indigenous tourism products for Gangalidda Garawa Traditional Owners through Yahurli Tours Pty Ltd and for the Gulf Region Aboriginal Corporation's Birri Fishing Lodge on Mornington Island (CLCAC, 2021).

4.2.4 Aquaculture

Interest in aquaculture across the catchments was lower than in the established industries of agriculture and pastoralism. There was no significant land-based aquaculture across the catchments. Participants in the Roper and Mitchell catchment activities have observed unsuccessful aquaculture projects in the region. Participants expressed strong interest to improve their knowledge base about the sector.

In the Southern Gulf catchments, the CLCAC is advocating for greater ranger compliance roles in the fishing industry.

4.2.5 Community water supply

Indigenous Peoples in the Roper and Southern Gulf catchments live under insecure community water supply, which threatens the wellbeing of current and future generations. While the coexistence of communities and industries is acknowledged, strong concerns were expressed about the insecurity of community water supplies into the future:

… the introduction of the [water] restrictions has left the community concerned about the future of its water supply. If [no rain] happens next year, we will be in a bad state in terms of water, I think me and my people might have to put some real strict conditions in place … We feel very sad about the water because it's not only [the restrictions] but the water is getting real dirty and we are also thinking about the hygiene side too … We are in crisis, switch it off at certain times you know, like the mornings or lunchtime.

(Martin Evans, Gangalidda man and Doomadgee resident, quoted in Fryer and Watt, 2019, viewed 15 May 2022)

We got five bores at Ngukurr. First one [bore] was when we had 600 people; population goes up to 800 – another bore needed. As the population rise, you got to look at more bores to support the community population. At the moment we got bore number 5. So for bore number 6 ,7, 8 and onwards there has got to be consultation with the landowners, and maybe the [Northern] Land Council, and ranger groups and any other organisation that is able to support us for another bore … This week coming we have another 15 [families] to house. We need to make sure all the bores are running to support the community as the population rises.

(Winston Thompson, Ngalakan Traditional Owner and community leader)

Sprinkler to keep grass green in Mataranka parks. Fill up the trough for cattle. They use bore water for the mango and melon farms. They have a lime mine up at Elsey station; they use water for that … The whole community uses bore water. Jilk [Jilkminggan community] they use bore water, used to use river water but not anymore.

(Mangarrayi Traditional Owners Group 1)

They connected the pipes in 2019. This water [bore], we couldn't use it. I can't use it. Even our old people it's no good for old people, sick people and even for young ones … We get warnings when we can't drink water. The rangers or government people come and tell us we can't drink water. It makes it really hard, especially for the sick people, because they need clean water. The water can make you sick.

(Ngukurr resident)

We use irrigation from the pump from the spring to keep the grass green and keep the dust down [in community spaces]. Roadwork uses groundwater.

(Dalabon Traditional Owners Group 2)

Clean water supply for communities is pivotal to physical health and to the expansion and resettlement of Indigenous Peoples on their custodial lands and water.

4.3 Environmental impacts of development

Common themes across the four catchments on the environmental impacts of development relate to:

- changes in the general health of water flow as a result of over-extraction or barriers to water flow
- contamination of water through chemical use, dumping of waste, erosion and weed infestation.

Environmental impacts through development, such as erosion and weed infestation, which can be irreversible consequences of intensive agriculture and pastoralism, change the present and future landscape passed on to future generations and the nature of the relationships that Traditional Owners have with their lands and waters.

The following quote from Garawa man Jack Green describes his painting of the Redbank Mine on his Country:

This painting is of Redbank Mine, a small copper mine on Garawa Country, out towards Wollogorang station. The storage pond at the mine is leaking into a feeder creek flowing into Settlement Creek. In the centre of the painting is the mine site. You can see the pollution coming out of the mine into the feeder creek on the left-hand side of the painting and flowing into Settlement Creek. The copper makes the creek go a bluey-green colour … On the left-hand side and at the bottom of the mine site are figures. These represent Garawa women and kids. On the right-hand side are four figures holding spears and boomerangs. These men are worried about a sacred site, a burial place, near the mine. There are bones that have been stored there. We can't go near the burial site unless we have permission from the mine. The sun is going down and the sky is black. The blackness represents the way we feel about what's happening to our Country. It's gettin' sick and we are really worried.

(Jack Green, quoted in Waanyi and Garawa People (2015, p.18)

Some comments from across the four previous activity catchments highlight particular challenges and cumulative challenges that Indigenous Peoples are seeking to re-dress and manage (Barber, 2013; Lyons and Barber, 2018; Lyons et al., 2023):

We got weeds there; prickly acacia is spread by cattle but bellyache is spread by the water. You see heaps of those in Hughenden, Richmond.

(Senior Gkuthaarn and Kukatj A)

I remember Cloncurry got caught up in the flood and the water was running three different colours. Maybe because of the mine back around near the railway station. That's another thing too, all the stuff that goes into the river.

(Senior Hughenden resident)

You'll be sitting there, and the Cloncurry River runs muddy, then it is crystal clear, then it is muddy again. It must be the mines releasing chemicals. In the past it was drinkable, but now it is a bit iffy to drink it. Green blue algae. And all that digging of sand and gravel without a permit. I'm concerned about all the drilling and diversions around Cloncurry. There are burial sites, women's birthing sites, campsites, fish traps, men's ceremony sites and areas important for traditional medicines.

(Senior Mitakoodi C)

We used to get a lot of fish from the picnic hole. There is hardly any fish there because they [mining operation] were pumping water out. Now you go to that same waterhole you catch bull sharks, stingrays and barramundi. There was no barra and sharks when I was a kid, when the mining was pumping water from there. It went half-way dry, you could walk across the river, before you had to swim or go round.

(Wakaman Elder B)

Also on this block there is a weir … That weir has affected the flow of water, and the fish can't come back upstream. Fish and turtle to lay eggs, eels as well.

(Mbabaram Director D)

Water is important for wildlife, you go out to Maytown now, the bird and animal life is non-existent because there is hardly any water around. The Dianne mine you won't find one bird or lizard. All the runoff is going into the Palmer. They destroyed the water source, contaminated the water.

(Western Yalanji Director D)

There are three to four mines, big mines, but two have been stopped because of iron ore prices. There is one they are starting up and there is another mine that is going to start up again and it's too close to the river. That's why a lot of people are afraid of the pollution of the water, of the river. That's a big talk, how much [water] they are going to use. Where are they going to pump water out again? We have seen the effects from the first mine that has been closed. I've been to that area. You can see the effect. You can see where the clean, clear water turning to red water where it is all iron ore coming down through what you call erosion.

(Ngalakan Traditional Owner and community leader)

Regardless of whether the exact causes of particular water phenomena have been properly identified, the cumulative impacts on water quality of agricultural development and mining activity are likely to be of ongoing concern among Indigenous Peoples in the Southern Gulf catchments (see Vanderbyl (2021) and Waschka and Macintosh (2024) for an overview of the legislative and regulatory frameworks that new proposals are required to meet as part of the approval process).

4.4 Water resource development

The CLCAC 2021–2022 annual report (CLCAC, 2021) flags the concern of the impacts of 'increasing outside interests in irrigated agriculture and water extraction in Northern Australia' (CLCAC, 2021, p. 41) and the absence of inclusion of Indigenous Peoples' knowledge, rights and interests in their lands and waters. One of CLCAC's its responses was to initiate a water quality monitoring program that will establish baseline data and identify impacts of development on fresh and saltwater systems in the catchments.

The previously conducted activities asked respondents from each catchment about water resource development. Responses ranged from endorsement of the potential economic opportunities to opposition based on potential impacts, cumulative impacts, and uncertainty about benefits and Indigenous involvement in decision making. The findings from the activities confirm the importance of consultation and planning processes, and the involvement of Indigenous Peoples in

decision making. This includes involvement relating to the types of benefits that may flow from a development project.

