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CRCNA

DEVELOPING NORTHERN AUSTRALIA

STRENGTHENING REGIONAL PLANNING AND DEVELOPMENT ASSESSMENT IN THE DOUGLAS DALY REGION OF THE NORTHERN TERRITORY

Solutions Report

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Cover images

Front: Rice crop on Adelaide River. Credit Dr. Ian Biggs, CRCNA.

Back: Storm over cotton – Illawarra Road Douglas Daly. Credit Dr. Ian Biggs, CRCNA.

This report is available for download on the NESP Marine and Coastal Hub website:

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We acknowledge the Traditional Owners of Country throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past and present.

Executive summary

Our research is seeking practical solutions to resolve deep societal tensions embedded in the highly contested nature of northern development. Without a healthy system of regional planning and development assessment and approval, northern Australia faces faltering economic development in rural, remote and Aboriginal communities. At the same time, it contributes to a failure to secure internationally and nationally significant biological and cultural values within the landscape.

Through NESP Project 3.1, we have been exploring these issues in three key regions in the north. These include Western Australia's Pilbara region, the Gilbert River District in Queensland, and the Douglas Daly region in the NT. All three regions experience conflicting issues ranging across diverse drivers for economic development, the need to conserve sensitive ecosystems, and the need to enable strong Aboriginal governance, culture and livelihood aspirations in the landscape.

In the Douglas Daly region of the Northern Territory (NT), tensions between all three of these legitimate aspirations are long standing and significant. Here, these tensions have long led to suggestions that a more regionalised, engaged and evidence-based approach might be needed to support planning, development assessment and nature positive investment decisions.

Our recent Analysis Report (Dale et al. 2024) explores and more deeply analyses weaknesses within the prevailing system of regional planning and development assessment within the Douglas Daly, as well as opportunities for improving the system within the catchment. Building on findings from this work, through this Solutions Report, we explore a series of recommended next steps focused on the design of potential, new and innovative solutions for strengthening the current governance system within the Douglas Daly. Consequently, this Solutions Report has been developed closely with the NT Department of Industry, Tourism and Trade (DITT), other key NT agencies, the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW), the National Environmental Sciences Program (NESP) Marine and Coastal Hub and the Cooperative Research Centre for Developing Northern Australia (CRCNA).

Our key potential and suggested solutions revolve around the establishment of the necessary pre-conditions of success for new approaches to integrated regional planning and development assessment within the Douglas Daly region based on our previous governance systems analysis.

The key focus of these next steps include:

- building cross-governmental and regional consensus about appropriate models for development within the region;
- the need to ground truth the potential of these conceptual models as a foundation for evidence-based tradeoff analysis, and the integration of Commonwealth supported bio-regional planning and water allocation planning; and

- the need to build long-term local institutional capacity for the sustainable development of agriculture, tourism and land management businesses and their associated communities in the region. This could include attracting new and evolving ecosystem service markets and offset management through the landscape-scale delivery of conservation works.

This second of two reports unpacks these potential solutions in more detail, enabling DITT to work progressively with the region's key stakeholders to progress regional planning and development assessment changes that can deliver Ecologically Sustainable Development (ESD) in the long-term and a bright and prosperous future for the region's residents and supporters.

1 Background and context

As part of an ongoing process of policy and planning activities to derisk new development, the NT Government, in partnership with the CRCNA, has considered priority regional planning and development assessment issues facing key agricultural development areas. This particularly means places where development pressures significantly impact on and intersect with both the Commonwealth's *Environment Protection and Biodiversity Conservation (EPBC) Act* and the NT's environmental and water-related policies, legislation and regulations. It needs to do this whilst also considering new directions emerging from the review of the existing Commonwealth National Water Initiative (NWI).

As mentioned in our preceding **Analysis Report**, this NT-wide work has focused on areas of known development interest, agricultural development potential, and on places where it might be possible to minimise the potential risks to those diverse and important natural and cultural values that are also a feature of developments throughout the NT. Ultimately, such development will require the free, prior and informed consent of the region's traditional owners, who are increasingly and justifiably seeing themselves as leading or being equity partners in any such development.

This potential agricultural development opportunity and the social, cultural and Aboriginal values of the Douglas Daly region have also been covered in the previous **Analysis Report**. For the purposes of both our **Analysis** and **Solutions Reports**, we refer here specifically to the current governance and future potential of the Douglas Daly Agricultural Development Area (see Figure 1), but we recognise that this area sits within a wider catchment, bio-regional and cultural context.

The area consists of extensive existing cropping and pastoral development with a mix of land tenures, including freehold, pastoral leases and Aboriginal Land Trust areas, creating a complex social and biophysical environment. This tenure mix, land capability and water availability provide big opportunities to support further sustainable development for these diverse communities through appropriate regional planning and development approval processes. This would suggest that the region is worthy of the development and application of such approaches. The economic imperative for agricultural development and diversification is well articulated in the NT Agribusiness Strategy (DITT 2022). Importantly, however, the high biodiversity value of land and aquatic ecosystems in the NT often correlates with higher land productivity, creating the potential for conflict between agricultural opportunity and cultural and biodiversity values.

