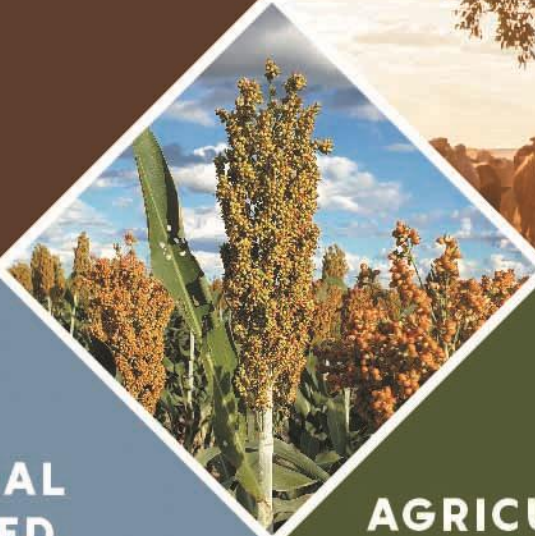


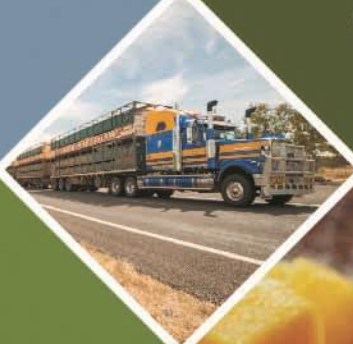
NORTHERN HEALTH SERVICE DELIVERY



TRADITIONAL
OWNER-LED
DEVELOPMENT



AGRICULTURE
& FOOD



De-risking, brokering, and prioritising
agricultural development in northern
Western Australia

NAJA Business Consulting Services





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The CRCNA recognises the value of knowledge exchange and the importance of objective peer review. It is committed to encouraging and supporting its research teams in this regard. The authors confirm that this document has been reviewed. These reviewers evaluated its:

- Originality
- Methodology
- Rigour
- Compliance with ethical guidelines
- Conclusions against results
- Conformity with the principles of the [Australian Code for the Responsible Conduct of Research](#) (NHMRC 2018).

Constructive feedback provided was considered and addressed by the authors.



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Acronyms and Abbreviations

ABC	Australian Broadcasting Corporation
ALSEDA	Aboriginal Land and Sea Economic Development Agency
Austrade	Australian Trade and Investment Commission
CRCNA	Cooperative Research Centre for Developing Northern Australia
CSIRO	Commonwealth Scientific Industrial Research Organisation
DBCA	Department of Biodiversity, Conservation and Attractions
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
GL	Gigalitres
ha	Hectares
ILUA	Indigenous Land Use Agreement
IRG	Indigenous Reference Group
KPCA	Kimberley Pilbara Cattlemen’s Association
NACRA	Northern Australia Crop Research Alliance Pty Ltd
NAIF	Northern Australia Infrastructure Facility
NAILSMA	North Australian Indigenous Land and Sea Management Alliance

NAWRA	Northern Australian Water Resource Assessment
NGO	Non-government organisation
NIPE	National Indigenous Pastoral Enterprises
NRM	Natural Resource Management
ONA	Office of Northern Australia
PGA	Pastoralists and Graziers Association of WA
PLB	Pastoral Lands Board
WAFF	Western Australian Farmers Federation

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Foreword

This Western Australian focused project is part of a wider collaboration between the Cooperative Research Centre for Developing Northern Australia (CRCNA) and the Northern Territory (NT), Queensland (QLD) and Western Australian (WA) Governments to support the development existing and new primary industry (agriculture and aquaculture) activities across Northern Australia.

The Australian Government's *Our North, Our Future: White Paper on Developing Northern Australia* (2015) focuses on strategic issues facing the north. There is a strong bilateral and bipartisan aspiration in the *White Paper* to secure the expansion of primary industries in an environmentally sustainable manner and within the context of complex physical, community and economic settings.

The *White Paper* outlined the Commonwealth Governments' role in creating successful business environments, not successful businesses. This was considered best achieved through:

- Prudent economic policies;
- The right infrastructure to get things moving;
- Regulation that minimises costs on business;
- A workforce with the right skills; and
- Basic research necessary for business to identify opportunities in the north.

The *White Paper* also emphasised that developing the north should be a partnership between investors (local and international) who provide capital and know-how, and governments that create the right investment conditions.

While there have been some major inroads made into agricultural development in Northern Western Australia, existing approaches to key policy, planning and supporting elements of regional development have posed many challenges for industry and investors, and also at Commonwealth, State/Territory and local levels of Government.

The need for a more fulsome examination of key issues and possible solutions has been identified by project stakeholders, with a view to profiling innovative approaches to both northern development and WA-specific matters that could improve the realisation of strategic goals.

The CRCNA and the Department of Primary Industries and Regional Development (DPIRD), on behalf of the WA Government, entered into a project agreement following consultation with other WA government agencies. To support tasks outlined in the project proposal, CRCNA engaged NAJA Business Consulting Services to provide an independent perspective to support DPIRD and CRCNA.

The key expected outcomes from this study were:

- Current processes used to broker the progression of significant agricultural developments across WA assessed and tested through a case study approach.
- Identified and assessed innovative processes and approaches to brokering the progression of new developments;
- Recommendations for a more streamlined and effective approach to brokering / securing new investments in agriculture; and
- Engagement with identified stakeholders on the above issues.

Executive Summary and Recommendations

This report has been prepared following a study into opportunities for de-risking, brokering and prioritising agricultural and aquacultural development in Northern Western Australia. This WA-focused project is part of a wider collaboration between the CRCNA and the Western Australian (WA), Northern Territory (NT) and Queensland (Qld) Governments. The WA Government's representative, the Department of Primary Industries and Regional Development (DPIRD), worked with CRCNA, who engaged NAJA Business Consulting Services (NAJA) to provide an independent perspective to support the project's tasks and objectives.

Although much has been written about regulatory approval processes, land tenure, Native Title and development challenges, a successful project must be commercially viable. Unlike the resources sector, agriculture and aquaculture projects have small margins and high risk profiles such that delays or unexpected hurdles in regulatory process can have a detrimental impact.

Solutions to key policy, regulatory, budgetary and regional development challenges at the Commonwealth and State level need consideration, analysis, solution building and negotiated resolution. In partnership with WA's leading and partner Government agencies, the Commonwealth, industry, Traditional Owners and other stakeholders, this project has explored the issues at hand and proposed innovative and WA-specific policy, regulatory and other recommendations to facilitate agricultural development which balances economic, environmental and social outcomes.

Many key issues and opportunities came to the fore throughout the research, analysis and stakeholder engagement phases of this project that appear to be having an effect on developing agriculture and aquaculture in Northern Western Australia. These issues are canvassed throughout this report and recommendations created to address them, however feedback from this study was that complex and costly regulatory processes, organisational and individuals' cultural stances and approaches, and trust between key stakeholders, appear to be a major underpinning for challenges facing agricultural and aquaculture sectors.

Key outcomes from the project are:

- Current processes used to broker the progression of significant agricultural developments across WA assessed and tested through a case study approach;
- Identified and assessed innovative processes and approaches to brokering the progression of new developments;
- Recommendations for a more streamlined and effective approach to brokering / securing new investments in agriculture; and
- Engagement with identified stakeholders on the above issues.

Since this project commenced the COVID-19 outbreak has altered the social and economic landscape of Australia. Not only did COVID-19 have a major impact on our society, it highlighted how vulnerable industry is worldwide. Opportunities now exist for Australian agriculture/aquaculture sectors to showcase the green and clean elements of the sector in marketing its products globally.

Extensive stakeholder engagement informed many aspects of this report, with five workshops held in May 2020. Additional one-on-one consultations (with government department representatives, Indigenous groups, industry body representatives and consultants), government and community/industry surveys and case studies were undertaken to identify risks and impediments which have affected existing business growth in WA.

Twenty-eight agricultural developments across the West and East Kimberley, Pilbara and Gascoyne were selected from a list provided by DPIRD, for case study summary reviews. Five of the case studies were identified for further detailed analysis and augmented with findings from a further three case studies previously undertaken by NAJA.

Each of the case study proponents identified similar issues and challenges to agricultural development, which corresponded with information sourced from the other methods of stakeholder engagement and the extensive research/literature reviews carried out for this review. The identified issues and impediments are predominantly in the areas of:

- Land planning, tenure and non-pastoral use permits;
- Regulatory requirements;
- Approvals;
- Native Title and Indigenous Land Use Agreements (ILUAs);
- Logistics and infrastructure; and
- Information / Telecommunications infrastructure.

The aggregated potential impact of government de-risking and brokering agricultural development in relation to the five case studies in this report could deliver:

- Up to \$280 million in further capital investment;
- Up to 279 direct new fulltime and 400 indirect employment opportunities including indigenous employment;
- Significant increase in cattle production per year from increased fodder production;
- Support for significant additional investment in one MW biomass to biogas project;
- Multiplier impacts including investment and jobs (for example the Derby abattoir and meat exports through Port Hedland port);
- Significant indirect flow-on benefits to the Pilbara, Kimberley and Gascoyne regions in terms of further investment and jobs in the supportive industries to the agriculture sector;
- New markets and agriculture products that were previously not viable such as establishing a cotton gin in the Ord; and
- Significant flow on economic and social benefits to the local and Aboriginal communities.

Extrapolating this data (based on these five detailed case studies being only 18 percent of the initial twenty eight project developments identified) there is the potential that if each of these project developments had improved opportunities through government de-risking and brokering agricultural development as suggested, that the economic impact could be a conservative estimate (Figure 1).

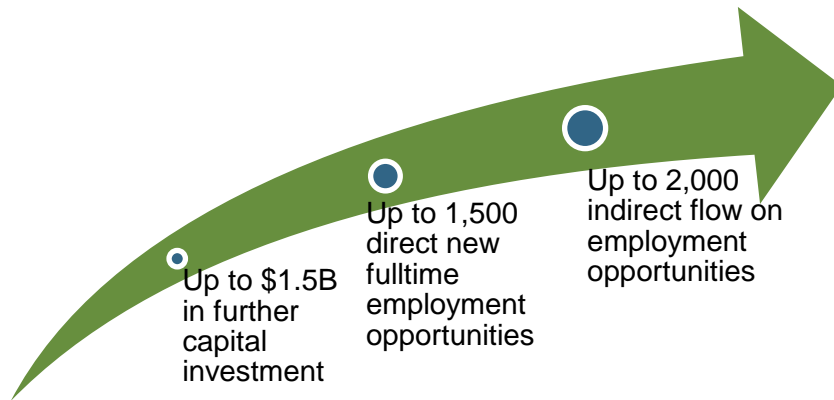


Figure 1. Extrapolation of investment and development in Northern Western Australia

Opportunities for governments to assist in brokering and de-risking agricultural development can be grouped as follows:

- Infrastructure (Including transport and telecommunications);
- Markets and investment;
- Aboriginal agricultural economic development;
- Research and development;
- Approval processes;
- Land, soil and water resource assessment, allocation and supply (including land planning);
- Case management; and
- Relationships, culture and trust between parties

Recommendations relating to the following themes have been proposed to support pathways for sustainable primary industries development (economic, environment, and social):

- Targeted infrastructure to facilitate development;
- Providing market development support based on industry needs and market analysis;
- Enabling Aboriginal economic agricultural development;
- Strategic de-risking in coordinated and targeted research;
- Addressing regulatory barriers to agriculture development;
- Developing de-risked agricultural land;
- Developing a proactive case management framework; and
- Improving relationships and culture.

Recommendations

Recommendations / Key Actions	Supporting Actions
<p>Recommendation 1 –</p> <p>Target infrastructure to facilitate agricultural development:</p> <p>Facilitate infrastructure development for key agricultural opportunities with a focus on telecommunications, road networks, energy, water, and logistics for export and processing.</p>	<ul style="list-style-type: none"> • Review identified key agricultural projects in Northern WA and develop prioritised implementation plans to support priority infrastructure. • Ensure reviews of the Revitalising Agriculture Regional Freight Strategy and State Infrastructure Strategy fully consider northern WA agriculture issues including transport and supply chain costs to get products to market. • Explore opportunities for supporting new and revitalised infrastructure to enable substantial growth in aquaculture industry.
<p>Recommendation 2 –</p> <p>Provide market development support and industry incentives based on industry needs and market analysis:</p> <p>Facilitate new market development based on priority industry needs and an improved understanding of target markets.</p>	<ul style="list-style-type: none"> • Develop and prioritise actions with key regional industry groups and through in-market engagement on export and domestic market development and supply chain improvement to drive industry expansion in northern Western Australia. • Enhance effective utilisation of the WA Government’s and Austrade’s overseas network of Government Officers in developing markets and investment in WA’s agriculture and aquaculture industries. • Enhance grants programs provided to assist northern agricultural businesses to stabilise and capture market opportunities in Asia (e.g. International Competitiveness Co-investment Fund) to help drive regional economic growth and jobs. • Explore mechanisms to improve information flows for coordinating access to a variety of concession finance opportunities for agriculture (such as NAIF, CEFC, RIC). • Enhance focus on tariffs and biosecurity issues that are significant impediments for access to new markets and maintaining existing markets.
<p>Recommendation 3 –</p> <p>Enable Aboriginal agricultural economic development:</p> <ul style="list-style-type: none"> • Support Aboriginal businesses to identify opportunities and partnerships. • Partner with and support Aboriginal land interests to 	<ul style="list-style-type: none"> • Three potential (and possibly integrated) models/pathways for brokering Aboriginal agricultural economic development outcomes in Northern Western Australia need to be considered for implementation. <ul style="list-style-type: none"> ○ An Aboriginal-led enterprise led model; ○ A partnering/brokering model; and ○ Replication of the Ord East Kimberley Development Plan model.

Recommendations / Key Actions	Supporting Actions
<p>streamline processes for leasing Aboriginal land under different tenure arrangements, without the need to extinguish Native Title.</p> <ul style="list-style-type: none"> • Provide pre-feasibility information for targeted Aboriginal-led development. • Support Aboriginal communities to achieve agricultural economic outcomes from any Aboriginal water reserves that may be created. • Support coordinated cross-agency investment in Aboriginal-led land development. 	<ul style="list-style-type: none"> • Along with key Aboriginal groups and industry, develop and implement an agricultural opportunities plan linking efforts with the Indigenous Reference Group (IRG) and the National Agency for Indigenous Australians (NAIA). • Continue the development of a brokering model and supporting principles, particularly for small scale Aboriginal-led agricultural developments, in partnership with Aboriginal peoples. • Develop governance building, small business assistance, technical support and grants to support northern development. • WA Government to work with Aboriginal organisations, including the Indigenous Land and Sea Corporation (ILSC), to pursue and support viable economic and social outcomes for Aboriginal landowners particularly with Aboriginal owned pastoral stations in the north of Western Australia. • Work with Aboriginal people to examine benefits of utilising a 'specific purposes' approach when negotiating and establishing trusts to better enable agricultural economic development. • Develop and promote Aboriginal freehold title opportunities under Section 83 of the Lands Administration Act. • Leverage existing plans for property management and improvement for Aboriginal owned pastoral stations to realise potential opportunities. • Build participation by Aboriginal people in aquaculture through engagement by companies to provide services to large-scale commercial aquaculture projects.

Recommendations / Key Actions

Supporting Actions

Recommendation 4 –

Strategic de-risking in coordinated and targeted research:

Target de-risking for industry needs and sustainable outcomes that contribute to agricultural economic growth in local WA communities and target research that meets priorities of local and regional industry.

- Progress developing a research institute in northern Western Australia in partnership with industry and with leveraged government funding.
- Through WATARI and other research organisations, with support from industry and relevant research organisations, develop a coordinated research investment plan for agricultural development in northern WA that leads to an uptake of research which results in targeted industry outcomes.
- Target information gathering on soils, water and crops in locally relevant and priority areas as identified by Government and industry to advance policy, planning and environmental assessments.
- Develop regional context for information on biodiversity and conservation assets early in the development of programs.
- Promote simplified access to publicly available government and industry-collected water, soils and other environmental data and information.
- In priority areas, continue to de-risk issues related to water security by developing targeted water management and development plans specific to locally relevant and priority areas as mutually identified by Government and industry.
- Assess the potential for more specific information to de-risk a precinct size area such as La Grange Groundwater Area.
- Develop a capacity building program for emerging businesses, industry leaders and researchers and for emerging technical issues and opportunities.

Recommendations / Key Actions	Supporting Actions
<p>Recommendation 5 –</p> <p>Progress improvements to regulation that enable agriculture and aquaculture development:</p> <p>Improve regulatory mechanisms and processes for land tenure and other aspects of development by:</p> <ul style="list-style-type: none"> • Reducing timelines for processing regulatory applications with targets and tracking of timelines with performance based integrated approvals. • Facilitating easier interactions with Government, streamlining licensing and approvals. • Licensing terms and conditions that create greater investment certainty within the outcomes sought through regulation. • Developing a fast-track approach for minor or small-scale agricultural developments; and • Focusing rangelands reform to introduce more streamlined approaches to diversification permits and land tenure change with respect to pastoral leases. 	<ul style="list-style-type: none"> • Build capacity and capability of vested groups (Government, proponents, consultants, Aboriginal people and Aboriginal organisations) to enable a more complete understanding of regulatory processes in support of more effective and efficient regulation. • Engage with industry to continue efforts to streamline regulation, including the combination of approvals into a single process for low-risk small-scale proposals, and on a landform scale for larger-scale developments. • Progress pastoral lands reform to achieve more streamlined approaches to land tenure change and sustainable management. • Enhance regulatory processes by ensuring clear, staged regulatory process maps exist with supporting checklists and guidance statements. • Post-approval, review licence and permit conditions to ensure they are still geographically and biophysically relevant, critical and essential or remove them. • Evaluate the merit of establishing a codes of practice approach for small-scale developments. • Measure, monitor and report targets and performance for regulatory timelines and use benchmarks to measure outcomes of improvement initiatives.
<p>Recommendation 6 –</p> <p>Developing de-risked agricultural land:</p> <p>Establish agricultural precincts based on agreed evaluation criteria.</p>	<ul style="list-style-type: none"> • Activate regional or more localised agricultural precinct plans (e.g. areas identified in the Pilbara Agricultural Prospectus – Appendix A). • Prioritise and evaluate potential for additional agricultural precincts with industry which provide a basis for shared planning and more certainty for proponents and regulators. • Implement priority precincts by undertaking coordinated approval and land tenure/land planning processes. • Facilitate the development of logistics and agribusiness hubs to accelerate expansion and development of new agricultural industries and synergistic links with regional industry.

Recommendations / Key Actions	Supporting Actions
<p>Recommendation 7 –</p> <p>Develop a proactive case management framework:</p> <p>Develop a proactive case management framework which helps proponents navigate the relevant approval processes (a lead department with the authority to work across the public sector).</p>	<ul style="list-style-type: none"> • Utilise established aquaculture development zones and progress opportunity to develop new zones.
<p>Recommendation 7 –</p> <p>Develop a proactive case management framework:</p> <p>Develop a proactive case management framework which helps proponents navigate the relevant approval processes (a lead department with the authority to work across the public sector).</p>	<ul style="list-style-type: none"> • Identify a lead department with clear case management responsibilities to work with proponents to proactively advance proposals with support for: <ul style="list-style-type: none"> ◦ Navigating the approval processes (including a fast-track approach for minor or small-scale agricultural developments assessed as low risk); ◦ Resolving issues and/or conflict across all regulatory agencies; and ◦ Developing understanding with agencies on targets for inter-departmental referral and assessment timelines and ensuring timely information transfer across departments. • Explore appropriate mechanisms to enable continuous improvement within current regulatory systems.
<p>Recommendation 8 –</p> <p>Building a culture of trust within Government and industry:</p> <p>Empower stakeholders, involved in the regulation of northern agriculture and aquaculture development to work more effectively with delegated authority.</p>	<ul style="list-style-type: none"> • Reinforce how individual's interface in or with regulatory systems can support whole-of-government direction in sustainable agricultural development, while respecting and adhering to the requirements of administration of legislation and supporting policy instruments. • Reinforce that individual regulatory officers' opinions and judgements must consider whole of government policy and priorities. • Promote a culture of risk management and entrepreneurship. • Standardise terminology and definitions to limit unnecessary legal interpretation. • In cases where disputation emerges in the development approval process, consider flexible mechanisms to seek higher level Departmental guidance early in the dispute. • Gain a commitment to accountability and rewards for collective effort and results. • Support the development of improved tools and training to support landholders developing agricultural proposals.

Recommendations / Key Actions	Supporting Actions
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Recommendation 9 –

Continue building collaboration within the Government and industry:

Build collaboration through an engagement, planning and outcome focused culture.

- Evaluate the merit of a standing collaborative group involving WA Government, industry groups Aboriginal organisations and Native Title groups to assist building relationships and advise, where appropriate, on leveraged opportunities for development and investment.
- Align agency strategic and operational plans to deliver better decisions faster for agricultural developments through initiatives such as revision of the Lead Agency Framework.
- Agencies to foster an outcome focused culture with KPI's for service delivery based on time and cost associated with government support and approvals.
- Develop pilot studies to evaluate agricultural development that supports trusting relationships that build upon desired regulatory and development outcomes.
- Broaden “one-stop shop” online web-based approvals platform to be complemented by investment and development facilitation services.
- Broaden ‘Industry Guidelines’ to include skills that promote entrepreneurship, conduct and diplomacy when working toward respected regulatory and development outcomes.



1 Introduction

This report presents the findings of the ‘*Prioritising, De-risking and Brokering Agricultural Development in Northern Western Australia*’ project (“the project”) delivered by NAJA Business Consulting Services in support of the Department of Primary Industries and Regional Development’s agreement with the Cooperative Research Centre for Developing Northern Australia (CRCNA).

Western Australia is a key player in the Australian agriculture and aquaculture sectors. Northern Western Australian agricultural production is currently valued at \$771 million (agriculture - \$651 million and aquaculture \$120 million), with the potential to further increase through expansion and diversification.

This project sought to identify and explore issues impeding agricultural and aquacultural development, and to propose innovative and WA-specific policy, regulatory and other solutions to address these impediments. The approach used to inform the report, shown in Figure 2, and the recommendations incorporated:

- A comprehensive review of existing documentation relating to WA agricultural development (noting that some current Government initiatives may not be included in the analysis given they are either not published, available or formally approved by Government);
- Stakeholder interviews with representatives from Government departments, industry bodies, Aboriginal groups, and individual agriculturalists/aquaculturalists and consultants;
- Workshops with relevant parties;
- Review and updating of twenty eight agricultural developments and detailed case study analysis of eight of those developments; and
- Surveys – separate set of questions for Government and industry.



Figure 2. Methodology to develop findings Background and Context

This WA-focused project is part of a wider collaboration between the CRCNA and the Northern Territory (NT), Queensland (Qld) and Western Australian (WA) Governments, to support the development of new agricultural activity across northern Australia. The initiating parties have identified that policy, regulatory, budgetary and regional development challenges at Commonwealth and State/Territory levels require consideration, analysis, solution building and negotiated resolutions.

This project sits within the context of the broader ‘developing northern Australia’ agenda pursued by Commonwealth, State and Territory governments, supported by the CRCNA, and underpinned by the Our Future Our North White Paper on Developing Northern Australia (Australian Government, 2015). Similar reviews are occurring of NT and Qld specific issues and impediments to northern agricultural (and aquacultural) development. The aggregated information will be used to inform future policy, planning, management and investment trajectories across the Australia’s northern region (Figure 3).

The concept of de-risking agricultural projects covers many aspects that span the natural environment, agri-food and seafood production and management systems, regulation, land tenure, Aboriginal peoples’ rights and interests, infrastructure, supply chains, skills and services and associated governance arrangements. Northern Australia also has significant natural values and conservation assets. Consideration of these values is required in the context of sustainable economic development.

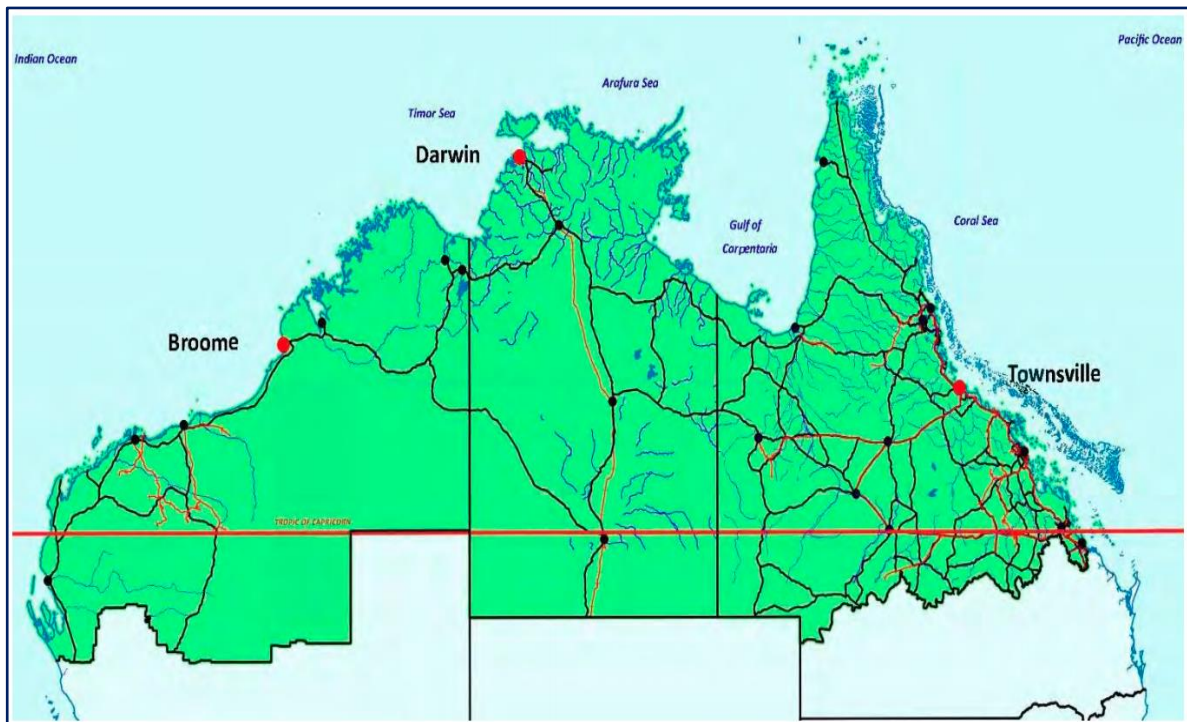


Figure 3. CRCNA's Northern Australia region

While this study focuses on the more critical aspects of de-risking northern development, the complexity of many interacting factors renders the analysis presented to ‘stepping-stone status’ that hopefully provides insight to the advancement of northern development in a manner that balances perspectives, opportunities and constraints.

1.1 Approach

The project has conducted a range of activities to obtain multiple perspectives from researchers, government, current and potential agriculture and aquaculture businesses, and other relevant stakeholders.

The approach involved:

- Over 50 reports, industry publications, government studies, and research papers reviewed;
- Summary review of 28 agricultural developments across the West and East Kimberley, Pilbara and Gascoyne
- Detailed consultation with representatives of eight case study projects;
- Consultation with over 120 stakeholders, including over 30 stakeholder interviews/meetings;
- More than five separate workshop presentations aimed at (a) scoping issues and impediments, and (b) evaluating proposed recommendations;
- Targeted survey distributed to industry and government stakeholders (24 industry and 17 government responses received);
- Development of a draft Pilbara Agriculture Prospectus for marketing Pilbara agricultural opportunities to investors and developers (Appendix A);
- Social media coverage through LinkedIn (2500+ contacts) and Twitter (1200+); and
- Direct email project promotion and input requests to over 350 stakeholders.

This report provides a summary of the findings of this investigation into opportunities for de-risking agricultural and aquacultural investment in Western Australia. The report is supported by further documentation related to the above approach, which has been provided separately to the CRCNA and DPIRD.

Note that in developing the findings and recommendations there has been a lot of objective and subjective information that needed to be analysed in forming the final views and position taken in defining project outputs.

2 Regional Overview of Northern Agriculture

The four regions covered by the study are the East Kimberley, West Kimberley, Pilbara and Gascoyne, with a combined Gross Value of Agricultural Production (GVAP) of \$771 million. The main value of production from the ABS data for the Rangelands NRM Region, which includes the Kimberley, Pilbara and Gascoyne, is from livestock, with 80 percent of the value of production (Figure 4). The value of agricultural production is primarily from a cattle herd of approximately 1.1 million head (2017 data).

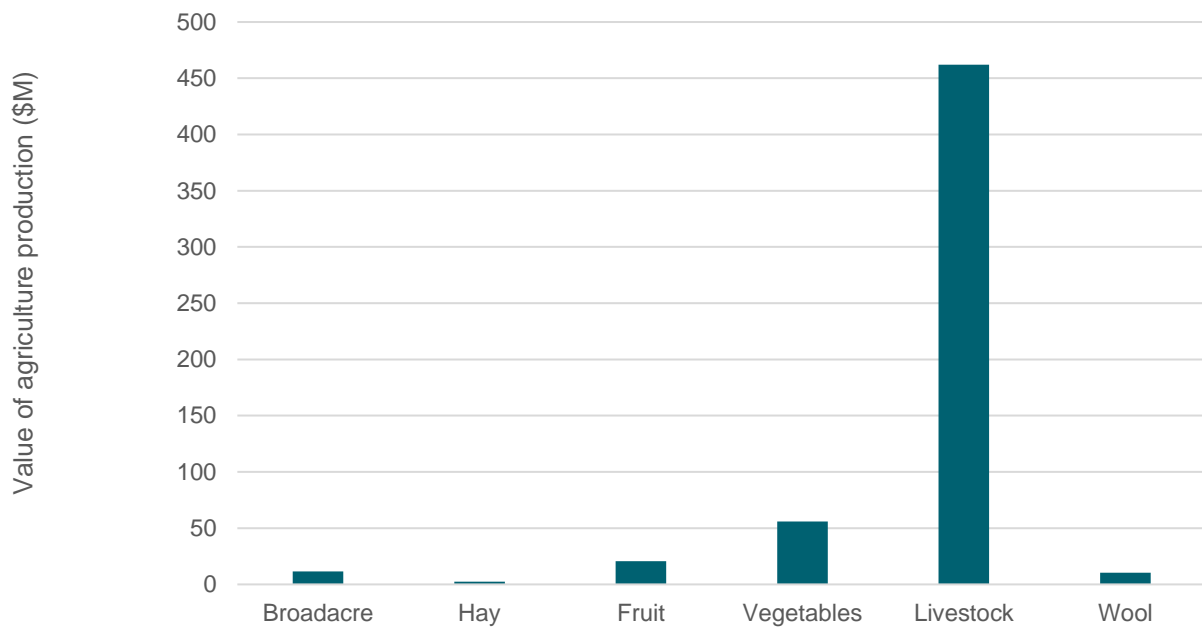


Figure 4. Value of agricultural production 2017-18 – ABS data for the Rangelands NRM region

The pastoral industry commenced in WA in the 1860s. By 1910, the Crown had assigned most of the suitable grazing country to lessees through pastoral lease arrangements that exist in some form to this day. The number and area of pastoral stations is shown in Table 1.

Table 1. Number and size of pastoral stations by region in Western Australia (Pastoral Lands Board, 2014)

Region	Number of stations	Average station area (ha)	Maximum station area (ha)
Kimberley	93	230 406	480 859
Pilbara	57	229 831	431 180
Carnarvon-Gascoyne	80	149 405	398 389

The long established pastoral beef industry turns off 250,000 to 320,000 cattle per year from 150 pastoral stations in the Kimberley and Pilbara regions (ACIL, 2018). Over half (180,000 cattle) enter the live export market. A further 44,000 are slaughtered domestically and the remainder travel to other properties outside the region for backgrounding. The strong live export focus, particularly to Indonesia, means the northern beef industry does not realise the full potential available from boxed beef and other live export markets. The industry is also highly reliant on the Indonesian market which has both price and volume volatility risks.

In the Kimberley and Pilbara, traditionally the most popular cattle breed has been the Brahman cross. Recently there has been increasing interest in transitioning to Bos Taurus breed genetics in order to improve carcass traits and increase market access options. The main mustering period in the Kimberley and Pilbara regions is between April and October (dry season) due to seasonal conditions.

Some pastoralists are exploring the use of centre pivot irrigation to grow improved tropical/temperate pastures such as sorghum and cowpea on short rotations for the production of hay or silage to fill feed gaps. Stand and graze pastures under irrigation are also in use.

Approximately 24,000 ha is either developed or released for development in the East Kimberley, 1,714 ha in the West Kimberley, 2,060 ha in the Pilbara and 1,200 ha in the Gascoyne (Table 2). The proposed or potential irrigation area is up to 62,900 ha with 90 percent in the East Kimberley. Note potential irrigated area in the West Kimberley is consistent with current policy of no dams on the Fitzroy River.

Table 2. Irrigation areas across Kimberley, Pilbara and Gascoyne (DPIRD, 2019).