4.4.1 Types of water resource development

Lack of knowledge about the performance of existing structures or other development options was raised as a risk and key vulnerability to Indigenous decision making across the four catchments. Despite a diversity of views within each of the catchments about the types of acceptable water-related development, large-scale development was viewed less favourably. A combination of development options was viewed more favourably than larger-scale interventions. The particular combination of development options varied across the catchments. This depended on existing uses of water, impacts from development, residence, community water supply, availability of water to sustain cultural and recreational practices, and people's physical comfort. Perspectives on development in the Southern Gulf catchments will be unique to people's experiences, risk perspectives and aspirations.

4.4.2 Instream dam location, inundation and sediment load

Across the catchments the consistent majority view was in opposition to the possibility or idea of new large instream dams. Concerns about dams reported during consultations related to size, location, construction risks, sediment loads, downstream impacts, lack of knowledge and awareness about the performance of existing structures and existing infrastructure supporting mining, town/city water or pastoralism, and the importance of river flow to people (Barber, 2013; Lyons and Barber, 2018; Lyons et al., 2023):

No-one has mentioned Quaid's dam… No research on the impacts. What is the engineering strength of the dam? If it floods it will wipe out Kowanyama. No one has checked if it will stand in 100 years. How do these dams function during the big peaks like the category five cyclone? What are the consequences for all life on the river? You're looking at losing topsoil, a metre off that river bed. Or it might be the best built dam in the world. We've never talked about the use of the dam, and it has taken and blocked off the Mitchell River …

(Kuku Djungan Director C)

With a good flush through the Karumba fishermen get a good season down in the saltwater. But if all that gets caught by some dam, then it will stuff it all up. We need a good flush out every year, we say that.

(Senior Gkuthaarn and Kukatj C)

I would not like to see them dam the Gilbert [River], the main channel. If they are going to dam, make it viable, just the little rivers running into it, not the main one. I talked to [Name of Mayor] about it when I saw him in town. This is a wild river in the flood time. It flows real fast. One time six of us took our horses to the river for a drink, and that bank fell in. We were all in the river, only just got out, that river was really wild, and the bank fell.

(Senior Ewamian C)

We don't want dams … It's bad for Country when water goes down. We feel sorry for our Country. How come they boss us over Country? We want it like it was back in the day when our ancestors had the land.

(Bagala Group 2)

If we are going to have changes on the river and on the banks of the IPA section, it is going to change our Country. If we are going to have farming this side of the river inside the IPA boundary, it is going to make a lot of changes. The Country won't be itself as it was before when we grow up. No farming, no damming on the river – that's my own personal point of view.

(Yugul Mangi Ranger 1)

Across the catchments, the annual flushing of rivers is perceived to be integral to river health and to the life forms dependent on its waters. A further impact of dam development noted was the direct and permanent inundation of land that may be valuable for recreational and cultural heritage reasons.

In the Gilbert catchment, some participants were positive about major dam construction. This was provided it was sited appropriately and the benefits from construction flowed to Indigenous Peoples and businesses:

The dam on Green Hills [in the upper section of the Gilbert River], I'd like to see it. The Gilbert has three rivers, the Etheridge, the Einasleigh and the Gilbert, and as long as those others still flow, then there would still be water in the river. It's only common sense. Put the dam back off there, up high, and let the others flow. If you are a pastoralist, and you want to build up, you need to feed your breeding herd, build them up. If that feed is there, then it is good.

(Senior Tagalaka C)

I've got no problem with other people putting in bores. No problem with a dam. I got up at the Etheridge Shire meeting and said that. As long as our people get a job out of it, set up a base, maybe land for agriculture and those sort of things.

(Senior Ewamian A)

4.4.3 Alternative extraction methods

Broadly, the most favoured to least preferred form of water extraction across the four catchments are: (i) flood harvesting to small offstream storage sites, (ii) bore and groundwater extraction and (iii) instream dams constructed in tributaries that do not restrict river flow. Groundwater extraction was generally less favoured where people were less certain about groundwater availability or concerned about existing high groundwater use and the potential impacts on connected springs. Across the previously conducted activities concerns were raised about bores as forms of unmonitored and managed water extraction method. These preferences and the conditions for acceptable water resource development are yet to be explored with Indigenous Peoples within the Southern Gulf catchments.

It was recognised by some respondents that bores would be important for community and residential supply and their preference was for small, offstream storages to supply pastoral and agricultural operations. These considerations included location, existing water extraction methods,

diversification and technology used, and seasonal availability of water (Barber, 2013; Lyons and Barber, 2018).

The comments below touch on some of the diverse perspectives, where some respondents paired certain types of water extraction methods with particular kinds of commercial activities:

If they could put dams out from the river, and pump the water to that dam, that is going to last them for a certain time. That is a lot better than putting a dam in the river. That is my opinion. Bores in a way they could [install them]. They need to be monitored all the time.

(Kowanyama Director C)

DNRM [Department of Natural Resources and Mines (Queensland Government)] said they have 90 people doing compliance, but they are not seeing what we see. We need to establish an agreement because we're out there all the time, we can check, we can get funded for it. There should be a limit how much these people [miners and agriculturalists] can take, and it should be monitored and they should have a counter on their bores.

(Western Yalanji Director D)

Put a couple of offstream dams up along the river, pump water from the river to the dams and save the cattle from going to the river to drink. The river bank will be clean … That will benefit station owners.

(Wakaman Elder B)

They talked about a town dam, like Station Creek in Richmond. It depends on how they do it. There is millions and millions of water coming down that way [in the Flinders River]. It would last there in a dam, they could let it bank right up.

(Senior Yirendali D)

I think this is a good thing. We need development to supplement existing industries. What works for us is beef cattle, and we need to value-add to our product. Fattening cattle needs fodder, and irrigation helps with that.

(Senior Kurtijar B)

No dams around the community area. OK for dam on farms for agriculture for vegetables and fruit growing.

(Bagala Group 1)

Well for myself, I'd like the river not to be touched. Concentrate on the bores because it [using river water] will affect us and it'll affect our native fish and whatever lives in the water, in the river.

(Yugul Mangi Ranger 1)

Flood harvesting was also a preferred method of water extraction for future agricultural development. Assessment participants expressed a general preference not to have offstream dams near the communities. Retention of sufficient water for the environment in the rivers, groundwater and springs, and creeks, was a critical determinant of preferred development options:

In the wet, high flood, there are a lot of creeks that would be dead creeks if no water falls on them. Some catchment areas we can dam and fill up because they don't have any existing flows because it is just drainage … Damming moving water is not viable. Dam dead creeks that can support life. There might be opportunity for ponds along the river but we have to work out where that might be so we don't affect salinity.

(Kuku Djungan Director C)

My vision is that I'd like to see flood pumping happen. Pump out of the wet season flow into tanks that service what you grow there. It is better than bores. We don't know what the underground water is up to. If they do bores, it might take the water down and dry the springs out. The bores affect the spring water on the sandstone escarpment. Those springs have been there millions of years. But bores is better than a dam. People down the bottom of the river will be asking what we are doing – the Gulf fishers, the big cattle properties. Bores I don't see as big a problem, because the flood will still come every year. The dam might change the flood cycle for fish down on coastal Country. We got to think about that.

(Senior Ewamian E)

Use river water for farming when flooding.

(Mangarrayi Traditional Owner 3)

4.4.4 Cultural impacts

The activity identified cultural heritage impacts from development as a significant issue. This includes ongoing damage to known existing sites and critical information needs with respect to the heritage values of less well-known areas of traditional lands now potentially subject to development proposals. Some likely impacts from water resource development include damage or destruction of sites caused by:

- inundation and large-scale earthworks over the storage footprint
- erosion and wave impact along the storage margins
- increased regional population and associated visitation
- pollution
- access restrictions (new land tenure and fencing arrangements)
- impacts on culturally and economically valuable food resources.