Over the last decade, however, despite the high level of policy and industry prioritisation of agricultural development in the NT, and a growing awareness of potential risks, little attention has been given to improving planning and trade off analysis to support improved development decision-making within the region. Our **Analysis Report** consequently has explored the current health of this system with the view of recommending potential new approaches that could help to ensure the achievement of genuine sustainable development outcomes in the region. Based on this analysis, the **Solutions Report** proposes recommendations to strengthen the regional planning and development assessment system affecting landscape-scale outcomes in the Douglas Daly catchment. This will provide a basis for future negotiations regarding further progression of such improvements in the catchment. Finally, this process should enable shared decision-making to prioritise future stages of research collaboration and support via the NT Government, NESP and the CRCNA beyond 2024.

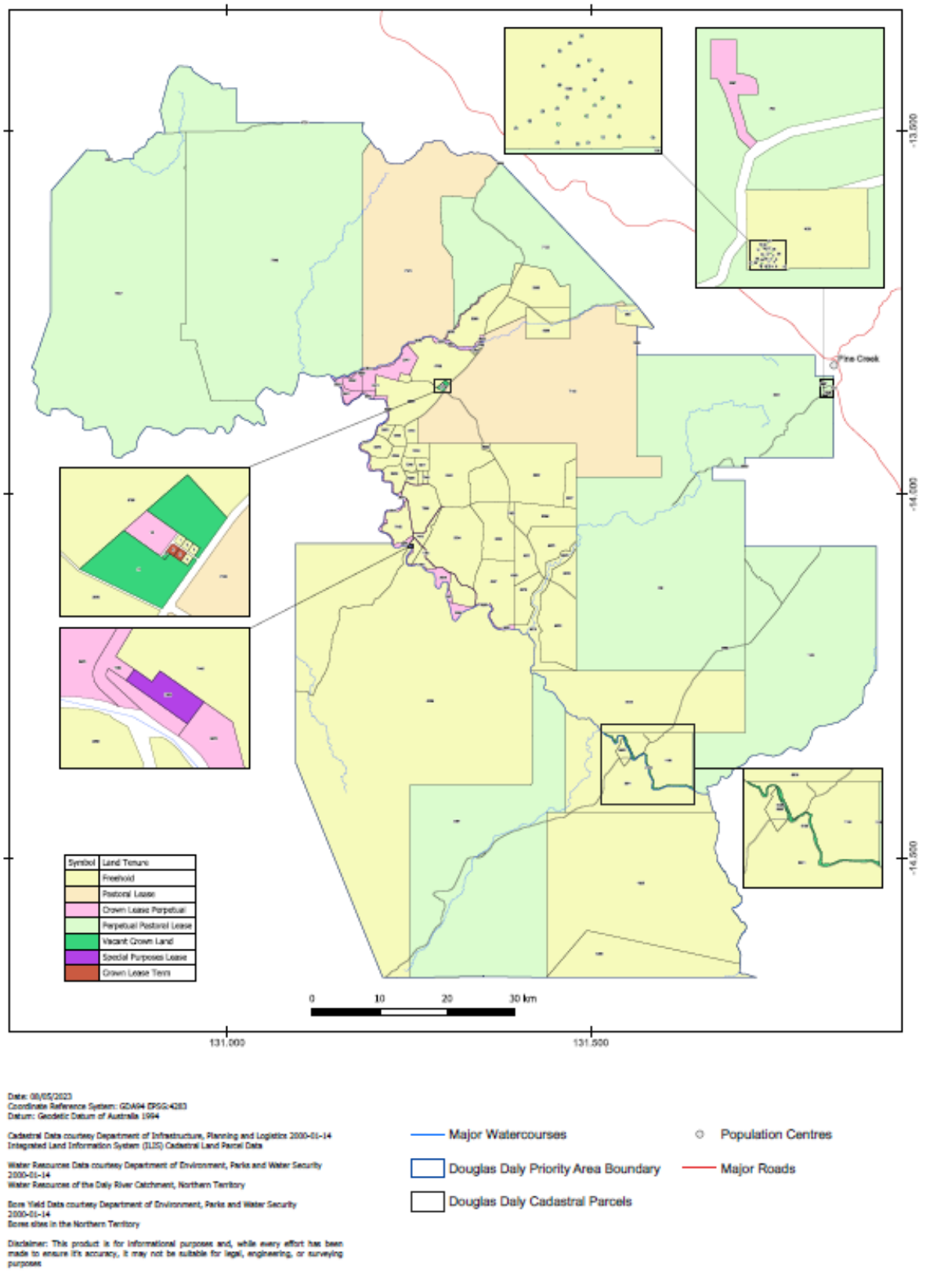

Figure 1: Map of the Douglas Daly Agricultural Development Area and associated tenures.

2 An analytical overview of the Douglas Daly System

Our Analysis Report outlined the main legislative and programmatic activities contributing to regional planning and development decision-making within the wider Douglas Daly region (see Table 1).

Table 1: The key legislative and programmatic governance activities influencing regional planning and development-related decision-making in the Douglas Daly region (based on NAJA 2020).