Irrigation Area		Land Area (ha)
East Kimberley	- Ord Irrigation Area – Stage 1	13,700
	- Ord Irrigation Area – Stage 2	7,400
	- Kingston Rest	Est. 2,900
West Kimberley	- Fitzroy	368
	- Derby	40
	- Dampier	300
	- Broome	207
	- La Grange	735
Pilbara	- Pardoo	910
	- Wallal	591
	- Marandoo	860
	- Nammuldi	950
	- Minderoo Pastoral	120
Gascoyne	- Carnarvon Irrigation Area	1550
TOTAL		30,631

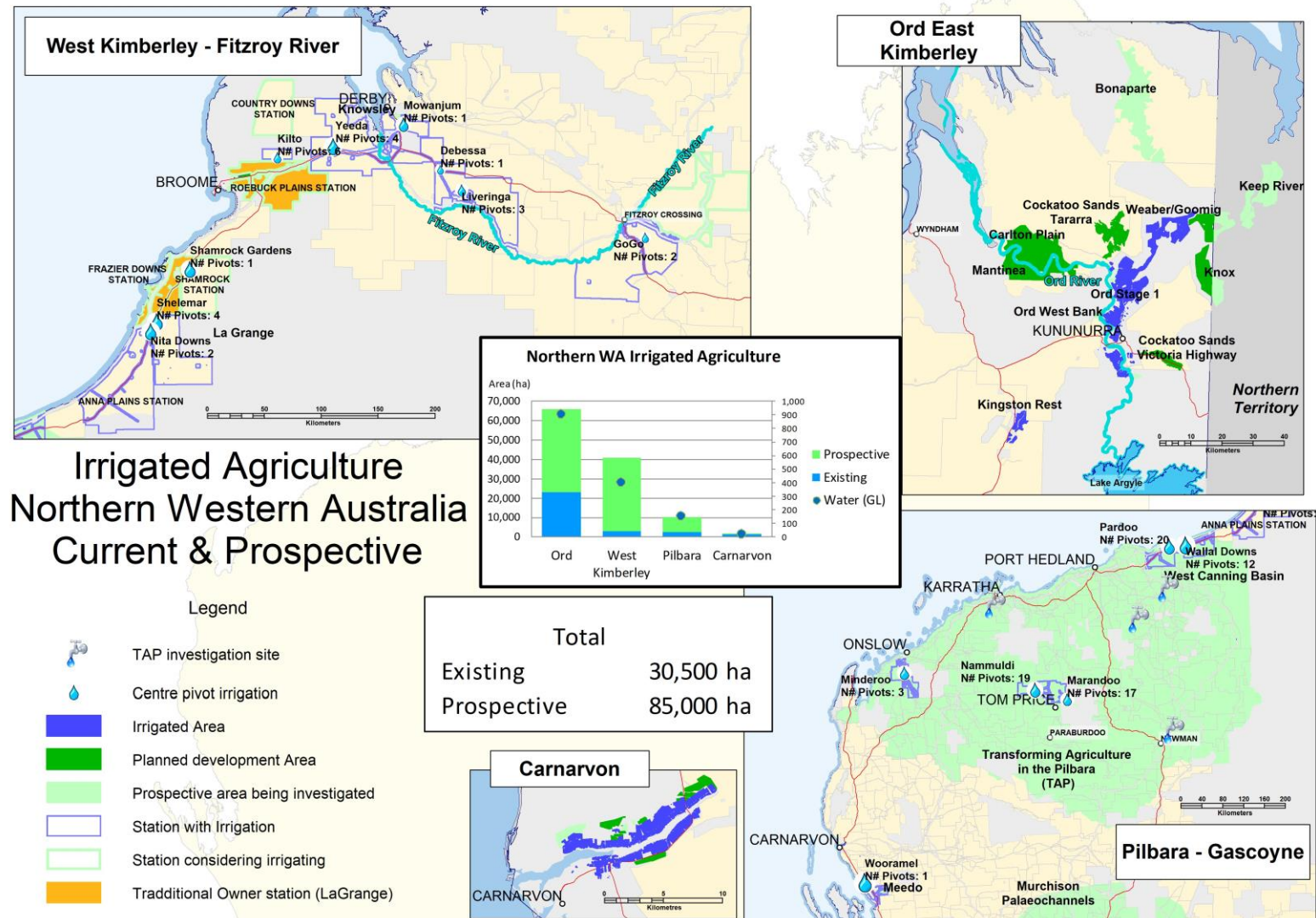


Figure 5. Existing and prospective irrigation areas (George et al, 2017).

2.1 Kimberley

Agriculture contributes approximately \$200 million in Gross Regional Product across the Kimberley (DPIRD, 2020).

The Kimberley currently has over 90 pastoral leases. There are opportunities to improve productivity and profitability through improved land management, breeding genetics, intensive and alternative fodder, livestock performance, supported by enhanced water management.

The improved market position for beef cattle exports has seen a resurgence of fodder production and feed supplementation. High levels of interest are being generated from recent major investment in the pastoral industry from new investors.

In the East Kimberley, the Ord River Irrigation Area (ORIA) is the State's largest irrigated agricultural project and has been developed in three stages:

- Stage 1 in the 1960's and 1970's saw the construction of the major water supply and drainage infrastructure and 14,000 ha of agricultural land.
- Stage 2 (Ord East Kimberley Expansion Project) from 2009 to 2013 involved State Government funding of \$311 million through Royalties for Regions to release 7,300 ha (Goomig) of agricultural land and supporting infrastructure.
- Staged land release for proponent development such as Mantinea and Ord West Bank.
- Future expansion to the east and into the NT is under consideration.

The main crops grown in the Ord River Irrigation Area (ORIA) in Kununurra are sandalwood, maize, hybrid seeds, hay, chickpea, mangoes and cucurbits.

Cotton is an emerging industry in the ORIA. Farmers in the valley believe that cotton could be the base crop they have been looking for since the mid-2000s.

In the West Kimberley, the introduction of intensive centre pivot and taped irrigated systems has enabled the expansion of fodder production and some specialised niche fruit and vegetable cropping, such as sweet corn, beans, asparagus and table grapes into the area. There are a number of enterprises already taking advantage of the extensive groundwater resources (e.g. Shelamar Station), with further opportunities to develop in this area. Potential pathways for surface water irrigation in the Fitzroy River catchment are also being explored.

2.2 Pilbara

Rangeland beef production is the dominant agricultural activity in the Pilbara region with an output of more than \$46 million per annum. The Pilbara's current agricultural production consists primarily of beef cattle for live export. The Pilbara region's blue tongue virus-free status provides an advantage for the live export industry. Steps have been taken to develop export infrastructure for the region's beef industry, including a truck wash-down facility and a cattle holding yard near Port Hedland's port. The studies are part of the Pilbara Development Commission's economic diversification strategy to support pastoralists, drive new investment opportunities and enable local job creation in the region.

Minderoo Station is considered the first commercial irrigation development in the Pilbara. It began as a method to increase the supply of fodder as a drought mitigation strategy for the

breeding herd on the cattle station. The irrigation scheme has since expanded and a trial of horticulture is planned to maximise the value of water sourced.

Current irrigation includes the two Rio Tinto projects that use mine dewatering; Hamersley Agriculture Project and Nammuldi. Both projects use mine dewater to grow fodder for cattle. There are also two significant privately funded irrigation developments on the coast at Pardoo and Wallal to support beef production.



Figure 6. Minderoo Station centre pivot.

Irrigated agriculture projects are considered to provide an opportunity to use the natural advantages of the Pilbara to expand regional production and increase both domestic opportunities and exports options in a range of new high value agri-foods into South East Asia and other markets. However, there is a lack of specific information on productivity, economics and market opportunities.

Opportunities to expand the agricultural industry with new infrastructure and value-added products in mosaic-style developments offer growth prospects and economic diversification in the Pilbara.

2.3 Gascoyne

The Gascoyne's pastoral industry generates about \$30 million (2015), from 80 pastoral stations averaging 150,000 ha in size. This is approximately two per cent of the State's total gross value from the pastoral industry and comprised 27 per cent of the region's income.

The pastoral productivity per unit area in the southern rangelands is relatively low compared with productivity in the northern Pilbara and Kimberley regions.

The Carnarvon Horticulture District is situated on the fertile delta of the Gascoyne River. Even though the river flows irregularly, and the town is in the middle of 500 km of arid

landscape, this horticulture district plays an important role in providing fresh fruit and vegetables to the Perth market 1000 km away.

The Carnarvon irrigation area had an industry value of \$94 million, producing 39.150 tonnes of fruit and vegetables in 2019 from about 1550 ha of land (Department of Primary Industries and Regional Development, 2020). The highest value commodities in 2019 were tomatoes (\$24.0 million), vegetables (\$31.9 million), table grapes (\$10.8 million), and bananas (\$10.5 million).

Crops are grown on micro drip irrigation using groundwater with supplementary irrigation from surface water during high flow periods. The dry subtropical climate makes Carnarvon suitable to grow a wide range of temperate, tropical and subtropical produce across the season. Growers are investigating options for alternative protected cropping structure and focusing on regenerative agricultural production systems.

3 Challenges with agricultural development

While there has been increasing agricultural development across northern Western Australia, there remain significant challenges with agricultural development (Figure 7). The broad categories of labour, scale, logistics, supporting business ecosystems, and managing risk and uncertainty summarise the challenges that exist.

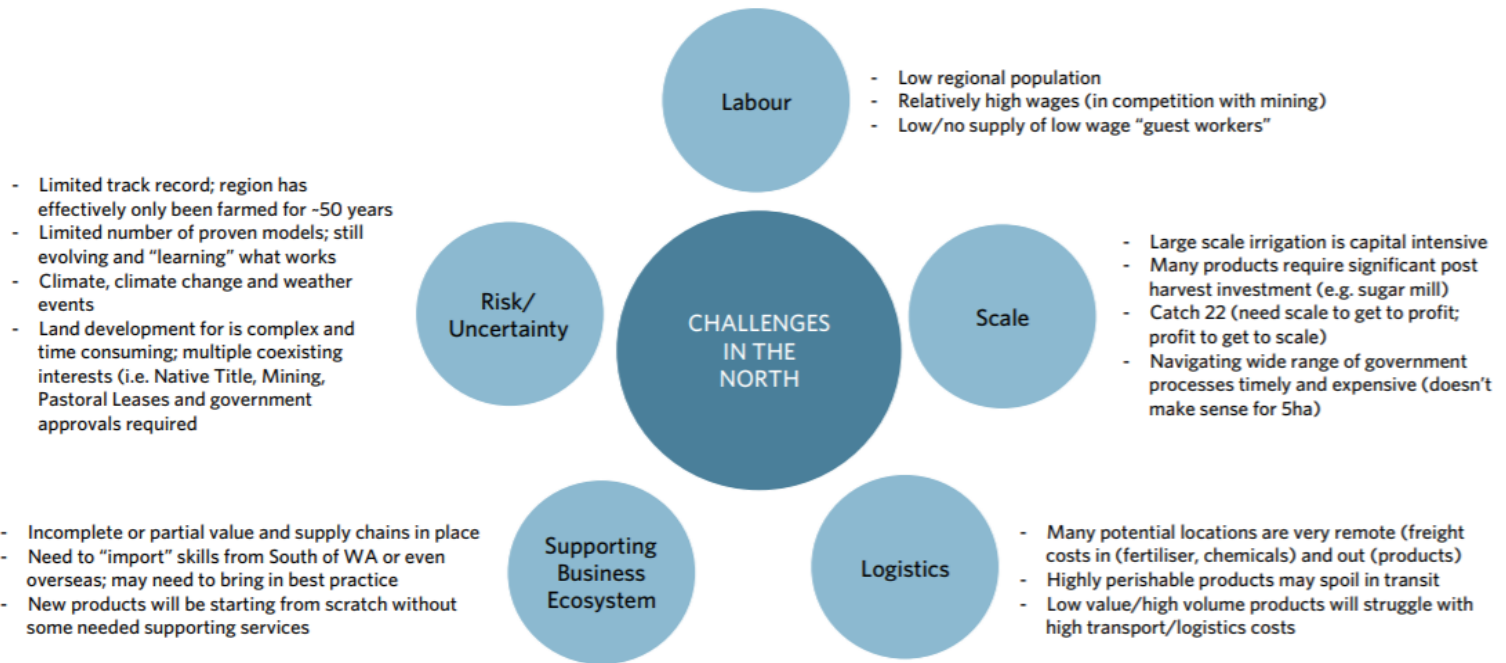


Figure 7. Challenges in developing agriculture in northern Western Australia (Coriolis, 2015)

Direct challenges facing expanded agricultural development in northern Australia (Ash and Watson, 2018) include:

- Accessing suitable land and water resources to underpin expanded agricultural production;
- Navigating the various approval processes associated with land tenure, Native Title, water resource allocation, environmental impact;
- Acquiring support from local communities and in effect, a social licence to operate;
- Sourcing the significant capital investment required to support the high cost of 'greenfields' agricultural development (in the order of \$10 000 to \$40 000 per ha). In the future, the cost of water infrastructure development is expected to be borne by private sector investment rather than government investment, as was typically the case in the past;
- Providing genuine opportunities for Indigenous economic development;
- Cost-effectively, reliably and sustainably growing agricultural products in the variable climate and environment and getting them to market via efficient supply chains;

- Establishing new and viable export markets for high-value, perishable fruit and vegetable products with high seasonality of supplies; and
- Maintaining the ecological values of northern Australia.

Successfully meeting these challenges is critical to creating the value proposition for northern agricultural expansion. Efficient agricultural systems, infrastructure and food supply chains are paramount for growing a productive and competitive agricultural sector to seize opportunities from changing patterns in global food consumption, and particularly in growing markets in Asia (Regional Australia Institute, 2013).

4 Legal and Policy Context for Agricultural Development

4.1 Australian Government

The Australian Government performs key functions related to agricultural development in Western Australia: oversight of Native Title, and the implementation of Australia's obligations under international law. Native Title is managed under the Native Title Act 1993 (Commonwealth).

In relation to international law, the Australian Government is responsible for ensuring Australia meets its international obligations. Under Australian law, international legal obligations have no direct effect on domestic law until and unless they are incorporated into law by an act of parliament.

The most relevant Commonwealth statutes that give effect to international obligations and responsibilities include the Environment Protection and Biodiversity Conservation (EPBC) Act 1999.

The EPBC Act regulates activities that adversely affect 'Matters of National Environmental Significance' and focusses on our national interests, including environment, heritage and biodiversity. Some species which occur elsewhere globally are protected under the EPBC Act as a result of accords and treaties, but generally the administration of the Act reflects the status of species within Australia and the impacts of Australian developments on those species.

The EBC Act has recently been reviewed and an interim report released. The final report is due for release in October 2020 and could have implications for agricultural developments in Northern Australia.

From a policy point of view the Australian Government also has a significant role in Northern Australia as follows:

- Establishment of and part funding for the CRC for Developing Northern Australia;
- Oversight of the Northern Australia Taskforce; and
- Oversight of Indigenous Reference Group (IRG), which advises government on Indigenous economic advancement in northern Australia.

The IRG has provided 36 recommendations on opportunities to accelerate economic development in northern Australia for Indigenous businesses, individuals and communities to the Ministerial Forum on Northern Development, made up of the Commonwealth and relevant State Governments.

The Foreign Investment Review Board established in mid 1970s, is a non-statutory body to advise the Government on Australia's Foreign Investment Policy and its administration. The Board advises the Treasurer on the application of Australia's foreign investment policy to foreign investment proposals, including investment in agricultural businesses.

4.2 West Australian Government

The West Australian Government is primarily responsible for the management of the land, biodiversity assets, and water resources across the State. The ultimate custodian of most of the land in WA is the WA Government who is responsible for the WA land titles system, management of Crown lands and reserves, regulation of access to and the use of surface and groundwater, and management of the positive and negative externalities associated with land development through planning, biosecurity, soil and land, aquatic resource, environmental and heritage regulations.

WA responsibilities over State coastal waters extend to three nautical miles from the coastline and the State has a bilateral agreement with the Commonwealth Government to manage waters out to Australia's Exclusive Economic Zone (200 nautical miles).

4.3 Local Government

While local governments are established under State government legislation, they have a key role to play in facilitating agricultural development through zoning and incorporating appropriate rules around 'permitted uses' within local planning schemes. For example, provisions for developing cold storage facilities and worker accommodation are dealt with by Local Government. Local government is also in a unique position to lobby for shared infrastructure – for example, improved northern Australia road networks – which supports agricultural development.

4.4 Environmental Regulation

International laws

Australia is party to a significant number of international agreements that contain environmental obligations. Details of the most relevant international obligations have been outlined by CSIRO (MacIntosh *et al* 2018). Ramsar-listed wetlands, providing habitat for internationally migrating birds, is a key treaty in which Australia has agreed to participate, and which is particularly relevant in northern Australia. Northern WA Ramsar sites include Lakes Argyle and Kununurra, Ord River Floodplain, Roebuck Bay and Eighty Mile Beach.

Environmental Protection and Biodiversity Conservation Act, 1999

The EPBC Act, as the Australian Government's central piece of national environmental law, reflects the role of the Commonwealth to address matters of national environmental significance, provide a nationally coordinated approach to managing Australia's environment and international commitments, including Ramsar-listed wetlands.

The EPBC Act remains an important part of a broad suite of Commonwealth and State and territory laws and activities that seek to protect heritage and the environment. Significant investment by the Australian Government in programs such as the National Landcare Program, Australian Heritage Grants Program, Reef Trust and the National Environmental Science Program also seek to preserve and protect biodiversity and heritage. As part of the requirement for a review of the EPBC Act to be undertaken at least once every 10 years, the Commonwealth Government is currently reviewing and examining the operation of the Act

and the extent to which its objectives have been achieved (Commonwealth Government of Australia, 2019).

An aspect of the review of interest to WA are referral powers and interaction with WA's *Environmental Protection Act 1986 (EP Act)* and the Commonwealth EPBC Act. In 2017-18 WA's Environmental Protection Authority (EPA) came to a different conclusion than the (then) Commonwealth Department of the Environment and Energy (DEE) when assessing potential impacts of proposed groundwater use on Shamrock Pastoral Lease. The general issues that raised concerns relate to Matters of National Environmental Significance, as defined under the EPBC Act, and the principle that policy development, program delivery and decision making should be the responsibility of the level of government best placed to deliver agreed outcomes (Council of Australian Governments, 1997).

A review of interactions between the EPBC Act and the agriculture sector (Aither, 2018) focused on options for reducing the burden of the regulatory obligations created by the EPBC Act on farmers without reducing environmental standards.

The current Commonwealth interim EPBC review report found that fundamental reform of national environmental law is required, and new, legally enforceable National Environmental Standards should be the foundation to ensure that decisions made under the EPBC Act clearly track towards ecologically sustainable development.

The Strategic Assessment provision of the Act (referral under s38 of the EPA Act) offers a regional scale approach to environmental approval de-risking. The BHP Billiton Iron Ore Pilbara Strategic Proposal provides an example of a Strategic Assessment. The opportunity for governments to undertake the informative work (for example, biodiversity surveys and groundwater assessments) in potential agricultural areas to inform strategic assessments would contribute substantially to de-risking decision-making for agricultural development proponents.

Environmental Protection Act 1986

The WA Environmental Protection Authority (EPA) oversees administration of environmental legislation and is independent, in that the EPA is not subject to direction by the Minister, and its advice to Government is public. Administrative support and proponent liaison throughout approvals and compliance processes is provided through Department of Water and Environmental Regulation's (DWER) EPA Services branch.

The Government of Western Australia recently summarised the public comments to proposed amendments to the EP Act (Department of Water and Environmental Regulation, 2020). The proposed amendments aim to improve regulatory efficiency and effectiveness and facilitate the implementation of the bilateral agreements under the Commonwealth EPBC Act to deliver better environmental protection and sustainable development outcomes.

An amendment bill currently under Parliamentary consideration seeks to streamline administrative and regulatory processes, it does not contemplate a significant overhaul of the legislation. Clearing Native Vegetation Regulation on clearing of native vegetation is managed by DWER. Guidance on vegetation clearing (Department of Environmental Regulation, 2016) sets out requirements and processes, however, industry criticism often focuses on how interacting regulatory processes (e.g. water access) often delay approvals.

Discussion on proposed amendments concerning clearing native vegetation is of interest considering most intensive irrigation developments in the north involve clearing. The EP Act review discussion paper states:

“The principal criticism that has been levelled at the clearing provisions is their complexity, and that they are focused on process rather than outcomes. This view is at the heart of many stakeholder submissions made during previous reviews” (Department of Water and Environmental Regulation, 2019).

Soil and Land Conservation Act 1945

The Soil and Land Conservation Act 1945 is administered for the Minister for Agriculture and Food by the Commissioner of Soil and Land Conservation (Commissioner). The Commissioner, operating from within the DPIRD carries out the Act’s administrative services for land drainage, clearing, land degradation assessment, compliance, covenanting and Land Conservation District Committees. The functions of the Commissioner also include the mitigation and prevention of land degradation, promotion of soil conservation and educating landholders and the general public about sound land management.

The re-establishment of the Soil and Land Conservation Council, an advisory Committee to the Minister for Agriculture and Food, in late 2019 signals Government’s interest in sustainability aspects of agriculture.

Biodiversity Conservation Act 2016

The Biodiversity Conservation Act 2016 is administered by the Department of Biodiversity, Conservation and Attractions. This Act provides for the conservation and protection of biodiversity in Western Australia, as well as the ecologically sustainable use of biodiversity components (native species, habitats, ecological communities, genes, ecosystems, and ecological processes).

One aspect of de-risking that has proved challenging with respect to clearing of native vegetation is the consistency of guidelines for flora and fauna assessments and availability of regional information to guide both the framing of assessments requirements and the process of assessment. An example of the WA Government taking steps to provide information to provide a strategic context for consideration of agriculture investment in the Kimberley was the \$600,000 bilby and rare flora survey in the La Grange project area undertaken in 2017. This survey was designed to improve the quality of publicly available regional information for environmental assessments.

Rights in Water and Irrigation Act 1914

Access to reliable water is essential for irrigated agriculture. Planning and regulation of water resources is defined in the *Rights in Water and Irrigation Act 1914 (RiWI Act)*. Scaled-up developments pose a raft of challenges and both surface water and groundwater sources have unique characteristics that require location specific assessment and management regimes to ensure the sustainable take and use of water.

DWER have a comprehensive website that outlines various aspects of water management across the State with corresponding plans and policies that support water management and environmental protection. Northern water allocation plans that set out water availability, licencing policy, water for the environment and water use are:

- Ord River Surface Water Allocation Plan (Department of Water, 2013a);
- La Grange Groundwater Allocation Plan (Department of Water, 2010a);
- La Grange interactive soil and groundwater map;
- La Grange Evaluation Statement 2012-2017;
- Pilbara groundwater allocation plan (Department of Water, 2013b);
- Water allocation planning in the Skuthorpe area;
- West Canning Basin allocation statement (Department of Water and Environmental Regulation, 2018);
- Water planning in the Fitzroy River catchment;
- Carnarvon Artesian Basin water management plan (Department of Water, 2007); and
- Lower Gascoyne water allocation plan (Department of Water, 2011).

Regional water plans that outline the strategic direction in the north include:

- Pilbara Regional Water Plan 2010-2030 (Department of Water, 2010b);
- Pilbara Regional Water Supply Strategy (Department of Water, 2013c); and
- Kimberley Regional Water Plan 2010-2030 (Department of Water, 2010c).

Water services in the north focus on established irrigation areas (Ord and Gascoyne irrigation areas), population centres and remote communities. From a de-risking perspective, the irrigation water supply in the Ord irrigation area (up to 865 GL/y at 95 per cent reliability) is unique and very attractive from a water access perspective.

Water services to some remote Aboriginal communities are managed by the Water Corporation. Affordable regional and remote standards for water services is a long-standing issue and with improved approaches to the definition of standards, implementation of appropriate and acceptable water services can be progressed.

Other relevant aspects of water services and northern development includes instances where a potential trade-off between public water supply (and public water supply reserves) and irrigation use might be possible. New or altered configuration of water supply infrastructure could enhance irrigated agricultural potential in areas with suitable soils, for example in the in the Shaw River and lower De Grey catchments in the Pilbara.

Additional elements of the RiWI Act linked to development approvals for agriculture relate to Bed and Banks Permits where a project footprint has a direct impacts on a waterway. Receipt of a Ministerial Statement or Clearing Permit issued under the EP Act does not negate the need to apply for a Bed and Banks Permit under the RiWI Act, should an approved development location include a creek line. This is an example where a proponent might perceive a duplication of approvals process exists, however, separate sections of the Act have different permitting provisions.

The proposition of de-risking water related aspects of development are very challenging as demonstrated by the experience from pastoral and other northern led developments. In some cases, despite the worthy intent of project proponents the risks exposed through more

detailed project and environment/water assessments reveal risks that cannot be addressed adequately causing development rejection (regulators) and financial costs that are unacceptable for the project.

Risks include:

- Soil constraints – depend on land use; risks may emerge post development;
- Water access – assuming allocations are secured through reasonably accurate assessment over an acceptable timeframe, water volumes can become contested when increased demands are placed on the resource (consumptive pool);
- Inaccurate or deficient monitoring to meet licensee and stakeholder assessment of the resource, especially at the start when knowledge gaps and risks are the greatest;
- Inadequate post-development monitoring and reporting particularly when conditions change or vary with time;
- Modelling relied on for decision making is usually coarse and suitable for initial assessment but often inadequate for impact and consequence management;
- Emergent development issues, e.g. pesticides with consequences not suspected, or impact of reduced regulatory or operational trigger levels which may compromise operations;
- Discovery of further flora or fauna species and associated management risks, e.g. Typhonium spp on black soils in the Ord;
- Under-design caused by inaccurate knowledge and poor budget management that add unexpected expenses;
- Unrealistic expectations and poor management capabilities, e.g. thinking there is more water than there is;
- Unexpected delays in approvals, tenure risk, changing ownership;
- Climate sensitivities; and
- System risks that lead to sub-economic conditions, e.g. crop-livestock expectations and interactions with much higher than expected unit costs over the supply chain.

Biosecurity and Agriculture Management Act 2007 (BAM Act)

The main purposes of the BAM Act and linked regulations are to:

- Prevent new animal and plant pests (vermin and weeds) and diseases from entering Western Australia.
- Manage the impact and spread of those pests already present in the State.
- Safely manage the use of agricultural and veterinary chemicals.
- Increased control over the sale of agricultural products that contain violative chemical residues.

The BAM Act, as this has implications for weed risk assessments and the use of non-indigenous plants in diversification permits. The growing of non-indigenous plants on

pastoral leases in northern WA can be contentious. As a result, policy and approvals to use non-indigenous plants tend to apply a precautionary approach. This leads to issues with balancing weed management with risk avoidance.

4.5 Land Tenure in northern WA

Land Tenure is governed by the *Land Administration Act, 1997* under the Minister for Lands.

Land tenure is an essential element for development and providing security for capital investment. While it is true that an overly rigid land tenure system may increase the up-front cost of doing business, the absence of a robust land tenure system will stymie investment. Achieving a balance between the two opposing forces is a challenge and there is room for improvement, however, WA's existing land tenure system functions across a number of complex aspects.

Proponents of irrigation developments will require legal entitlements to access and use the subject land. The main types of land tenure are outlined in Table 3.

Table 3. Main types of land tenure across northern Western Australia (Macintosh et al., 2018, Commonwealth Government of Australia, 2019)

Tenure	Comment
Crown leasehold land	Government owned land held under a lease, typically by a private party. The management of Crown land in Western Australia is governed by the <i>Land Administration Act 1997</i> (WA). The legislation provides for the issuance of five main types of leasehold interests in Crown land: general leases; conditional purchase leases; Aboriginal leases; government leases; and pastoral leases. These leases can be subject to restrictions on the use, development and transfer of land.
Crown reserves	Government owned land reserved for specific purposes such as nature conservation. Crown reserves are required to be managed in a manner consistent with the purposes for which they are declared. Generally, people wanting to use a reserve must obtain a licence or lease to do so.
Unallocated Crown land	Government owned land not reserved for any purpose and in which no interest has been granted. To occupy or use unallocated Crown land, it is necessary to obtain a licence under the <i>Land Administration Act</i> . Freehold and leasehold estates can also be issued in relation to unallocated Crown land. Links to exclusive Native Title often exist.
Freehold land	Land in which a freehold estate has been granted. Freehold estates are the most complete legal interest in land under Australian law. While close to absolute ownership, freehold estates do not give the landholder the right to use the land as they please. Use and development of the land is regulated under planning, environment and other statutes

The Pastoral Purposes Framework (Department of Planning Lands and Heritage, 2019) provides a guide to activities that can be undertaken on pastoral land in Western Australia. Land tenure for northern Western Australia is shown in Figure 8. Pastoral leases are leases

over Crown Land which gives the lessee the right to graze authorised livestock on the natural vegetation.

Pastoral purposes are defined as:

- a) The commercial grazing of livestock such as sheep, cattle and goats on native vegetation;
- b) Agricultural, horticultural or other supplementary uses of land (inseparable from, essential to, or normally carried out in conjunction with the grazing of authorized stock, including the production of stock feed); and
- c) Activities ancillary to the activities mentioned in paragraphs (a) and (b).

A pastoral lessee must not use pastoral land for purposes other than pastoral purposes, except in accordance with a non-pastoral use (diversification) permit issued under Part 7, Division 5 of the Act.

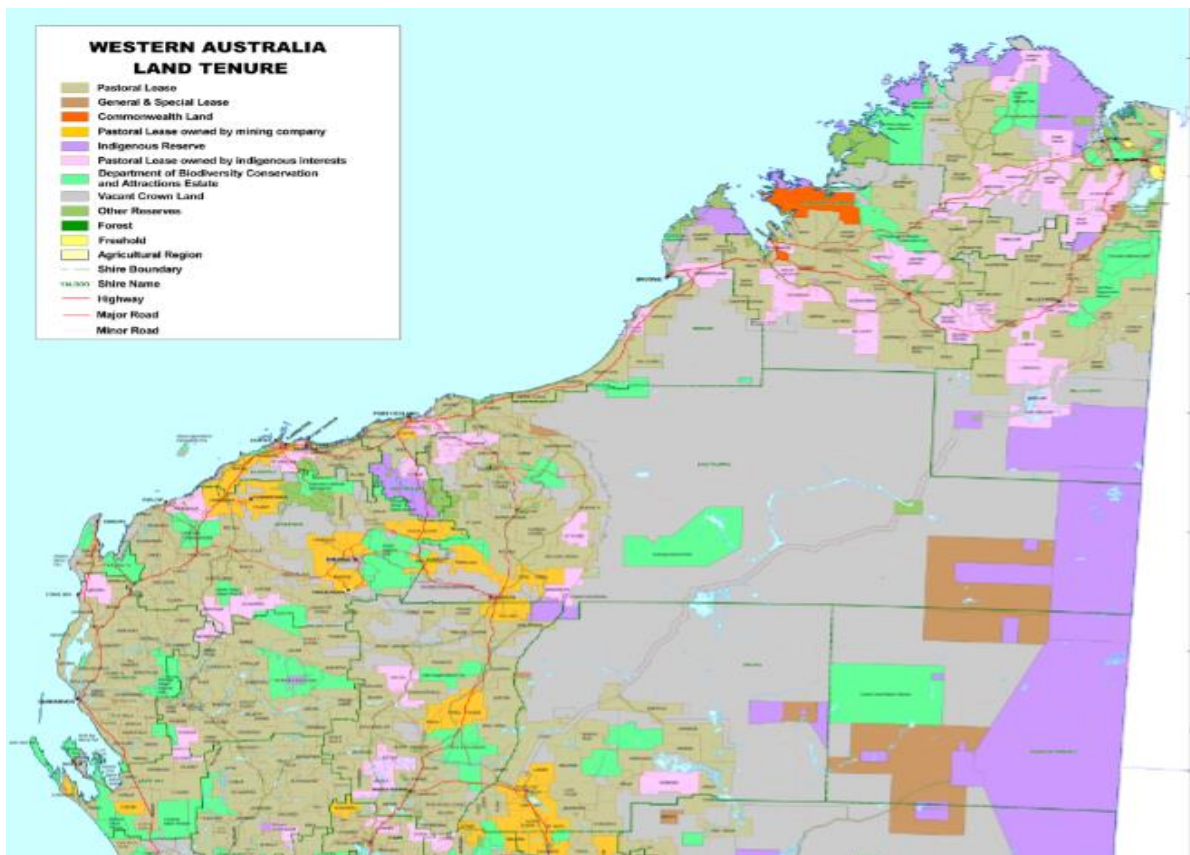


Figure 8. Northern Western Australia land tenure (source: DPIRD, 2020)

An audit on management of pastoral lands in WA (Office of the Auditor General Western Australia. 2017) reiterated the findings of previous inquiries into the pastoral industry, highlighting a need for lease level monitoring of land condition, and guidance on how best to manage pastoral lands.

4.6 Land Tenure Pathway that support Irrigated Agriculture

Land tenure pathways for irrigated agriculture were developed to assist regional Western Australian communities through the development and diversification of the agriculture and food sector. The broad description of approvals processes for land tenure, as represented in Figure 9, sets out to streamline economic development and investment opportunities across the State. Efforts to clarify the process for changing existing Crown land tenure to a form of tenure suitable for large scale irrigated agriculture has attracted new investment.