A noted impact of dam development was the direct inundation of land that may be valuable for residential and/or cultural heritage reasons:

I'm worried about that old [Ewamian] uncle. At Green Hills [station], that is where his mother is buried. There'll be no more Green Hills if that dam happens. And that pastoralist there will have to get moved, he will lose his home. Maybe handed down from generation to generation that place.

(Senior Tagalaka B)

Most of our artwork is higher up on the Robinson River, sandstone Country. Green Hills itself, my father worked there, my mother worked there. If they dam, it depends how far the dam backs up on the Robertson River.

(Senior Ewamian A)

Well we got a few sacred sites, on the river and on the banks of the river. We do not want them to be disturbed by developers.

(Yugul Mangi Ranger 1)

Building bores and dams is damaging to Country. It is a cultural issue, [including] building bores, bulldozers and stuff like that. Building dams is no good for ceremony sites, [it causes] disturbed sites. I'm worried about digging up the ground for dams and bores.

(Mangarrayi Traditional Owner and Minyerri resident 1)

That's our history there that you're destroying [referring to dam construction scenario]. I'd like to keep that history for our next generation. If you flood that in [permanent dam] you will hurt the Wakaman People. It's our history and it goes back nearly 80,000 years.

(Wakaman Traditional Owner A)

Respondents across the previous activities shared the challenge of assessing future water resource development without sufficient knowledge of current impacts, and the potential impacts of scaling up extractive methods and processes (Lyons and Barber, 2018):

'Cause I been out there, these rivers are all dry, these tiny little streams, everywhere. They use to flow. No more now … irrigation sucked that all out. Not working with Mother Nature.

(Wakaman Traditional Owner D)

I think there has to be some allocation of water where they [industry] could use it for various things like farming, but not when it is excessive. There is no monitoring, and the river may dry out.

(Western Yalanji Director W)

We want to know how much they take and how much water we take. Need to know because water is important, so water is not too low. Water for Country. So, water gets to town [as well].

(Mangarrayi Traditional Owner 3)

The previous activities identified clear issues and preferences for water resource development. Steps to support Indigenous needs in making decisions about future water resource development will be important.

4.5 Steps to meet Indigenous needs relating to water extraction and development

A range of steps to meet Indigenous needs identified in the activity reports can be tested and verified in the Southern Gulf catchments. These steps involve:

• baseline cultural and environmental heritage surveys of key aquatic landscapes and sites that are likely to be impacted

• formal modelling of potential impacts on those baselines

• formal group consultations about water development options and preferences (e.g. extraction type, location)

• further information and discussion about the scale of, and potential employment and economic returns from, water development initiatives

• Indigenous participation and involvement in formal monitoring of the direct site impacts of significant developments

• support for projects and programs that connect Indigenous roles in water development, water planning and wider catchment management

• communication resources to ensure appropriate people are informed of activities, results of monitoring processes, benefits delivered and decisions, and to support informed decision making.

4.6 Conclusion

Indigenous concerns about water development identified in the previous activities included the impacts of water extraction, dismissal of major instream dams as an option, changes to land and river access by Indigenous Peoples, effects on animals, consequences of intensified land use and cumulative impacts from other industries. These concerns will be critical to any development propositions in the Southern Gulf catchments.

Assuming that some types of water development will occur in the Southern Gulf catchments and that Indigenous Peoples are scoping development options at smaller scales, a range of steps that may assist meeting Indigenous needs can be tested and explored with groups in the catchments. These involve (Barber, 2018, p. 108):

• *undertake baseline heritage surveys of key aquatic landscapes and sites that are likely to be impacted by development*

• *undertake formal modelling of the potential impacts of those baselines*

• *formal group consultations about water development options, preferences and perceived risks and opportunities (extraction type, location, etc.)*

• *tailored information and discussion about the scale and potential employment and economic returns from water development initiatives*

• *Indigenous participation and involvement in formal monitoring and reporting of the direct site impacts of significant developments*

• *support for projects and programs that connect Indigenous roles in water development, water planning and wider catchment management.*

5 Regional governance and catchment management: learnings from catchments in the Gulf of Carpentaria

5.1 Introduction: water planning

Consistent evidence from across the previous activities relates to the high value placed on water and the responsibilities and obligations that are carried out through, with and for water by Indigenous Peoples. Despite this, Indigenous involvement in water planning across the Flinders and Gilbert, Mitchell and Roper catchments was limited. This means the avenues through which Indigenous knowledge is meaningfully expressed in water planning and policy are narrow.

Key issues for Indigenous Peoples across the catchments include:

- ensuring enough water, of sufficient quality, to maintain healthy landscapes (environmental flows) and sustain cultural resources and practices
- having access to water sites at different times of the year
- maintaining adequate supplies for human consumption
- securing sufficient water reserves for current and future economic activity
- understanding cumulative impacts of water resource development to assist their decision making in future sustainable uses of water
- deriving benefits from water development and water use
- having active decision-making roles within the catchments and the right people in those roles.

Effective Indigenous involvement in future planning processes will require a range of initiatives to improve knowledge and management effectiveness. Key topics in such initiatives include (MacKenzie, 2008 cited in Barber, 2013):

- resources for training and capacity building, the timing for such preparation and who should be involved,
- the need for catchment-specific Indigenous consultation and reference groups for water planning
- links between water planning, and catchment and land management planning
- further research and information to enable effective water planning.

It is important to note that, like the other catchments in the Assessments, there is limited information on the role and involvement of Indigenous Peoples in the Southern Gulf catchments in the water planning process. Common broad issues, concerns and opportunities for groups across the catchments are likely.

5.2 Indigenous water planning

Knowledge about water planning was largely low among the resident Indigenous populations. At the time of each of the Assessments, the Gulf, Mitchell and Mataranka water resource plans did not have significant engagement processes for Indigenous involvement. However, there was positive interest in Indigenous-specific allocations and for Indigenous values to be part of the water planning process. Traditional Owners expressed a strong desire to be actively involved in water planning to ensure a sustainable clean water supply for cultural and environmental values as well as for Country-based enterprises. The prospect of Indigenous-specific allocations was perceived to be a positive one for a variety of reasons: in relation to farming projects, opportunities to generate income through leasing of water, formal recognition of rights and management of those rights between Indigenous and non-Indigenous corporations.

The statements below illustrate the strong interests and aspirations shared from the Flinders and Gilbert, Mitchell and Roper catchments (Barber, 2013; Lyons and Barber, 2018; Lyons et al., 2023):

I think water licences for us is a good idea. To own something, own that water. We might get some money, and businesses, water is essential for them.

(Senior Yirendali A)

Our own allocation sounds like a good idea. We did not know before that we could get something like that.

(Senior Ewamian E)

Whoever owns the water will dominate the society. What value you want to place on water becomes exceedingly great.

(Kuku Djungan Director B)

If they want to use water, then give money. That's what they are doing now when they use water … rent [lease water licences].

(Roper Valley Group 1)

Permits, we shouldn't have to apply for it. It shouldn't exist, full stop. I want us to be in control of the water. We want to use water the way we want to use water. We want to walk upon land like we used to walk upon land before white fella – we're boss. Different clans who own different land, they own that water. I can't go touch their water. I go touch my water over here. I want that to be further developed. I want Commonwealth Government to be hearing this.

(Dalabon Traditional Owners Group 1)

We don't just want a licence for water, we want a licence to clean water … We got a law coming in. That law wasn't there when the mission came. Nobody asked us, we just used the water anyway. We just used to pump the water for community, toilet, showers. Now they saying we need licence we need permit. The permit goes to the minister that looks after water; that's a new thing … What we are looking at now is that they are going to ask us for [permit] in the future for using water from the river … Nothing should stop us now for using water from the river, that's going to be the case for using water for parks, livestock, gardening.

(Winston Thompson, Ngalakan Traditional Owner and community leader)

Allocating water to needs is one thing but it should not just be about making money. You got to make sure there is enough water.