Instrument	Jurisdiction	Type	Purpose
Planning Act (1999) and Major Projects	NT	Land Use Planning and Development	Provides for appropriate and orderly planning and control of the use and development of land.
Water Act (1992)	NT	Water Planning and Allocation	Provides for the investigation, allocation, use, control, protection, management and administration of water resources.
Water Quality and the Waste Management and Pollution Control Act (1998)	NT/Common-wealth	Planning and Action to Maintain and Improve Water Quality	Supports regulation, programs and efforts aimed at maintaining and improving water quality in surface and groundwaters.
Environment Protection Act (2019)	NT	Environmental Decision Making	Under the Act, projects with significant environmental impacts need assessment by the NT Environmental Protection Authority (EPA).
Environment Protection and Biodiversity Conservation Act (1999)	Common-wealth	Biodiversity Protection	Provides for the protection of the environment and the conservation of biodiversity.
NT Heritage Act (2011) and NT Sacred Sites Act (1989)	NT	Cultural Heritage Protection	Under the Heritage Act, it is an offence to knowingly damage a heritage place, to remove something from such places or damage or remove a heritage object, unless one of the exemptions applies. Of most relevance, these exemptions include

			when the activity is carried out under a work approval issued, or heritage agreement under the Act.
Regional NRM System	NT/Common-wealth	Natural Resource Management	A bilateral (Commonwealth/Territory) system to manage natural resource management issues and funding at regional scales.
NT Agribusiness Development Strategy (2022)	NT	Agribusiness Development	A NT Government strategy to develop agribusiness across the NT to 2030.
Crown Lands Act (1992) and Pastoral Lands Act (1992)	NT	Crown Land Administration and Pastoral Land Management	Legislation and program efforts that provides for the administration of crown and pastoral lands.
Aboriginal Land Rights (NT) Act 1976	Common-wealth	Land Rights in the NT and Native Title Resolution and Management	Legislation and other systems that provides for the granting of Traditional Aboriginal Land and support for Aboriginal development in the NT for the benefit of Aboriginal people.

In relation to undertaking an over-arching NT-wide analysis of the regional planning and development assessment system of relevance to the Douglas Daly, NAJA (2020) specifically explored system constraints related to:

- complex land tenure arrangements;
- limited understanding of water availability and soil suitability;
- insecurity of water rights and water infrastructure;
- limits to transport and communications infrastructure;
- the need for the development of a functional regulatory environment; and
- the need to foster a supportive investment environment.

The NAJA report stressed that securing private sector investment in the development of the NT would still require serious Commonwealth and NT Government collaborative effort, and it generally grouped potential solutions as needing to involve:

- more effective soil and water resource assessment, allocation and supply;
- refinement of current approval processes;
- strategic land use planning and delivery of supporting infrastructure;
- targeted research and development;
- market development and support;
- investment in lifting traditional owner capacity to undertake agricultural development;
- investment support; and
- the development of more trust between all stakeholder sectors.

In addition to these findings, our **Analysis Report** (Dale et al. 2024) undertook eight targeted agency-focused interviews bolstered by additional but informal non-government sector discussions in late 2023 and early 2024 in industry, Aboriginal and community sectors. Some of the most consistent views about critical systemic strengths emerging from the formal interviews included that there is:

- capacity within the natural asset to enable sustainable agricultural development, with a reasonable level of accessibility to regional supply chains;
- a growing Commonwealth presence and interest in the region;
- the existence of reasonable, deliberative and consistent regulatory frameworks;
- limited local decision-making (e.g. via a Council), but high community expectations about the need to strengthen decision-making more locally;
- a high potential capacity in the traditional owner, industry and conservation delivery sectors;
- a legacy of enthusiastic and informed collaboration arising from previous Daly River Management Advisory Committee (DRMAC) arrangements; and
- a great legacy of scientific knowledge (e.g. TRaCK).

The key themes that emerged from people's expressed views about the weaknesses of the current system included that:

- the planning and development assessment is complex and poorly integrated;
- there is limited scientific data to underpin planning and development decisions;
- there is limited workforce capacity within key sectors involved in the system;
- there is considerable tenure and regulatory complexity;
- there is poor road access and communications infrastructure in the region;
- there are fears of the past failure of collective action approaches;

- there is limited local government capacity for decision-making within the Douglas Daly;
- there is a lack of an effective ecosystem service market or offset framework that can be applied to development in the region; and
- there are low levels of government capacity for community/traditional owner engagement.

The key raised themes that often emerged from people's expressed views of priorities for system improvement included the need for:

- visionary and early approaches to collaborative decision-making;
- capacity investments in traditional owner governance and support;
- ongoing programs of mapping, scientific works and model improvement;
- capacity investments in government planning and engagement;
- opportunities for place-based approaches to biodiversity and carbon offsets and markets;
- improved catchment-scale water plans, bio-regional planning and/or strategic assessment;
- investment in industry and community capacity locally;
- paying greater attention to the social and economic benefits of development;
- positive place-based approaches that can influence legislative and policy reform;
- the need to demonstrate and recognise sustainable farming systems;
- strategic investment in road and communications infrastructure;
- third party facilitative support to help broker trade-offs;
- the need to map resource demand; and
- government standing firm on agreed development policy frameworks.

This background section has summarised the results from the broad governance systems analysis and more detailed agency interviews exploring the health of the governance system for regional planning and decision-making in the Douglas Daly (Dale et al. 2024). From this work, clear points are emerging regarding strengths and weaknesses within the system, as well as potential areas that might be ripe for practical reform. Based on these results, this **Solutions Report** dives more deeply into, and synthesizes, the key governance system problems that, if addressed, would influence better decision-making and sustainable development outcomes within the catchment. It does this by unpacking discussions related to potential and practical system reforms to guide further efforts.