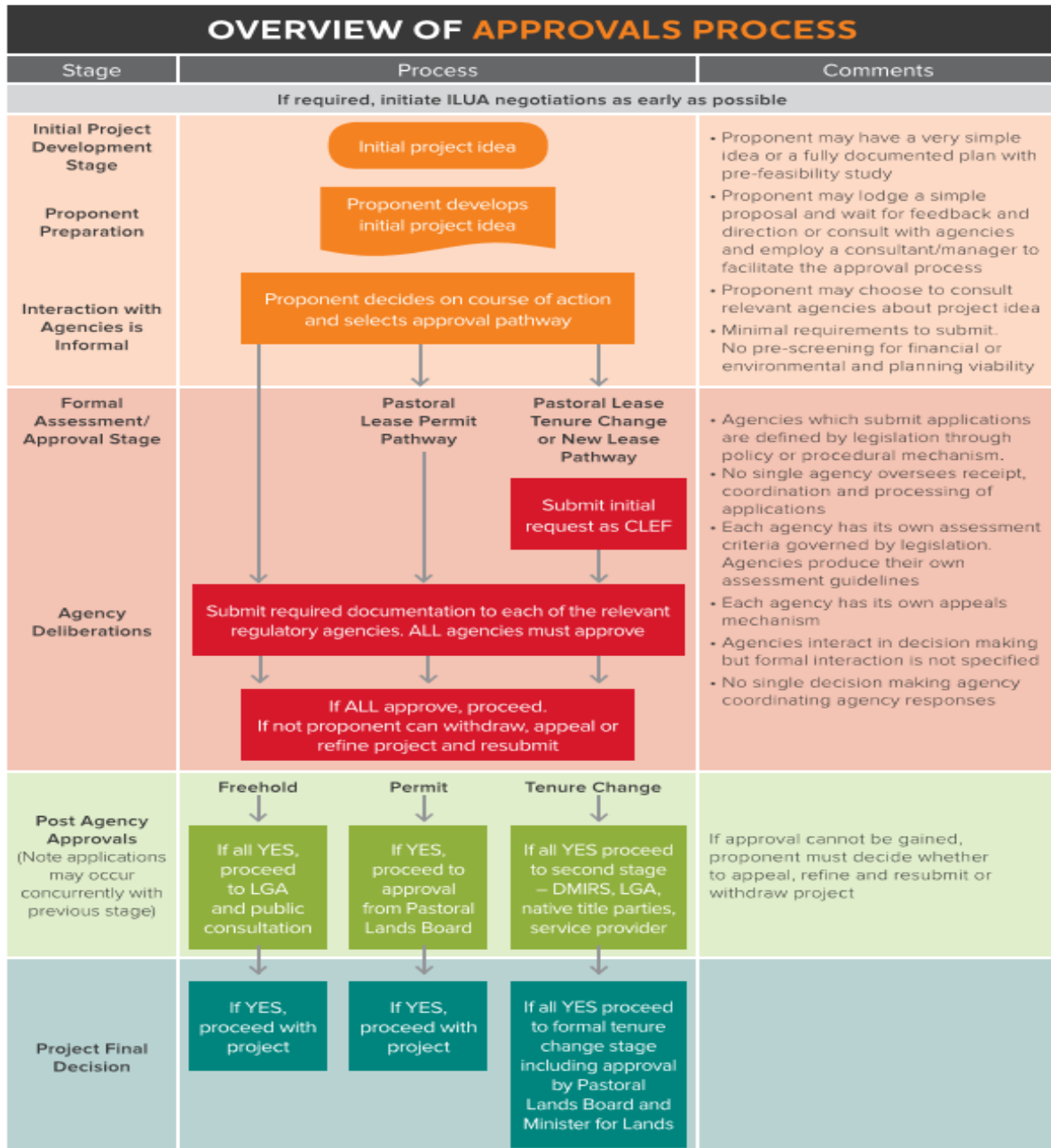


Figure 9. Overview of Agricultural approvals process (Department of Primary Industries and Regional Development, 2018)

Although the Land Tenure Pathway for Irrigated Agriculture (LTPIA) set out a pathway to freehold tenure, the LTPIA initiative was initiated to clarify pathways for large-scale agribusiness investment in response to WA Government's promotion of northern agriculture development in the 2013 to 2017 period. Some projects have actively worked with the LTPIA process while other developments have shied away from a full LTPIA process because of the complexity and extended timelines. The more accepted alternative for many other projects, generally at smaller scale, is the pastoral diversification route.

Land tenure is particularly important for loan structures, such as offered by the Northern Australia Infrastructure Facility (NAIF), however, aspects of this facility can become ineffective without the security of freehold tenure. The WA Government is generally the 'backer' of WA-based NAIF loans that default.

The LTPIA process highlighted challenges and opportunities for proponents and Native Title parties in negotiating Indigenous Land Use Agreement's (ILUAs). A resource document to assist proponents with stakeholder engagement, structuring ILUA negotiations and planning for the best outcomes was developed under the Water for Food program (Department of Primary Industries and Regional Development, 2018). Changing from one form of tenure to another requires a Future Act process under the Native Title Act 1993 (Commonwealth) unless Native Title has been extinguished. The ILUA process is proponent-driven, in partnership with Traditional Owner groups, and requires that proponents address Native Title by negotiating and registering an ILUA within three years prior to the grant of land tenure.

Native Title recognises the traditional rights and interests to land and waters of Aboriginal and Torres Strait Islander people. Under the Native Title Act 1993, Native Title claimants can make an application to the Federal Court to have their native title recognised by Australian law. Details on Native Title in WA are described in the *Native Title Handbook Western Australia* (Australian Institute of Aboriginal and Torres Strait Islander Studies, 2016).

Where proposed primary production projects seek to change land tenure (e.g. pastoral leasehold to freehold, possibly for an irrigation project) Native Title rights and interests must be taken into account in compliance with the Native Title Act 1993.

The Water for Food ILUA Guide (Government of Western Australia, 2016) outlined an approach that provided the following benefits:

- Assists proponents, third party consultants and negotiators in working with Native Title parties in a structured and direct way, ensuring the parties consider all impacts, opportunities and outcomes;
- Provided the proponent with greater certainty as the usual requirement to conduct a public EOI process is not imposed – as would be the case with other similar tenure pathways, such as a section 79 lease.
- Improves ILUA negotiation preparation and design;
- Provides a negotiation framework that addresses the direct social, economic, cultural and environment benefits to ensure appropriate conversations to support both the proponent and native title party in identifying the specific impacts and potential benefits and opportunities in each of these areas;

- Improves negotiation methods as a way to reduce timeframes and unstructured dialogue, providing a controlled and systematic approach to structuring the negotiations to enable more direct thinking and define the range of negotiables quickly;
- Provides for strong interaction and equal basis between the parties to define what is possible in order to agree and achieve mutually beneficial and timely outcomes; and
- Assists Native Title parties to structure their negotiations and reshape the negotiations to become more relevant and time efficient, addressing short and long term aspirations.

Aboriginal economic development has been highlighted as a priority by the Indigenous Reference Group and all jurisdiction's northern Ministers, as evident in the Northern Australia Indigenous Development Accord that was announced in December 2019.

Aboriginal corporations own 55 pastoral stations that account for 12.5 per cent of the area covered by WA pastoral leases (Office of the Auditor General Western Australia, 2017). Proposals have emerged (e.g. Kimberley Agricultural and Pastoral Company (KAPCO)) that seek to revitalise underdeveloped and underperforming Aboriginal pastoral leases and the development of a year-round supply chain through improved management of agistment, genetic improvements, herd management and feed crop technology.

Increasing the value and productivity of Aboriginal pastoral beef businesses in northern Western Australia has generated interest and challenges over a number of years. Strategic objectives set by Northern WA Indigenous Pastoral Support Alliance (DPIRD, DPLH, KPCA, NIPE, Aboriginal Lands Trust) in June 2017 centred on implementing supply chain opportunities, advancing Aboriginal properties to be the stage of supply chain and investment ready partnerships and advocating for improved governance and development support for at-risk Aboriginal properties (NWA Indigenous Pastoral Alliance, 2017).

Where Native Title rights and interests exist, a key to success is to engage early and often with Native Title parties when negotiating an ILUA.

5 Recent Initiatives

Although many recent initiatives have progressed northern development the current response to the COVID-19 pandemic has proved very challenging for many WA agriculture and aquaculture businesses (Gregoire. 2020).

“The State’s domestic agrifood supply chain appears to be functioning within acceptable ranges during the pandemic. Freight disruption initially affected the availability and cost of some imported processed food and ingredients, in particular in regional areas. After temporary spikes in regional prices, the production and distribution of agrifood products has returned to normal across the State”.

The COVID-19 pandemic has put more lasting stress on export activities in the agrifood supply chain. In particular:

- Demand has fallen and is still recovering in many key markets, in particular for seafood and horticulture products. Exporters are grappling to understand changing consumer behaviours, including purchasing shifts between food and retail channels.
- The suspension of international air routes has led to significant freight cost increases for high value agrifood produces that are exported in the cargos of passenger flights. These products are currently exported on chartered re-purposed passenger planes subsidised by government.
- Border closures may lead to labour shortages during spring harvests, in particular for jobs normally done by working holiday makers and seasonal migrants. Industry has noted however a significant increase in applications for seasonal jobs from Western Australians, following lay-offs in a number of industries.

In response to COVID-19, the WA Government has initiated the ‘Supply Chain Opportunities and Investment Attraction Strategy’ that will progressively work with industry to address challenges encountered by the pandemic.

Several key past and recent WA Government initiatives and activities have supported northern primary industries development, as outlined in the following sections.

5.1 Pastoral Lands Reform

The current Pastoral Lands Reform¹ consists of a package of legislative, regulatory and administrative measures that focus on improving the land condition of the pastoral estate, fostering best-practice land management, and encouraging development and diversification. Reform measures encourage development and diversification on the pastoral estate and provide pastoralists with confidence to explore complementary income from sources other than livestock. Measures include:

- Statutory right of pastoral lease renewal, subject to compliance with lease and statutory conditions;

¹ Department of Primary Industries and Regional Development. 2019. Pastoral lands reform update.

- Ability to increase lease term to 50 years, subject to the Native Title Act 1993;
- Statutory right to transfer diversification permits upon transfer of the lease, subject to compliance with permit conditions, to remove uncertainty about capital investment in non-pastoral activities conducted under a diversification permit; and
- Streamlining inter-agency approval processes for permits to increase transparency and introduce options for fast-tracking where applicable.

An integrated risk-based approach to land condition monitoring and compliance on the pastoral estate will be developed in partnership between Government, Pastoral Lands Board (PLB), the pastoral industry, Traditional Owners and other key stakeholders. Pastoralists who opt into a voluntary accreditation system will be able to take full advantage of the new measures. Proposed reforms will require amendments to the Land Administration Act, 1994 that are currently under consideration. One particular issue that has frustrated a number of pastoral developments concerns non-indigenous plants (DPLH – Pastoral Lands Board Policy Statement No. 3, ‘Permits for cultivation of non-indigenous plant species on a pastoral lease’). The intent of the policy is to ensure the cultivation of non-indigenous plant species improves the viability of pastoral land and that species that can or have the potential to adversely affect the environment are not permitted. A permit from the Pastoral Lands Board (the PLB) is required for the cultivation of any plant species not indigenous to Western Australia. The policy and underpinning legislation is now under review with to clarify and improve regulation of non-indigenous plants.

5.2 Foundation agriculture development projects from 2006

The New Opportunities for Tropical and Pastoral Agriculture (NOTPA) project (2006 to 2009) was initiated in response to strong and focussed objections by key stakeholder to planned development of large scale irrigated agriculture (up to 200,000 ha), of primarily cotton, in the La Grange area, south of Broome. The project purpose was to develop new scenarios for sustainable development in the West Kimberley in close consultation with stakeholders, including Aboriginal communities, pastoralists, horticulturalists the business sector and community groups. The project area was approximately from Exmouth, West of Halls Creek to Kalumburu. In summary the project provided a preparatory phase to the longer term development of agriculture in the regions, by benchmarking and addressing issues, aspirations and concerns, identifying key stakeholder sectors, integrated results into land and water planning and approval processes and facilitated positive engagement with stakeholders in these processes.

The regional Development and Opportunities program (REDWO) was a \$6.4 million project focused on defining the most appropriate water and land resource development options and strategies to support additional irrigated agriculture in two separate areas; Ord Cockatoo Sands and the La Grange sub region in the West Kimberley. Key achievement of REDO include:

- Cockatoo Sands project:
- Two areas on the Victoria Highway of 2300 ha and on Carlton Hill of 6510 ha respectively were identified as having suitable soils for irrigated agriculture within the project area;

- Ground water supply in this location is not sufficient to supply irrigated agriculture of any significant scale;
- Engineering and power supply studies were completed to assess the potential for sourcing Ord River dam water supply and piping it to these areas;
- It is technically feasible to supply water from the Ord River dam to these areas;
- Piping and pressurising water will result in a more expensive supply than other supplies available in the Ord River supply scheme; however the commercial viability will be determined by private industry through the expressions of interest process;
- Expressions of interest process commenced to initiate land development throughout 2016/17 in agreement with Pastoral leaseholder and Native Title determination group;

La Grange (Figure 10):

- Over 50,000 ha of sites identified as suitable for irrigated agriculture in the La Grange groundwater allocation area across seven pastoral stations and 4 Native Title determinations;
- These zones have been mapped and workshopped with landholders and the Native Title holders;
- Six out of seven of these Pastoralists are developing irrigated agricultural proposals as a result. Two of the six are led by Indigenous prescribed body corporates representing the Native Title holders;
- The current allocation in La Grange of 50 mega litres would supply approximately 5000 ha of irrigation if 10 mega litres per hectare was a sufficient supply;
- 49 (shallow, intermediate and deep) monitoring bores were installed to benchmark and research the aquifer to support decision making as use increases in future;
- This project provides a foundation for irrigated agriculture now and into the future by: engaging the stakeholders and facilitating a vision for the region, identifying the most suitable sites for development; benchmarking the current state of the resources; assisting the community to understand the research; providing industry and government with the confidence to proceed;
- Identification of over 250 traded products that could potentially provide new market options and supply chains for future developments;
- An assessment of the costs of development in both locations comparative to other irrigation opportunities nearby and economic tools to assist proponents; and
- Defining approvals pathways for Irrigated Agriculture.

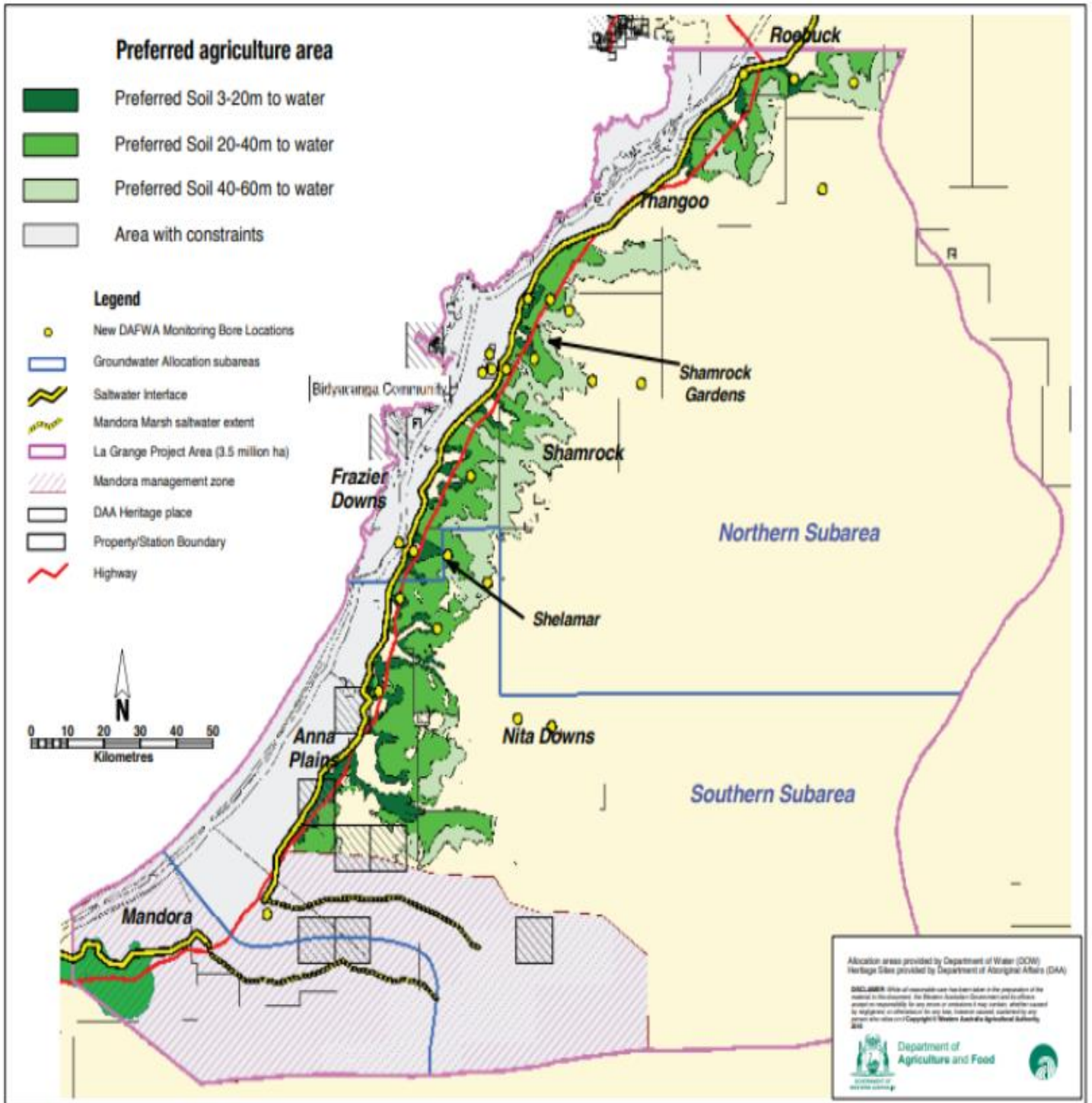


Figure 10. Preferred agriculture areas within La Grange area (Department of Agriculture and Food WA, 2016)

5.3 Seizing the Opportunity Agriculture

Seizing the Opportunity Agriculture (Department of Primary Industries and Regional Development, c2017) was a \$350 million initiative made possible by the State Government's Royalties for Regions program. The initiative assisted the agricultural sector to seize the opportunity of rising global demand and contribute to strengthening regional communities where agriculture is a major economic activity.

Seizing the Opportunity Agriculture helped to promote local products and attract new investment in agriculture, as well as build business skills, research and development and create efficient supply chains. The State Government partnered with the agricultural sector to direct Royalties for Regions investment across a number of significant programs:

- Agricultural Sciences Research and Development Fund;
- Asian Market Success;
- Strengthening WA's Agricultural Biosecurity Defences;
- Boosting Grains Research and Development Support;
- Food Industry Innovation;
- Helping Grain Growers to Better Manage Risk;
- Infrastructure Audit and Investment Fund;
- Muresk Institute - Agriculture Degree and Diploma;
- Northern Beef Futures;
- Sheep Industry Business Innovation;
- Water for Food and
- WA Open for Business.

The program was delivered across several government agencies and in close partnership with industry, nine Regional Development Commissions and other government, industry and community stakeholders.

Programs were developed with the focus on removing the barriers towards sustainable agriculture in regional Western Australia. Improving access to land, water and infrastructure assist the agricultural sector to meet the high domestic and global demand for food.

5.4 Water for Food (WfF)

The Water for Food Project was a \$40 million State Government program delivering eleven projects with the aim of significantly increasing irrigated agriculture across Western Australia. The program extended from Kununurra to the Great Southern and aimed to increase productivity in agriculture while building export supply chains and encouraging capital investment in regional industries.

The primary objective of Water for Food was to identify water and land resources, as well as irrigation technologies, that could enable WA's fresh food and animal protein production to increase agricultural production by at least 50 per cent by 2025 and twofold by 2050.

Additionally, the program provided a boost to regional Western Australian communities through the development and diversification of the WA agriculture and food sector.

The program supported public and private sector investment decisions for new commercial scale irrigated agriculture precincts and the expansion of existing areas, by identifying where water is available, along with water quality and quantity. Water for Food was a joint-government agency program delivered by the DPIRD, DWER and DPLH. Each agency played a vital role in the delivery of the program to support the development, growth and expansion of agricultural and pastoral projects across the State.

The aims of the Water for Food program were to:

- Contribute to regional economic growth: The increased certainty of sustainable water supplies will provide new opportunities for businesses and boost the State's regional communities;
- Grow employment opportunities: Water for Food aimed to increase agricultural and pastoral activity, offering an increased capacity for local employment;
- Diversify pastoral and agricultural industry: Water underpins confidence in the pastoral and agricultural industries to diversify and increase the scale and range of crops through irrigation;
- Meet demand for produce growing markets, including China, South East Asia and the Middle East; and
- To engage Aboriginal people in agriculture through business partnerships: Aboriginal business partnerships are considered essential to lifting food production, particularly in the north of the State.

Water for Food projects located in the north included:

- Bonaparte Plains – Ord East Kimberley expansion;
- Fitzroy Valley groundwater investigations
- La Grange – West Canning Basin: Groundwater for growing opportunities
- Land Tenure Pathway for Irrigated Agriculture; and
- Mowanjum irrigation trial.

The Mowanjum Irrigation Trial concluded mid-2018 following the publication of the project's final Industry Report. The report provided detailed information on the trial including key performance results and covers the planning and management intricacies involved in optimising performance and profit from a stand and graze pivot irrigation system integrated within the operations of a Kimberley pastoral station.

The aims of the Mowanjum Irrigation trial were to:

- Operate the system as efficiently as possible and maximise production;
- Measure key operational inputs (water, fertiliser, energy and labour);
- Measure key outputs (fodder and cattle); and
- Understand the economics of the operation and calculate the \$/kg of live weight gain.

Replicating the Mowanjum model may be considered feasible within the West-Kimberley region in locations where there is suitable and sustainable water supply (Giovi Agriculture, 2018).

The key lesson learnt from the trial was that stand and graze operations are complex and it is extremely important to spend time researching the design and fit of such an operation into the existing business. An ongoing commitment to learn and adapt and manage the details of the operation is also key to transferability. Limited information was available at the inception of the trial in 2015 and subsequently the Mowanjum Irrigation Trial has provided key results and outcomes for improving industry knowledge and the requirements moving forward.

5.5 Northern Beef Development Project (formerly known as Northern Beef Futures)

In 2014 the WA Government established the \$15 million Northern Beef Futures project that was designed to be export supply-chain focused and market driven. The Northern Beef Development project (Revell and Maughan, 2020) aims to support the northern beef industry to become more prosperous, resilient and sustainable to meet this growing demand for products.

The Project places a strong focus on initiatives that deliver the greatest return on investment, including innovative new crop trials, improving regional infrastructure, supporting practice change within industry, and policy development that will lead to improvements in productivity.

The Northern Beef Development project has a targeted approach to capturing new international markets, integration with other department land, water and agriculture development projects and creating more strategic links to supply chains in WA northern regions.

The Northern Beef Development project has three key pillars:

- Productivity and capacity;
- Mosaic agriculture; and
- Business development.

The collective outcomes of these pillars seek to provide the building blocks for a stronger, more diverse and resilient beef industry in the north. A number of project publications are available on the Northern Beef Development website including 'Joining the dots – on ten key Northern Beef Futures informing studies' (ACIL Allen Consulting, 2018) that found:

- There are on-going export opportunities for northern beef live cattle and boxed beef in both existing and new markets;
- These opportunities will not be realised through a business as usual approach by the northern beef industry;
- Existing northern beef industry infrastructure can be better utilised through improved coordination;
- Priority projects for new infrastructure have been identified and will be developed over time as funds become available and demand increases;

- The northern beef industry can reduce price volatility and increase revenue and profit significantly through improved supply chain coordination to service higher value markets;
- Four alternatives drawn from other industries provide the foundations for improved fit for purpose collaboration in the northern beef industry;
- Individual businesses are already implementing some of these models;
- The spot market and strong live export markets in recent years inhibit development of new collaboration models across the whole of the northern beef industry;
- Collaboration can create greater revenue and profitability – but it takes time and effort over many years to build the required trust and arrangements needed to realise these benefits and does not remove all the risks;
- Supply chain collaboration needs to evolve through real time trial and error to develop the optimal models that are fit for purpose in the northern beef industry;
- 48 producers have accessed business planning grants – creating the platform for individual action and improved development programs;
- Aggregation and backgrounding/feedlotting of cattle is essential to improving northern beef supply quality and volume to meet market demand and underpin growth; and
- Commercial fundamentals determine whether this is best achieved through existing or new facilities in the north or south on a case by case basis.

5.6 Research initiatives

National Environmental Science Program

The National Environmental Science Program (NESP) projects deliver collaborative, practical and applied research to inform decision making and on-ground action. Indigenous research partnerships are a highly valued program activity. The National Environmental Science Program recognises there is much we can learn from Indigenous knowledge and peoples. There is also a current call for new NESP hubs that may be of benefit to northern Australia.

CRCNA

The Cooperative Research Centre for Developing Northern Australia (CRCNA) is investing \$75 million of Commonwealth funds over ten years to support industry-led research collaborations (CRCNA, c2019). The funding will develop new technologies, products and services which address industry issues in Northern Australia, including this project. The CRCNA brings together industry, universities and other research bodies, SMEs, regional development organisations, all northern jurisdictions and international partners in a collaborative industry-led research and development venture to assist businesses, governments and researchers identify opportunities for business and growth in the north.

CSIRO

CSIRO has conducted research over a number of years in the north of WA. Among more notable research initiatives are the Northern Australian Water Resources Assessment (Kimberley catchment reports) and the Pilbara Water Resources Assessment.

DBCA

The Department of Biodiversity, Conservation and Attractions, in the form of its Biodiversity and Conservation Science function, undertakes extensive research throughout the northern WA. This includes research and survey on plants and animals, population ecology and biology of species, translocation of endangered animals, adaptive variation, and sustainable environmental management.

NACRA

Northern Australia Crop Research Alliance Pty Ltd (NACRA) is comprised of the Ord River District Co-operative, The Chia Company and Kimberley Agricultural Investment. The NACRA partners work collectively for industry-driven crop research and development with commercial outcomes for irrigated horticulture, grain and other crops.

WATARI

The proposed Western Australian Tropical Agriculture Research Institute (WATARI) aims to establish a credible research institution in northern WA not only to serve northern WA needs but also to address the apparent imbalance evident by much northern research funding going to universities in Queensland and Northern Territory.

A key research theme for the development of a WATARI would include native foods. DPIRD is working through the detailed proposal for WATARI and will be seeking to maximise and leverage research dollars available to Aboriginal projects focusing on local bush foods like gubinge, together with the research and development corporations and industry partners.

5.7 Ord-East Kimberley Development Plan

The Ord-East Kimberley Development Plan (Department of Regional Development and Lands, 2009 and refer to Section 9) comprised numerous projects that have delivered sustainable growth and employment in the East Kimberley Region. The Western Australian Government partnered with the traditional owners, the Miriung and Gajerrong people to establish the Ord Final Agreement ILUA in 2005, which enabled the extinguishing of native title over 65,000 ha of East Kimberley land and the further development of irrigated agriculture.

In 2012 Chinese property developer Shanghai Zhongfu through its company Kimberley Agricultural Investment (KAI) won the right to lease the Goomig and Knox Plain areas and double the area of farmland in the Ord irrigation area. Although much negotiation has occurred over lease documents, clearing approvals, land titles and the terms of the original 50-year land lease deal, KAI is progressively implementing agricultural improvements. In 2016 KAI bought Carlton Hill Station and shifted some of their development focus on the Station with a longer-term plan to establish a cotton industry. KAI is developing 3,000 ha for irrigated cropping on the Carlton Plain freehold area, under an EPA approval issued in 2018.

KAI has assembled approximately 27,000 ha of land suitable for development into irrigation farms with land assets in Stage 1, Goomig, Carlton Plain, Mantinea and Knox Plain areas. The current focus on establishing a cotton industry has involved trialling 350 ha of cotton within an industry-led research program (through NACRA), and investigations on options for a cotton gin to support crop processing requirements. In July 2020, the Ord River District Cooperative (ORDCO) announced that a Memorandum of Understanding had been signed with KAI and MG Corporation to investigate construction of a cotton gin in the Ord Valley.

MG Corporation, on behalf of the Traditional Owners, received freehold title to approximately 10 percent of the Ord stage two area, which is currently growing cotton in partnership with Cubbie Farms.

5.8 La Grange Agricultural Opportunities

The La Grange Agriculture Project has identified suitable land for development, possible future scenarios based on the water allocation of 50 GL/y, and base costs and market potential for future agriculture in the region (see Fig. 11). The project also included market analysis and economic research to provide guidance on development costs and potential new markets and supply chains.

Exploration of potential irrigation projects includes an initiative that has fostered strong relationships between key stakeholders including the Traditional Owners from Yawuru, Nyangumarta and Karajarri country, pastoralists, horticulturalists and government agencies. Further project development would benefit from investment partnerships that generate Aboriginal economic outcomes that are aligned with Aboriginal cultural values.

5.9 Fitzroy River Management Plan

The Western Australian Government has made a series of commitments relating to the Fitzroy River catchment, located in Western Australia's Kimberley region. One of these commitments is to prepare a management plan that ensures the health of the Fitzroy River and provides a basis for sustainable economic development. DPIRD is leading the preparation of the Fitzroy River management plan which will tie current Fitzroy River developments together. The preparation of the plan will incorporate research and consultations with Traditional Owners and other stakeholders. The management plan will incorporate Aboriginal economic development, agricultural development, environment and cultural conservation and tourism. This will include analysis of options to achieve a productive and sustainable mosaic of irrigated agriculture to enhance the pastoral industry in the Fitzroy River catchment based on sound science (Government of Western Australia, 2019).

5.10 CSIRO Northern Australia Water Resource Assessment

CSIRO, as part of the Northern Australian Water Resource Assessment study, assessed the potential for the Fitzroy Catchment for irrigation development. CSIRO found that the Fitzroy River catchment was considered to have potential to support 160,000 ha of a single irrigated dry-season crop in 85 percent of years. Irrigation on this scale could be based on water stored in on-farm dams and would require pumping or diverting up to 1700 GL/y, with 425 ring tanks

(on average 4 GL each) to store the water. There was also considered to be 170 GL/y available per year from groundwater that could support up to 30,000 ha of hay production in all years.

Groundwater was considered a cheaper source of water given lower capital cost compared to surface water and unlike water harvesting developments groundwater pumps could be sited on soils not susceptible to flooding. The precise area under irrigation would, in any year, vary depending on factors such as irrigation efficiency, water availability, crop choice and risk appetite. Irrigation of this type could be widely distributed across the catchment or concentrated into a smaller number of irrigation areas. There was also 55,000 ha of coastal land that was considered suitable for lined aquaculture ponds (Petheram *et al.*, 2018).

5.11 Pilbara Hinterland Agriculture Development Initiative (PHADI)

PHADI was designed to investigate and share key information on agronomics, land tenure, supply chain and markets, economic viability, cultural and environmental areas of significance, and stakeholder aspirations. PADI had a strong focus on practical research through pilot site trials and a comprehensive assessment of soil and water resources in the Pilbara. The original thinking behind PHADI sought to leverage on significant iron ore mining projects where dewatering is necessary for ore extraction.

The first large scale irrigation development in the Pilbara was at Munderoo Station in the late 2000s. Other pastoral companies have since commissioned irrigation sites on Pardoo and Wallal Downs Stations. Warrawagine Station commissioned irrigation adjacent to the Woodie pilot site developed by the PHADI project. Rio Tinto developed Hamersley and Nammuldi agricultural projects on Hamersley Station to manage mine dewater surplus (DPIRD, 2019).

To date, irrigation activities in the Pilbara have focused on production of fodder for pastoral enterprises. The PHADI identified more than 10 areas with prospective land and water resources, including De Grey River, Shaw River, Oakover River, Robe River and Newman areas. Initial findings have identified a potential water supply in the Pilbara of at least 100 GL/y, which if verified, equates to up to 12,000 ha of irrigated land to add to the region's current fledgling industry of 2,750 ha (Government of Western Australia, 2018). The PHADI is now being progressed through the \$5.9 million Transforming Agriculture in the Pilbara project (TAP).

5.12 Transforming Agriculture in the Pilbara (TAP)

The Transforming Agriculture in the Pilbara (TAP) project is ground-proofing soil and water resources in the region for potential horticulture, fodder and field crop production for a range of irrigation development sizes. Ten areas with significant land and water resources have been identified and some have become the focus of further soil and water field validation, including the lower De Grey River, Shaw River, Karratha Hinterland and Newman, as shown in Figure 11.