(Gumi Junga and Jawi Yabba Warra Aboriginal Corporations Director H)

If it comes to a point that a dam is going to be reality, then we need ownership of that water. How do Traditional Owners gain ownership of water on their Country, it shouldn't just be owned by state government. We have native title on that Country. If we want to sell some of that water then the financial gain should be owned and distributed by the mob. How do we get ownership of stored water that is used for public economic development when it is stored on their Country? The loss in cultural heritage can be compensated by ownership of that water.

(Western Yalanji Director B)

In the Flinders and Gilbert and Mitchell catchments, respondents articulated their interest to have access and authority to negotiate greater rights to groundwater and surface water for cultural, social and economic needs, as well as ensuring that the decisions about water use support different values and uses today and into the future.

5.2.1 Indigenous water rights and reserves

Respondents from across the catchments prioritised Traditional Ownership status, and the control and decision making over water that sustains water sources. Respondents commented on the need for Indigenous roles in water planning and recognition of Indigenous water rights. These roles include decision-making bodies and committees at various scales, education and capacity roles, such as water policy, monitoring and reporting, and time to make good decisions. Comments below exemplify the priority placed on the recognition of local groups' rights and Indigenous protocols in decision making:

These are some of the frustrations we have, that people aren't listening; they are only listening to what they want to hear – to tick the little square box for their reports. We want to know what the process for water planning is for the Mitchell [River], and we'll follow it. But it must use Aboriginal processes and include the knowledge of our elders.

(Ron Archer, quoted in NAILSMA, 2011)

I think Traditional Owners should be involved in deciding how to share the water. It needs to be done fairly. Not too many licences, water is precious. There's not enough to go around.

(Senior Yirendali A)

People are talking about the right to water. Maybe we need to claim that. I agree with that too. That will make it more secure.

(Senior Ewamian A)

If they can give us something, we are the owners. Water should come to us.

(Senior Mitakoodi A)

There needs to be more consultation about decision making with water. We need everybody to come to us first and consult with us. Need more information about how government shares water.

When we got our land back, we got everything back, we got our water back. We'd like to know how much stations and agriculturalists are using water.

(Mangarrayi Traditional Owner and Minyerri resident 1)

I *think the landowner, the TOs [Traditional Owners], to make decisions about water, we got to live on that land. Pastoralist, leaseholder and Centrefarm business need to come to meetings as well. They can't just waste the water.*

(Wubalawan Land Trust 1)

People upstream and downstream should be involved. They should know the good and bad to make decisions. They should be consulted in the right manner of the effects on the environment and the effects if they are making business … We need to be consulted properly of the issues around water. The affected people should be the first ones to be there to make decisions, where the plans will go, what the benefits are for the people.

(Ngukurr resident, Traditional Owner (neighbouring group) and community leader)

At the end of the day, we want to be in control of our Country, our water. We want to make our own decisions; we don't want governments doing it.

(Dalabon Traditional Owners Group 1)

5.2.2 Indigenous roles in water planning

Traditional Owners and Indigenous residents have not had an opportunity to explore inclusive models of decision making. The first three comments below relate to different Indigenous roles in water planning to secure Indigenous knowledge, rights and interests into the planning process, each of which can be explored and further developed in the Southern Gulf catchments (Lyons and Barber, 2018; Lyons et al., 2023):

The whole families in Chillagoe and Wakaman Country. We should all get together, people from Kowanyama, Chillagoe, Mareeba to talk about the Mitchell watershed. We should have a person there who will let all the people in that area know what's going on.

(Wakaman Elder B)

… Let the Indigenous Peoples deal with negotiation with other landowners but they have to have a benchmark of the amount of water they can lease. Set up an Indigenous water trust and have a look at how they then earn dollars from the lease of Indigenous waters. We will establish a process where water rights allocation is managed.

(Kuku Djungan Director B)

Another concern, the water underneath if you want to sink and bore and set up a farm, we don't own that water, it's the government. It's a big concern. We spoke about this at [Northern] Land Council meeting. And all those fellows on the committee, they all white fellas. How do we get on board [the committee]?

(Dalabon Traditional Owners Group 1)

Consultation first, talk to government – then we talk to each other and we come up with a decision.

(Bulman resident, Traditional Owner (neighbouring group) and community leader)

Decisions? I reckon the mob that should make the decisions about water is the mob down the bottom end because we are the ones going to be affected by it. Need a bottom-up approach not top-down approach. What the mob should be doing here now because we got native title, is we should have our own water rights, and we can sell it off, use it ourselves or lease it for a while.

(Kowanyama Director C)

5.2.3 Improving access to information about water planning processes

While there was consistent reporting across the catchments about securing an Indigenous-specific share of water, knowledge of the mechanisms through which the rights can be secured varied greatly with and across the catchments. Some respondents had significant knowledge, as expressed above, and others were unfamiliar with the planning process. Issues raised by respondents included inaccessible information, the lack of information and the perception that government was unresponsive to Indigenous concerns and water priorities:

Indigenous water allocation, is there any? Is there any monitoring that ensures the water use stays in that umbrella, that it won't be taken for farming by non-Indigenous? How much protection for Indigenous water allocation? What policy protection is there for Indigenous Peoples?

(Chillagoe workshop – Mulujidi Aboriginal Corporation)

Water rights, that needs to happen, if there is an allocation to Indigenous Peoples we want to be able to access it. The trouble is we don't know how. What are the regulations? … [I want the] council to understand that people are using the water (river) illegally … That's the whole problem, they don't monitor anything.

(Mbabaram Director D)

My understanding now is that Traditional Owner got no say on water – lands yes, but water no … I started to learn about it myself. How do you feel when you not part of the decision making on how much water you get to use, you're in the dark? Make you angry sometimes.

(Ngalakan Traditional Owner and community leader)

We need a clear understanding of water rights. Water is on our land.

(Bulman resident, Traditional Owner (neighbouring group) and community leader)

We don't know how water is shared with pastoralist and farms leases. We would like to know how and who makes the decisions.

(Bagala Group 1)

We don't know how much water we take to water community. We don't know how decisions about water is shared between community and agriculture … Traditional Owners need to be seen as owning water as well. It is important to know how government share the water between farmers, Country and community.

(Mangarrayi Traditional Owners Group 1)

5.2.4 Monitoring and reporting on water use

Monitoring and reporting the water use and the impacts of development were raised in the Southern Gulf catchments (CLCAC, 2021) and in the Roper catchment as critical components of managing water use across the different seasons and changing environmental conditions across the catchments. Traditional Owners at the bottom of the catchment were particularly concerned about monitoring and understanding the impact of water use at the top of the catchment and are keen to use scientific evidence through Traditional Owner oversight, in advocating for different regimes of water use. The comments from the Roper activity exemplify this priority:

Water plan, they should monitor the effect on land and environment. They should have an environmental impact study on the water. They should touch a particular volume of water only, not all the water from the rivers and the aquifers. Mostly they should rely on the rain and floodwater.

(Ngukurr resident, Traditional Owner (neighbouring group) and community leader 2)

The users of the water should be reporting how much water they are using to the TOs [Traditional Owners]. The pastoralist, the farmers, everyone. This will help Aboriginal people.

(Mangarrayi Traditional Owners Group 2)

Mining up here, they keep going, they keep making more area. I don't know where the water came from. I don't know if it is bore or river … For station and mining, they can use the river. Water from the river they can fill their dam. They should talk to us. Someone should help us. They got big pump there.

(Roper Valley Group 1)

Nobody, not even the Territory Government, told us how much volume water they are using on those farms, and that made me upset. Is the level going to drop and drop very low? It is going to affect us here at the bottom … we don't know how much volume is going to be used. Big development is like gardening … Are river levels going to drop and stay down? We don't want that … Me personally, I would like to go and see the monitoring, the measurement of the volume of water they take on all those areas … I know what is happening downstream. I can see the water it is a lot of volume. If I was upstream I can't. We want reporting of upstream, exactly how much water is being used.