3 Methods and approach

A preliminary analysis of the complex governance system underpinning sustainable development outcomes in the Douglas Daly Agricultural Development Area was applied to focus attention on systemic reforms that could deliver better economic, social, cultural and environmental outcomes for the region. The details of the methods applied in this are outlined in Dale et al. (2024), but it basically involved a simplified application of the Governance Systems Analysis (GSA) approach developed by Dale et al. (2013). Dale et al. (2013) suggest that governance systems concern social, economic and environmental themes across our society at any scale, and that these themes cannot be viewed in isolation from one another. Sustainable development seeks to find the right trade-offs between these themes at local, regional, provincial and national scales. The GSA approach considers that failure to get the balance right can damage all three societal values. Under this GSA inspired approach, we identified the ten most significant regionally-oriented governance sub-domains or activities that influence sustainable development outcomes of relevance to the Douglas Daly Agricultural Development Area and more widely (see Table 1). The second methodological step involved an assessment of the governance health of each of those governance activities.

To enable additional depth to this literature analysis, we interviewed stakeholders from eight key agencies involved in regional planning and development decision-making relevant to the Douglas Daly Agricultural Development Area, and the wider bioregion and catchment. These interviews were backed up by more informal discussions with a wider range of stakeholders. Formal ethics approval was sought and received as part of the research process. Formal interviewees were asked:

- what do you think are the key features of the regional planning and development assessment system in the Douglas Daly region?;
- what role do you and your institution play in that system?;
- what aspects of regional planning and development assessment system in the Douglas Daly region are currently working well?;
- what parts of the system need improvement?; and
- what are your priority views about how the system can be strengthened?

The literature-based governance systems analysis and interview data was integrated, allowing effective identification of the key system wide governance problems, and facilitating early thinking about potential solutions, now developed more fully in this subsequent Solutions Report.

Through this GSA work, we have identified several higher level and significant regional planning and development assessment system problems that, if not addressed, will result in the continued slow decline of environmental, cultural, and economic values. These broadly included:

- competing and fragmented visions for the Douglas Daly;
- the lack of a cohesive framework for regional planning and trade-off analysis;
- poorly conceptualised ecosystem service offset and market frameworks;
- limited science and knowledge integration efforts; and
- capacity and capability limitations across multiple sectors.

To progress from problem identification to solutions, a workshop of key agencies was held in April 2024, alongside additional informal discussions with key catchment stakeholders. These processes have contributed to the identification and road-testing of the following solutions now proposed.

4 Potential systemic interventions

Based on the identified key weaknesses in the wider regional planning system affecting sustainable development outcomes in the Douglas Daly in our **Analysis Report**, the following is a preliminary potential set of longer-term pathways for improving the health of the regional governance system. It is hoped that these priorities can inform the development of a longer-term partnership arrangement between DITT, DCCEEW, NT Government agencies, Aboriginal, industry, conservation sector and community stakeholders and the CRCNA and NESP Hubs.

4.1 A cohesive investment in aboriginal nation building and country-based strategic planning

A foundational investment in empowering local Aboriginal groups is needed to support regional development. This requires a long-term stable Commonwealth/Territory investment in building local Aboriginal institutions and people's governance and planning capacity for self-determination in relation to development in the Douglas Daly. This is needed if Aboriginal people are to be effectively engaged in future development decisions, including regional planning and approval processes.

In the first instance, this means DITT working closely with the Northern Land Council to ensure that all relevant traditional owner groups associated with the Douglas Daly (and their appropriate institutions such as the Land Trusts), are each supported to:

- explore their interest in, and their preferred approach to building long-term collaborative governance regionally and at the traditional owner group level to lead, participate in, benefit from, and ensure the free, prior and informed consent for development;
- understand the planning and development context, the range of developments possible and emerging landscape-scale management opportunities. This needs to occur prior to supporting the development of a shared vision within and across traditional owner groups for the region;
- clearly define the roles and responsibilities of traditional owner representative institutions in planning and implementation of this vision;
- ensure the development of appropriate free, prior and informed consent protocols that need to operate within each traditional owner group's custodial area;
- progress to supporting the development of strong nation-based aspiration setting, and then working further towards consequent approaches to country-based planning; and
- the development of clear investment and implementation plans to support progress.

Within this context, the aspirations building process must ensure that there is a clear traditional owner understanding of existing water planning processes at play in the Douglas Daly, clear communication about the water rights available to traditional owners (under the current Aboriginal Water Reserve) and the associated eligible entities that can access that

water. Consequent strategic country-based planning processes must then be able to ensure that traditional owners are supported to understand the nature of those water rights and associated water development opportunities. In the context of the Douglas Daly region, these applications potentially include:

- the extractive use of those waters by traditional owners for agricultural development on available Land Trust lands. Such development might be entirely traditional owner-led development or explore joint venture partnerships with other agriculturalists;
- options for the potential leasing of existing water rights on a temporary or long-term basis to existing or new agriculturalists in other parts of the Douglas Daly; and
- the creation of ecosystem service market products that would enable traditional owners to contribute water back into the environmental and cultural values of the catchment.