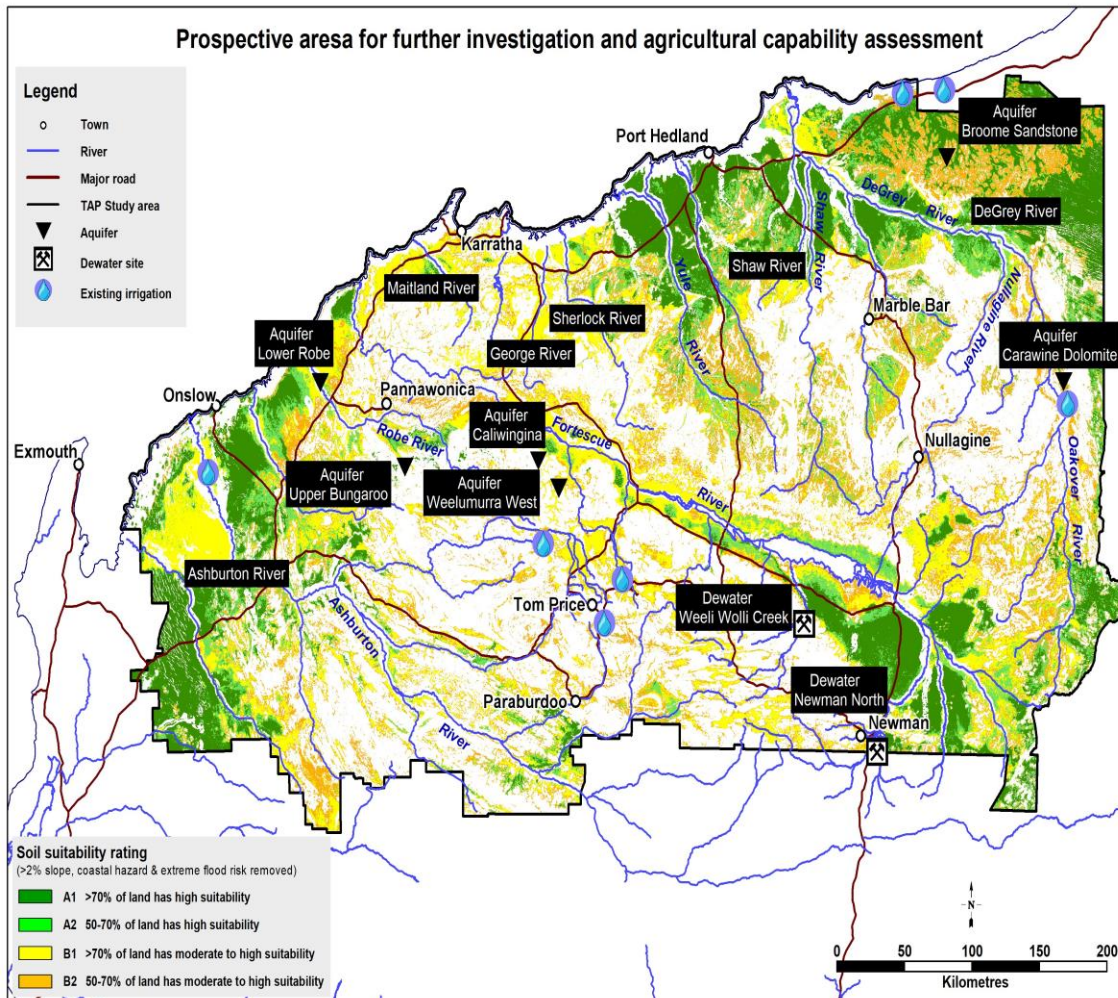


Figure 11. Transforming Agriculture in the Pilbara (TAP) focus areas

The TAP project is working with industry partners on several irrigated systems research topics to optimise productivity from suitable land and water resources. Key elements in the TAP initiative are:

Pilbara land and water resource assessment

Field survey, sampling and analysis work will identify land and water resources suitable for irrigation development. This work is underway at several target locations in the Robe River, Karratha Hinterland, Lower DeGrey, Shaw River and Newman areas.

Activities include:

- Census of pastoral and production bores to map groundwater depth and quality;
- Exploratory drilling for water;
- Aquifer pumping tests to determine sustainable yields;
- Sharing water resource information with DWER to assist their planning and licencing processes;

- Surveys to map out suitable soils and identify potential irrigation risks; and
- Identification of Aboriginal heritage and environmental sensitivities in potential development areas.

Economic analysis and business development

As soil and water information become available, TAP is appraising the economic potential of target investigation sites by exploring a range of development scenarios with current tenure holders and potential investors.

Activities include:

- Evaluating the best strategies to use irrigation to drive productivity and profitability in beef production;
- Analysing to optimise infrastructure requirements needed to develop irrigation water resources at various sites;
- Calculating the viability of forage, grain, fibre and horticultural crop opportunities in the Pilbara;
- Compiling and reporting of land, water and economic information for specific development areas; and
- Providing a point of contact to access information on soil and water, economics and regulatory requirements specific to individual client enquiries.

Irrigated agriculture research

TAP supports existing irrigators and is evaluating new opportunities by working with industry, CSIRO and relevant collaborators to answer research questions.

Activities include:

- A horticultural ‘proof of concept’ site at Newman that will evaluate potential production of high value temperate fruit crops in this unique inland, elevated Pilbara location; and
- Modelling and field evaluation of a range of field crop grain, forage and fibre species in the Pilbara environment.

The report ‘Growing the Pilbara – A Prefeasibility Assessment of the Potential for Irrigated Agriculture Development’ provides an excellent review of work that supports irrigated agriculture in the Pilbara to November 2017 (Department of Primary Industries and Regional Development, 2017).

Also refer to Section 8 outlining the Pilbara Agricultural Prospectus and Appendix A.

5.13 Gascoyne Food Bowl Initiative

The Gascoyne Food Bowl Initiative (GFBI) was established in 2012 to increase horticultural production in the Carnarvon area by providing new land and water resources for irrigation expansion (DPIRD, 2020).

Over the last six years the GFBI has developed the Northern Borefield, by drilling 120 exploration bores, out to the 24 km mark that align with a main collector pipeline linking both Stage 1 and Stage 2 production bores.

The project also installed 24 km of high voltage open aerial power lines to power the bore pumps in both the Stage 1 and Stage 2 borefields. It consists of 120 cyclone-rated poles, 360 insulators, and around 40 km of cabling with 12 transformers.

Existing growers will benefit from access to the new pipeline through:

- Increased security from additional water supply;
- Electrification of the entire Northern Borefield removing the need to operate high cost diesel pumps, significantly reducing water pumping cost; and
- Revision of the Lower Gascoyne Water Allocation Plan allowing an additional one GL/y of water from the Southern Borefield to be available for existing growers for irrigation.

Land release and development are the final components of the GFBI project. DPIRD plan to release up to 300 ha of land for intensive horticulture in line with the Shire of Carnarvon's *District Land Use Structure Plan 2017*. The release of new viable land and additional water responds to the ongoing interest from industry and provides an opportunity to expand the local horticultural production area. This is a key opportunity for the Carnarvon region to increase production for both the domestic (noting improved biosecurity is required for eastern markets) and international markets.

As part of the goal to diversify and add value to local raw produce, the Gascoyne Development Commission undertook a feasibility study for multi-food processing plant (GHD, 2016). Although processing options and potential sites were clearly outlined, financial analysis indicated that without significant Government support a viable business case was unlikely. This example highlights some of the challenges for value adding in the north, including high production costs (labour and inputs).

5.14 Carbon farming

Carbon farming presents a potential opportunity for agricultural producers and land managers to benefit financially from mitigating greenhouse gas pollution (DPIRD, 2017). Carbon farming involves changing agricultural/pastoral technologies, management, or practices to reduce greenhouse gas emissions.

While many of the techniques for reducing emissions from livestock are already used in the industry to increase livestock productivity and resilience, their use in the Pilbara could be increased by introducing irrigated fodder production systems.

Mosaic irrigation in northern Australia could drive positive change to beef production systems and boost productivity at the enterprise scale. Any income from generating carbon credits would be an additional benefit.

Carbon farming activities are best undertaken where the activity provides a clear and measurable productivity improvement or benefit other than just carbon credits; that is, the

economic viability of the activity should not be wholly reliant on the generation of carbon credits and should include ecosystem services markets where possible.

6 Key Stakeholder Views

As part of the research for this project, extensive engagement with key stakeholders was undertaken through targeted surveys, direct stakeholder consultation and workshops.

6.1 Survey Results

Surveys were undertaken with both industry and community, and with government.

6.1.1 Industry and Community Survey

Industry Survey Involvement

The survey yielded a high proportion of participants involved in horticulture, broadacre cropping and livestock intensification (Figure 12). Participants also identified other related disciplines that were not identified by the survey.

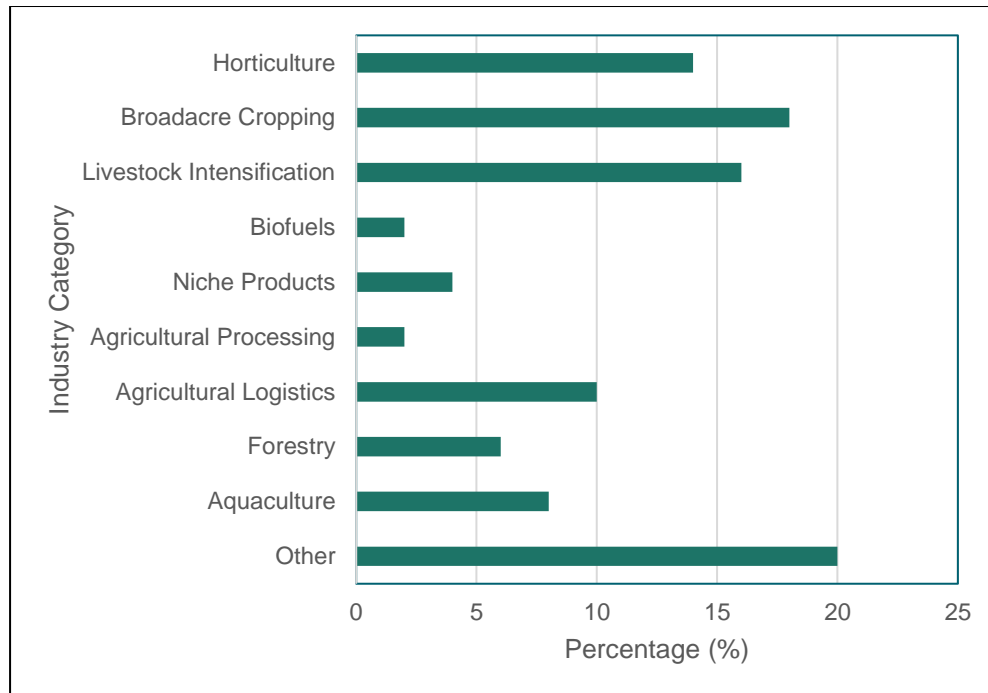


Figure 12. Involvement in industry

Role in Industry

The majority of participants were business owners and consultants (Figure 13). There were no labour providers or industry suppliers within the participants.

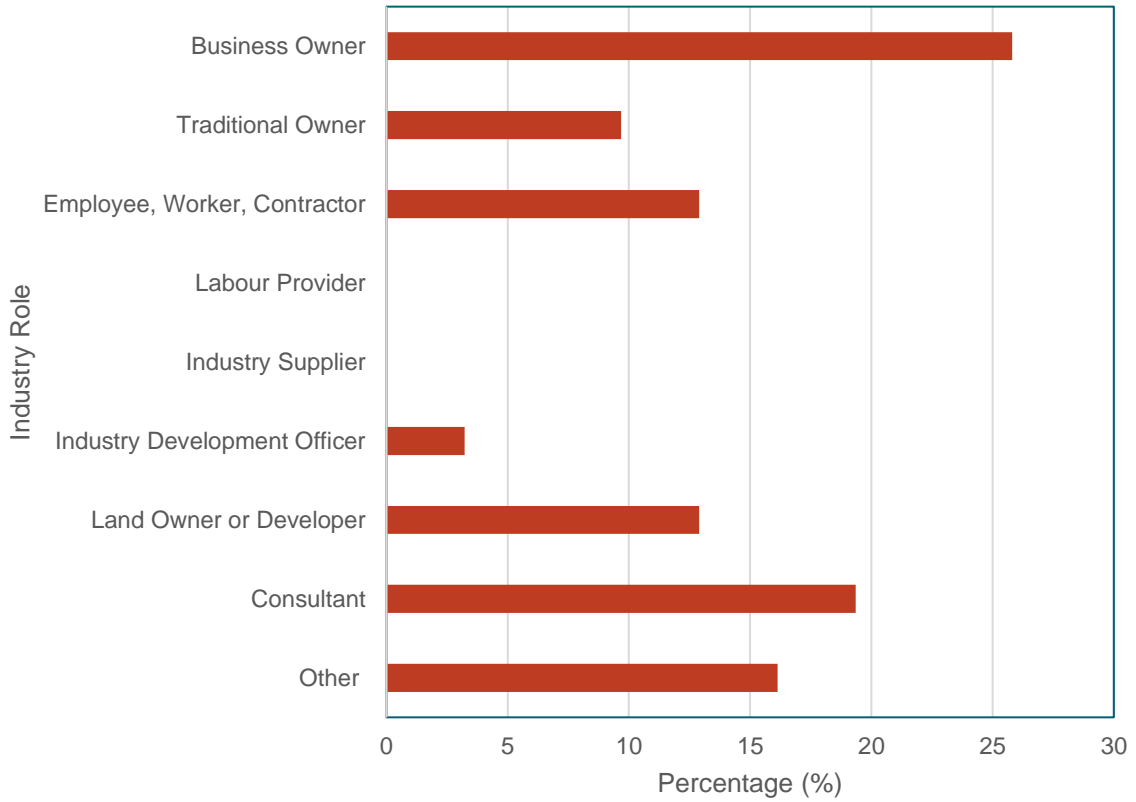


Figure 13. Role in industry

Impediments to Northern WA Agriculture and Aquaculture

The most frequently cited impediments were land tenure and water licences whereas the lowest areas of impediments were agricultural research and soil suitability and water availability (Figure 14). Results indicate policy and regulation (tenure and licences) were considered to be larger barriers to development than science (research and development, soil and water availability).

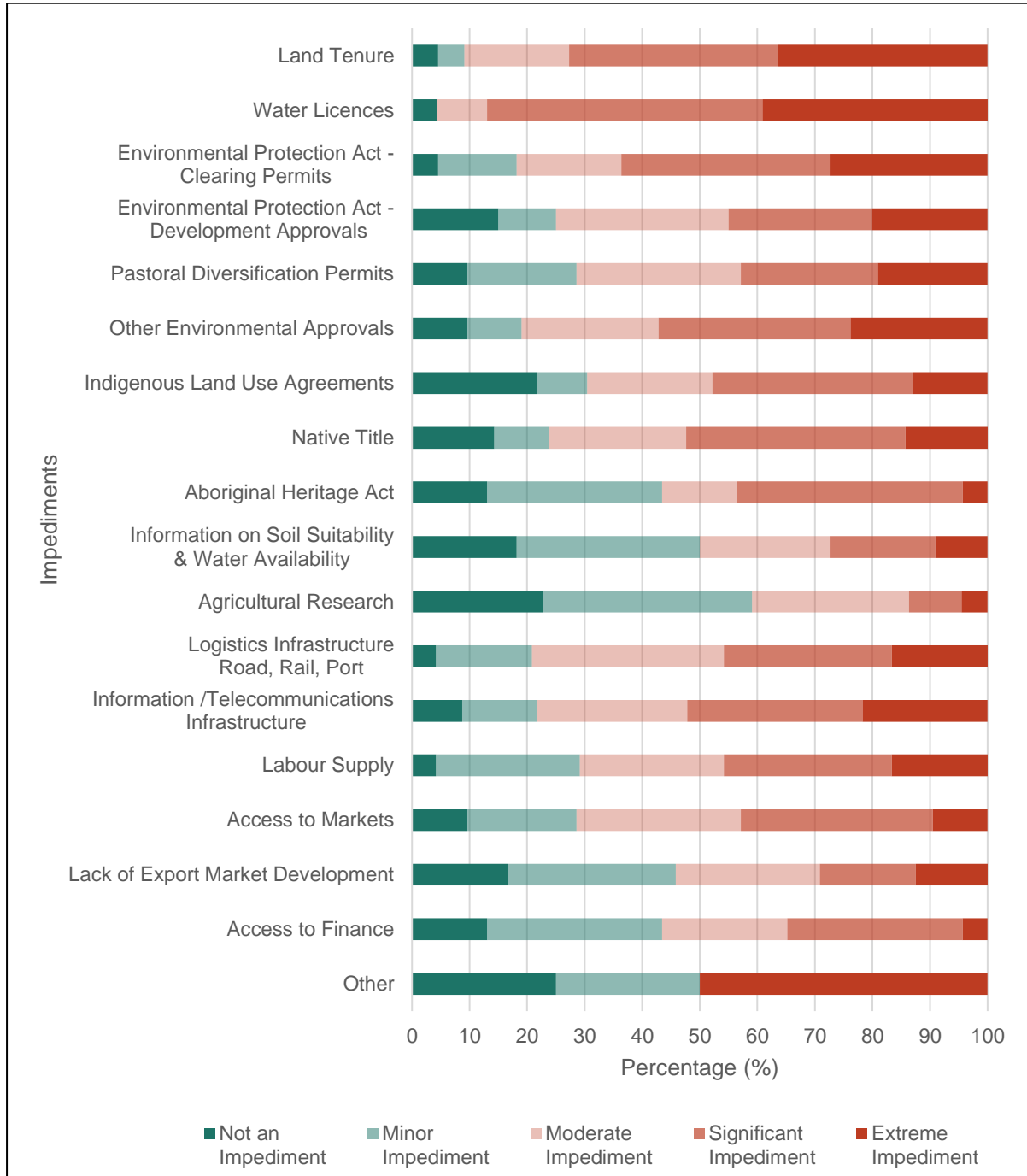


Figure 14. Industry perception of impediments to northern WA agriculture and aquaculture

Industry Experience with Government Regulations

Approximately 30 percent of participants had a good or neutral experience with government regulations, another 30 percent had poor experiences and 40 percent demonstrated non applicable data (Figure 15). Regulations that demonstrated poorer experiences involved land tenure, pastoral diversification, EP Act permits, water licenses, and Commonwealth EPBC approvals. Occupational health and safety approvals had the overall best experience for participants.

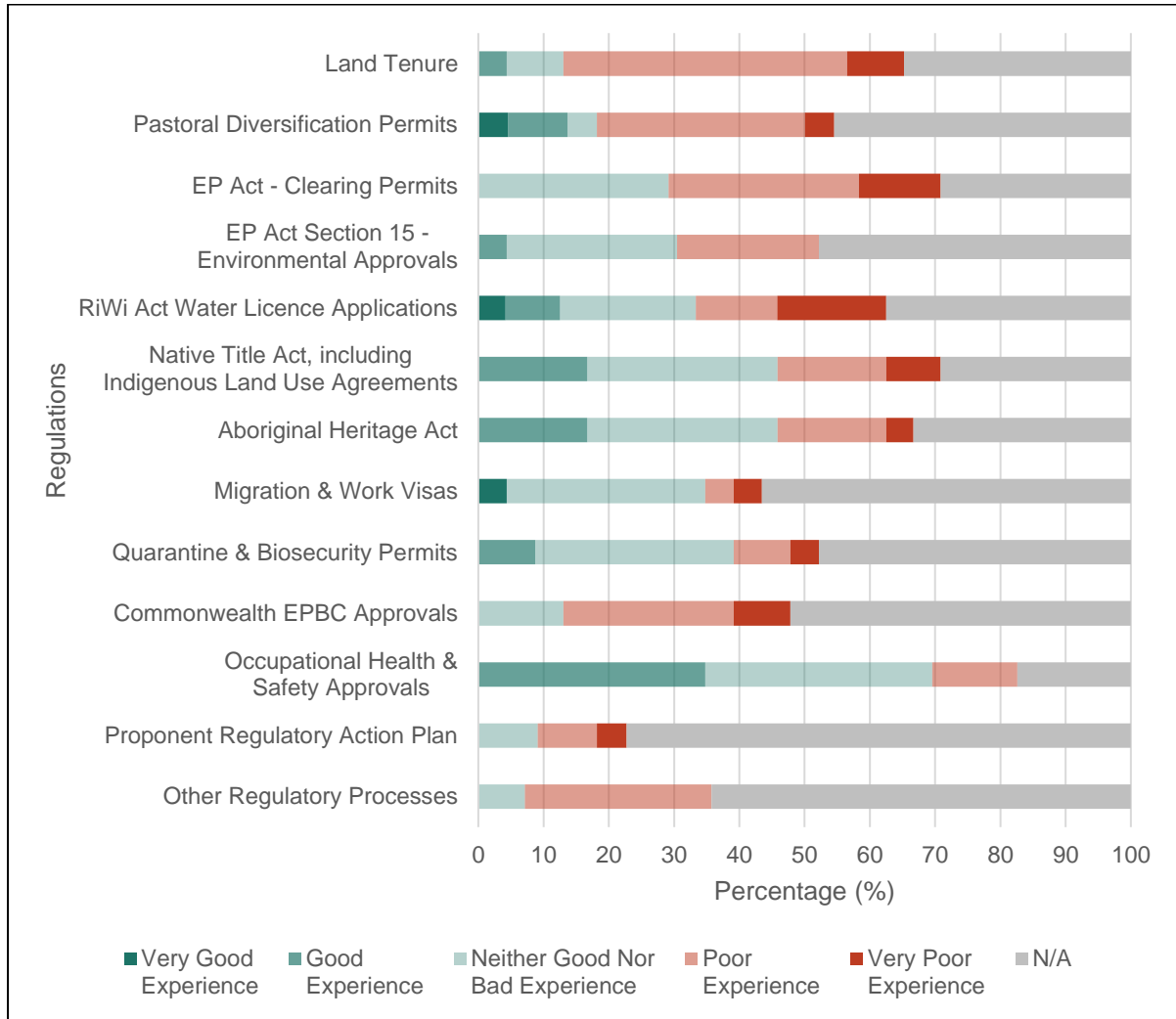


Figure 15. Experience with Government regulations

Government and Industry Effort to Prioritise Agriculture/Aquaculture Development in Northern WA

The areas industry and the community identified as priorities for Government focused on a ‘Can Do Culture’ within government for regulatory approval processes, biosecurity risk management support and improved infrastructure (Figure 16).

The *lowest priority* for government effort related to creating agriculture/aquaculture precincts perhaps on account of a number of existing precincts.

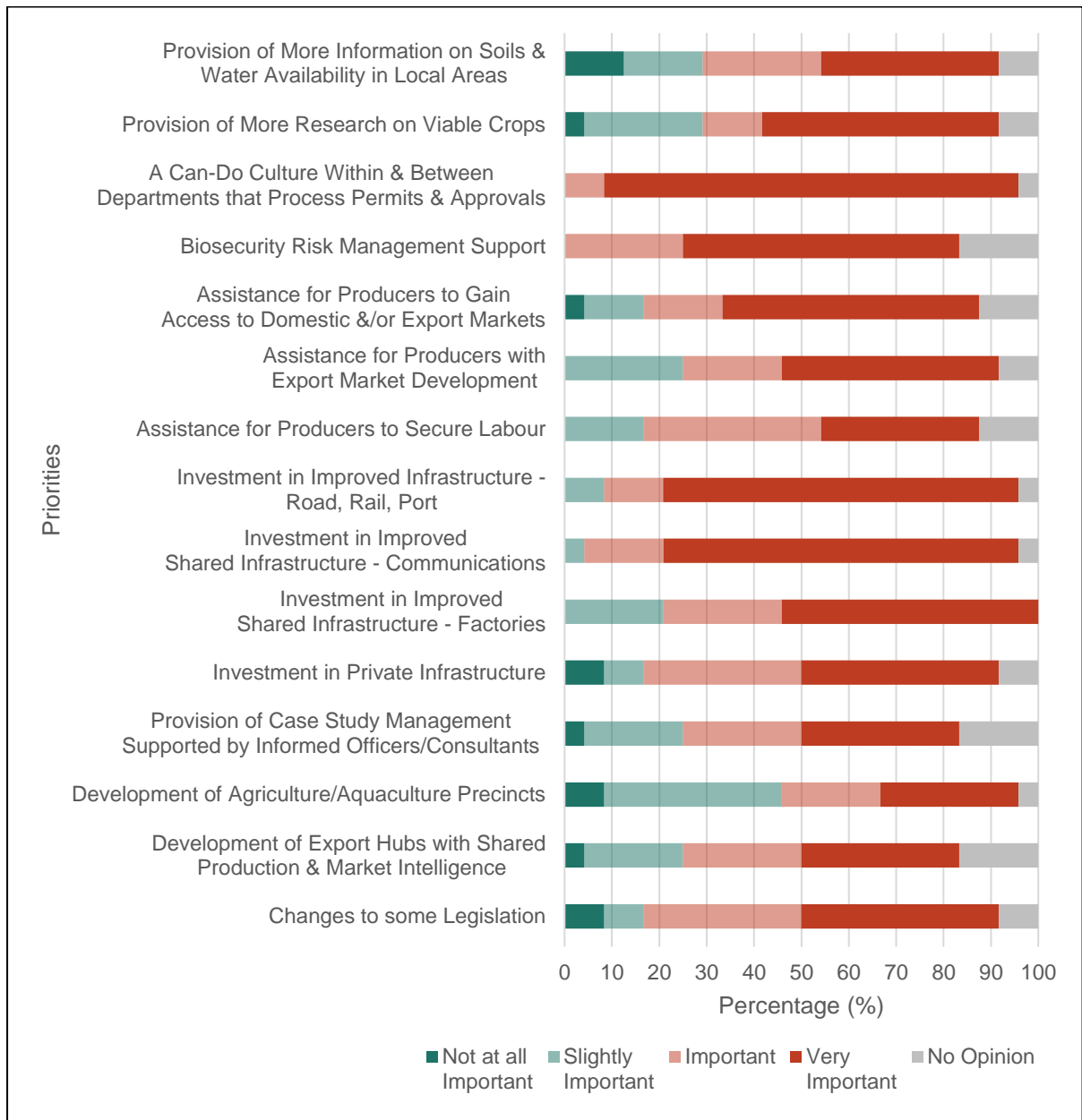


Figure 16. Government and industry effort to prioritise agriculture/aquaculture development in northern WA

Responsibilities of Government and Industry for the Development of Northern WA Agriculture and Aquaculture

Industry and community respondents identified that a combined effort from Government and industry is required to develop northern WA agriculture and aquaculture (Figure 17). The Government was perceived as being responsible for investing in biosecurity risk management, provision of soil and water information, and improved infrastructure including road, rail, ports and communications. Industry was perceived to be responsible for securing labour, provision of crop research viability, and investing in factory and processing infrastructure.

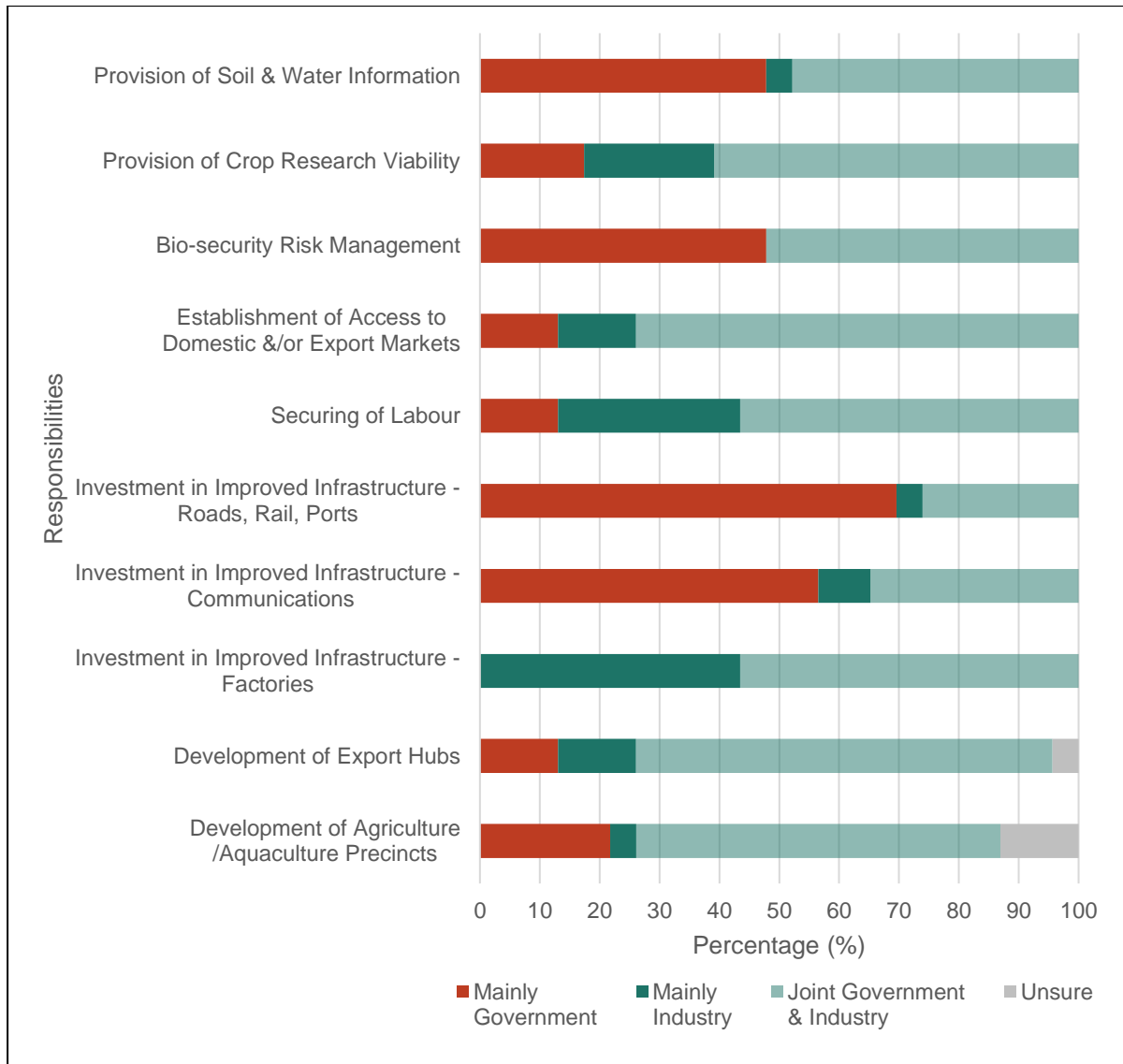


Figure 17. Responsibilities of Government and industry for the development of northern WA agriculture and aquaculture

6.1.2 Government Employees Survey

Government Survey Involvement

The majority of survey participants were involved in industry development and assistance (Figure 18).

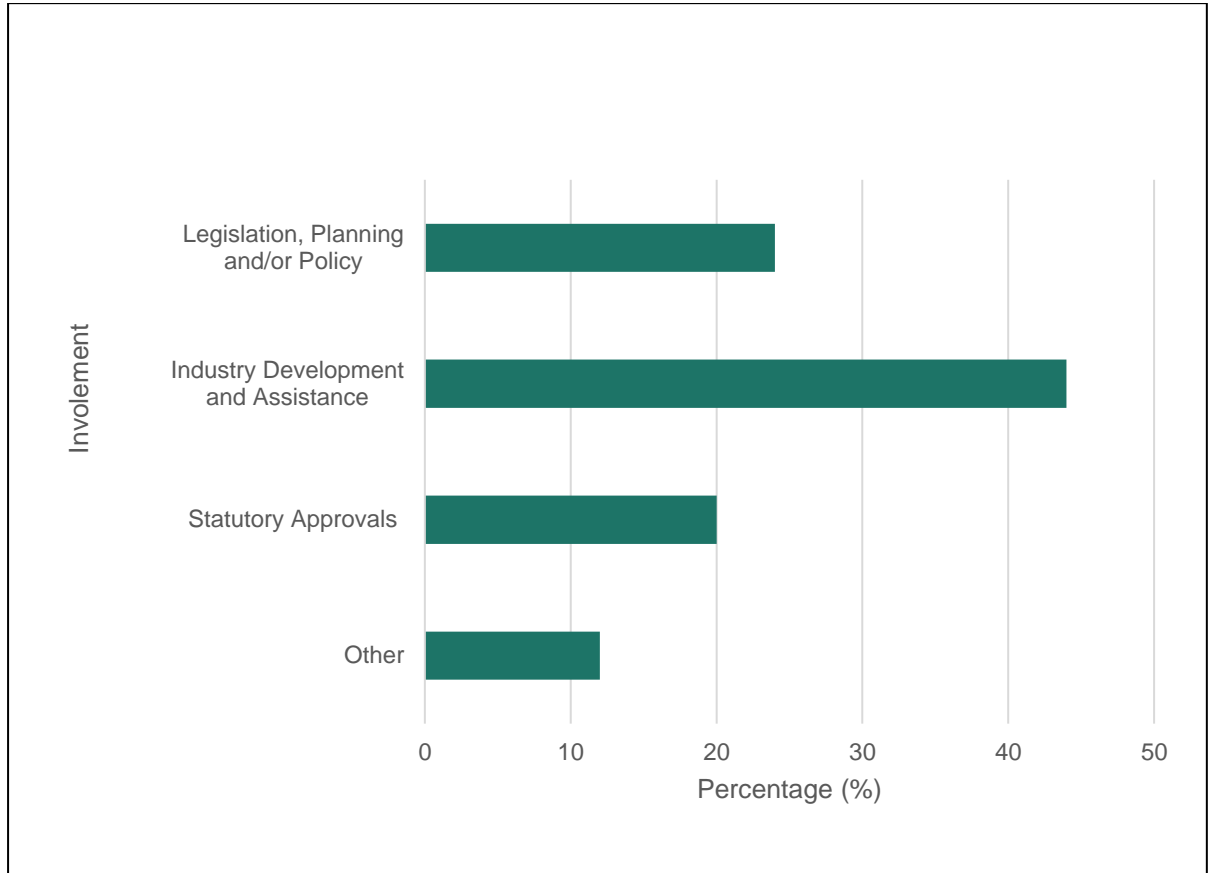


Figure 18. Involvement in northern WA agriculture and aquaculture

Government Survey Employment

The majority of survey participants were employed at the State level of Government (Figure 19).