(Yugul Mangi Ranger 1)

5.2.5 Water planning, and literacy and research support

Opportunities to improve water literacy to facilitate Indigenous involvement in water-informed assessment and decision making were identified by participants in the Mitchell and Roper catchments. These included sharing of Western science knowledge and the translation of foreign concepts and language, interpretation of the logic of water planning and allocation for deliberation, approaches to supporting the inclusion of Indigenous knowledge and youth in water planning, and planning for future water use:

Consultation has to be clear about negative and what is good. The government talks about this study and that study. All have to come to meet in the consultation. Consultation should include water plan. Some groups are not educated. You have to inform them so they understand what you

are talking about so they have a say, whether it will benefit them, the community, family, the pastoralist business.

(Ngukurr resident, Traditional Owner (neighbouring group) and community leader 2)

What is good is that people are starting to talk about how valuable it [water] is. We know how valuable it is; we need to talk about how to use it. The bad thing is I think it is all too late. It's never too late to talk about education. There is not enough talk and education about water usage or how much water is in the catchment area. The only time we hear about it is when there is a mine coming up or fracking – then everybody starts jumping up and down last minute, you know. This type of thing should be talked about long time before, and there should be more consulting with people. Northern Land Council should be talking to people about that, not only about land but about water, making Traditional Owners understand that we got no power over water.

(Ngalakan Traditional Owner and community leader)

Better information and consultation with the right TO [Traditional Owner] groups. Information is, what's the future plan for that area from the council, how much water is there now and has been used and how much are people using and how much time do we have left. Scientific information about what is left, and climate.

(Western Yalanji Director D)

Educating the young ones to learn the white fella language so they can translate for the elders in Kriol language, so we can understand.

(Bagala Group 2)

We need more consultations. Government needs to come to us and consult with us, including pastoralist. We need more information about water rights. As Traditional Owners we'd like more information.

(Dalabon Traditional Owners Group 2)

We need scientist to help with knowledge of water.

(Traditional Owners (top and bottom of catchment), Ngukurr residents and Community Leaders Group 1)

It is good to do the agricultural stuff. What is not good – no one tells us what and when they use water, and we don't get paid for the water. They put a dozer through the land without telling us … We need more power and water rights. We don't know how water is shared, but we want to know how it is decided who gets what water. We'd like more information about how government gives out the water, but it is important for us to know what our rights are. We need to be central to decisions about water.

(Mangarrayi Traditional Owners Group 3)

Future collaborative work can test and explore pathways for greater inclusion of Indigenous Peoples and their knowledge in water planning processes.

5.3 Best practice in enabling greater inclusion of Indigenous Peoples in water planning

Mackenzie (2008) provides a summary of best-practice principles that can improve the conditions for the involvement of Indigenous Peoples in water planning. These principles include:

- better communication techniques:
  - processes to improved community understanding and capacity to contribute to water planning
  - training and professional development for agency staff and science providers in facilitating community collaboration in planning and research
- better methods for engaging people in impact assessment, future scenario building and predictive modelling
- knowledge and information systems able to handle different knowledge frameworks:
  - decision support systems for rigorous and transparent trade-off analysis in decision making
- decision support systems for rigorous and transparent trade-off analysis in decision making
- Indigenous-specific engagement strategies for identifying the implications of water plans for:
  - cultural heritage, values and practices
  - economic development opportunities
  - community health and water supply.

Future work in the Southern Gulf catchments can explore how these principles may be practised and supported as part of a broader discussion about Indigenous Peoples' involvement in water planning and development.

5.4 Stakeholder involvement in water planning

After establishing the premise of prioritisation of Traditional Owner needs in water planning processes and allocation decisions, respondents within each of the Assessment catchments communicated the importance of involving all water users in planning and decision processes (Barber, 2013; Lyons and Barber, 2018). This decision is based on a recognition of people's current reliance on and relationship to water, through industry or community interests and/or ethical responsibilities to residents of Country. The following statements from across the activity illustrate approaches to stakeholder involvement in water planning (Lyons and Barber, 2018; Lyons et al., 2023):

The TOs [Traditional Owners] and PBC should decide about water. And the Council [Northern Queensland Land Council]l. Everyone. Cape York Land Council. Pastoral people, everyone from those regions need to all come together and decide where to go from here … The PBC needs to talk with TOs, and then going to see other stakeholders. Everyone meeting and greeting together and speak the same language, go with one voice. A watershed group.

(Kowanyama Director D)

All of us, we're not going to get rid of the pastoralists and the farmers but at the end of the day we're all going to have a stake in the quality of water. All industries have to be in tune with one another so the outcomes are more uniform. And the quality and quantity is there for a long time not just for a short time now. We all have a role to play and that has to start with all stakeholders to the table together, not government and development having their own and pastoralists and the Traditional Owners their own.

(Western Yalanji Director B)

Everybody has got to get up and make decision, that's the best way. We don't know how the government makes decision on who gets water … TOs [Traditional Owners] upstream and downstream should be involved in decision making. Government need to properly listen to us. Pastoralist and agriculturist should be involved, to sit down and listen. Everyone should be involved in the decision making but come to the owners first.

(Mangarrayi Traditional Owner and Minyerri resident 1)

Make clear decisions. Everyone has to have a say. Government needs to listen to people of that land. The future kids should start getting involved in decisions. They will carry on. The government should not be involved. They should be listening to us … All Traditional Owners and people who live in the community, down the river, every Indigenous community should be involved. They have their right.

(Bulman resident, Traditional Owner (neighbouring group) and community leader)

Everyone, not just Traditional Owners but everyone. Young and old, everybody. Government, pastoralist, everyone. This is where everyone should be consulted. This is where some mines been around for long time. We got to talk about not be greedy, everybody got to talk about it. Upstream got to understand that it not only affects them, but it also affects everyone. We downstream we get affected more; it goes back to the educating everyone. We going to cop it more because we are downstream. Everybody got to be on the same boat and understand the river system. We working from underneath. We need more monitoring of water usage.

(Ngalakan Traditional Owner and community leader)

The TOs [Traditional Owners] should be asked about how much water that people can take. If we say it is OK to use the water, they will use it. If we say they can't, well they should not be taking water. The government should be involved in the decision making too. Some of the pastoralist should be involved in the decision making. Traditional Owners first should be involved, that is, from the top of the river to bottom of river.

(Mangarrayi Traditional Owners Group 2)

Participants highlighted that genuine participation and consultation in water planning processes would involve sufficient time to support education, sharing information, and deliberative and informed decision making by local groups and between groups. Such a process would involve agencies such as governments and existing water users, who would first make time to listen to Indigenous Peoples in the catchment.

5.5 Catchment management

5.5.1 Catchment management and planning

An important goal in Indigenous involvement in water planning processes is sustainable management of water resources and development objectives of Indigenous and non-Indigenous Peoples, community and businesses across the catchment. Key pathways identified include:

- building on existing Indigenous water knowledge and expertise through focused, catchment-scale skills and capability building in formal water planning
- establishment of appropriately resourced formal structures for catchment-scale Indigenous water planning and catchment management consultation
- further catchment-specific discussions regarding aspects of water planning that are already known to some people, such as Indigenous reserves and tradable allocations
- further research and information about downstream native title interests in water that future water planning will need to consider
- further consideration of the articulation of water planning with both water development and catchment management.

The CLCAC is supporting a regional approach to land and sea management and enterprise development through various initiatives including water quality monitoring, the ranger program, feral animal control and economic development such as local tourism ventures. Memmott and Channells (2004) identify Indigenous interests to link Northern and Southern Gulf catchments projects and for Indigenous rangers to work across the region with regional career pathways.

Common themes in community development options identified in the previous activities in the Flinders and Gilbert, Mitchell and Roper catchments and in the CLCAC strategies include (Barber, 2013; CLCAC, 2021; Lyons and Barber 2018; Lyons et al., 2023):

- establishing or improving residence or resettlement on traditional lands
- retaining youth
- establishing or strengthening local corporations
- establishing Indigenous ranger programs
- acquiring rural landholdings
- establishing standalone Indigenous businesses
- building partnerships with non-Indigenous businesses, and focusing on employment and training outcomes.