Essentially, this sort of longer-term, stable and cross-governmental effort needs to be focused on supporting the Douglas Daly's traditional owners to build their preferred, well-governed nation building agenda, which can then be detailed in their own strategic and country-based plans. At this point in time, there are currently no cohesive, regionally-oriented support mechanisms for such efforts, despite the fact that they are essential to ensure that traditional owners are:

- well placed and enabled to engage in wider dialogue about conceptual models of development within the catchment;
- supported to maximise social and economic benefit from any water development;
- in control of any efforts focused on the assessment, protection and management of cultural values within the catchment;
- genuine partners in any emerging science efforts within the catchment; and
- gearing up to provide significant landscape-scale land and water management services.

4.2 Establishing an Integrated Agricultural Research and Development Hub

There is already an existing and significant agricultural economy in the Douglas Daly. At the very least, there is major opportunity to lift productivity, sustainability and social justice outcomes within the existing farming systems. This is before considering the fact that there is additional (uncontested) water available for consumptive use under the current water planning arrangements. As identified in our Analysis Report (Dale et al. 2024), the Douglas Daly region has been considered particularly worthy of new and innovative approaches to place-based agricultural development as:

- there is currently substantial allocated water available that is under-utilised, as well as potential for additional surface water allocations;

- there is substantial cleared land available for more intensive development (some 32,000 ha), including a potential shift from plantation forestry to higher value crops (potentially up to an additional 10,000 ha); and
- there is a higher proportion of freehold and other flexible tenures available within the region, including defined Aboriginal Land Trust lands available to traditional owners.

Consequently, one core objective for the future of the area needs to be getting improved economic, social and environmental outcomes from the existing resources. In effect, through the early efforts of an identified team within DITT that is focused on the development of agricultural precincts, there is already a foundationally solid institutional basis for progressing such an approach. Achieving this more successfully over a longer period of time, however, would rely on:

- supporting the emergence of an adaptive and strong growers collective of some form within the area, perhaps modelled on developments such as the Northern Australian Crop Research Alliance (NACRA) in the Kimberley's Ord River Irrigation district (NACRA n.d.);
- ensuring there is support for improved production and productivity across all key commodities (including value-adding opportunities), by at least including cattle production, fodder production, high value cropping, horticulture and forestry;
- developing more effective integrated farming systems that can be applied at property scale and exploring complementarities that might exist across these different farming systems;
- continued research into fine-tuning the profitability and sustainability of existing and new farming systems, including ensuring improved water quality outcomes;
- increasing water use efficiency and ensuring the greatest value possible can be achieved for every megalitre of water that has been allocated;
- planning out and progressing towards the delivery of the most critical forms of infrastructure (particularly transport and digital) and social services delivery into the area;
- exploring mechanisms to build healthy relationships between the farming sector, traditional owners and local and regional communities to ensure the development of stable workforces and enable the evolution of strong social communities within the area; and
- exploring how agricultural landholders might contribute to ecosystem service delivery; and
- locking in long term institutional relations and shared investment approaches to such a place-based approach to enhancing long-term agricultural development.

Consideration of the grower-led benefits of the NACRA approach in the East Kimberley's Ord River Irrigation Area (ORIA) would be beneficial in this case. Like the Douglas Daly, that

region has supported irrigated horticulture, grain, and other crops since the 1960s. NACRA's primary aim is to undertake research into suitable food and fibre crop species (both new and existing) to improve the region's competitiveness and to meet growing international and domestic demand. It is industry driven, outcomes-focused and has strong market influence due to the domestic and export activities of the partners. NACRA initially had a focus on the high trending functional food space, but has broadened its scope to include food and fibre crops of current and future interest (NACRA n.d.).

The success of such an approach could be easily measured and monitored through the collection of data focused on: (i) the value of production per megalitre of water available in the area; (ii) measures of economic and commodity diversity within the area; (iii) average incomes for people living within and adjacent to the agricultural development area; and (iv) the status and trend of water quality and riverine health within and at lower reaches within the catchment. Strong and long-term science partnerships could be developed to provide confidence in progress being made.

The DITT Team established to roll out agricultural precincts across the NT, through a strong partnership with the CRCNA, has already commenced the development of a research and development plan for the area, undertaking extensive engagement in devising the plan. Key early priorities have included improving extension approaches within the region, economic and supply chain analyses of various commodity options, plus this research and more place-based approaches.

4.3 Collective approaches to managing trade-offs between development potential and biodiversity risks

The Douglas Daly is one of the few places in the NT where collective approaches to planning to achieve an appropriate balance between development and the environment have been attempted. As mentioned in Dale et al. (2024), the NT Government established DRMAC in 2006 to develop options for the sustainable use and conservation of natural resources within the catchment. Notably, the goal of DRMAC was to promote the highest standards of management of land, water and other resources in the region ‘so that the important values people associate with the Daly River are protected’ (DRMAC 2009). The independently chaired DRMAC structure advised on the development of an adaptive management decision-making framework to allow balancing of the needs of catchment development and conservation, with a particular focus on vegetation clearing and water resource management. The membership of DRMAC included representatives from traditional landowners, production, tourism, recreation and conservation sectors and government (DRMAC 2009). The process was also strongly supported by a range of innovative and integrated science projects from the Tropical Rivers and Catchments Knowledge research consortium (TRaCK).