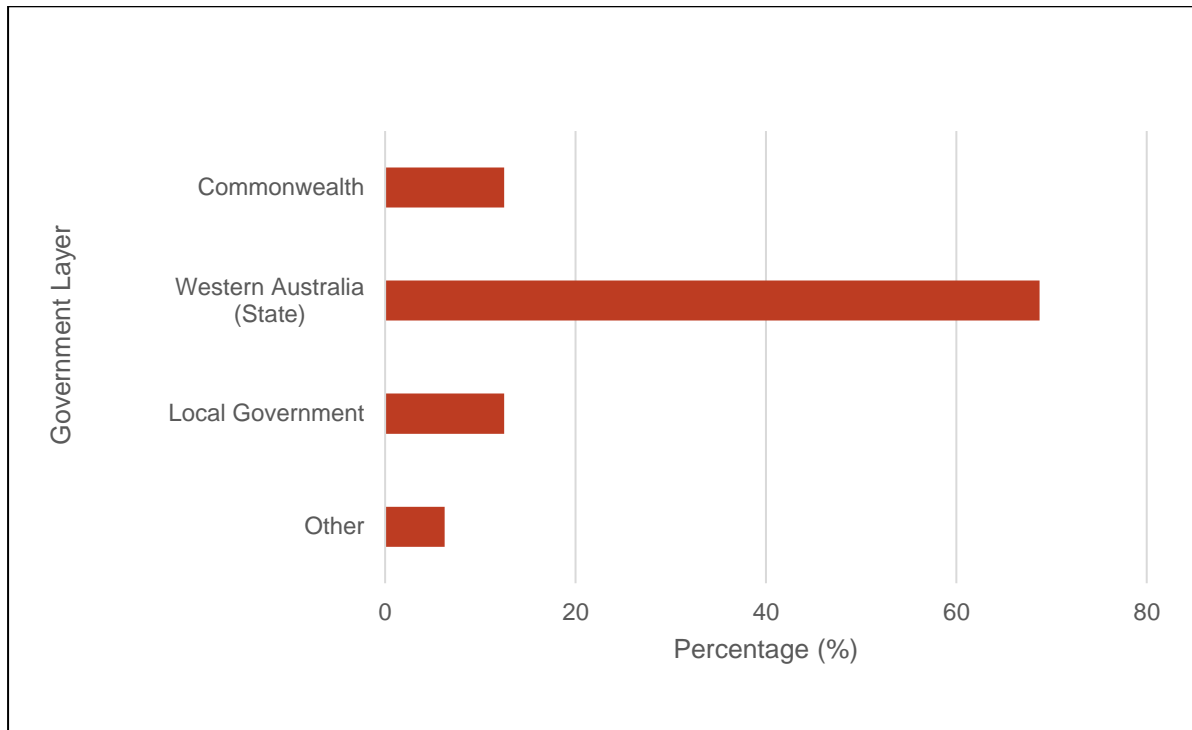


Figure 19. Government survey participation

Impediments to Northern WA Agriculture and Aquaculture

The opinions of government employees regarding impediments to the development of agriculture and aquaculture in Northern WA are shown in Figure 20. Access to finance, agricultural research, and information on soil suitability and water availability were seen as having the lowest level of impediment. Infrastructure, government policy, and bureaucratic process were found to be the highest areas of impediment. Government results align with the industry survey findings which highlighted policy and process as significant pain points.

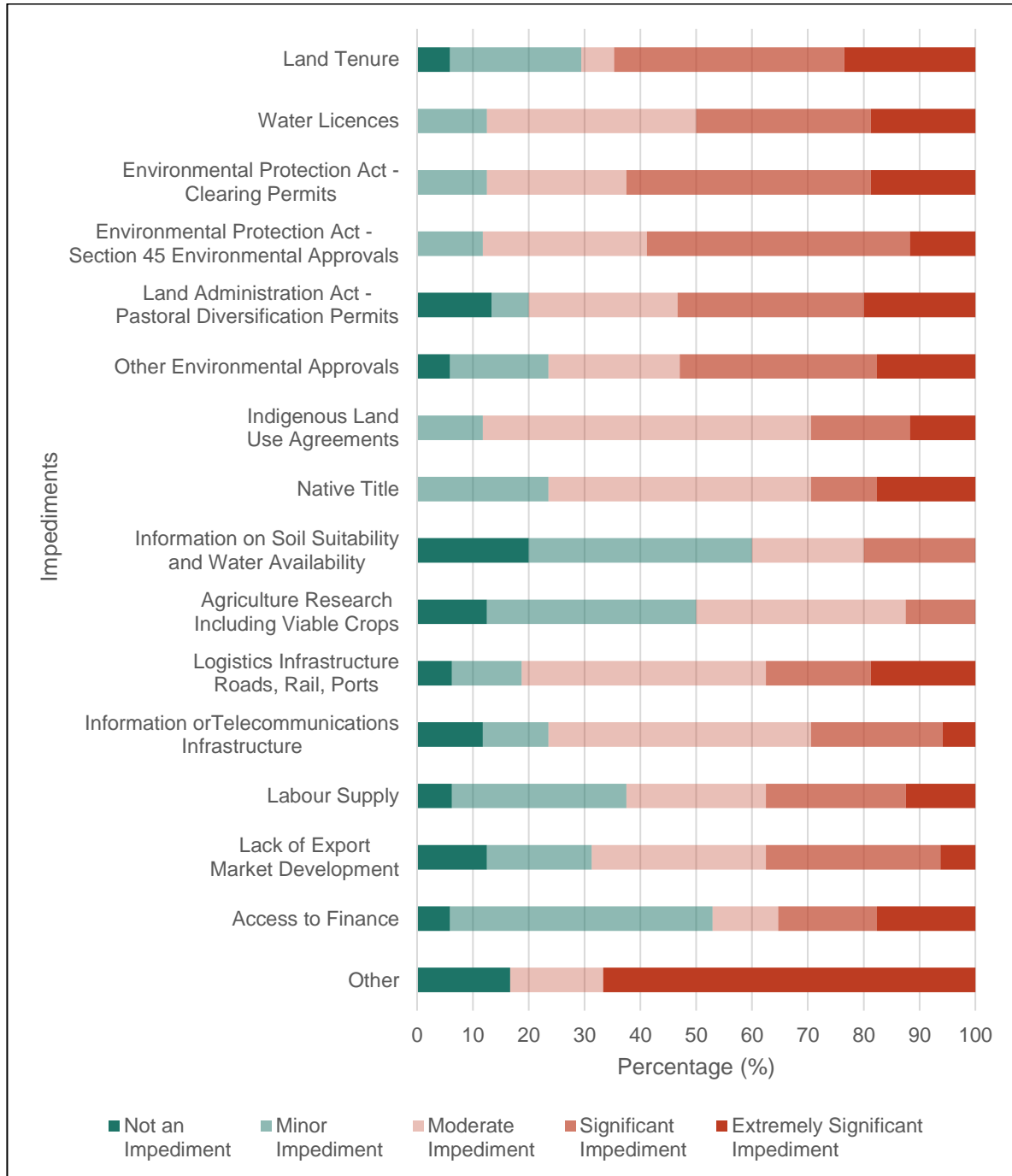


Figure 20. Government Employee Perception of Impediments to Northern WA Agriculture and Aquaculture

Priorities for Northern WA Agriculture/Aquaculture Development

The main priority revealed in the survey is the need for a ‘Can do Culture’ within and between government departments for regulatory processes (Figure 21). Other high priorities included infrastructure, biosecurity management and case study management. Lesser priorities included changing legislation, information on soils and water availability and research into viable crops. This aligns with the industry survey findings, as shown previously in Figure 13.

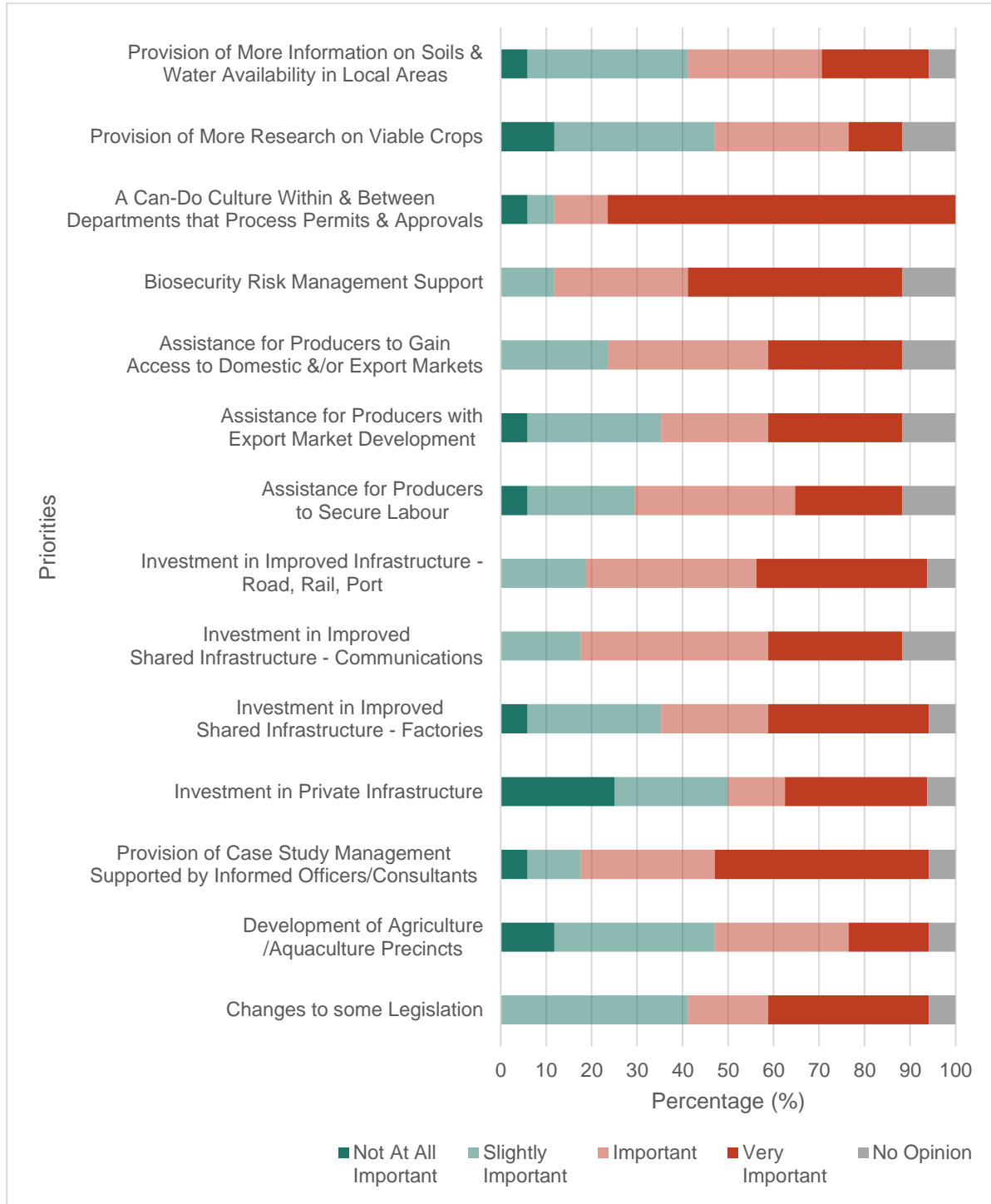


Figure 21. Priorities for Northern WA Agriculture/Aquaculture Development

Responsibilities of Government and Industry for the Development of Northern WA Agriculture and Aquaculture

The surveyed participants indicated that there was a combined role of both the Government and industry to support the growth of northern WA (Figure 22). Government was perceived to be more responsible for infrastructure such as roads, rail, ports, and communications, but not for infrastructure such as factories. Industry was perceived to be more responsible for both domestic and export market development. The government survey responses again largely aligned with the industry surveys.

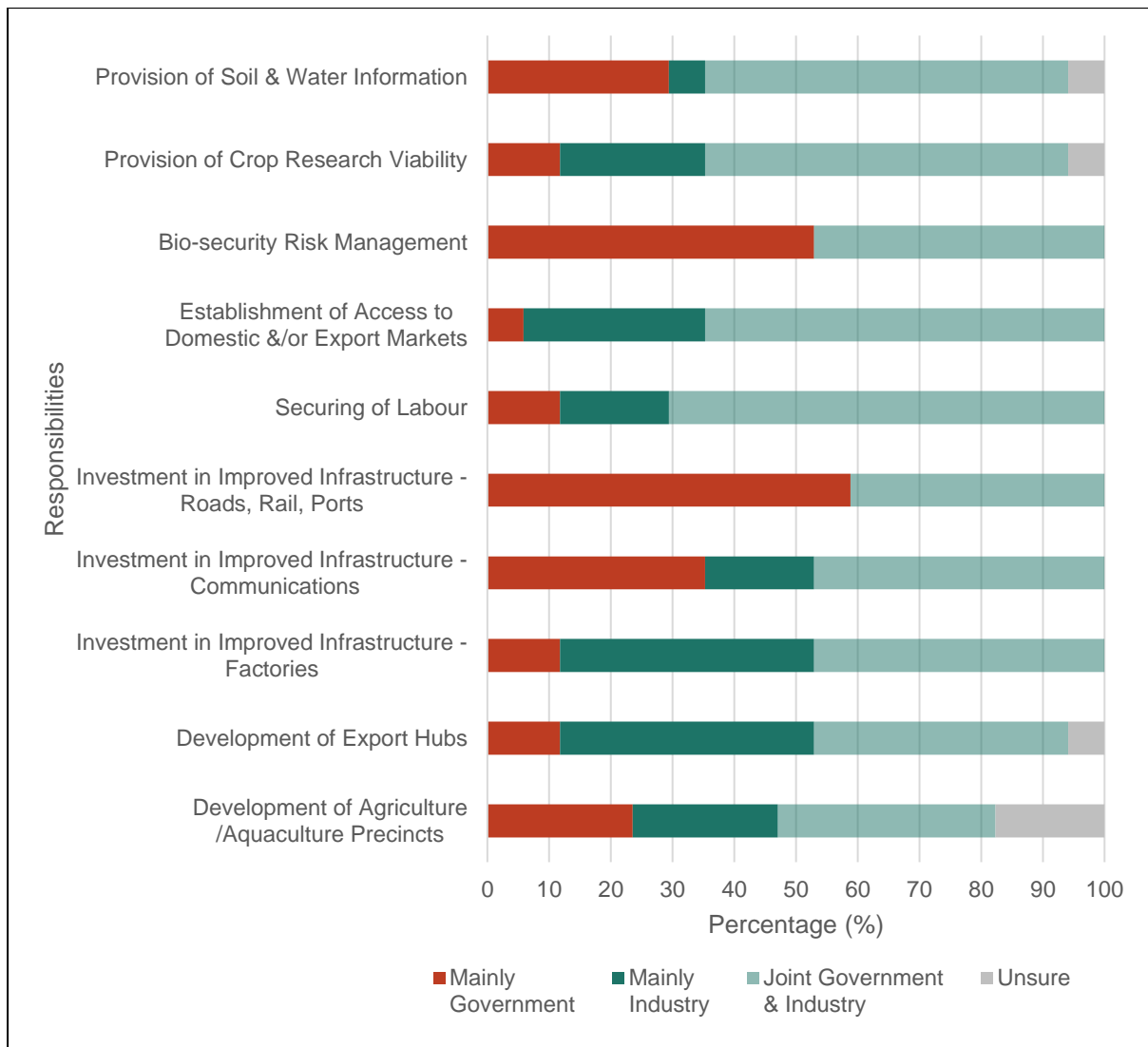


Figure 22. Responsibilities of Government and Industry for the Development of Northern WA Agriculture and Aquaculture

6.2 Direct Consultation

Extensive consultations were undertaken with key stakeholders throughout the project and the views and opinions of key individuals and government and industry representatives were used to inform the recommendations outlined in this report.

6.3 Workshops

Over the course of the project, one large government department workshop and four mini-workshops were held. A list of workshops undertaken is shown in Table 4.

Table 4. List of workshops and attendees

ENGAGEMENT	DATE and TIME
WORKSHOP: Aboriginal Agricultural Economic Development	Monday May 18
DEPARTMENTAL MEETING Department of Water and Environment Regulation	Tuesday May 19
WORKSHOP Transforming Agriculture in the Pilbara (TAP)	Tuesday May 26
WORKSHOP Government Departments	Wednesday May 27
MEETING Case Management and Investment facilitation	Friday May 29

6.3.1 Mini Workshop: Aboriginal Economic Development in Agriculture

There is much potential for Aboriginal agricultural and aquaculture in the north. Considerations need to be made on how best to focus on successful groups and those known to have capability.

Several comments were made regarding capacity building. This was seen as an important foundation element which would mitigate many of the other known issues. An Enterprise Advisory Hub was suggested, which would provide workforce development elements and capacity enhancement for building and owning a business. It was mentioned in the workshop that work had been done previously by the then Department of Lands on development of a pastoral management model which provided guidelines and Aboriginal pastoral property plans – some of which have been implemented, depending on individual capacity.

The benefits of a converging or central “Aboriginal voice” was discussed with respect to overall capacity building.

Building trust between individuals and groups is critical for success, with the government needing to be flexible and responsive to needs. Meaningful development requires collaboration on a long-term basis that fosters shared benefits.

Indigenous trusts managed by large non-indigenous corporations are also a possible source of Aboriginal Business investment. Access to funds could enable Aboriginal enterprises to enter partnerships on a more equal footing, or, alternatively, be self-sufficient in their business ventures.

Further to the outcomes from the workshop, refer to Section 9, which outlines some models for Aboriginal agriculture/aquaculture economic development that could be followed.

6.3.2 Mini Workshop/Meeting: Department of Water and Environmental Regulation

The DWER has a role at the interface of agriculture practice and administering regulation and approvals that support industry; being very proactive in providing information on regulation of water, environmental and native vegetation (including clarity on the department's requirements), coordinating assessment of multiple applications, and providing a document hierarchy which provides applicants with guidance on how to apply the regulatory documents. A new project "Environment Online", will provide a one-stop-shop online portal for industry, developers and the community for water and environmental approvals.

Current projects that will involve EPA/DWER's consideration include:

- Aquaculture in the Cone Bay region;
- Further Ord irrigation expansion;
- Fracking;
- Greenhouse gas policy;
- Fitzroy River water allocation;
- Part 5 Approvals: larger scale pivot irrigation; and
- EPBC Act: There is currently a lack of information about environmental values, so DWER is in the process of developing a plan that will assist the case management approach.

Implementation of Fitzroy election commitments of no dams, establishing a national park, and developing a management plan, underpinned by water allocations, were discussed. The allocation plan has been delayed due to COVID-19 and other issues, although the La Grange Plan is in place.

Sometimes the rate of development can exceed existing planning provisions, for example, numerous applications for a water licence might require a level of environmental information that is not known or yet to be documented. There may be a perception that approvals take a lot of time, however there are issues beyond the department's control:

- Insufficient data/information on environment;
- Access – land tenure; and
- Logistics – weather and seasonality can hinder conducting timely site surveys.

DWER does not see itself as averse to development. A DWER comment was - “Projects do get there – they just take time”. Participants noted that some projects are ‘firsts’ in an area, which poses unique challenges. The DWER workshop discussed that on a regional scale, research information is generally good, particularly in regard to water, but on a local scale information is more difficult to find and there can be a conflict regarding costs and expectations from proponents. Site specific impacts are not always apparent.

In relation to regulations and approvals the current review of the bilateral approval process will help to resolve overlaps between WA and Commonwealth legislation.

DWER’s current strategy to streamline regulatory processes include:

- Environment online – 3-year system build, State and federally funded. The objective is to streamline processing of approvals and provide greater clarity on timelines;
- BIO Data Repository: developed and held by DBCA, using data from all available sources, including industry, government, proponent, museum, and Herbarium data. All clearing and development permit applications under the EP Act are required to submit biodiversity surveys to the standards stipulated by DWER with regard to BC Act requirements. Part IV post assessment approvals are progressing more rapidly with additional resources and consultants clearing the backlog.

6.3.3 Mini Workshop: Transforming Agriculture in the Pilbara (TAP)

An overview and update on the TAP project was provided, highlighting areas of potential development. The TAP project includes:

- Soil surveys to validate paper surveys;
- Research and development of horticulture crops;
- Engagement of CSIRO for grain crop research; and
- Investigations of:
 - Potential markets – domestic and international;
 - Development costs and profitability;
 - Site specific costs and scenarios; and
 - Support to proponents.

The TAP workshop included discussion on land and water, approvals and regulation, production systems, supply chain, and markets.

DPIRD was not considered to have much influence in the approval and regulation area. Staff regard themselves as purveyors of information for development and attraction of potential investors. Effort is made to profile what the next stage of development involves and what is possible.

The workshop considered barriers to development, including:

- How to make mine dewatering a reliable, sustainable resource for agriculture;
- How to attract a workforce outside of the mining industry, given that the cost of living is high, and agriculture cannot readily compete for staff;
- Partnership opportunities for developing agriculture on Aboriginal lands;
- Timely approvals processes (and how not to lose investor/developer interest);
- Establishing de-risked (pre-approved) agricultural precincts;
- Logistics, including flights and/or fast ferries providing direct access to Asian markets;
- Vertically integrated systems to reduce water consumption;
- Market-driven production (knowing what the market wants); and
- Affordable accommodation for agricultural workers.

Some workshop participants felt that the range of priorities across State government departments might be streamlined through a central coordinating role. The concept of a single Director General who can coordinate and guide all departments (a Coordinator General) was discussed.

6.3.4 Government Workshop

The Government workshop involved attendees from across government including DPIRD, DPLH, DWER, DBCA, Department of Jobs, Tourism, Science and Innovation (JTSI), Department of the Premier and Cabinet (DPC), Gascoyne Development Commission (GDC), Kimberley Development Commission (KDC), and Department of Transport (DoT).

Each of the attendees engaged with five workshop sessions which focused on:

- Regulations and approvals
- Provision of science and information
- Infrastructure
- Case management and investment facilitation; and
- Culture, collaboration and capacity.

Regulations and approvals session

There was a general recognition among the participants that rules and approval processes are required in order to protect the environment and maintain responsible development. Workshop discussions indicated that existing legislation is reasonably sufficient to meet public expectations and the objectives of relevant acts. Identified issues included:

- Duplication/overlap of legislation on a State/Commonwealth level;
- Lack of repeatability and supporting information relevant to northern biophysical conditions and scale that support approvals processes;

- The need for regulation to be navigated through numerous departments, which are often siloed; and
- The cost and timeframe to obtain approvals is sometimes prohibitive for proponents.

There is a perceived lack of capacity for many northern proponents when navigating approval processes. A suggestion was made that a list of “accredited” consultants would assist proponents in identifying appropriate consulting services at the early stage of project development.

Reform to legislation does not appear to be required. Participants identified that approval processes and practices adopted in administration require improvement, with a need for more collaboration between all parties (a less siloed approach between Government departments), the need for flexibility and the ability to work with changing circumstances, and to focus on the end goal of achieving balanced outcomes.

Provision of science and information session

Participants felt that there is not enough information in the public domain about the viability of agriculture in different locations and what land is available and accessible. Market and supply chain information is required in addition to natural resource information like soil and water.

There is a need to explore collective opportunity to assist further sustainable development. An adaptive management approach needs to be applied to decision-making given there is often insufficient available information. Participants felt that CSIRO assessments at a regional scale provide a good start but are too broad for specific developments. Workshop participants felt the Government had a key role in setting the regional context and to make sure information is accessible. Opportunities include providing data repositories funded by Government with information collected from Government, industry and project proponents. (This has commenced with DWER and DBCA collaborating on the Bio data repository mentioned earlier).

Participants discussed that consideration should be given to the different needs and capacity of large developments compared to smaller proposals. Scale is therefore a key consideration when addressing approval application processes and smaller-scale or under-resourced projects should ensure sufficient capacity exists for required tasks.

Research capability in northern Western Australia was discussed with a recognition that there is a need to look at establishing a research institution in northern WA. This has been considered for some time with the proposed WA Tropical Agriculture Research Institute (WATARI). Increasing research capability needs to be strategic and focused on key issues and opportunities for industry development and agricultural and aquacultural outcomes, and not driven exclusively by researcher interest.

Infrastructure session

Workshop participants agreed that governments and the private sector need to work together in prioritising and designing precinct approaches and logistic hubs where conditions are right and there is access to a workforce. New infrastructure will increasingly need to demonstrate a return on investment, but social and economic benefits need to be recognised in cost benefit analyses.

There may need to be a sliding scale of private versus public investment balance (e.g. all private investment on private property; public-private partnerships for scheme developments; and more government investment at regional scale).

Workshop participants recognised that there is still a place for smaller and mosaic style development, and this may be more cost effective as larger developments require more extensive infrastructure.

Case management and investment facilitation session

Common models discussed at the workshop included the Lead Agency Framework, Market Led Proposals, and the One Stop Shop approach for both regulation and investment attraction. The Regional Development Commissions' role in facilitating developers/investors/projects within their regions were also considered. The need for further coordination and management of the most appropriate approach to meet specific needs of project proponents was highlighted.

Any model implemented needs to ensure that the case management office within government has both power and a mandate, otherwise it just adds another layer to government approvals processes. Successful case management requires a whole-of-government approach and commitment to work together. A case management model needs to have scalability as a one-size-fits-all does not work and requires a champion within the government to work. The champion needs to be at Ministerial or Premier level, with the power and drive to hold agencies accountable.

Workshop participants suggested that Government could collaborate better and share information on a common portal for proponents which provides greater details on elements such as land tenure, soil analysis, water availability and environmental studies and requirements.

Participants agreed there needs to be clear and consistent guidelines and methodologies for approvals processes required for development to ensure proponents do not receive mixed messages. Workshop participants noted that many Aboriginal Corporations and Traditional Owners generally lack the capability to engage adequately with developers and investors, and Government should offer training and facilitation in this space to achieve better outcomes. Government could also assist in facilitating and developing partnership agreements between developers/investors and Aboriginal Corporations/Traditional Owners where requested to do so.

To facilitate investment the following areas are noted:

- Partnership development is key;
- Working with Aboriginal Corporations and Traditional Owners to improve capacity and capability, and to facilitate knowledge sharing in caring for country;
- Government needs to provide a level of certainty for developable areas to better enable private investment;
- Government needs to be customer/proponent focussed and provide better information and guidelines through one dedicated portal; and
- There is a need to understand the market and demand first before leaping into a full approval process for development and spruiking for investment.

Culture, collaboration and capacity session

At the moment, there tends to be a silo structure across Government departments that is compounded by loss of intellectual property from employees leaving or changing jobs. In some instances this leads to a lack of trust, resistance to change management and a short-term viewpoint both within Government and between Government and industry.

A possible solution is a regional managers network for middle managers across relevant agencies to enable information exchange and relationship development and the building of trusted networks that add value when officers transition to senior executive roles. Improved regional networks could also assist case management through multi-disciplinary assessment of the one project for several parallel approvals at the same time across Government (rather than individual contingent approvals). This would provide a more integrated and holistic view of factors considered in assessment processes. However, such an approach would require greater up-front/pre-lodgement resources and services.

Regional Development Commissions (RDCs) were considered to be valuable but sometimes underutilised particularly considering their strong statutory powers to facilitate economic development and proven experience as a good coordinators of economic development. One suggestion was that the CEOs of RDCs could function as a '*Coordinator-General*' with delegated authority to recommend approvals for certain developments, subject to compliance with relevant acts.

The complexity of delegated authority with respect to clearing and water licences was acknowledged. Two-way sharing of information with Aboriginal enterprises was also discussed with the potential to build knowledge, capacity and trust.

6.3.5 Mini Workshop/Meeting: Case Management

There was discussion on what is meant by case management. The workshop considered that there needed to be a clear definition going forward. Approaches to case management were considered to range from assistance with regulatory processes to proactive assistance with investment across all scales of development. A question was posed – “what sort of framework is required so people/clients are clear on expectations and available services?”. Using a flexible case management approach is key to ensure client needs are addressed, while acknowledging risk management is required to mitigate undesirable outcomes.

Suggested case study management options could be:

- Controlled by a lead agency;
- Market led;
- One stop shop;
- Regional Development Commissions’; or
- Different government groups including a case management group in DPIRD.

There were also comments regarding the need for a clear mandate, including guidelines and delegated responsibility. Barriers to effective case management included:

- Scalability: The big developers who are getting assistance with case management are the ones who can probably afford consultants, whereas the smaller ones are probably more likely to need help and they may be falling through the cracks;
- Lack of repeatable projects in the north compared to south;
- Changing scope of agricultural projects depending on capacity and risk management; and
- Government department capacity.

Options for what could/should government discussed included:

- Have a champion for development (e.g. a Director Generals group such as for the Ord Expansion);
- Better collaboration and sharing of information between government departments – a common portal;
- Provide more information, guidance, and certainty; and
- Provide support for Aboriginal groups, assist with partnerships which will increase capacity and capability.

Workshop participants suggested that proponents are best served by a case management service at the point of concept, i.e. get the proponent, consultant, and regulatory agencies to meet early to save time and to receive guidance on the path forward. Case management is a people process, not a regulatory process, people want to deal with people, however, some level of a systems approach is necessary. The issue of defining the rules of engagement is important and may be best overseen by someone in-between regulators and proponents.

Overall, the scope of case management needs more definition, who should case management be aimed at, what should be offered through a government department and does the government have a role in matching proponents with investors?

Investment facilitation is aligned with case management. Two ways of looking at investment facilitation are: reactive investment facilitation – matching existing investment sources with proposed projects, or, proactive investment facilitation where specific opportunities are identified and exposed to suitable investment funds.

7 Case studies

To better explore opportunities for, and key issues constraining, priority agricultural developments, a case study analysis was undertaken of existing agricultural developments in northern Western Australia.

All of the case studies analysed primarily state the case from the proponent and developers view, and input from the alternate Government view (the regulators and policy setters) was not canvassed. The Governments perspective in relation to these matters was sourced by way of other components of the project through workshops, in depth interviews, surveys, literature reviews and the background information provided by DPIRD (refer to Section 6).

The case studies are illustrative only and are designed to show how information from different size and types of development could be used in an integrated way when considering potential development options and opportunities to improve processes, both at the government and proponent/developer side, to provide a tangible means of exploring concepts of relevance to de-risking and brokering agricultural development in northern Western Australia.

Importantly, the case studies are not designed to demonstrate, recommend or promote particular development opportunities currently being considered, nor are they formal recommendations on how Government should operate or change legislation for development.

They are, however, provided as representations from the proponents' view of what occurred when they endeavoured to undertake agricultural development in northern Western Australia.

All of the case studies show that there are key learnings that can be taken from what has happened in the past, but that there are also significant opportunities for growing a successful agricultural industry in northern Western Australia. This includes multiple small-scale developments or a single large development like the Ord East Kimberley Expansion project.

The potential economic benefit of each case study was explored along with the potential impact of improvements to de-risking and brokering.

Recognition was given to the fact that economic considerations are just one aspect of decision making for governments and communities, and that economic viability has not always been the major consideration in development decisions by Australian governments or communities.

To determine the case studies that would be analysed as part of this project, NAJA Business Consulting Services (NAJA) initially undertook a summary review and update of twenty eight agriculture developments across the West and East Kimberley, Pilbara and Gascoyne (Refer to Table 5), which were selected and provided by DPIRD.

Table 5. 28 Agricultural Developments in Northern WA

Project and Location			
West Kimberley	Pilbara	East Kimberley	Gascoyne
Gogo Station	Yarrie Station	Carlton Hill – Mantinea	Brickhouse
Mowanjum	Pardoo	Lissadell Station	
Anna Plains	Minderoo	Ceres Farm	
Wallal Downs	Warrawagine Station	Packsaddle A	
Nita Downs		West Bank	
Shelamar Station		Packsaddle B	
Shamrock Station			
Frazier Downs			
Roebuck Plains Station			
Kilto Station			
Mandora Station			
Skuthorpe horticulture area			
Mamabulanjin			
Country Downs			
Yeeda Pastoral			
Napier Downs			
Yakka Munga			

As part of this process each of the projects were categorised into one of four regions that make up northern Western Australia:

- West Kimberley;
- East Kimberley;
- Pilbara; and
- Gascoyne.

A more detailed analysis of case studies was undertaken ensuring coverage of the below criteria was met:

- At least one case study from each of the four regions;
- Scale – there should be coverage showing large vs small land parcels, large vs small investment, large private sector/corporate vs small operator/family owned farm developments;

- Case studies that show the different land tenure pathways;
- At least one case study led by an Aboriginal business with strong Aboriginal engagement and outcomes; and
- Employment and Economic impact/output – large vs small.

Based on the assessment and acceptance by project proponents to engage in detailed examination of the processes surrounding selected case study projects, five selected projects were chosen and are shown in Table 6.

Table 6 Five Detailed Case Studies

Organisation	Project	Category
Forshaw Pastoral Company	Nita Downs Station	West Kimberley
Nyamba Buru Yawuru Ltd	Roebuck Plains Station	West Kimberley
Harvest Road Group	Brickhouse Station	Gascoyne
Warrawagine Cattle Co.	Warrawagine Station	Pilbara
State and Federal Government	Ord East Kimberley Expansion	East Kimberley

In addition to the five detailed case studies, a further three minor case studies were also included in the report as follows:

- Country Downs Station;
- Ceres Farm; and
- Mowanjum Station.

These additional three case studies came from previous work undertaken by NAJA Business Consulting Services in 2017 for the Kimberley Regional Group. Given the additional case studies' relevance to the current research project for the CRCNA and DPIRD, NAJA has also included them as an addition to the detailed case studies.