5.5.2 Group, corporate and regional governance

Common themes across the findings of the previous activities and the literature on Indigenous water values, rights, interests and development goals in the Southern Gulf catchments include (Barber, 2013; CLCAC, 2021; Memmott and Channells, 2004):

- the need for and importance of coordinated regional development conversations with a vision for sustainable social, environmental, cultural and economic objectives

- effective internal corporate and regional governance structures and processes being key to managing external development pressures
- a mix of new and long-established organisations and diverse capabilities in regions.

Some of the challenges to Indigenous participation in regional, group and corporate governance include the following circumstances to varying degrees:

- dispersal of group members
- multiple commitments of highly capable members
- the high number of young people who are undereducated by national standards (which can make participation in regional and corporate governance challenging)
- time and resources to support capability building
- longer decision-making time frames for internal governance in large collective groups (due to requirements to function with clear rules about how decisions and agreements are made, and clear objectives regarding longer-term development decisions).

These challenges will influence the processes of engagement with development opportunities or projects.

Across the catchments, the aspiration to strengthen corporate and regional governance arrangements for both coordination and collective bargaining capability reflect Indigenous Peoples' desire to manage the pressures for development. Indigenous Peoples have their own development objectives and responsibilities, which they do not want to see compromised by others. Future work with the Indigenous Peoples in the Southern Gulf catchments can include productive engagement in this discussion through a collaborative approach.

5.6 Conclusion

Strong interest was expressed across previous activities for Indigenous Peoples' involvement in water planning and catchment management through established relationships and specific mechanisms accessible to groups at the catchment scale. Indigenous involvement in water planning is seen to facilitate Indigenous Peoples to be more effectively involved in enabling sustainable development in the catchments. There is sparse information on the involvement of Indigenous Peoples in the Southern Gulf catchments in water planning and water-related development planning.

Building local capacity is critical to enabling Indigenous participation. Some key catchment-specific pathways that can be explored through further work in the Southern Gulf catchments are:

- building on Indigenous water knowledge and expertise
- creating resourced formal structures for planning, management and consultation
- discussing aspects of water planning that are already known to some people
- providing research and information about downstream native title interests in water
- analysing and articulating water planning with both water development and catchment management.

Government support to scale local and community planning processes for a regionally coordinated approach and regionally identified priorities would assist Indigenous Peoples to act as enablers of sustainable development that encompasses goals of resettlement and retention, Indigenous employment and cultural natural resource management, and employment and training outcomes and partnerships with non-Indigenous businesses. These broad goals sit across the catchments within which the Assessments have been conducted.

6 Indigenous businesses and enterprises: learnings from catchments in the Gulf of Carpentaria

Indigenous development goals made up one focus area of the previous activities. Indigenous development objectives combine economic viability and sustainability with a range of wider social, cultural and environmental goals. Sustainability focuses on a combination of strategies that include institutional recognition of the role of Indigenous Peoples and their lands in providing services (e.g. relating to biodiversity), stable and significant funding from government and the establishment of Indigenous enterprises (Barber, 2018). Across the Flinders and Gilbert, Mitchell and Roper catchments activities, smaller-scale and locally driven opportunities were favoured, consistent with perspectives on sustainable development. In the Southern Gulf catchments Indigenous development goals are being pursed through PBC-based enterprises.

6.1 Enterprises and Indigenous lands

Indigenous sustainable development goals include Indigenous-owned and operated businesses and other business partnerships in the region. Across the previous activities, and in the Southern Gulf catchments, common sector-based enterprise goals occur for pastoralism, tourism and aquaculture.

- Pastoralism and value-adding to pastoral production were identified goals in the Flinders and Gilbert and Southern Gulf catchments:

Delta Downs has a motion on its books to apply for a water licence. The idea is to grow corn and sorghum, to fatten the cattle. There's another station growing corn on the Leichhardt, so we think it is probably feasible on Delta, even though the land is more susceptible to flooding. We want to add value to the beef, not grow peanuts, or anything.

(Senior Kurtijar B)

To build a commercially sustainable Waanyi Cattle Company.

Lawn Hill and Riversleigh Pastoral Holding Company Pty Ltd,
https://www.lhrphc.com.au/vision.htm

- In the Flinders and Gilbert, Mitchell, Roper and Southern Gulf catchments ecocultural tourism is a key component of diversified on-Country business planning. Owning rural property opens up a range of other land-based business possibilities. These are useful both in terms of income diversification and the associated social development possibilities:

It is our cultural knowledge and skills that will support the sustainable development of tourism on Country. We understand the seasonal changes and natural diversity that support tourism in the region. We would like to increase Indigenous-owned businesses and employment in the local tourism industry.

(Gangalidda and Garawa Native Title Aboriginal Corporation, 2014, p. 35)

Would be nice to have an ecotourism venture up here but that ecotourism would have to show that they are actually there to have minimum impact on the Country … The good side here on the table lands, we have water up here all year round … we have vast areas of rainforest and gorges … My intentions are to get Indigenous employment for the whole tablelands.

(Mbabaram Director A)

A lot of the tourists want to know a lot about Indigenous culture and how we use water. A small tour sharing cultural knowledge about hunting and fishing, the turtle and fish, bush tucker along the river side. A nature walk along the river like the mangrove tour in Mossman, a cultural tour.

(Muluridji Directors (Group))

Pretty well everyone looks after Country – rangers, elders, everyone that goes there keeps it clean … School kids learn about culture they go to Baghetti [outstation], they enjoy themselves. The school kids are white ones that come up from down south somewhere. Adelaide, Sydney, Melbourne. Baghetti run the course. There is an outstation, they got a house there, a beautiful house.

(Dalabon Traditional Owners Group 2)

- Aquaculture is of interest to some in the Mitchell catchment as a potential small-scale, on-Country business operation:

We would like to see the feasibility of aquaculture.

(Kowanyama Director E)

In the Southern Gulf catchments, groups have prioritised compliance and management roles in the Gulf of Carpentaria fishing industry (CLCAC, 2021).

Some groups will have greater capability to create and sustain multiple business activities because of their unique geography, residence, tenure system, governance structures and skills base and assets, for example, than others.

6.1.1 Resettlement, and community and outstation livelihoods

Indigenous participants across the Roper catchment seek to engage more frequently and fully with their homelands through infrastructure development on their outstations. They have clear objectives to create conditions for self-sufficiency on their outstations and communities that include not only secure and clean water supply, but also fresh fruit and vegetables that can be sold locally and supplement store foods. In the Southern Gulf catchments the Garawa People expressed the loss of service to their outstations, making these less viable for residence and ranger operations. The perspectives of Traditional Owners from the catchments include:

Our outstations throughout Country provide us with a direct connection to our culture. We go there to practice culture, ceremony, storytelling, song, hunting, fishing and burning Country. Most importantly, we go there with our children to teach them about who they are and where they are from. Our rangers also use them as bases for working on Country. A few decades ago, our outstations were well serviced and we could live healthy lives there whilst receiving the same services that towns had – electricity, water, stores, and even schools. Today, in some outstations

those services are minimal and it makes it hard for us to use them for ranger work and as a permanent home for all our families.

(Gangalidda and Garawa Native Title Aboriginal Corporation, 2014, p. 41)

Agriculture and homes. Traditional Owner community. Outback stations. Used to be pastoralist uses. Now I thinking more for planting things like fruit and vegetables. The billabongs are sacred, we don't want them touched.

(Wubalawan Land Trust 1)

Bore water is important to remote community livelihood including drinking and household water supply as well as park greenery.

(Ngalakan Traditional Owner and community leader 3)

In the Flinders and Gilbert and Mitchell catchments, the resettlement of traditional and designated native title areas remains a primary objective for Indigenous groups where depopulation has occurred. There are some variations in the exact forms that such resettlement aspirations take, but they were consistently expressed during the research. These factors can intersect and interact in complex ways:

With the TOs [Traditional Owners] coming back on Country they want to be able to access that water … Many Traditional Owners do not have access to land near the river as they have been occupied by small leaseholders and squatters.