In our GSA of the Douglas Daly regional planning and development assessment system, several interview participants explained that they deeply valued the opportunity for science-based, whole of community and inter-sectoral dialogue during the period that DRMAC was in operation. However, others lamented a lack of well-considered mechanisms to keep the member parties accountable to agreed outcomes of the process. Others suggested the process may have been unsustainable in its basic design, as it was instituted for a relatively

narrow regulatory advisory purpose. One thing that is clear from the Dale et al. (2024) analysis, however, is that "visionary and early approaches to cross sector collaborative decision making" about the future of the region is the key to securing strong, environmental, social and economic outcomes for the region. This view was articulated by virtually all interview participants formally involved in the analysis. In short, participants were calling for a strong place-based collective impact approach to managing the complex trade-offs required.

Since the DRMAC time, there has been much development in the societal understanding of effective place-based approaches to collective planning and impact management. Indeed, there has been increasing acclaim for adopting place-based collective action approaches, and across the globe and nationally, there are numerous policies and pilot programs encouraging their adoption. For definitional purposes, we refer to place based initiatives as collaborative, long-term approaches to building thriving communities delivered in a defined geographic location (Queensland Government, n.d.). Collective place-based planning approaches are often characterised by partnering and shared design, shared stewardship, and shared accountability for outcomes and impacts. There is now a substantive global experience concerning the importance of such approaches, which at a minimum require:

- a trusted backbone institution with the capacity to mobilise collective agreement about the social, economic or environmental outcomes being sought at appropriate scales;
- collective analysis of, and agreement about, systemic governance system problems that need to be resolved to improve the regional and local outcomes being sought;
- the adoption of quick win actions to improve system health alongside more substantive, long-term strategic projects or activities required to radically improve outcomes; and
- ongoing adaptive monitoring and evaluation of the progress against outcomes being sought, as well as ongoing monitoring and evaluation of the health of the governance system contributing to those outcomes at scale.

Within Australia, and particularly within northern Australia, consideration of such initiatives, however, still remain housed in the margins of program design and Federal, State and Territory budgetary processes. They are not routinely applied in addressing complex policy and program delivery problems. This suggests that there is a systemic barrier to the routine allocation of resources to institutionalise place-based approaches at the appropriate scale. For such an approach to work in the development and implementation of a clear ESD model for the Douglas Daly, there would need to be a clear and committed backbone organisation or institution to help bring together the Federal and Territory governments, traditional owners, industry, the conservation sector, the community and the science community.

In particular, emerging, evidence-based partnerships will be critical to the development of effective and trusted frameworks for trade-off analysis and decision-making between development potential, cultural and biodiversity risks. Such frameworks might initially be better focused on reaching conceptual, but catchment-scale consensus, about preferable development models that help refine:

- aspirations and opportunities within the agricultural and traditional owner-based land-holding community for development, including irrigated agriculture;
- where real opportunities for development might be acceptable within the catchment (i.e. the where question);
- the most appropriate forms, or model of development (e.g. innovative off-stream storage versus large scale in-stream infrastructure development, or multi-functional farming models versus the development of traditional agricultural production system) that will minimise marine, aquatic and terrestrial impacts (i.e. the what question); and
- aligned infrastructure and service planning to ensure high value economic outcomes emerging from new development within the region (i.e. the how question).

These sorts of conceptual development thinking enable the negotiation of trade-off analysis activities that will eventually be needed to inform more detailed bio-regional and precinct planning. Within a collective impact framework, however, facilitated by a trusted backbone institution, clear consensus building about an agreed vision for the future of the region is needed. Only then can an agreement be negotiated about the most appropriate development model. From this point, priority actions can be agreed and progressively implemented to achieve (and to measure achievement of) the preferred model. This may indeed include the progression of key regulatory plan reviews related to regional land use planning, water allocation, bioregional planning and land-clearing guidelines.

While not particularly costly, there needs to be a strong bilateral and long-term commitment to such an approach, and political and departmental leadership at both levels of government needs to remain responsive to the negotiated outcomes secured by the independent backbone institution. There needs to be at least a ten year and adaptive commitment to the approach proposed.

4.4 Progression of a pilot bioregional planning approach

As a result of significant fragmentation in the governance system overseeing land use planning, development and conservation decision-making, major unresolved tensions exist between the opportunity to develop and the necessity for environmental conservation. In the Douglas Daly, this particularly plays out with respect to issues associated with tree clearing, activities that might increase the level of water extracted for productive use and anything that might reduce water quality within local and downstream parts of the Douglas Daly catchment. Not resolving these tensions will lead to long-term scenarios emerging that will likely include both economic stagnation within the local community and slowly declining natural and cultural values.

Nationally, these issues have been recognised through the Samuel's review of the Commonwealth's Environment Protection and Biodiversity Conservation Act. The Samuel review (2020) acknowledged that renewed approaches to regional and bioregional planning might provide greater development certainty for proponents, offering streamlined approval for multiple actions. It could also deliver improved ESD outcomes if developed in accordance with NT-based statutory plans. The review noted that any prospective regional planning efforts would require the integration of statutory roles and responsibilities of the Commonwealth with

state, territory and local government planning and development approval processes. An overarching objective of such regional/bioregional planning approaches would be to identify where development could, and should not occur, in addition to priority restoration and recovery areas, providing decision-making certainty. Samuel (2020) also stressed the need to enable community ownership and the need to ensure the adaptability of regional plans through the design, implementation, monitoring and evaluation phases.