While the analysis and key findings from these case studies was a proponent/developer view of northern agriculture development processes, the analysis combined with the government workshops and one-on-one stakeholder engagement process provides government, proponents and developers suggestions for improvements that would assist in de-risking and brokering agriculture development opportunities in northern Western Australia.

7.1 Overview of case studies

7.1.1 Nita Downs Station

With its eastern boundary facing the Great Sandy Desert, the 210,000 ha Nita Downs Station pastoral property is operated as a family business by Kirsty and Damien Forshaw through the Forshaw Pastoral Company (FPC) under a pastoral lease. The Station is made up largely of pindan scrub and runs a modest-sized herd of Brahman cattle. The station sits on top of the La Grange aquifer, a water source deemed by many to be one of the best in Western Australia.

In 2006 the FPC identified an opportunity to establish a cattle fodder production and backgrounding operation within the Nita Downs pastoral lease. The FPC has looked at a number of developments including an initial 40 ha site with one centre pivot to grow irrigated fodder crops; 350 ha site for the installation of 5 pivots to grow feed for and value add their cattle enterprise; and sale of a 3,000 ha parcel (La Grange Farm) encompassing land identified in the La Grange project as optimal for irrigated agriculture with preferred soils and depth to groundwater of 19 metres, subject to land tenure approval through the Pastoral Lands Board to excise this parcel of land for sale.

In relation to the 40 ha development the FPC applied for permission to install one pivot as a 40-ha diversification permit submitted in 2006. The Diversification permit was approved in February 2008, but the clearing permit was approved earlier.

At the time of these approvals in 2008 the FPC did not have the financial capacity to install the pivot and there were then several disruptive events, such as live export ban and the Global Financial Crisis that impacted FPC's ability to proceed with the opportunity.

The FPC finally installed one pivot as Stage One on their business plan in 2016 to irrigate crops of sorghum and rhodes grass, to use in a feedlot situation, for their own use, and/or other beef growers (see Figure 23).

However, at that time the FPC were then informed their clearing permit had expired as it was now over ten years old and they needed to reapply, leaving them essentially with a large piece of capital infrastructure and no license to use it. Due to the events mentioned above that had delayed this project the FPC had missed the clearing permit deadline by a few months.

During the time the FPC took to install the Stage One pivot, other pastoralists in the area had illegally cleared a large area of land on three pastoral leases, and as a consequence the then Department of Environmental Regulation (DER) and the then Department of Parks and Wildlife (DPAW) insisted that a flora and fauna survey be done on every clearing permit. As a result, the FPC were requested to first complete a flora and fauna survey before a new clearing permit would be granted.

After a long two-year process to obtain the required flora and fauna survey approval and subsequent clearing permit, FPC commenced its cattle fodder production and fattening enterprise on a pastoral lease in 2018.

This case study highlights that there are a multiple of issues on all sides, proponent, non-government stakeholders and government. The learnings from it show there needs to be

clear approval and process guidelines and consistency of policy positions from government departments. Proponents also need to understand the requirements and timeframes for development, which could have averted the issues raised in the example shown had FPC proceeded with its development prior to the expiration of its existing 10-year clearing permit approval.

Resourcing and capacity issues within government, proponents and consultants was also highlighted and this needs to be addressed.

Despite this the FPC are still determined to be part of “an integrated approach which will keep the industry going and take it to the next level.

The FPC has experimented with various ways to make the most of the land and existing cattle on Nita Downs. They see the cattle as one enterprise, and the water and cropping as another. They've always seen their plan as a big part of the future of the Kimberley cattle industry, being able to grow fodder and get extra weight on cattle.

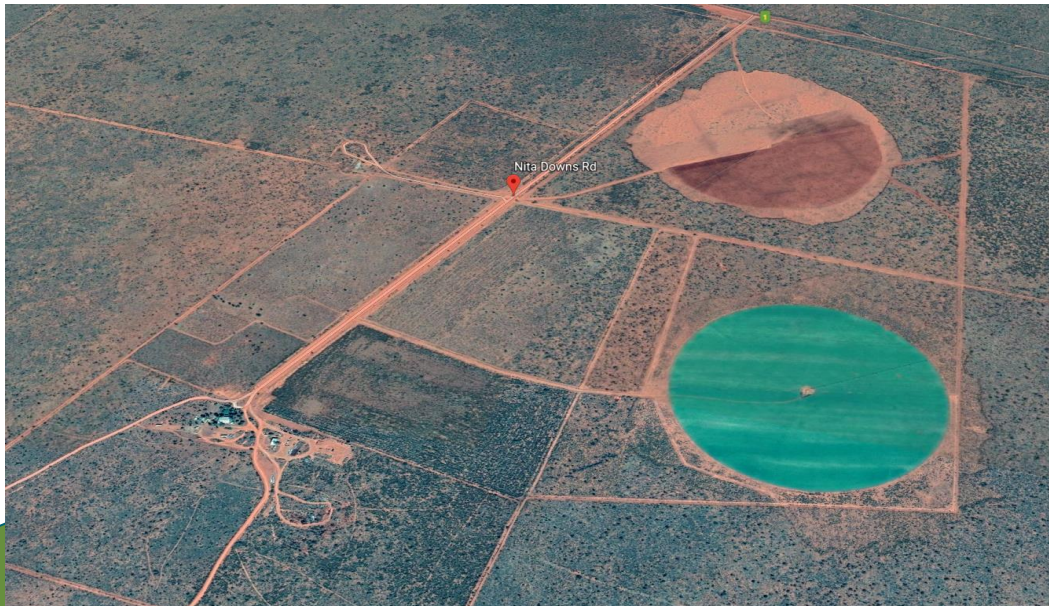


Figure 22 Nita Downs Station (Google Earth)

7.1.2 Roebuck Plains Station

Roebuck Plains Station is a pastoral lease covering over 276,000 ha. The area is also overlapped by the Yawuru Indigenous Protected Area (IPA). Part of the station operations, but not included on the pastoral lease, is the Roebuck Export Depot, which is held on a separate special lease.

The station is strategically located for the export market, located on rich marine floodplain 30 km east of Broome, with the capacity to support a herd of 20,000 head of cattle.

The station is managed and run as a successful pastoral enterprise and balances Yawuru cultural values in the overlapping IPA areas. Development of new enterprises and technology including pivot irrigation is undertaken collaboratively with Yawuru and the station management to ensure sustainable land use and positive outcomes for the enterprise.

In 2014, the ILSC officially handed over the ownership for the station to Nyamba Buru Yawuru Ltd (NBY), but currently manage the cattle operations under a sublease agreement with NBY. NBY are currently in the process of finalising an agreement with the ILSC that will establish a new joint venture company to take over the management and operations of the station. An agreement is expected to be finalised and handed over to the new company in 2020.

While the current operations of the station have been focused on cattle production, the station is also continuing to look at further opportunities with expansion of its fodder production under pivot irrigation and horticulture production of a range of other crops. The relationships developed with stakeholders in the La Grange project and the valuable research and learning has created the foundations for further developments to be considered.

NBY are also looking at the opportunities at the station for tourism and for Yawuru people to conduct cultural activities on site.

Diversification for irrigated agriculture using pivots to grow fodder is under initial stages of application by NBY for an initial up to 200 ha development. The fodder will be primarily for the Roebuck Export Depot and the local fodder market. Third party funding will be required, and environmental sensitivities will require appropriate management. A water licence of up to three GL/y is proposed and hydrogeological assessment results and other feasibility work has been undertaken.

7.1.3 Brickhouse Station

Brickhouse Station is a pastoral lease that operates primarily as a cattle station in close proximity to Carnarvon in the Gascoyne region in the North West of Western Australia (see Figure 24). The station occupies 225,315 ha and has Gascoyne river frontage and flood plains out to sandy flats and dunes along 60 km of coastline. The Gascoyne River runs through the property for 45 km of its length and it is bounded to the east by Doorawarrah Station. Brickhouse Station is planning to expand into horticulture through access to additional water.

Brickhouse Station became part of Harvest Road Group, owned by the Minderoo Foundation of Nicola and Andrew Forrest in late 2015 as part of investment in agriculture businesses including new infrastructure, fencing and water infrastructures, to support high quality beef from paddock to plate linked to supply chains including Harvey Beef abattoir. This investment included plans for expansion of its cattle herd, growing fodder, development of horticulture including the growing of mangos, establishment for growing oysters and development of greater access to water. The employment of up to 30 to 40 people is anticipated to result from investment plans for Brickhouse Station and its linkages to the supply chain under the broader Harvest Road group.

In early 2016, an application was submitted to the State Government for Brickhouse Station access to land and water for irrigated agriculture. The application overlaps interests of the Gascoyne Water Cooperative (GWC) and Carnarvon irrigation stakeholders. Brickhouse Station is a member of the GWC.



Figure 24 Brickhouse Station (Google Earth)

7.1.4 Warrawagine Station

Warrawagine Station is a pastoral station that covers 401,000 ha and is 4,047 km² in size located between Marble Bar and Broome in the East Pilbara of Western Australia. Warrawagine Station supports cattle and has also diversified to use centre-pivot irrigation to support growing 37 ha of sorghum.

Warrawagine Station has also been involved in an innovative irrigated agriculture project with the mining industry through access to mine dewater of the Woodie Woodie manganese mine. A 38 ha trial site, on Warrawagine Station, has used surplus water from the Woodie Woodie mine to irrigate a variety of crops under three centre pivots. The project, located 190 km east of Marble Bar, was part of the Western Australian Government's Pilbara Hinterland Agricultural Development Initiative (PHADI) project which then provided a basis for the State support for the Transforming Agriculture in the Pilbara (TAP) project supporting ground-proofing soil and water resources in the region for potential horticulture, fodder and field crop production for a range of irrigation development sizes.

7.1.5 *Ord East Kimberley Expansion*

The Ord East Kimberley Expansion Project (also known as the Ord River Irrigation Area (ORIA) Stage 2) is an example of a State Significant Project under the Lead Agency Framework and as such, received significant government support to plan for and negotiate the approvals and land tenure process.

The East Kimberley Development Package in 2009 saw the establishment of the federally funded \$195 million National Partnership Agreement with the Commonwealth Government to match the State Governments \$330 million commitment to the infrastructure to enable irrigation expansion, encompassing 27 projects for the construction of agricultural infrastructure, supporting social community and transport projects. All these projects were completed prior to end 2013.

This fast-tracked project saw significant achievements in a complex context with the navigation of environmental and water allocation challenges, along with an involved construction process and the need for local skills building. Additionally, a priority for the project was to build in regional and community benefits that were contextually appropriate and sustainable.

The achievements over the five years are impressive, however progress was likely achieved because of the significant government resources that were dedicated to facilitating and progressing this project. Investment by governments in the Ord River dam decades earlier established the potential for irrigated agriculture that is only now being realised by at-scale developments. A highly facilitative approach was adopted, and whilst the project was driven by industry, government resources were pivotal in ensuring that the project was not impeded by a lack of capacity to navigate the complex approvals and Native Title processes.

7.2 [Key findings from the case studies](#)

The five detailed case studies and the three minor case studies all identified a number of similar issues and challenges for agricultural development, which was also established through the literature review and research, workshops, stakeholder surveys and interviews with government department representatives, Aboriginal representatives, industry body representatives and consultants.

Learnings from these issues and challenges provides an opportunity for government, project proponents and developers to focus on how to better de-risk and broker agricultural development in northern Western Australia. The key areas highlighted that can be improved for northern development are:

- Land planning and tenure e.g. ability to turn leasehold to freehold and excising portions of pastoral leases to freehold;
- Regulatory requirements e.g. streamlining the process and having clear and consistent guidelines for water licences, EPA clearing permits, and pastoral diversification permits;
- ILUAs/Native Title;
- Available infrastructure, e.g. improved logistics and telecommunications infrastructure; and

- Information supporting regulation and market development, e.g. improve the availability to all parties on information such as soil suitability, water availability, market and export development.

While those interviewed as part of the case study research understood and supported regulatory requirements and processes as important from (especially biosecurity and protection of Australia's clean green food reputation), nearly all said that regulatory processes and timeframes for approval need to be streamlined and made more efficient.

Government legislation was not seen as to be an issue or impediment to development, with existing legislation allowing for almost any agricultural development proposed. There are multiple factors that feed into assessments in the context of legislation that requires engagement with multiple agencies. This can lead to confusion and misunderstanding from the proponent or developer when seeking to progress approvals for their projects.

Another finding was that within Government (but also proponents/developers) the various parties responsible for the component parts for the regulatory/development approval process do not understand the whole process and often do not understand how their 'component part' contributes to the broader outcomes sought (both proponent and government). So, without understanding the whole process, the various parties 'complicate' or 'defend patches' that they are responsible for and this can lead to inefficiencies, overlaps and ultimately much frustration. A related aspect is that without understanding the whole process officers often do not appreciate their contribution to outcomes sought.

The opportunity to make the regulatory/development process clearer will result in more understanding from all parties. With this understanding will come more trust; aversion to risk will drop away; willingness to accept policy/decisions improves; and more 'understood outcomes' will be generated in an effective and efficient manner. This will make a significant difference to de-risking and brokering northern agricultural development in WA.

Respondents also highlighted that at times there appears to be a disconnect between politicians who advocate developing the north and the bureaucracy within government departments who must have regard to due process when implementing government's agenda. It was suggested that Government from the top down needs to be consistent in its messaging otherwise the current processes and timeframes for project development will be prohibitive and will not encourage the growth being sought by the WA Government.

The case study analysis suggests there needs to be a cultural shift across Government and within Government regulatory and supporting departments to foster an environment that is genuinely conducive to agriculture development and the benefits new and expanded businesses bring to the WA economy.

For agricultural development to thrive in northern Western Australia government, within the boundary of legislative responsibilities, should or must have a 'Can-do Culture' when considering permits and application processes through an engaging and professional manner. Although a high degree of willingness and competency exists within government what is often not appreciated is the time required for research and development that enables development.

Respondents also stated there needs to be better Government understanding that some of the existing application processes impose a large and perhaps an unjustified economic cost on business, which ultimately impacts on the overall Western Australian and Australian economies, through lost opportunities.

Most would like to see the timeframes for approvals shortened with clearer regulatory guidelines, processes and methodologies put in place across departments.

There was also a strong case put forward for the establishment of a case management approach for agricultural developments with a case manager assigned to support an applicant's development initiative. The case manager ideally would have seniority in government, or be adequately empowered, to have oversight of the integrity of the development process, inter-departmental discussions, government responses and assessment timeframes for approval applications.

As well as the above Case Manager approach it was suggested that Government could consider establishing an "Approvals Integrity Unit". This could consist of three or four people whose role could be to provide independent oversight of the processes supporting approval applications and ensuring the case managers and departmental staff involved are delivering on their responsibilities. The costs and benefits of such an approach would require further investigation. In addition, case managers could maintain a database on approvals that would be available to industry and other stakeholders.

Such accountabilities would ensure processes are clear and adhered to, notes would be recorded on correspondence timelines, recommendations and next steps. A case management approach would in-turn underpin greater levels of responsiveness, transparency and efficiency across related Government activities. Case study proponents suggested that currently there is rarely a single point of contact for proponents to assist in resolving issues across government. Lack of coordination across government can lead to inconsistent advice, uncertainty in timing of applications for approvals and at times no apparent accountability from some department staff.

There was also a call to end duplication in approval processes across Commonwealth and State jurisdictions that should be addressed in-line with broader efforts to streamline and harmonise cross-jurisdictional administration.

Securing land tenure was also highlighted as a fundamental component of commercial land development and attracting investment of any kind. There needs to be a willingness and ability by government to provide length and terms of land tenure for investment to ensure agriculture development occurs in the North.

While some view the Native Title and ILUA processes as a challenge for development many suggested that ILUAs should instead be looked at as an opportunity to partner with the Aboriginal landowners for mutual benefits. In this respect case study participants suggested that increased support for the non-extinguishment principle in Native Title to encourage investors and Traditional Owners to collaborate and co-invest in agriculture, community development and natural resource management would deliver more jobs and growth to Aboriginal peoples in the North of Western Australia.

All case study proponents emphasised that one of the roles that the West Australian and the Commonwealth governments can assist in de-risking and brokering agricultural development is through investment in improved infrastructure that assists industry. This includes road, rail, ports, airports, power, telecommunications infrastructure and co-investment in common user type infrastructure such as cold storage and packaging facilities, or even a cotton gin for use by all growers in the Ord district.

There are also great opportunities for government, in partnership with proponents and developers, to grow export markets through supply chain development, creation of export hubs and actively participating in in-market research designed to tune into customer needs in key export markets.

Additionally, building capacity and capability of vested groups (Government, proponents, consultants, and Traditional Owners) would enable a more effective and efficient approach to approval processes and the capabilities required for further economic growth.

7.3 Impact through de-risking, brokering and prioritising agricultural development opportunities

The five detailed case study proponents interviewed, individually estimated the potential economic impact should government de-risking and brokering agricultural development on their project through recommendations in the research report, which when aggregated suggests the following potential impacts:

- Up to \$280 million in further capital investment;
- Up to 279 direct new fulltime and 400 indirect employment opportunities including Indigenous employment;
- Significant increase in cattle production per year from increase fodder production;
- Support for significant additional investment in a 1 MW biomass to biogas project;
- Multiplier impacts including investment and jobs for the broader Pilbara and West Kimberley including the Derby abattoir and meat exports through Port Hedland port;
- Significant indirect flow-on benefits to the Pilbara, Kimberley and Gascoyne regions in terms of further investment and jobs in the supportive industries to the agriculture sector;
- Open new markets and agriculture products that were previously not viable such as establishing a cotton gin in the Ord; and
- Significant flow on social benefits to the local and Aboriginal communities.

Extrapolating this data based on these five detailed case studies being only 18 per cent of the initial twenty eight project developments identified, there is the potential that if each of these project developments had improved opportunities through government de-risking and brokering agricultural development as suggested, that the economic impact could be conservatively:

- Up to \$1.5 billion in further capital investment;
- Up to 1,500 direct new fulltime employment opportunities; and
- Up to 2,000 indirect flow on employment opportunities.

8 Pilbara Agricultural Prospectus

A draft prospectus has been developed to outline the investment potential for agricultural industry expansion in the Pilbara. The Pilbara Agriculture Prospectus is an example of how the State and Federal Governments can market opportunities and highlight the governments' willingness to partner with investors and industry to de-risk, broker and prioritise agricultural developments in the Pilbara.

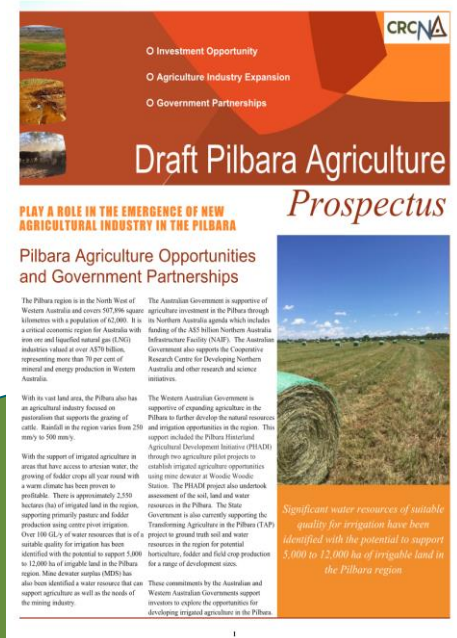
Currently the Pilbara has an existing agricultural industry mainly focused on pastoralism that supports the grazing of cattle. With the support of irrigated agriculture in areas that can access artesian water, the growing of fodder crops all year round with a warm climate has been trialled and is proving profitable.

There is approximately 2,550 ha of land currently irrigated in the region, supporting primarily pasture and fodder production using centre pivot irrigation. More than 100 GL/y of water resources that is of a suitable quality for irrigation has been identified with the potential to support 5,000 to 12,000 ha of irrigable land in the Pilbara region. Mine dewater surplus has also been identified a water resource that can support agriculture as well as the needs of the mining industry, however, risks associated with overlapping water management objectives need to be managed.

The WA Government is supportive of expanding agriculture in the Pilbara to further develop the natural resources and irrigation opportunities in the region. Support has included the Pilbara Hinterland Agricultural Development Initiative (PHADI) through two agriculture pilot projects to establish irrigated agriculture using mine dewater at Woodie Woodie Station. The PHADI project also undertook assessment of the soil, land and water resources in the Pilbara which is outlined in the Prospectus. The State Government is also currently supporting the Transforming Agriculture in the Pilbara (TAP) project to ground truth soil and water resources in the region for potential horticulture, fodder and field crop production for a range of development sizes.

Commitments made through the PHADI and TAP initiatives support investors to explore the opportunities for developing irrigated agriculture and the Pilbara Agricultural Prospectus (Figure 25) will assist in communicating the potential for expansion of agriculture. For further details refer to the draft Prospectus at Appendix A.

Figure 23 Draft Pilbara Agriculture Prospectus



9 Aboriginal Economic Development Models for Agriculture Developments

Three potential models/pathways for brokering Aboriginal agricultural economic development outcomes in northern Western Australia were explored and informed by stakeholder engagement as part of this research project. These include:

- An Aboriginal enterprise led model;
- A partnering/brokering model; and
- Replicating the Ord East Kimberley Development Plan Model (a combination of the above two points).

Each of the models could be implemented in de-risking, brokering and prioritising agricultural development in Northern Western Australia. Alternatively hybrid mixes of each could also be delivered, however, any model adopted needs to be flexible and match the needs of Aboriginal groups, people and enterprises on a commercially driven basis that realise benefits aligned with objectives of Aboriginal agricultural economic development. It is also recommended that any of the models chosen individually or as a hybrid mix should also consider how it links with the Indigenous Reference Group (IRG) agenda to show cohesion with the State and Commonwealth Government's efforts. The following gives an overview of each of the models.

9.1 An Aboriginal Enterprise Led Model

A general model that could be considered by Aboriginal enterprises for brokering Aboriginal agriculture/aquaculture economic development outcomes is outlined as a two stage process.

One example of a two stage development model is the approach applied by the NBY operation and their aspirations for Roebuck Plains Station.

Initial stage

Under the initial stage there are several steps that Aboriginal enterprises could follow that would allow them to proceed with confidence to the second stage that secures the investment required for the proposed development.

1. Look at the Aboriginal enterprises internal and community value sets;
2. Look at the Aboriginal enterprises capability and capacity to deliver and develop a plan to meet these needs;
3. Understand the opportunity and commitment, e.g. undertake feasibility studies; and
4. Line up all approvals required for the development, e.g. Native Title and exclusive possession, any required diversification and clearing permits, water licenses, environmental approvals – this is an involved set of processes.

Investment proposition stage

This stage involves using the learnings from the initial stage to find potential investors and business partners to help develop a proposal and associated business case. This can be done using the following steps.

1. Consider developing a feasibility study using the information gathered from the initial stage;
2. Use the pre-feasibility study or the feasibility study to attract investment partners, which could be done through various methods, e.g. application to grant funding programs or opening up an Expression of Interest process; and
3. Develop a business case in partnership with investment partners.

Nyamba Buru Yawuru Ltd - Roebuck Plains Station Project

As an example of the general model explained above, Table 6 shows how NBY’s irrigation project on Roebuck Plains Station is being progressed through these stages:

Table 7. NBY - Roebuck Plains Station Example of Aboriginal Enterprise-Led Model

Initial Stage – NBY example	
Steps	Approvals
1	<p>Internal Value Sets: NBY are currently ensuring that Roebuck Plains Station and the proposed project are managed to balance culture and protection of country with commercial success. In what is a rarity, Roebuck Plains has an Indigenous Protected Area on the property where cattle are not pushed off but managed in a way that both pastoralism and environmental protection have a place. Alongside the stockmen are rangers or country managers who do water surveillance, pasture monitoring, burning off and in-depth tracking of the land to ensure that areas are not overgrazed or suffering and that vulnerable areas are fenced off and protected.</p> <p>In regard to NBY’s proposal to irrigate on Roebuck Plains Station using groundwater from the La Grange Aquifer, NBY is comfortable a balance can be struck between driving economic development and looking after country. NBY has been through a very thorough and rigorous process, particularly in terms of engaging with its community to ensure critical issues of sustainability are met and aligned to cultural values.</p> <p>Peter Yu (NBY’s CEO) stated that "We all need to eat, but we also need to ensure that we can run a decent business without destroying the very thing that provides that resource to us. Whether it is conservation, cattle, horticulture, or culture, it is a new and promising path with Yawuru and the station management that will ensure sustainable land use and positive outcomes for the enterprise".</p>
2	<p>Capability and Capacity: When NBY took ownership of Roebuck Plains Station from ILSC they understood their lack of capability and capacity to manage and operate the Station. Thus, NBY leased the Station back to the ILSC to continue to manage the station, while NBY built up capability and capacity through training and employment of its people to learn the business.</p> <p>NBY is currently in the process of signing an agreement with the ILSC that will establish a new joint venture company to take over the management and operations of the station, including diversification into growing horticulture.</p>

	<p>This new joint venture company should be operational by the end of 2020. Additionally, NBY with agreement from the WA State Government, seconded a senior government officer into its organisation to assist with its current business operations and navigating the government approvals processes for its future business aspirations and proposals.</p> <p>This has also led to a transfer of knowledge, building NBY’s capability and capacity. The process followed is a good example of how through NBY the Yawuru people as the traditional owners are taking back the reins, creating jobs, protecting country and forging a promising future, all while running a profitable and sustainable enterprise and agricultural business. This was a similar approach taken by the MG Corporation in Kununurra as part of the strategy for the East Ord Expansion Project.</p>
3	<p>Understanding the opportunity and commitment: Since obtaining ownership of Roebuck Plains in 2014, NBY has initially worked with the ILSC to operate the pastoral station as a successful cattle production operation. From this success NBY has built up its capability, capacity and understanding of the agricultural business, which has now allowed exploration of diversification opportunities. After two years of investigations of the soil and water quality and consultation with the Yawuru people, NBY undertook a feasibility study looking at a centre pivot irrigation development of 200 ha on the Roebuck Plains Station.</p> <p>In May 2019, NBY completed this pre-feasibility study for fodder production for their existing cattle operations. NBY is now also investigating the feasibility of growing horticulture, as well as fibre crops like hemp. NBY understand the issue of world food security, which provides an opportunity to create jobs and economic development that drive social change for the Yawuru people. Their plan also takes advantage of their location close to Broome being on the shores of the Indian Ocean with excellent biosecurity and proximity to 250-300 million people an hour and a half flight away in Asia that are needing to be fed. NBY are starting to broaden their horizons around facilitating market access and trading in Asian markets through its cattle and diversification operations at Roebuck Plains Station. NBY are also looking at tourism-based opportunities for the Station and for Yawuru people to conduct cultural activities on site.</p>
4	<p>Native Title/Ownership: The Indigenous Land and Sea Corporation (ILSC) acquired Roebuck Plains Station in 1999, and in 2006 the Federal Court determined the Yawuru people held exclusive possession native title over the station. In 2014, the ILSC officially handed over the ownership for the station to NBY Ltd, but currently manage the cattle operations under a sublease agreement with NBY.</p> <p>Water Licenses: In June 2020, NBY was granted a 3 GL/y water licence to make way for agricultural production on the pastoral station.</p>

	<p>Diversification and clearing permits: NBY have also obtained the required diversification and clearing permits.</p>
	<p>Environmental Approvals: NBY has also met these requirements through application processes for obtaining diversification and clearing permits.</p>
Investment proposition stage	
1	<p>Having completed most of the initial stage, NBY are in the process of developing its detailed feasibility study and initial business case to attract investors and business partners to progress diversification plans.</p>
2	<p>Post the feasibility study/initial business case being finalised, NBY has said it would likely open an Expression of Interest process to find potential investors and business partners to help them develop the operation.</p>

The NBY and Yawuru process is a good example of how the general model works and shows that spending the time up front in the initial stages (NBY have taken some five years in this stage) will set the enterprise up for long term success.

Additional to the NBY example is that of the MG Corporation - Northern Pastoral Management (NPM) partnership established in the East Kimberley. The NPM-MG Corporation agreement is to build capacity to manage MG-owned pastoral land. At the time of establishing an agreement between the two organisations, the goal was an arrangement that would provide a model for other pastoral stations to work with Aboriginal organisations to jointly manage pastoral resources for economic outcomes.

9.2 A Partnering/Brokering Model

Under a Partnering/Brokering Model to enable Aboriginal-led Enterprise agricultural development, this study proposes that WA and Commonwealth Governments implement a partnering/brokering model aligned to the Intergovernmental Agreement – Northern Australia Indigenous Development Accord, which was developed through the IRG and recognised by the December 2019 Ministerial Forum on Northern Development. The Accord provides a guide for Government actions in advancing development in northern Australia and does not bind WA to implement each of the IRG recommendations in full. A fundamental principle guiding WA’s assessment of and responses to the IRG recommendations is the alignment between each recommendation and the State’s strategic policy and program priorities, and its current budget settings.

- The Accord provides a framework for parties to work together and individually to advance Indigenous economic development in northern Australia focused on the following actions:

- Creating jobs, fostering labour participation, entrepreneurship and business acumen for Indigenous Australians;
- Establishing knowledge management systems and producing research and development to support Indigenous commercial end-users;
- Attracting infrastructure investment to support Indigenous economic development;
- Facilitating access to capital and domestic and international markets for Indigenous businesses;
- Activating the economic value of land, water, sea and cultural resource rights; and
- Creating institutional arrangements that work to activate, accelerate and optimise Indigenous economic development across northern Australia.

Aligned to the Accord and IRG recommendations, the proposed partnering/brokering model proposes to provide:

- Support to Aboriginal land interests to streamline processes for freehold and leasing Aboriginal land;
- Support to Aboriginal businesses to identify opportunities and partnerships;
- Pre-feasibility information for targeted Aboriginal-led development;
- Support to Aboriginal communities to achieve economic outcomes from any Aboriginal water reserves that may be created; and
- Support for coordinated across-agency investment in Aboriginal-led land development.

To deliver this type of model it is suggested that the following supporting actions will be required:

- Progress options to improve Aboriginal agricultural economic development, including improved coordination of Aboriginal agricultural opportunities that involves Government, key Aboriginal groups, and industry with the objective of developing a clear, implemented and monitored agricultural opportunities plan;
- Develop pathways for Aboriginal enterprises to build capacity, capability and governance building, through small business assistance, technical support and grants;
- As with the Aboriginal Enterprise led model example of NBY and Roebuck Plains Station, the WA Government to work with organisations such as the Indigenous Land and Sea Corporation (ILSC) to broker, pursue and support viable economic and social outcomes for Aboriginal landowners particularly with Aboriginal owned pastoral stations in the north of Western Australia;
- Provide support to Aboriginal land interests and encourage the use of Section 83 of the Lands Act, where appropriate, to convert crown land to freehold for Aboriginal led agriculture development purposes. With tenure being so important to investment, if Aboriginal Enterprises can bypass difficult tenure processes by utilising Section 83, it positions them in a strong economic position to negotiate with the private sector for agriculture investment, or even to create Aboriginal-led Enterprise precincts.

Section 83 of the Land Administration Act currently allows for the following:

83. Transfer etc. of Crown land to advance Aboriginal people

(1) The Minister may for the purposes of advancing the interests of any Aboriginal person or persons —

(a) transfer Crown land in fee simple; or

(b) grant a lease of Crown land, whether for a fixed term or in perpetuity

to that person or those persons, or to an approved body corporate, on such conditions as the Minister thinks fit in the best interests of the person or persons concerned.

- Assess the opportunity to better use Aboriginal Trust monies for agricultural commercial and economic purposes with Aboriginal owned agricultural businesses, while recognising the security afforded by monies in trusts and the need for a balanced approach for specific economic development purposes; and
- Leverage the existing plans (developed in conjunction with DPIRD and supporting agencies) for property management and improvement for Aboriginal owned pastoral stations to realise potential opportunities.

An Aboriginal-led enterprise model that combines the use of Section 83 would align with the recommendations of the IRG. Groups such as the ILSC and NAILSMA could assist with implementation of actions targeted at enhancing opportunities for Aboriginal businesses. Successful Aboriginal enterprises are positioned to advance agricultural initiatives through continuous improvement and leading by example.

When undertaking the stakeholder engagement component of this research project an interview was held with KRED Enterprises and they provided an outline of how they would undertake Indigenous Economic Development in Northern Australia.

Stage One – Preparation for Strategic Planning Session:

- Prepare and plan a strategic planning workshop with key stakeholders; and
- Develop a strategic Indigenous and economic development framework and a set of priorities to be implemented over a six to twelve-month period.

Stage Two – Identify Joint Ventures and business development opportunities

- Identify key large-scale industries where Indigenous business and employment and training projects can be developed within the region.

Stage Three – Identify appropriate opportunities:

- Identify appropriate opportunities within sectors and strategic partners with existing track records in these sectors to enable immediate skills transfer, capacity and entry into the market for the local Indigenous community.

Stage Four – Identify Employment and Training Opportunities

- Identify employment and training programs required for Indigenous participation in these industries and these Indigenous owned businesses.

Stage Five – Business Creation

- Identify and action business creation and enterprise development opportunities, workforce preparation with and for local Indigenous people.

Stage Six – Joint Venture and Business Opportunities

- Identify scope and broker possible joint venture opportunities between industry groups, private sector businesses and Indigenous organisations and individuals.

Stage Seven – Development of Indigenous Economic Strategy

- Develop a tailor-made strategy for each industry to:
 - Allow the formation of macro businesses;
 - Establishment of the partnerships or joint venture arrangements; and
 - The coordination of existing employment and training providers in the region to start developing appropriately training Indigenous staff;

Stage Eight – Finalisation of Indigenous Economic Development Strategy

- Implement opportunities including developing feasibilities, business plan preparation, joint venture arrangements and assisting with sourcing funds for any projects identified.