(Mbabaram Director D)

We want to move back to Country and investigate what opportunities there are outside of mainstream farming. We don't want to copycat Mareeba and Dimbulah … I'm planning to move back up now. I have to plan to get my car and money to get my accommodation back up on Country. With our presence a lot of things lessen. When we are on Country, people see our presence, it sort of deters negative development.

(Kuku Djungan Director C)

I hope to sell up my properties and come up here to Chillagoe and buy. I feel so strongly about that because this is where my grandparents, mother, children and grandchildren all connect. It is my responsibility to educate my children about the importance of keeping tradition on Country. This is the place for them to learn. This is home. When you look around here, this is where my grandfather did ceremony, this is their storyline. I'm obligated to care for it and pass it down to my children.

(Wakaman Traditional Owner C)

We want to look after our Country. We want to get our own land, but we can't yet. The only thing we can do is come to the ILUAs, but that takes time, to get to know the people involved. The pastoralists, they know some of the old people because they worked on their stations. Then there is the problem of how to get the younger people to reconnect with their land. They are used to Western ways, and where they live now. Many of the old people are gone. We took the young people back to Country, it opened their eyes up, made them think, identify who they were again. They grew up in the city…. Country identified through the elders, through the archives over 15–20 years, came back. It is hard reconnecting, lots of the old people are gone now, but we are doing it.

(Senior Yirendali C)

People want to live back in Croydon, young people want to go back. Elders would go if we had a clinic there.

(Senior Tagalaka A)

The Ewamian Rangers need to be based on Tallaroo, not in Mareeba. All this travel back and forwards. And the Ewamian office needs to be in Georgetown, on Ewamian Country. The people are up this way now [Cairns and the Atherton Tablelands], but it needs to happen.

(Senior Ewamian E)

6.1.2 Natural cultural and resource rights, and rangers

Indigenous property ownership that enables resettlement and/or the ability to retain members on traditional lands through programs such as rangers on Country is crucial to enabling residents to practise their natural cultural and resource rights. In the Flinders and Gilbert and Mitchell catchments the vast majority of natural resource development occurs on lands over which Indigenous Peoples do not hold exclusive title. The principles and practices associated with such developments are therefore extremely important. The ranger program is one pathway of practising and upholding natural cultural and resource rights. Below are some of the challenges and the goals that respondents expressed from the Mitchell and Flinders and Gilbert catchments.

We want the ranger base out there. We've been talking to the Cook council about doing a ranger base centre at Maytown. I'm trying to build our presence out there because everybody is doing whatever the hell they want.

(Western Yalanji Director D)

How can we imagine the possibilities of what we can achieve collectively? If we continue to focus on what makes us real then we will miss the opportunity to sit at the table, stop blaming, and how we can benefit, personally benefit, how can our society benefit. Real, we don't have to be absolutes. We have to be in the sense of collaboration. Do we present ourselves in a realistic way, instead of saying I'm Murri, if we look at excuses from doing this then are we real in that sense of trying to achieve something together. In the environment of caring we're here, this is real.

(Kuku Djungan Director B)

We've applied for Caring for our Country funding. We need a ranger set-up in the area. We want to protect where the farms are going to be – get those rangers shooting and trapping ferals and brumbies, protecting the Country. Croydon people need to get priority, because they are living on the Country. We've applied for a grant, $5 million over 5 years, to manage and develop the reserve lands, workshop and business ideas. This includes rangers – we spoke to Gulf Savannah about that – who would cover wider Tagalaka Country.

(Senior Tagalaka C)

We are trying to get rangers, but it is hard to acquire funding. We have had to do that job by ourselves. We are still doing it, but if we had rangers, it would make our [management] job so much easier. We can't wait for DERM [Department of Environment and Resource Management], we don't see everything all the time. We've got to assess those areas. We got to be testing the river system every week.

(Senior Mitakoodi B)

In the Southern Gulf catchments the CLCAC and Wellesley Islands Rangers undertake fee-for-service activities for 'weed and feral animal control, strategic fire management and planning, biosecurity surveys, biodiversity monitoring and management, Traditional Knowledge camps, cultural heritage surveys, turtle and dugong surveys and monitoring, sea Country and marine debris monitoring and management, water quality testing and management, IPA management, ghost net surveys and removal, migratory and waterbird breeding colony surveys, and research and partnership building with government and non-government organisations and universities' (CLCAC, 2021; Gangalidda and Garawa Native Title Aboriginal Corporation, 2014). The fee-for-service arrangement has also been important for relationship building with the pastoral sector.

In 2013, the Indigenous expert forum in Kakadu National Park about Indigenous participation in sustainable economic development in northern Australia criticised existing government development initiatives and outlined a range of important features of development on Indigenous lands 'to ensure that real benefits accrue from development, and that these benefits change the social circumstances for the wellbeing of their communities and families' (NAILSMA, 2013, p. 1). These features are important to test in the Southern Gulf catchments into the future and include:

- respect for local Indigenous Peoples as the primary decision makers about the development of natural resource assets for which they are responsible
- the need to involve women and young leaders in discussions about development
- Indigenous engagement and involvement using free, prior and informed consent principles
- effectively meeting the obligations and requirements of both international treaties and local, regional and national policy whole-of-government approaches to wider Indigenous economic and social development
- novel communication approaches to attract private investment for sustainable development on Indigenous lands, notably through an Indigenous prospectus approach that articulates Indigenous values and community-based planning priorities with private-sector needs
- partnership approaches to ensure that Indigenous Peoples are actively involved in generating the benefits accruing from development and are significant recipients of those benefits
- that participants can seek resources and professional support to make informed decisions about development on their Country, to create greater awareness of their presence and interests on Country, based on their values, and to develop partnerships that will realise their development goals.

6.1.3 Industry partnerships in development

Industry partnerships facilitate strategic opportunities and development pathways for Indigenous Peoples across the Flinders and Gilbert, Mitchell, Roper and Southern Gulf catchments (Section 2.10). Indigenous Peoples seek to become informed partners, as Traditional Owners with rights and interests. Changing the nature of the relationships between Traditional Owners and industry will involve discussions about opportunities for Traditional Owners with the various interests groups that use and draw benefits from water systems.

In the Roper catchment two land trusts were in discussions to design a plan for industry partnership with Centrefarm:

Our Land Trust is looking at Centrefarm as a business. The pastoralist pay us to lease the land.

(Wubalawan Land Trust 1)

We have a plan to develop water for farming with Centrefarm.

(Mangarrayi Traditional Owner 3)

However, in general, the emphasis is on local partnerships, local benefits, value-adding and diversification for greater long term sustainability:

We need to operate locally and generate work. Right now the cows get bred and grown here, fattened up further south, killed even further south, then shipped 2000 km back up here, which is why a rump in the pub costs $30. We are already trying to get the abattoir running in Cloncurry. Stage 1 feasibility is done, and we are preparing Stage 2 now. We learned from the cattle ban that we cannot have all our eggs in one basket.

(Senior Kurtijar B)

… these mining operations have an end date [that is unknown at this point]. There is, therefore, a need to diversify the economic base of the region in order to generate new employment and business opportunities.

(CLCAC, 2021, p. 21)

These general principles about the potential value of development, the need for adequate controls, and the need for formal agreements about shared benefits are evident in specific comments made by research participants:

Development helps the Country, creates employment, gives towns a boost, a lift, maybe give us some benefits as well. I'm not against it, it is just a matter of how they do it. We have got to be part of it – consultation, input, participation, benefits.

(Senior Wanamara A)

With future developments, Shared Benefit Agreements are necessary. They need to have multiple elements – training and employment, wider economic returns, and compensation. We've talked in the past about an agreement for [wild] sandalwood harvesting, where us as Traditional Owners are employed to do the harvesting and get a percentage of the final value of the product.