Consequently, within this important region, and emerging out of any place-based approaches to the establishment of a clear model for development based on well negotiated trade-off analysis, it will be important for the Commonwealth to seek to build more purposeful and evidence-based partnerships with respect to the Douglas Daly, primarily involving the NT Government, industry and community sectors, traditional owners and researchers. Commonwealth involvement in such partnerships for regional/bioregional planning, however, would also need to be integrated across various DCCEEW programs (e.g. Natural Resource Programs, EPBC responsibilities and the National Water Grid Authority) and wider Commonwealth functions (see Dale et al. 2022).

Once a clear development model and appropriate trade-offs have been negotiated through a place-based regional planning approach, these partnerships would need to be given form and function through formalised plans (with consequent links to regional land use planning and water planning), ultimately resulting in the formalisation of some form of development precinct plan. Consistent with current proposed developments in the consequently proposed EPBC reforms, emerging bioregional planning could ensure clear delineation of core conservation areas, agricultural and infrastructure development areas, and restoration areas. They would also need to have formalized and well integrated links back into the NT planning system. A combined long-term planning approach to the design of ecosystem management actions across the conservation and restoration areas would need to be established through careful institutional design. This, however, cannot be planned without effective thinking about the most appropriate local offset frameworks, and longer-term approaches to coordination and delivery of market and other ecosystem service investments.

4.5 Trialing new approaches to ecosystem service market and offset framing

Implementation of effective bioregional planning and facilitating sustainable development decision-making within the Douglas Daly could still lead to cumulative impact and ecosystem decline if there is insufficient attention paid to the regional planning and delivery capacity needed. This is needed locally, within the catchment, to deliver long-term landscape-scale planning, investment attraction and coordinated on ground delivery. Some of these issues are broadly articulated in Dale (2014). This means, at the very least, the following preconditions of success need to be institutionalised well to meet the specific needs of the Douglas Daly catchment (or perhaps a wider catchment scale):

- a bilaterally agreed, long-term institutional capacity for catchment and conservation planning within the NT. Such an approach would need to be strongly linked to any bioregional planning approaches taken in the Douglas Daly. This type of long-term and adaptive planning would need to include the identification of:
  (i) spatially defined landscape values (biological and cultural) that need active

management; (ii) targets for the achievement of ecosystem health across these assets; (iii) a long-term and costed works program to secure these targets; and (iv) well-defined and stable delivery partnerships that can deliver these work plans locally over time. Existing institutional arrangements for both regional and localised aspects of natural resource management (NRM) (i.e. local Aboriginal Land and Sea Rangers, or the Territory NRM body) would seem to be the logical starting point for reviewing and strengthening these arrangements;

- core long-term and stable investments would also be needed to help build the foundation governing and delivery capacity of the region's Aboriginal institutions and traditional owners, pastoralists, farmers and specialist landscape restoration service providers;
- an agreed framework for designing appropriate offsets linked to the Environment, Social and Governance (ESG) responsibility of all enterprises operating in the region (particularly the larger corporates) or any new development activity. This involves the effective channelling of these offset arrangements into the long-term regional work programs. This effort needs to be complemented by bioregional-scale planning and negotiation for targeted attraction of global ecosystem service markets, private conservation sector investment interest, and wider corporate ESG and voluntary ecosystem service market efforts. Such work would also continue to need to be supplemented by the attraction of Commonwealth and NT Government investment programs focused on conservation and cultural outcomes;
- there is still relatively little land clearing in the Douglas Daly, but the wider pastoral estate continues to suffer impacts from long-term over-grazing in places and from feral and invasive species (e.g. weeds and pigs). As such, within the context of any bioregional planning undertaken, there is a need for focused innovation and design of refined offset frameworks for agreed land clearing. This could build on the previous work of DRMAC in relation to the development of innovative land clearing guidelines. This approach could provide both carbon and biodiversity offset benefits within the Douglas Daly. Conceptually, however, there is a need for a shift towards the negotiation of a clearing cap that sits within acceptable thresholds of loss, and longer-term offset investment in improved ecosystem health across the high conservation and restoration areas identified under any new bioregional plan in the Douglas Daly bioregion (e.g. versus like-for-like offsets). The recent development of a new NT Offsets Framework might assist with this approach;
- the development and delivery of a structured long-term on-ground works program targeting agreed bioregional priorities. To get engagement and long-term institutional capacity building, this at least needs to include: (i) purpose-built landscape delivery teams through institutions such as Aboriginal Ranger groups (with backup support from the Northern Land Council), Territory NRM or specific NT Government agencies; and (ii) agricultural industry service groups and dedicated local pastoralists and farmers focused on ecosystem service delivery (i.e. perhaps developed with NT Farmers and the NT Cattlemen's Association).

4.6 Building new knowledge in terrestrial, aquatic and marine condition and trend

Well-institutionalised and long-term science and knowledge management partnerships are also needed to synthesise, coordinate and inform any emerging evidence-based partnership frameworks and the more detailed planning and delivery mechanisms needed to achieve the outcomes intended above. These longer-term partnerships, which build stable knowledge management systems and research and development capacity focused on the region, will be essential in overcoming the significant gaps in foundational state and trend knowledge sets. As mentioned in our Analysis Report, some of these key state and trend knowledge gaps include:

- aquatic and marine ecosystems and their relationship to development pressures (e.g. including water quality, quality and aquatic ecosystem health);
- terrestrial biodiversity state and trend related to the importance to MNES and Territory-specific biodiversity values;
- cultural values within the landscape undertaken by traditional owner interests; and
- agricultural and minerals development potential and agricultural productivity.