9.3 The Ord East Kimberley Development Plan Model

One of the driving forces for the Ord-East Kimberley Development Plan was the improvement of the financial and social wellbeing of the local Aboriginal community by providing education and training, employment and direct ownership opportunities.

The Ord-East Kimberley Development Plan was not simply about delivering an increase in economic activity in the region through agriculture development. It was also about providing opportunities for the most severely disadvantaged in the East Kimberley Region. Given the Plan's success it is an example of what could be replicated, not only to de-risk and broker agricultural development in the West Kimberley but to also deliver Aboriginal economic development outcomes.

Various parties were involved in establishing the Ord Final Agreement and the preceding Aboriginal Development Package.

Ord Final Agreement

Under the Ord Final Agreement (OFA), the Western Australian Government partnered with the Miriung and Gajerrong people who are the traditional owners and custodians of the land upon which agricultural lots were released as part of the project. This partnership provided a framework in which the Miriung and Gajerrong people could benefit from the development of the Ord River Irrigation Area, by delivering better health, education, training, employment and direct ownership opportunities.

The partnership was based around the OFA. Signed on 6 October 2005, the OFA included a \$57 million compensation package for the extinguishment of native title over 65,000 ha of East Kimberley land, and for the negative environmental and social impacts of the Ord Stage 1 Project. Under the OFA, the Miriung and Gajerrong people received areas of land in and around the proposed agricultural regions and communities, as well as funds for the establishment and management of the MG Corporation to act on behalf of the Miriung and Gajerrong people.

The compensation package included a range of initiatives that focused on:

- developing the capacity of the Miriung and Gajerrong people to engage in the local economy and benefit from any future development;
- improved land management of key areas in conjunction with the Miriung and Gajerrong people; and
- benefits for the Aboriginal community as a whole rather than any single person or group.

The major components of the OFA include:

- \$24 million over 10 years to establish and operate the new MG Corporation. This included setting up a special Economic Development Unit and an Investment Trust.
- \$15 million of land transferred to the MG Corporation including Yardungarrl (50,000 ha – now the subject of the partnership with Northern Pastoral Management, cited earlier) and 19 Community Living Areas. The figure included a percentage for future land development in Ord Stage 2.
- \$11 million for the Ord Enhancement Scheme to address the recommendations of the Aboriginal Social and Economic Impact Assessment of Ord Stage 1. This included enhanced social services to the North-East Kimberley.
- \$6 million to the then Department of Environment and Conservation to fund joint management arrangements for new conservation areas with the Miriung and Gajerrong people.
- \$820,000 to cover the freehold establishment costs.
- \$119,700 to the then Department of Water to fund joint management arrangements for Reserve 31165.

Everyone in the East Kimberley benefited from the agreement by:

- the removal of economic uncertainty associated with Native Title and heritage, including avoiding further litigation to resolve outstanding compensation issues
- increased jobs and wealth for the community from the development of the land
- community benefits and increased wealth through the improved participation of the Miriuwung and Gajerrong people in the local economy
- provision for the development of Kununurra and the improvement of roads and other infrastructure in conjunction with the agricultural development
- the establishment of conservation parks for conservation, recreation and tourism
- the protection of the environment and cultural heritage of the region.

Aboriginal Development Package

The Aboriginal Development Package (ADP) is provided for in the OFA. The Western Australian Government and the MG Corporation negotiated the ADP, which Miriuwung and Gajerrong leaders recognised as a once-in-a-lifetime opportunity for their people to break out of a cycle of social disadvantage and welfare dependence.

The ADP has enabled and continues to encourage the Miriuwung and Gajerrong people to participate in the economic opportunities of the Ord Irrigation Expansion Project and provide them with the capacity to participate in the East Kimberley Development Package. The Western Australian Government and the Miriuwung and Gajerrong people agreed that the scope of the ADP was to be focussed on the Ord Irrigation Expansion Project, which enabled the widest possible range of employment, contracting and business opportunities to be considered.

The ADPs stipulates that every proponent must negotiate with MG Corporation before commencing to develop agricultural. The Packages provides funding, employment, relationship building (good for future work together) and more. ADPs have also created a level of sustainability in that they progressively feed benefits rather than providing funding all at once. One downside for MG has been that the development of the agricultural parcels has taken many years longer than anticipated.

The Office of Native Title developed the ADP in close consultation with the MG Corporation, Western Australian Government agencies, Commonwealth Government agencies, training providers, and Aboriginal trust organisations located in Kununurra.

The ADP drew on the principles that were established in the OFA and also includes some additional ones. The range of benefits were focused on achieving outcomes for the Miriuwung and Gajerrong people in employment, training, participation in tendering for goods and services, the development of business capacity, and the acquisition of a proportion of the freehold agricultural land. The ADP also provided for consultation during the development and for Aboriginal heritage protection.

Some of the elements that were considered during the development of the package included:

- an audit of the Miriuwung and Gajerrong population to determine their skills, work experience and employment aspirations, which was then be matched to suitable employment in the region;
- the creation of funds that were used to supplement existing training programs, address barriers to employment and reward achievement by employees and employers;
- building the capacity of the MG Corporation and the Western Australian Government to implement the ADP;
- the introduction of intensive mentoring arrangements to support employees, their families and employers to achieve sustained employment outcomes;
- providing Miriuwung and Gajerrong people and other Indigenous businesses with opportunities to tender for goods and services;
- Supporting the development of Miriuwung and Gajerrong businesses; and
- Supporting the MG Corporations right to acquire and purchase farmland under the OFA. Land obtained under this clause on the Goomig farmlands is now being farmed in partnership with Cubbie Farming, producing cotton in 2020.

The ADP improved the MG Corporation's capacity to participate in the Commonwealth Government's East Kimberley Development Package and the part of the State Government's Ord Irrigation Expansion Project that relates to the development of farmland on the Weaber Plains.

A similar approach to that outlined above could be undertaken in the West Kimberley. During this review, a number of stakeholders were canvassed by the consultants including those involved in the successful Ord Stage 2 project.

This included David Menzel who led the grower involvement; Eric Ripper who drove the Native Title Agreement; Paul Rosair who had overarching responsibility for the project and Chair of the Director Generals Reference Group for State Government, and; Peter Stubbs the local Ord Stage 2 Project Director, all of whom experienced the merit of such an approach and model.

10 Findings and Recommendations

Based on the case studies it was estimated that the potential impact of government de-risking and brokering agricultural development actions as suggested in this report could deliver:

- Up to \$280 million in further capital investment;
- Up to 279 direct new fulltime and 400 indirect employment opportunities including Aboriginal employment;
- Significant increase in cattle production per year from increased fodder production and improved grazing management;
- Support for significant additional investment in renewable energy;
- Multiplier impacts including investment and jobs, for example the Derby abattoir and meat exports through Port Hedland port;
- Significant indirect flow-on benefits to the Pilbara, Kimberley and Gascoyne regions in terms of further investment and jobs in agriculture and supporting industries;
- Opening of new markets and agriculture products that were previously not viable such as establishing a cotton gin in the Ord; and
- Significant flow on social benefits to the local and Aboriginal communities.

In addition aquaculture development, including rock oysters and barramundi, can generate significant investment in large-scale projects and consequently deliver job opportunities and engagement of Aboriginal people in service industries.

The findings and recommendations are across key areas of:

- Infrastructure
- Markets and industry development incentives
- Aboriginal agricultural economic development
- Provision of science and information
- Case management and investment facilitation
- Regulation and approvals
- Culture, collaboration and capacity.

10.1 Infrastructure

Recommendation 1 – Target Infrastructure to facilitate agricultural development:

Key Action: Facilitate infrastructure for key agricultural development opportunities with a focus on telecommunications, road networks, energy, water, logistics for export and processing.

Supporting actions:

- Review identified key agricultural projects in Northern WA and develop prioritised implementation plans to support priority infrastructure.
- Ensure reviews of the Revitalising Agriculture Regional Freight Strategy and State Infrastructure Strategy fully consider northern WA agriculture issues including transport and supply chain costs to get products to market.
- Explore opportunities for supporting new and revitalised infrastructure to enable substantial growth in aquaculture industry.

In a review of past agricultural developments in the north of Australia (Ash and Watson, 2018) found that financial plans tended to overestimate early production, returns on capital and economies of scale; leading to cash flow problems. Consequently, the areas of development actually achieved were usually much less than the original expectations.

The Northern Australia Infrastructure Facility (NAIF) is a \$5 billion lending facility to provide loans to infrastructure projects in northern Australia. The pipeline of projects for WA indicates the majority of projects are focused on the resources sector. Obtaining equity and debt financing is often a major obstacle for many agricultural projects. A handful of projects related to primary industries are at the initial to mid-level status of NAIF's project assessment process.

Issues of risk and uncertainty have meant that private equity has under-invested in the north in favour of more accessible opportunities in the south or overseas. Processed meat and allied sectors are considered to be garnering more interest as new export opportunities develop, with free trade agreements and increased opportunities in Asia. The small scale of many irrigated agriculture should complement larger opportunities.

The failure of some previous projects and development drives a fear of wavering government support, highlights the logistical difficulties of undertaking remote schemes and requires information that balances the risk versus the reward for private investment.

Global Access Partners (2016) made observations on private investment in the north:

- Private investment in agricultural production must be based on quantitative assessments of risks and opportunities, as a process of trial and error is prohibitively costly and will deter involvement by new investors.
- Private investors need to show how they will meet environmental standards.
- Support for private investment through public infrastructure should come at the price of measurable social and ecological goals to be achieved by commercial entities, with meaningful penalties imposed if they are not.

- ‘Investment scorecards’ should be developed in consultation with industry to highlight the factors and characteristics of a particular region that prospective investors might prioritise when assessing places to expand their operations.
- The government should reassess legislative settings and how that might be inhibiting superfund investment in the north in consultation with stakeholders.

If the risk profile of agricultural investment in the north could be substantially altered, investment could flow in, given the market opportunities and resources available (Global Access Partners, 2016). Australia is still seen as suspicious of Asian investment in agriculture and in particular land sales. However, the resistance to major foreign agricultural investment tends to ignore the reality that the resource industry is already 70 percent foreign owned and in northern Australia, and in particular the pastoral industry, historically substantial European/UK and US investment exists.

It must also be recognised that in WA only seven per cent of land holdings are freehold (primarily in the Perth metropolitan area and south west region), so the premise that “Asia can buy the farm” is questioned. Furthermore, the most recent significant agricultural development in the State, namely the Ord, was negotiated on the basis of a 50 year lease, not freehold.

Some of the individual comments from stakeholders considered that investment in headworks and basic infrastructure are the primary drivers for development. All case study proponents also clearly recommended that one of the ways that the West Australian and Commonwealth governments can assist in de-risking and brokering agricultural development is through investment in infrastructure that assists industry. This includes road, rail, ports, airports, power, telecommunications infrastructure and co-investment in common infrastructure such as cold storage and export hubs.

From the NAJA survey, industry ranked as ‘important’ or ‘very important’ to advance agriculture development – road, rail and ports at 87 percent, information and communications technology at 92 percent, processing infrastructure at 79 percent, shared export hubs at 71 percent (Figure 26).

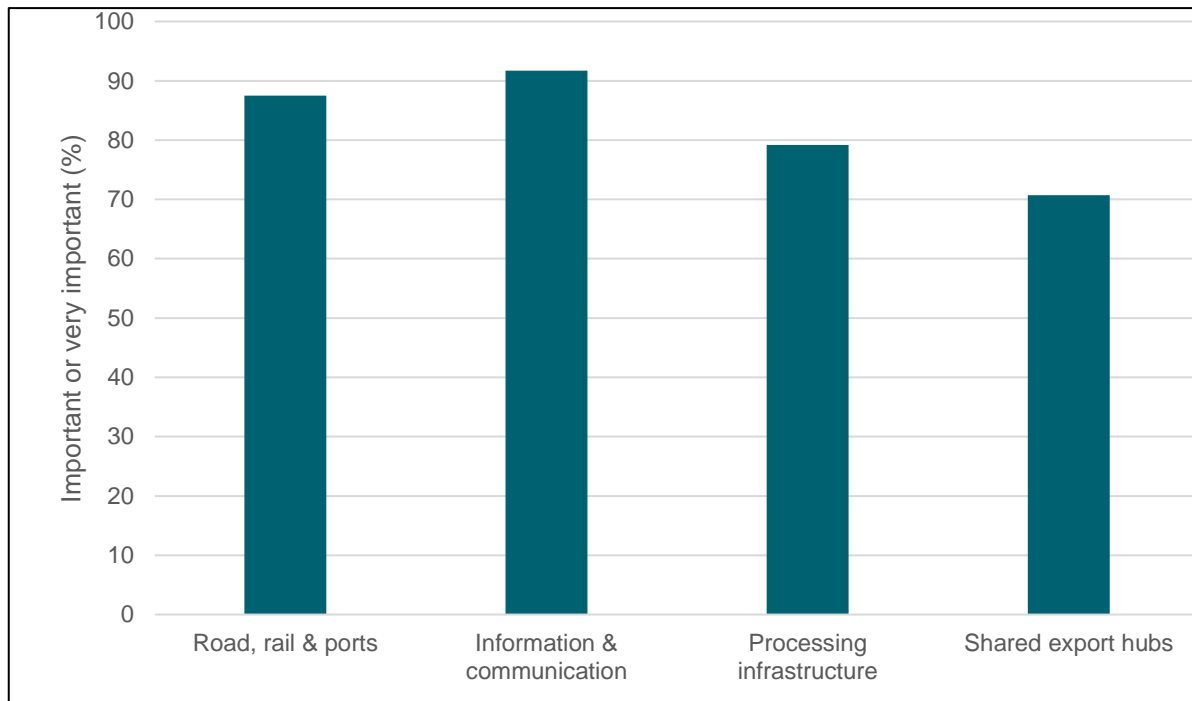


Figure 24. Industry survey results of the importance of Government and Industry effort toward infrastructure

The NAJA Workshop with government stakeholders concluded that:

- Governments and the private sector need to work together in prioritising and designing precinct type approaches and logistics hubs, with a view to the future, where supply chains are developing and where there is access to a workforce.
- New infrastructure will increasingly need to demonstrate a return on investment, but social and economic benefits need to be recognised as part of cost benefit analyses.
- A sliding scale of private vs public investment balance need to be considered (e.g. all private on property, public private partnerships for scheme developments and more government at regional scale).
- There is a place for smaller and mosaic style development, and this may be more cost-effective as larger developments require more extensive infrastructure.

Given WA's northern infrastructure needs are vast and extend well beyond roads, staged developments and strategies that capitalise on co-benefits will generate greater private and public-good. For example, regional and remote communication infrastructure established along new roads; realising synergies with resource industry developments (e.g. utilising groundwater from mine de-watering for mosaic irrigated agriculture).

While the Revitalising Agricultural Region Freight Strategy (Department of Transport, undated) provides a consolidated and ranked list of priority projects for WA, there is considered a lack of focus on northern WA. Acknowledging that the south west of WA currently provides a much larger proportion of the value of agriculture, there is considerable potential in the north of WA which will remain unrealised without investment in infrastructure such as roads. Key elements for infrastructure with respect to agriculture and aquaculture are considered to be:

- Acknowledging economic importance and potential for growth of the agribusiness sector from improved infrastructure;
- Maintaining and improving the regional road network to support industry;
- Developing processing, export hub and supply chain logistics support for industry; and
- Prioritising telecommunication and connectivity across strategic agricultural areas to enable increased productivity and profitability, leading to greater investment.

The Infrastructure Audit for Western Australia (EY, 2016) identified key projects for agriculture in northern WA including:

- Invest in mobile towers across regional WA;
- Upgrade facilities at Wyndham Port, including cattle holding yards, conveyor systems, and loading facilities;
- Develop an accredited wash down facility in Broome;
- Upgrade capacity of Port Hedland holding yards to 10,000 head of cattle;
- Upgrade information and communications technology in regional WA;
- Upgrade in the Kimberley; and
- Build supporting infrastructure for a Pilbara algae precinct.

10.2 Markets and Industry Development Incentives

Recommendation 2 – Provide market development support and industry incentives based on industry needs and market analysis:

Key action: Facilitate new market development based on priority industry needs and an improved understanding of target markets.

Supporting actions:

- Develop and prioritise actions with key regional industry groups and through in-market engagement on export and domestic market development and supply chain improvement to drive industry expansion in northern Western Australia.
- Enhance effective utilisation of the WA Government's and Austrade's overseas network of Government Officers in developing markets and investment in WA's agriculture and aquaculture industries.
- Enhance grants programs provided to assist northern agricultural businesses to stabilise and capture market opportunities in Asia (e.g. International Competitiveness Co-investment Fund) to help drive regional economic growth and jobs.
- Explore mechanisms to improve information flows for coordinating access to a variety of concession finance opportunities for agriculture (such as NAIF, CEFC, RIC).
- Enhance focus on tariffs and biosecurity issues that are significant impediments for access to new markets and maintaining existing markets.

While the north is closer to Asian markets than agriculture in the south, this advantage is turned on its head if produce must still be transported vast distances to processors and export ports. The solution is two-fold: add as much value as possible to this produce near to the source of production and/or establish a more direct supply chain with existing and emerging markets.

The literature suggests that while the north could theoretically produce higher quantities of any number of staple or commodity goods, from annual crops and perennial fruits to rice and cotton, the consensus that specific Asian markets should be targeted with high-value products promoted as premium goods should be acted upon (Global Access Partners, 2016).

Growing animal fodder through mosaic irrigation, for example, to fatten cattle for market on the farm, then local processing and exports from local airstrips or ports may be more practical and profitable than growing soft fruit that is currently transported south for packaging and export (Global Access Partner, 2018).

Stakeholder interviews supported a more effective use and coordination of the WA Government's extensive overseas network of Government Officers to promote and attract investment in WA's agriculture and aquaculture industries.

Industry support can also de-risk investment. An example of industry support is the WA Government Regional Economic Development Grants (RED) program which provides funding to businesses who undertake projects in regional Western Australia that contribute to economic growth in local communities (Department of Primary Industries and Regional Development, 2020). Preference is given to projects that demonstrate:

- Building the capability of local suppliers, and the opportunity for regional businesses to supply items / services for the project;
- Increased regional employment and regional business participation through subcontractors, suppliers, apprenticeships and traineeships;
- Support for emerging or new industries in the region; and
- Benefit to the regional economy through any other identifiable means.

A variety of other grants (e.g. Value-Added Agricultural Investment Attraction Fund; Value Add Investment Grants, others) are available from State and Federal Governments.

There is also an opportunity for the WA to support emerging or new industries through targeted and partnered arrangements with industry and research and development initiatives across the supply chain.

10.3 Aboriginal Agricultural Economic Development

Recommendation 3 – Enable Aboriginal agricultural economic development:

Key Actions:

- Support Aboriginal businesses to identify opportunities and partnerships;
- Partner and support Aboriginal land interests to streamline processes for leasing Aboriginal land under different tenure arrangements, without the need to extinguish Native Title;
- Provide pre-feasibility information for targeted Aboriginal-led development;
- Support Aboriginal communities to achieve agricultural economic outcomes from any Aboriginal water reserves that may be created; and
- Support coordinated across-agency investment in Aboriginal-led land development.

Supporting actions:

- Three potential (and possibly integrated) models/pathways for brokering Aboriginal agricultural economic development outcomes in Northern Western Australia need to be considered for implementation;
 - An Aboriginal-led enterprise led model;
 - A partnering/brokering model; and
 - Replication of the Ord East Kimberley Development Plan model.
- Along with key Aboriginal groups and industry, develop and implement an agricultural opportunities plan linking efforts with the National Agency for Indigenous Australians (NAIA) and the Indigenous Reference Group (IRG).
- Continue the development of a brokering model and supporting principles, particularly for small scale Aboriginal-led agricultural developments, in partnership with Aboriginal peoples;

- Develop governance building, small business assistance, technical support and grants to support northern development;
- WA Government to work with Aboriginal organisations, including the Indigenous Land and Sea Corporation (ILSC), to pursue and support viable economic and social outcomes for Aboriginal landowners particularly with Aboriginal owned pastoral stations in the north of Western Australia.
- Work with Aboriginal people to examine benefits of utilising a ‘specific purposes’ approach when negotiating and establishing trusts to better enable agricultural economic development;
- Develop and promote Aboriginal freehold title opportunities under Section 83 of the Lands Administration Act;
- Leverage existing plans for property management and improvement for Aboriginal owned pastoral stations to realise potential opportunities; and
- Build participation by Aboriginal people in aquaculture through engagement by companies to provide services to large-scale commercial aquaculture projects.

There are approximately 145 Crown Reserves held by the Aboriginal Lands Trust (ALT) on behalf of Aboriginal people in northern WA. There is also about seven million ha of land currently held by the ALT, in reserves, pastoral (and other) leases and freehold properties. Enabling Aboriginal agricultural development can include:

- Secure freehold and pastoral tenure under the Land Administration Act 1997 (WA);
- Indigenous Land Use Agreements (ILUAs) between the WA Government and Native Title holders; and
- Land tenure reform projects to ensure Aboriginal agricultural opportunities by negotiating appropriate use with Native Title holders and ALT lessees.

The WA Government is currently exploring through a proposed Whole of Government Land and Native Title Policy Framework improving the social, economic, health and cultural outcomes for Aboriginal people is a key priority for Western Australia. However, one of the impediments to economic development opportunities for Traditional Owners in northern WA is land tenure options that allow for divestment and resulting economic development opportunities, without extinguishing Native Title. Appropriate tenure could be an enabler of new opportunities, but many communities hesitate to agree to Native Title extinguishment that would enable the granting of new tenure. There is an opportunity to explore innovative ways of minimising the impact of land tenure reform on the exercise of Native Title rights and interests, while enabling sustainable economic development opportunities.

Identified challenges that prevent or limit economic development opportunities for Traditional Owners in Northern Australia include the capacity of Prescribed Bodies Corporate (PBCs) to identify and fully participate in economic development opportunities, establishing appropriate land tenure arrangements to support development, and a lack of ongoing and sustainable revenue streams (WA Government, 2019).

Studies into WA’s Aboriginal beef industry have identified opportunities to increase livestock numbers by over 35 percent through improving business governance, improving herd

development, and realising feedlot opportunities. Investment in implementation of improvement and management plans is critical to realise this potential.

Some PBCs may not have enough capacity to unlock possible projects to access development opportunities. Many PBCs lack sufficient income to perform their basic statutory functions, with flow-on effects to the efficiency of third-party transactions, as well as the ability of PBCs to drive positive economic outcomes. Strategic investment in capacity building would allow PBCs to participate and develop economic opportunities in northern Australia. The Indigenous Reference Group (IRG) recommendation to the Ministerial Forum on Northern Australia supported the establishment of the Northern Australia Indigenous Enterprise and Employment Hub system which, among other things, contemplates localised administrative and commercial support mechanisms for PBCs (Government of Western Australia, 2019b). WA's response to this recommendation is being developed.

The Northern Australia Indigenous Development Accord (Accord) provides a framework for economic development as a productive path to long-term community wellbeing. There are significant activities as part of the Accord that would benefit not only Aboriginal communities in northern Western Australia, but more broadly the overall northern WA economy. WA's response to these recommendations is still being developed. Key proposed outputs from the Accord include:

- Feasibility studies to leverage infrastructure investment for Aboriginal benefit;
- Progress land-use planning and water reforms for Aboriginal benefit; and
- Develop a northern Australian Indigenous commercial research roadmap and research plan (noting that a CRC focused on indigenous values and opportunities is being developed).

Agribusiness development on Aboriginal land is also challenging where there is communal ownership. The time needed for negotiation is long and the general lack of information on land and water resources limits investment.

The case study analysis concluded that:

- Securing land tenure was a fundamental component of commercial land development and attracting investment of any kind. There needs to be a willingness and ability by Government to provide length and terms of land tenure for investment to ensure agriculture development occurs in the north;
- While some viewed the Native Title and ILUA processes as an impediment to development, views also expressed that these instruments offer opportunity to partner with the Aboriginal landowners for mutual benefits;

10.4 Provision of Science and Information

Recommendation 4 – Strategic de-risking in coordinated and targeted research:

Key Actions: Target de-risking for industry needs and sustainable outcomes that contribute to agricultural economic growth in local WA communities through targeted research that meets the priorities of local and regional industry.

Supporting actions:

- Progress developing a research institute in northern Western Australia in partnership with industry and with leveraged government funding;
- Through WATARI and other research organisations, with support from industry and relevant research organisations, develop a coordinated research investment plan for agricultural development in northern WA that leads to an uptake of research which results in targeted industry outcomes;
- Target information gathering on soils, water and crops in locally relevant and priority areas as identified by Government and industry to advance policy, planning and environmental assessments.;
- Develop regional context for information on biodiversity and conservation assets early in the development of programs;
- Promote simplified access to publicly available government and industry-collected water, soils and other environmental data and information;
- In priority areas, de-risk issues related to water security by developing targeted water management and development plans specific to locally relevant and priority areas as mutually identified by Government and industry;
- Assess the potential for more specific information to de-risk a precinct size area such as La Grange Groundwater Area; and
- Develop a capacity building program for emerging businesses, industry leaders and researchers and for emerging technical issues and opportunities.

CSIRO's Northern Australia Water Resource Assessment (the Assessment) provided a broadscale evaluation of the feasibility, economic viability and sustainability of water and agricultural development in three priority regions including the Fitzroy catchment in Western Australia (CSIRO, 2018). The Assessment considered the feasibility of groundwater-based mosaics of irrigation in the Fitzroy catchment. While the CSIRO case study concluded that there was sufficient soil and groundwater resources to potentially support 12,000 ha of irrigated land under a cotton–mung bean–forage sorghum rotation, the estimated return on investment was low.

Previously, the WA Government initiated the Water for Food program to identify water and land resources, as well as irrigation technologies, that could enable Western Australia's fresh food and animal protein production to increase production and grow regional economies by at least 50 per cent by 2025 and twofold by 2050. The program successfully identified the potential for irrigated agriculture in the north, however, along with the initiation of many new

projects came the realisation that improved alignment across supporting regulatory approvals was required.

DPIRD have also previously identified approximately 100,000 ha of potential irrigated agriculture across northern WA, which could increase the gross value of agriculture production (GVAP) by over \$1 billion. To achieve this value regional information on soils and water have been identified. However, progress in developing these areas has been slow or has not occurred as envisioned.

The NAJA workshop session on science and information with government representatives found that:

- There is not enough information in the public domain about what is viable and where/what land is available and accessible. Information along the supply chain is also required - not just soil and water;
- There is a need to explore collective opportunity, across industries and Government – to identify opportunities and findings to assist further sustainable development;
- An adaptive management approach needs to be applied given there is not enough scientific information. CSIRO assessments at a regional scale are a good start, but too broad for specific developments. Some focus is needed on pre-approval information and initial feedback to project proponents;
- Government's role is to provide information in a regional context and make sure information is made accessible. A central Government funded repository of data and information is required that contains information from Government, industry and project proponents. Consideration should be given to the different needs and capacity of large developments when compared to smaller ones; and
- There is very little research capability based in northern Western Australia, there is a need to look at having a research institution in northern WA similar to those in the NT and Qld. Increasing research capability needs to be strategic and focused on key issues and opportunities.

There needs to be an improved approach to the de-risking of soil and water factors that often provide challenges in meeting expectations of project proponents and investors. Access to more site-specific or extrapolated information would improve upon broad scale and theoretical assessments.

Engaging with proponents and developers in the early stages of project proposals will assist with identifying the critical risks and developing joint strategies to de-risk projects. Cost-sharing also needs to be assessed based on the broad public and private benefits (social and economic) of regional agricultural development.

Consideration of natural values and conservation assets early in the development of programs will assist in de-risking progress. Developing a regional context of information on conservation assets will facilitate evidence based decision making.

The examples of targeted de-risking of soil and water resources include the Ord Irrigation Area and the La Grange area south of Broome. The de-risking for the Ord Irrigation area Stage 2 was more comprehensive and included Native Title and some infrastructure. The La

Grange de-risking effort focused on soil and water resource information to enable specific developments to occur across the area.

10.5 Regulation and Approvals

Recommendation 5 – Progress improvements to regulation that enable agriculture and aquaculture development:

Key actions: Improve regulatory mechanisms and processes for land tenure and other aspects of development by:

- Reducing timelines for processing regulatory applications with targets and tracking of timelines with performance based integrated approvals;
- Facilitating easier interactions with Government, streamlining licensing and approvals;
- Licensing terms and conditions that create greater investment certainty within the outcomes sought through regulation;
- Developing a fast-track approach for minor or small-scale agricultural developments; and
- Focusing rangelands reform to introduce more streamlined approaches to diversification permits and land tenure change with respect to pastoral leases.

Supporting actions:

- Build capacity and capability of vested groups (Government, proponents, consultants, Aboriginal people and Aboriginal organisations) to enable a more complete understanding of regulatory processes in support of more effective and efficient regulation.
- Engage with industry to continue efforts to streamline regulation, including the combination of approvals into a single process for low-risk small-scale proposals, and on a landform scale for larger-scale developments.
- Progress pastoral lands reform to achieve more streamlined approaches to land tenure change and sustainable management.
- Enhance regulatory processes by ensuring clear, staged regulatory process maps exist with supporting checklists and guidance statements.
- Post-approval, review licence and permit conditions to ensure they are still geographically and biophysically relevant, critical and essential or remove them.
- Evaluate the merit of establishing a codes of practice approach for small-scale developments.
- Measure, monitor and report targets and performance for regulatory timelines and use benchmarks to measure outcomes of improvement initiatives.

Recommendation 6 – Developing de-risked agricultural land:

Key Action: Establish agricultural precincts based on agreed evaluation criteria.

Supporting actions:

- Activate regional or more localised agricultural precinct plans (e.g. areas identified in the Pilbara Agricultural Prospectus – Appendix A)
- Prioritise and evaluate potential for additional agricultural precincts with industry which provide a basis for shared planning and more certainty for proponents and regulators.
- Implement priority precincts by undertaking coordinated approval and land tenure/land planning processes.
- Facilitate the development of logistics and agribusiness hubs to accelerate expansion and development of new agricultural industries and synergistic links with regional industry.
- Utilise established aquaculture development zones and progress opportunity to develop new zones.

A consistent comment from industry was on the need to streamline the various approval processes under land tenure, planning, vegetation management, water resources, cultural heritage, and other legislation to facilitate irrigation development or other diversification. Project proponents consistently express frustration with the regulatory process. This issue was documented at the Gascoyne Muster in 2003, in the New Opportunities for Tropical and Pastoral Agriculture (NOTPA) project, in the Pilbara Hinterland Agricultural Development Initiative (PHADI) project in 2016, and consistently across the surveys, case studies and interviews in this project.

DPIRD described regulatory pathways for agricultural projects (Department of Primary Industries and Regional Development, 2018a 2018b) for a range of regulatory approvals that might be required for an agricultural intensification project. The approach provided suits larger and more complex agricultural projects while recognising that smaller projects can apply a subset of information. The regulatory approvals action plan outlined in this study highlighted how regulatory guidance documents inform processes and the role that government facilitators and consultants play in development of a business plan that actively integrate regulatory elements as shown in Figure 26.

REGULATORY APPROVALS ACTION PLAN

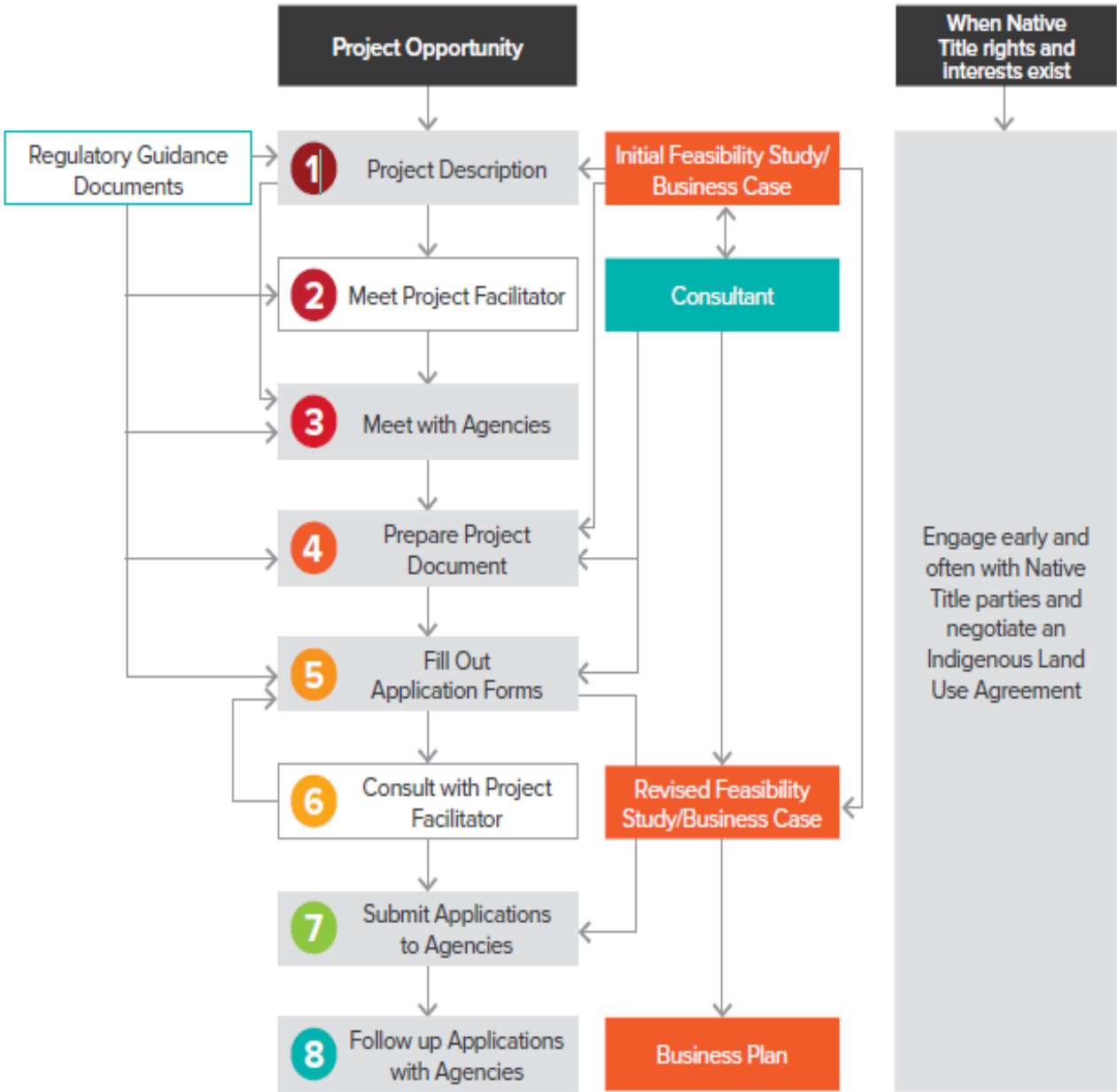


Figure 27. Regulatory approvals action plan

Results from surveys conducted during the course of this project also confirmed that there is an industry perception that approval processes are an impediment to agriculture and aquaculture development in Western Australia (Figure 27). The survey responses from industry show significant or extreme impediments of 73 percent for 'land tenure', 87 percent for 'water licences', 64 percent for 'clearing permits' and 57 percent for 'other environmental approvals', such those required under the EPBC Act.