(Senior Yirendali B)

Good networking, marketing and good collaboration with other tourism providers. And a will to succeed. It's on Western Yalanji native title determination. I have their support and the community and its members. And I have the support of my elders.

(Western Yalanji Director C)

Indigenous Peoples living in remote community, they don't have the skills to understand what is going to happen to the land. They [resource development businesses] should consult all Traditional Owners. They should explain what is bad and what is good. If it is economic then they should get all TOs [Traditional Owners] involved in work and employment. Yugul Mangi, we got two mines – they never consult. They never get us involved to lift our community to where we want to be, health, education, social wellbeing.

(Ngukurr resident, Traditional Owner (neighbouring group) and community leader)

Discussions with Indigenous Peoples in the Southern Gulf catchments can explore and test partnerships models that have been shared in other catchments for local and regional contextualisation.

6.2 Enabling conditions for Indigenous businesses on Country

The broad conditions of land ownership, and their relationship to retention and resettlement goals and business development opportunities, are shared to different degrees across the Flinders and Gilbert, Mitchell, Roper and Southern Gulf catchments. However, the specific contexts of development goals differ between groups and across the catchments. Types of plans and aspirations to build the local and regional conditions for enterprises on Country include:

- securing recognition of resource rights:

Key development objectives across the catchments include recognition of and security of resource rights, as well as corporate and regional governance arrangements and meaningful beneficial partnerships and agreements.

- development planning and Indigenous roles in development:

Indigenous leaders in northern Australia have turned their focus to the private sector as a driver of economic development opportunities (NAILSMA, 2013a; 2013b). Indigenous groups and peak bodies have refined partnership concepts and tools to promote Indigenous Peoples as ongoing investors in natural resources (Barber, 2018). Partnership and agreement models that involve a high level of Indigenous involvement and control are preferred as they are more likely to deliver meaningful outcomes and benefits.

- Indigenous water planning and allocation needs:

As articulated across the catchments, where existing knowledge of water planning was low, the skills and capacity to express particular goals and interests about water planning processes and allocations were constrained.

Initiatives to improve Indigenous participation in water processes will need to include a range of topics involving capacity building, scientific research and information to facilitate effective participation, monitoring and others as identified in section 5.1.

- education and employment opportunities:

Opportunities for more tailored education and employment are necessary in regional development. Evidence from across the catchments identified the importance of generating attractive employment opportunities that support increasing economic participation. Barber (2018) points out that skills development is needed in the Indigenous and non-Indigenous worlds and across multiple sectors.

- infrastructure:

Infrastructure to support Indigenous Peoples to base themselves and live sustainably on their lands, including outstations, was identified as a key part of establishing businesses and bringing people back on to Country.

- residence and resettlement:

Generating on-Country employment and businesses was identified as a pathway to facilitate the objective of on-Country residence, resettlement and retention to sustain community wellbeing. Businesses would, however, need to be operate in a way that reflects Indigenous values.

- knowledge to support future planning:

A strong knowledge base is one of several foundational components necessary to plan and create new business opportunities and employment. Knowledge needs can include biophysical science, planning, governance, business opportunities, data management, analysis and reporting, and policy knowledge.

- knowledge improvement – business development needs

The development of new enterprises requires new knowledge and skill capabilities. Scientific information on Traditional Owners' customary lands and waters, and the potential impacts of specific development projects, is of interest to respondents across multiple catchments.

- natural cultural resource management rangers

Support for natural and cultural resource management was consistent across the catchments and for groups within the Assessment catchments. The work of ranger groups was highly valued by groups: those without rangers have strong aspirations to establish a ranger program and those with existing programs want to sustain and/or expand their numbers and their operations.

- partnerships and agreement making:

Partnerships and agreements between Indigenous and non-Indigenous parties can create enabling opportunities for Indigenous Peoples to pursue their own development objectives within their own or others' development projects, and/or manage the impacts of development projects in which they are not directly involved. However, Indigenous Peoples' desire to better utilise assets under their control or for which they have recognised interests can be constrained without outside assistance, due to capital, skills and knowledge shortages. Additionally, negotiating agreements can be a time- and resource-intensive process where PBC representatives do not have the powers to secure their interests.

6.3 Conclusion

Achieving development objectives requires a combination of security of rights to lands and waters, and recognition of those rights and Indigenous interests; business planning; prioritisation and selection; governance capability; education; and clear employment pathways that engage both Indigenous and non-Indigenous ways of knowing and working. Government investment will be a crucial element to enabling Indigenous development objectives that are specific to cultural, geographical, institutional and environmental contexts.

7 Conclusion

The culturally diverse Indigenous Peoples of the Gulf of Carpentaria have historically distinct experiences of colonisation and live in geographically unique places. This literature review for the Assessment shows some of this diversity as well as some common principles and themes that are important across the Gulf. Further work is needed to gain locally specific data for Settlement Creek, the Gregory–Nicholson River and Leichhardt River, the Morning Inlet catchments and the Wellesley island groups. The literature on Indigenous water values, rights, interests, and development goals in the Southern Gulf catchments and the data from CSIRO resource assessments of nearby Gulf river catchments were reviewed for this report to identify themes that can be tested and explored in greater detail through collaborative on-ground research with local Indigenous Peoples.

The review highlights that Indigenous Peoples wish to look after and protect their lands and waters, and the resources and cultural heritage within them. Indigenous Peoples also have a range of perspectives and goals about future development, and they can be enablers of appropriate development.

Indigenous involvement in sustainable development in the catchment is inextricable from their active participation in water planning. Government structures are key enablers to scale and coordinate processes and priorities for a regional approach that would assist Indigenous Peoples as enablers of appropriate development. This development would meet their enterprise, residential, employment, and cultural natural resource management goals. Government investment is also a critical component to enabling Indigenous development objectives that are specific to cultural, geographical, institutional and environmental contexts.

Development goals and futures shared through the interviews in the Flinders and Gilbert, Mitchell and Roper catchments and the literature on the Southern Gulf catchments favour local small-scale projects and diversification of opportunities. Pastoral production and tourism were common development goals across the catchments as were well-managed partnerships in the natural resource sector.

Interest to establish new land-based Indigenous enterprises was communicated across the Flinders and Gilbert, Mitchell, Roper and Southern Gulf catchments through interviews and reports. The enabling conditions to support new enterprises would be unique for each group and catchment context.

Addressing knowledge gaps and determining actionable pathways with Indigenous Peoples in the Southern Gulf catchments for their particular social, cultural, environmental, economic and governance contexts is a critical step towards improving investment for capability development and for a regionally coordinated development approach.

7.1 Information needs and pathways for sustainable Indigenous development

Research can productively engage with information needs and in future development planning by testing and building knowledge of the resources, systems and capabilities needed for Indigenous collectives and Peoples to meaningfully participate in decision making. Expanding understanding of the conditions for, and priorities and interactions of, the enabling factors for greater Indigenous participation in water resource development in the Southern Gulf catchments is a first step. These enabling factors include:

- recognition and resource rights
- development planning and Indigenous roles in development
- Indigenous water planning and allocation needs
- education and employment opportunities
- infrastructure
- residence
- knowledge to support future planning
- knowledge improvement – business development (particularly land-based business) needs
- natural cultural resource management rangers
- partnerships and agreement making with non-Indigenous businesses.

This activity identified a set of pathways for planning for sustainable Indigenous development that are grounded in existing local ideas and aspirations. Consultations at local and regional levels are required to confirm whether the pathway options presented in these chapters are important to prioritise from an Indigenous perspective. The pathway options include:

- steps to meet Indigenous needs in engaging with future water development
- best practice for enabling greater involvement of Indigenous Peoples in water planning
- catchment management planning processes for Indigenous and non-Indigenous Peoples
- strengthening Indigenous capabilities in nature resource management and planning
- options to improve opportunities for businesses to understand and invest in Indigenous Peoples and their lands and waters.

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