These long-term science and knowledge partnerships are also needed to grow and mature the collective trade-off analysis, bioregional planning and long-term state and trend monitoring. This requires the establishment of a long term, placed-based knowledge building process that could mature towards the development of more sophisticated modelling, predictive and monitoring capacities, and the development of more engaged decision support tools to support trade-off analysis and condition and trend monitoring. Natural leadership for such a long term, place-based approach could emerge from Charles Darwin University's current integrated water security research developed in partnership with the CRCNA. There could also be linkages to CSIRO's emerging Australian Food Innovation Network. Indeed, this model of integrated science delivery might emerge across Northern Australia through the emerging Northern Australia Universities Alliance, and northern Australia wide discussions related to the future of the CRCNA beyond its current investment horizon.

Linked through these sorts of coordinated science and knowledge management arrangements, there might also be growth in the ability of the NT and the Douglas Daly region to explore the development of genuinely shared environmental knowledge systems that build on the Western Australian Biodiversity Sciences Institute's (WABSI's) Shared Environmental Analytical Facility (or SEAF) in the Pilbara region. Even a low-cost partnership approach to shared knowledge identification, storage, analysis and progressive update would be an important initiative here. Such an arrangement would have significant value to agricultural developers and conservation managers alike. There may also be potential to negotiate a pilot trial to such approaches with the Commonwealth's new Environmental Information Australia (EIA) arrangements based in Canberra.

5 Next steps and conclusions

This project has explored priorities for more regionally-based approaches to improving the system of planning and development decision-making in the Douglas Daly catchment. We have paid collective attention to the Douglas Daly because it remains one of the most prospective regions for agricultural development in the NT, primarily due to the availability of water, relatively secure land tenures, and the high availability of cleared or plantation land for development. Despite this, the region also retains high biodiversity and cultural values. While development could happen with relatively low environmental and cultural impacts, if poorly managed, development equally could result in very poor environmental, cultural, social and economic outcomes for the region. Equally, a continued focus on sticking with lower value outcomes arising from agriculture, on the other hand, will perpetuate the limited economic opportunities available for people in the Douglas Daly region.

It is considered that the next step forward involves DITT, CRCNA, WABSI and NESP (in collaboration with all key agencies and community and industry stakeholders) continuing to cooperate in progressing the further co-design, development and implementation of these potential solutions outlined above through one or several emerging investment opportunities. These include:

- working closely with the Office of Northern Australia (ONA) to explore the progression of this region as a priority for improved regional planning reforms linked to current regional planning reforms under the EPBC review and the refresh of the Developing Northern Australia Whitepaper Action Plan. This might involve directly pinning the approach developed within the priority work areas being established through revamped arrangements servicing the Northern Australian Ministerial Forum (NAMF); and/or
- progression of a cohesive proposal under the Commonwealth Government's current Innovation Precincts funding arrangements; and/or
- inclusion of a prioritised, but enhanced approach to improved regional planning under usual NT Government budgetary processes; and/or
- longer-term inclusion of investment in these potential solutions as innovation approaches to be developed under any future NESP or CRCNA-related programs.

Even at a modest level, the cost of such an approach could be as little as $1.5 million per annum for at least a five-year trial period. The benefit returned, however, would far outweigh this through improved agricultural production, enhanced social benefits and enhanced environmental management. It is anticipated that the steps considered above will enable a strong, long-term and collaborative approach to resolving these problems through growing partnerships between the Commonwealth, the NT Government and key stakeholders with an interest in the Douglas Daly.

References

Dale, A.P. (2014). *Beyond the north-south culture wars: Reconciling northern Australia's past with its future.* Springer, Berlin.

Dale, A.P., Turnour, J., Burns, S., Bock, E. and McHugh, J. (2024). *Strengthening regional planning and development assessment in the Douglas Daly region of the Northern Territory: Analysis report*. NESP Marine and Coastal Hub, RRRC, Cairns.

Dale, A.P., Sheppard, M., Burrows, D. and Williams, Y. (2022). *Supporting regional planning in northern Australia: A scoping study.* A report to the National Environmental Science Program. Reef and Rainforest Research Centre (RRRC), Cairns.

Dale, A.P., Vella, K., Pressey, R.L., Brodie, J., Yorkston, H. and Potts, R. (2013). A method for risk analysis across governance systems: A Great Barrier Reef case study. *Environmental Research Letters* 8(1): 015037.

Daly River Management Advisory Committee (DR MAC). (2009). *DR MAC Annual Report 2008-2009.* NT DNR&E, Darwin.

NAJA Business Consulting Services. (2020). *Derisking, brokering and prioritising agricultural development in the Northern Territory.* CRNCA, Townsville.

Northern Australian Crop Research Alliance (NACRA). (n.d.). *NACRA Home Page.* Accessed at: https://www.nacropresearch.com/about-us.html

Queensland Government (n.d.). *Place-based planning of social infrastructure.* Accessed at: https://placeconnect.statedevelopment.qld.gov.au/what-is-place-based/place-based-planning-approach#:~:text=Place%2Dbased%20is%20a%20collaborative,%2C%20economic%2C%20and%20physical%20wellbeing

Samuel, G. (2020). *Independent review of the EPBC Act: Final report*. Australian Government, Canberra.

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