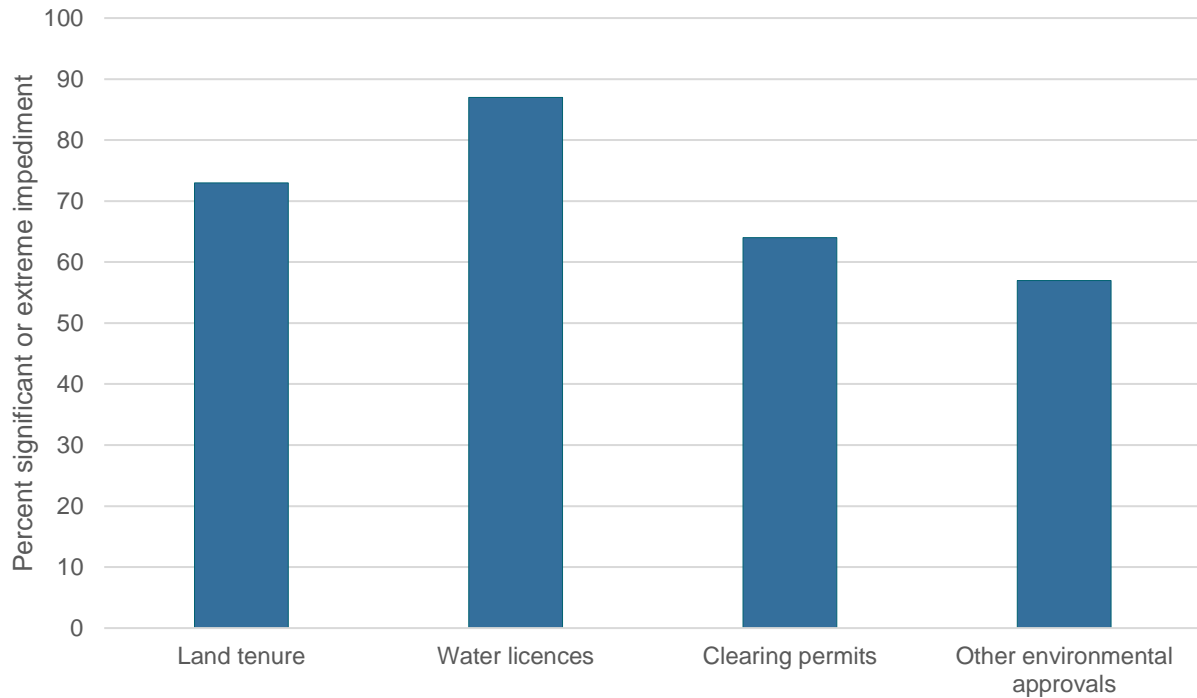


Figure 25. Industry survey response to impediments to agriculture development

The case study assessment identifies significant impediments in:

- Land planning and land tenure; and
- Regulatory requirements and approvals (water licences, clearing permits and pastoral diversification permits).

A study conducted as part of Streamline WA, which is a whole of government approach to regulatory reform to improve business in Western Australia (Figure), a range of issues from a government perspective were found (Nous, 2019). The Economic Regulation Authority's inquiry into reform of business licensing in Western Australia (ERA, 2019) also recommended creating a governance framework for business licensing that aims to bring about accountability and cultural change at all stages of the licensing lifecycle, and at the ministerial and agency levels of government.

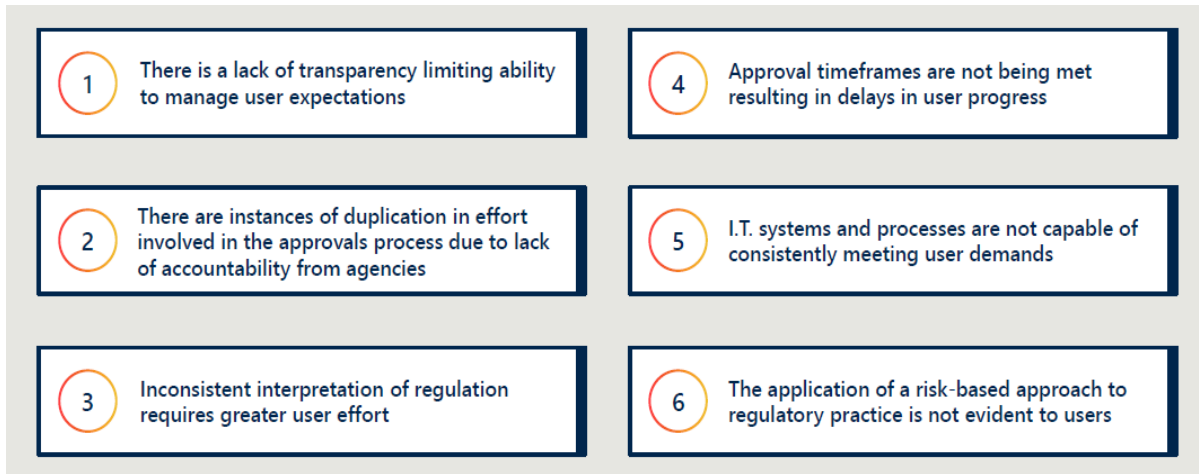


Figure 29. Government perspective on regulation issues (Nous, 2019)

The horticulture 90-day regulatory mapping and reform project identified regional regulatory pain points for the Kimberley, Pilbara and Gascoyne (Table 8). Common pain points included water access and licensing, land clearing, and land access.

Table 8. Horticulture regional regulatory pain points (Department of Treasury, 2018)

Region	Regulatory pain points
Kimberley	Water access and licensing Land clearing Biosecurity Land access Environmental protection
Pilbara	Land clearing Environmental protection Water access and licensing Pastoral lease diversification Land access
Gascoyne	Water access and licensing Immigration Labour Biosecurity Building

The 90-day regulatory reform process undertaken by the WA Department of Finance for aquaculture identified clear actions to improve regulation (Table 9).

Table 9. Summary of recommendations from regulatory reform in aquaculture (Department of Finance, 2016)

Recommendation	Actions
Faster approvals	<p>Reduce processing timelines for marine-based application and approvals by one-third, from 235 days to 150 days</p> <p>Develop processing schedules and tracking timelines for inland applications</p> <p>Implement application tracking and monitoring mechanisms, including identifying and escalating nonstandard applications</p>
Easier interactions with Government	<p>Provide a clearly staged regulatory process map and supporting checklists</p> <p>Develop an environmental guidance statement to assist and advise proponents of likely environmental factors that may apply to significant proposals</p> <p>Standardise current Management and Environmental Monitoring Plans</p> <p>Investigate digital solutions to aquaculture licence applications, reporting and payment systems</p> <p>Publish licence applications and decision notices via an online portal</p> <p>Move all aquaculture producers to annual, rather than quarterly production reporting</p>
Streamline licensing	<p>Develop formal agreements with external agencies and consultative groups to improve inter-agency referral timelines</p> <p>Incorporate broodstock collection and permissions to recapture escaped stock within standard licence conditions</p> <p>Develop policies and procedures for allocating temporary pilot licences and tenure</p> <p>Combine inland licences into a single process and provide a simple registration procedure for low-risk, small-scale producers</p>
Greater investment certainty	<p>Use regional-scale marine zoning to identify areas potentially suitable for aquaculture</p> <p>Provide options for longer-term licences, aligned with tenure and supported by effective monitoring and performance criteria</p> <p>Identify areas suitable for aquaculture, and develop standard conditions for allocating tenure, in port waters</p>

There has been progress in aquaculture development zones that have been established in the Kimberley and Mid West to provide 'investment ready' platforms where the State Government has secured strategic environmental approvals, thereby saving investors considerable set-up costs.

Common themes identified (Vogel, 2020) from national reviews of environmental regulatory approvals processes include:

- Need for increased risk and outcome-based decision making;
- Greater emphasis on landscape scale regional planning and strategic environmental assessment;
- More effective engagement and consultation between proponents, regulators and affected communities; and
- Accessing environmental data at the appropriate scale to inform environmental impact assessment (EIA).

Vogel (2020) recommended that to assist streamlining the assessment process, regulators should:

- Establish a clear focus and culture for improving efficiency of internal EIA processes;
- Provide clear, practical guidance documents for administrative EIA processes and technical guidance, e.g. standards for terrestrial biodiversity surveys;
- Work with other agencies to map approvals processes and interactions/sequencing between EIA and other approvals required for development to proceed, e.g. water extraction, land clearing, and seek opportunities for efficiencies;
- Promote 'parallel processing' of assessment and approvals to the extent possible to shorten approval timeframes; and
- Require that all technical reports and proponent documentation prepared for the purposes of EIA by the regulator, be prepared by suitably qualified and third-party professional specialists, including for social impact assessment.

However, concerns have been raised that requiring all reports and documentation be prepared by suitably qualified specialists may add another layer of accreditation assessment and cost which may be a barrier to the availability of local consultants who might otherwise be engaged in approval processes.

A model for planning developments, with land tenure change is shown in Figure 26. An alternative model could include compulsory acquisition of land, as allows by the *Land Administration Act 1997*, however, this alternative is out of date and out of step with current Government policy which emphasises negotiated outcomes and treating Native Title as an opportunity to create win-win situations.

Planning agricultural developments in northern West Australia

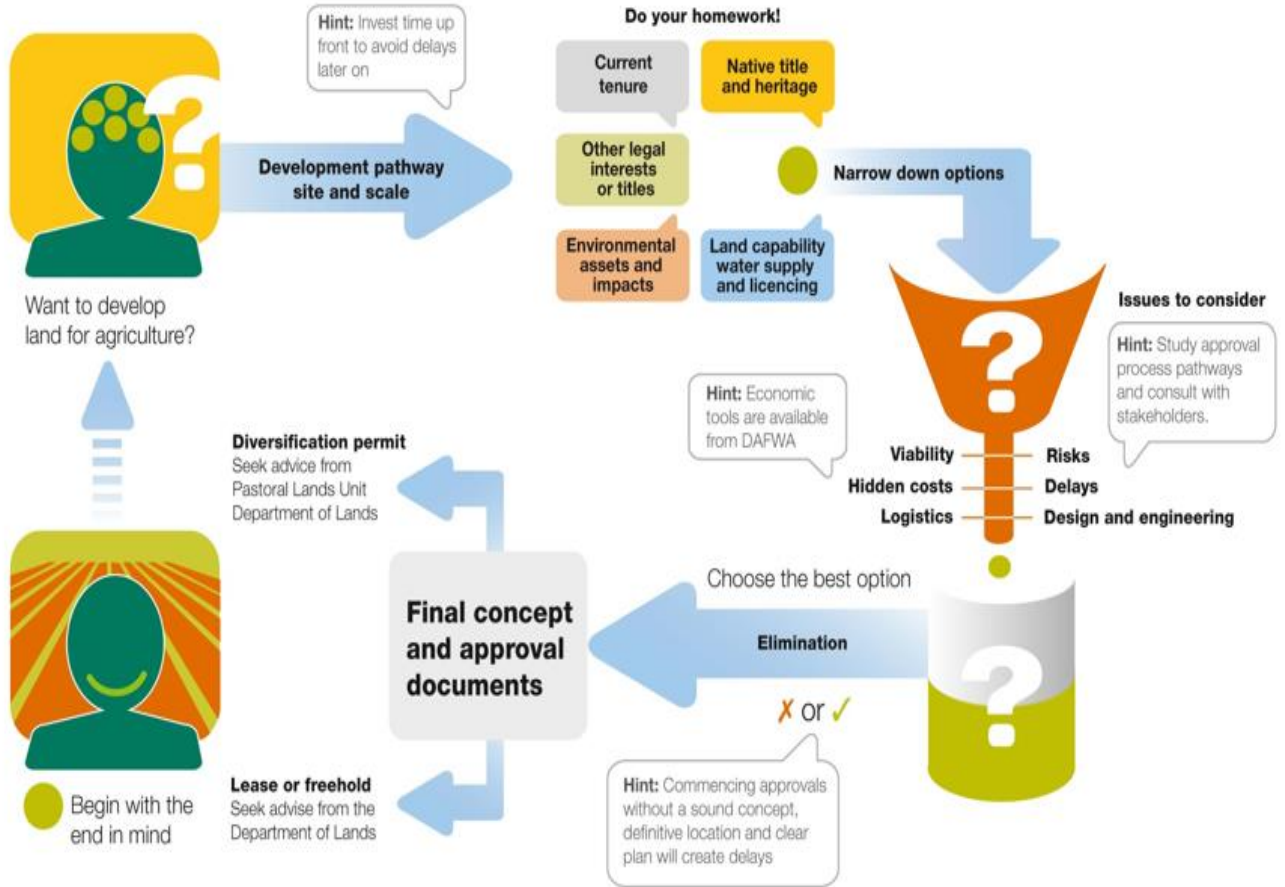


Figure 26. Potential approach to planning agricultural developments (Ham, undated)

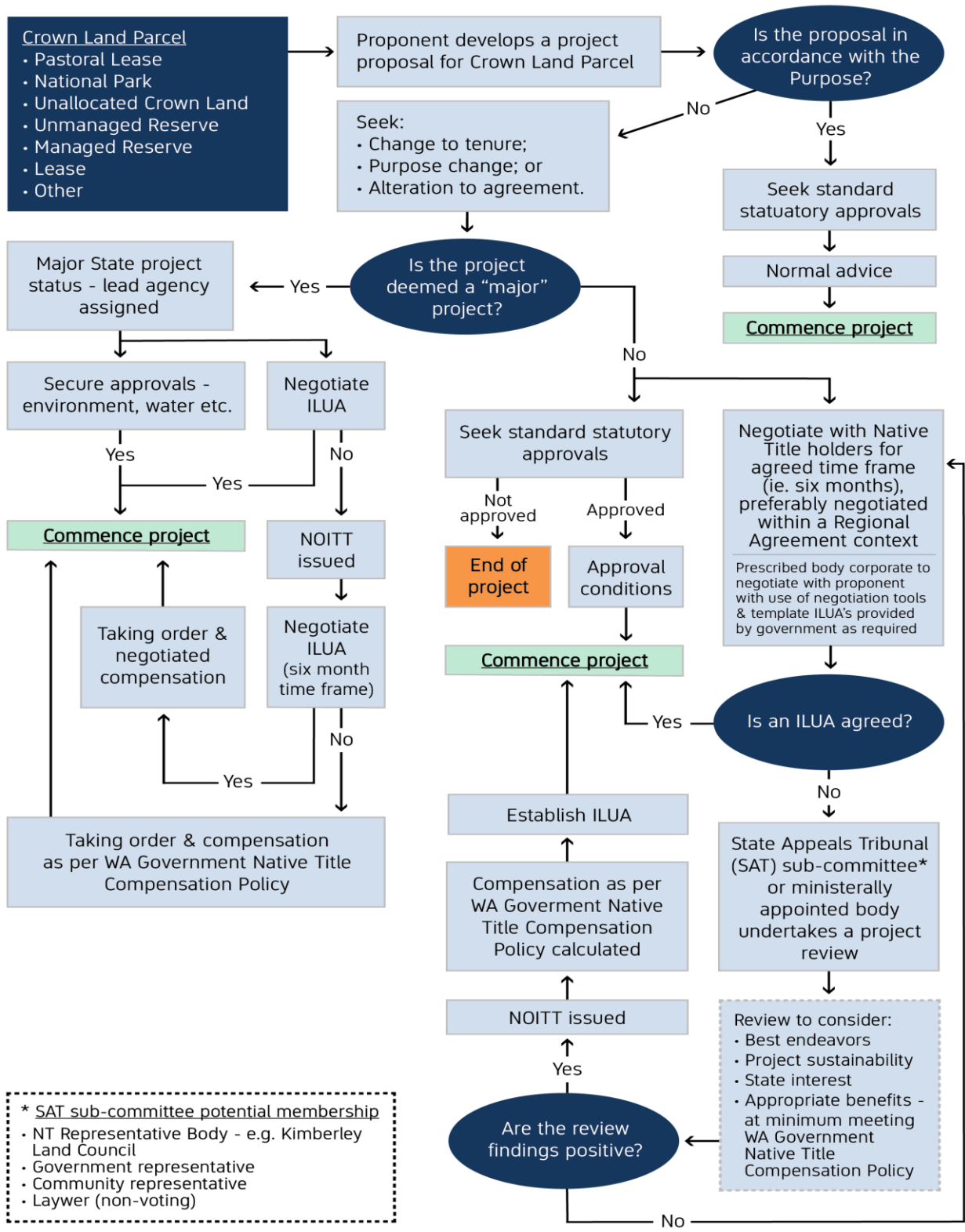


Figure 31. Alternative pathway to land tenure change (NAJA, 2017)

While not WA government policy, NAJA's proposed land tenure framework (Figure 31) aims to achieve the following objectives (NAJA, 2017):

- Navigability – that the process is able to be navigated by small-scale project proponents who lack specialist knowledge;
- Preservation of rights – supporting the retention of rights of Traditional Owners and improved process for the negotiation for benefits from land use;
- Improved certainty – that the process provides industry and investors with improved certainty about their rights and obligations to allow them to strategically manage their investment decisions;
- Acceleration – that the process be responsive and flexible enough for time sensitive projects to achieve certainty regarding tenure to secure investment commitments at the time when they are most lucrative;
- Industry development – facilitate appropriate industry development and diversification in the Kimberley, particularly in the agricultural and tourism industries;
- Outcomes focus – supporting the development of projects that have beneficial outcomes for all parties (State, industry, traditional owners, environment and community);
- Structured negotiation – support all parties in effective negotiation through the provision of a structured process and provision of tools and templates;
- Procedural remedy – that stalled negotiation can be adjudicated by an independent body to allow for resolution; and
- Procedural fairness – that the process gives all parties involved access to a fair and proper process when having their position considered.

The NAJA workshop held with representatives across WA Government generated recommended improvements to regulatory processes that included as:

- Smaller agricultural projects are best served through codes of practice;
- A more consolidated coordination of approvals across government would assist;
- Clarity of expectations in the regulatory process in all agencies needs to be made upfront and be as transparent as possible;
- Improved case management;
- Expectations around priorities needs to be clearer; and
- The review of the Lead Agency Framework might offer scope of consideration of 'smaller projects', such as most of the irrigated agriculture projects in the north.

There is a need for a major development project approval process that is focused on both facilitating development in the right places, and on securing agreed environmental and social impact standards at a whole of landscape scale. This approach should not be development at all costs or an impassable barrier to development (Dale, 2018).

10.6 Case Management and Investment Facilitation

Recommendation 7 – Develop a proactive case management framework:

Key Action: Develop a proactive case management framework which helps proponents navigate the relevant approval processes proactively (a lead department with the authority to work across the public sector).

Supporting actions:

- Identify a lead department with clear case management responsibilities to work with proponents to proactively advance proposals with support for:
 - Navigating the approval processes (including a fast-track approach for minor or small-scale agricultural developments assessed as low risk);
 - Resolving issues and/or conflict across all regulatory agencies; and
 - Develop formal agreements with agencies to set targets for improved inter-departmental referral and assessment timelines and ensuring timely information transfer across departments.
- Explore appropriate mechanisms to enable continuous improvement within current regulatory systems.

The one-stop shop and streamlined environmental assessment concepts are not new: January 2018 – WA Government announces streamlined environmental assessment process, May 2020 – WA Government announces one-stop shop to streamline water and environmental assessments. Similar announcements by the WA Government were made in December 2016, November 2015 and December 2009. However, there is limited evidence on the effectiveness of one-stop-shops. A pro-active and engaged approach to a one-stop shops needs to be developed for small to medium scale developments. A proactive case management focus which assists business through the approval process is critical.

The approach needs to not only give proponents advice on what approvals need to be sought before a project can get off the ground (through increased transparency in approvals processes and requirements), but support in ensuring any applications are considered in a time efficient and coordinated manner by the relevant authorities. A fast-track approach for medium and small-scale agricultural developments with a lower risk assessment needs to be part of the focus.

The OECD identified best practice principles for One-Stop Shops (OECD, 2020) as:

1. Political commitment – one-stop shops need continual support from the top in order to flourish.
2. Leadership – managers need to be openly committed to a culture of experimentation. Mistakes will be made, but it is most important that these form the basis of improved service delivery in the future.
3. Legal framework – the early identification of legal barriers to establishing and potentially expanding one-stop shops are crucial to avoid rollout delays.

4. Co-operation and co-ordination – the extent to which government agencies can, and are permitted to, work together to better serve citizens and business is a critical component of one-stop shops.
5. Role clarity – establishing one-stop shops with a clear objective is central to managing both internal and external expectations.
6. Governance – the overarching arrangements are important, particularly for one-stop shops across various levels of government but should not drive the design of one-stop shops from an operational perspective.
7. Public consultation – Citizen and business clients are an important source of information about what may or may not work and may also offer solutions to identified problems.
8. Communication and technological considerations – the standard industry communication means should emulate wherever possible. Interoperability opportunities should also be identified early in the design of one-stop shops.
9. Human capital – at the heart of a well-functioning one-stop shop are its people. Like any other part of the organisation, they require investment. They also have valuable insights on the day-to-day operations.
10. Monitoring and evaluation – it is important to assess whether one-stop shops continue to meet clients' needs, as these may change over time. Gathering views from citizens and business can help establish what is working well and what can be improved and foster a culture of continuous improvement in one-stop shop staff.

The challenge with a one-stop shop approach is to ensure all agencies are on board with the concept and work closely with the personnel engaged to work with potential investors, to reduce red tape and streamline processes. To this end, it is recommended that the one-stop-shop is formed within a lead department which has clear case management responsibilities and can resolve issues across all regulatory departments.

The workshop with government representatives concluded that:

- Common models discussed included Lead Agency Framework and also market led proposals, to the one-stop-Shop approach of WA Open for Business, and Regional Development Commissions role in facilitating developer/investor projects within their regions;
- Any model implemented needs to ensure that the case management office within government has power and a mandate, otherwise it just adds another layer to government for proponents through the approvals processes. It requires a whole of government approach and commitment to work together. Any model implemented needs to have flexibility and scalability in mind as a one size fits all does not work and requires a champion within the government to work. Support also needs to be at Ministerial level to empower implementation of initiatives and help to hold agencies accountable;

- Government agencies could collaborate better and share information on a common portal for proponents that provides greater details on things like land tenure, soil analysis, water availability and environmental studies and requirements; and
- There is a need for clear and consistent guidelines and methodology for approval processes required for development - no mixed messages. Also noted is that many of the Aboriginal Corporations and Traditional Owners do not have the capability to engage with developers and investors and that Government should provide training and facilitation in this space to get better outcomes. Government could also assist in facilitating and developing partnership agreements between developers/investors and Aboriginal Corporations/Traditional Owners.

To facilitate investment the following areas, need to be considered:

- Partnership development is key;
- There is a need to improve the capacity and capability of Aboriginal Corporations and Traditional Owners;
- Government needs to provide certainty for developable areas and then private investment will flow without any further assistance;
- Government needs to be customer/proponent focussed and provide better information and guidelines through one dedicated portal; and
- Government and industry need to understand the market and demand first before leaping into a full approval process for development and promoting or seeking investment. If demand and market are there, investment will follow well considered approaches.

A case management group, with the appropriate autonomy and delegations to make things happen, is considered the ideal pathway forward.

The case studies found that there was also a strong desire for the establishment of a Case Manager approach for agricultural developments with a case manager assigned to support an applicant's development initiative who has seniority in government, or is adequately empowered, to take responsibility for the integrity of the development process, inter-departmental discussions, government responses, assessment timeframes and approvals.

In addition to the case management approach, a suggestion was put that Government could establish an 'Approvals Integrity Unit'. This could consist of three or four people whose role it is to provide independent oversight of the approvals processes, ensuring the case managers and departmental staff involved are delivering on their responsibilities. In addition, they could maintain a database on approvals and report this to industry and other stakeholders.

Such accountabilities would ensure processes are clear and adhered to, notes would be recorded on correspondence timelines and recommendations and next steps would be recorded. This will in-turn underpin greater levels of responsiveness, transparency and efficiency across any number of Government activities. This approach was suggested as currently there is no single point of contact for proponents to assist resolution of issues across government.

Implementing the concept of an 'Approvals Integrity Unit' would help resolve issues such as: inconsistent advice, uncertainty of timing of various approvals and accountability across Department staff. However further evaluation is required to determine the value of what an independent oversight of agriculture development approvals processes could achieve.

10.7 Culture, Collaboration and Capacity

Recommendation 8 – Building a culture of trust within Government and industry:

Key Action: Empower stakeholders, involved in the regulation of the industry, to work more autonomously.

Supporting actions:

- Reinforce how individual's interface in or with regulatory systems can support whole-of-government direction in sustainable agricultural development, while respecting and adhering to the requirements of administration of legislation and supporting policy instruments.
- Reinforce that individual regulatory officers' opinions and judgements must consider whole of government policy and priorities.
- Promote a culture of risk management and entrepreneurship.
- Standardise terminology and definitions to limit unnecessary legal interpretation.
- In cases where disputation emerges in the development approval process, consider flexible mechanisms to seek higher level Departmental guidance early in the dispute.
- Gain a commitment to accountability and rewards for collective effort and results.
- Support the development of improved tools and training to support landholders developing agricultural proposals.

Recommendation 9 – Continue building collaboration within the Government and industry:

Key Action: Build collaboration through an engagement, planning and outcome focused culture.

Supporting actions:

- Evaluate the merit of a standing collaborative group involving WA Government, industry groups Aboriginal organisations and Native Title groups to assist building relationships and advise, where appropriate, on leveraged opportunities for development and investment.
- Align agency strategic and operational plans to deliver better decisions faster for agricultural developments through initiatives such as revision of the Lead Agency Framework.

- Agencies to foster an outcome focused culture with KPI's for service delivery based on time and cost associated with government support and approvals.
- Develop pilot studies to evaluate agricultural development that supports trusting relationships that build upon desired regulatory and development outcomes.
- Broaden “one-stop shop” online web-based approvals platform to be complemented by investment and development facilitation services.
- Broaden ‘Industry Guidelines’ to include skills that promote entrepreneurship, conduct and diplomacy when working toward respected regulatory and development outcomes.

So far, this report has revealed a suite of findings and recommendations to help unlock agriculture and aquaculture resources in northern Western Australia. Also discovered was the opportunity for stakeholders to better support and connect with each other across the industry.

The importance of trust

Concerns were raised during the stakeholder engagement regarding the level of trust between and within government departments, investors/proponents, Land Councils and Traditional Owners. Low levels of trust leads to a breakdown in communication and lack of progress on development opportunities that could otherwise benefit a range of stakeholders including local communities and businesses. There is also a perception by some project proponents that by speaking out there is a risk that proposals may not be assessed objectively.

The analysis in this project found there is a need to embrace complexity in regulatory processes and to build trust among stakeholders. This complexity can be navigated more readily through collaboration. The importance of a culture of trust is hard to overestimate, as without it, the flow of information between key decisions points across the industry is often impaired.

That is why culture and collaboration are inextricably linked. In a healthy collaborative culture stakeholders are likely to align and pool their resources in order to operate under a complex regime of regulations and volatile global economic and environmental conditions.

This section explores how culture influences the way in which stakeholders interact with each other and collectively across multiple decision-making points. The analysis focuses on the way in which stakeholders converge and participate in strategy setting, problem solving and decision making across the industry.

In business when trust goes up, speed of service goes up and costs go down. A culture of trust enables stakeholders to better collaborate, partner and team-up with others to build their capacity and advantage. Enhanced levels of trust enable regulators to engage with risk that comes with entrepreneurship when exercising discretion. Trust is a basis for individuals to apply industry values over personal beliefs; to consistently apply the precautionary principle as intended and not as a reason to impede development as shown in Table 10.

Table 10. Tactics for Building a Culture of Trust

How		What
BUILD TRUST	Empower people to work autonomously by focusing on outcomes	<ul style="list-style-type: none"> • Apply organisational values and behaviours over personal beliefs • Act in the spirit-of-the-Law and exercise discretion • Standardise definitions to limit unnecessary legal interpretation • Engage with entrepreneurship; do not be risk adverse • Apply the precautionary principle to enable development • Gain a commitment to accountability and reward collective effort
COLLABORATE	Build industry capacity and capability through alliances	<ul style="list-style-type: none"> • Consider an annual 'State of Industry Report' • Build a central "one-stop shop" online platform for the industry • Develop Industry Guidelines for entrepreneurship, conduct and diplomacy

The stakeholder engagement process observed an industry made up of stakeholders that have direct and indirect influences over the life of an agricultural or aquaculture projects. For decades, agribusinesses have relied on global relationships, networks and alliances for their survival. For some stakeholders, not being able to trust individuals is becoming a business risk.

In some sectors of agriculture, a strong culture of trust exists within the industry, as a function of lifelong friendships, shared values, business successes and failures. However not all parts of the industry enjoy the same degree of trust and as expected cultural attributes vary.

Overwhelmingly, non-government stakeholders expressed the need for a cultural shift within Government. They describe experiences with regulatory processes as often being adversarial and cost-prohibitive. They feel a disconnect between politicians professing a 'developing the north' agenda and individual government departments that find adjustment of practices difficult when seeking to implement new strategic directions.

Many industry stakeholders feel regulators are defensive in their attitudes, concerned with repeating operational practices rather than acting in the spirit-of-the-Law when exercising discretion in project assessment for approval and compliance.

Some stakeholders describe a slow trickle-down effect between public sector values and the practices at the cold face of project delivery. This is because simply defining a mission and set of corporate values is not enough. Indeed, industry stakeholders suggest if regulators are not better trained in entrepreneurship and resourced to make informed decisions faster, it will not create the growth being sought by Government.

Evidence in the case study analysis described instances where stakeholders had to wait up to two years for a clearing permit with long response times between correspondences. The timing and timeliness around flora and fauna surveys to support clearing also proved problematic for some proponents, particularly where previous approvals had expired.

Acting in the spirit-of-the-law means applying statutory processes through the lens of the objects expressed in a particular statute that is already adopted by Parliament and through state-wide community consultations.

That is why the Public Sector Management Act, 1994 in effect indemnifies public officials who act in the spirit-of-the-law when discharging their duties, even when a liability or error occurs. This empowers a regulator to focus on outcomes rather than having to repeat an operational practice.

Ultimately, acting in the spirit-of-the-law is about changing administrative culture; that is changing behaviours and attitudes within agencies/departments.

For example, to better deliver industry outcomes some regulators may need to repeal an operational policy or practice. However, certain individuals may dislike such reforms that appear to jeopardise their current job description or even run counter to their psychological profile (e.g. risk aversion) and/or their personal values (e.g. promoting an interest group).

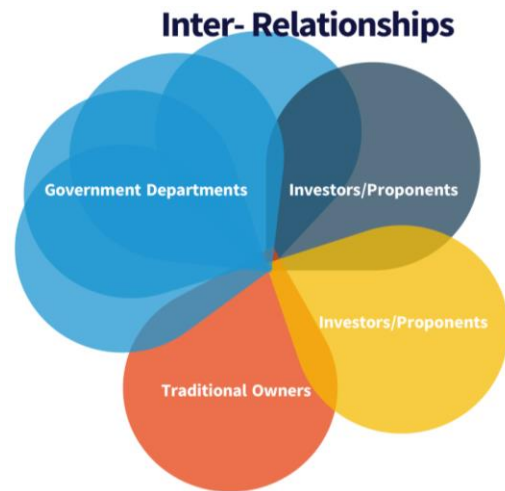
Building a culture of separation of personal beliefs and administrative responsibilities in accordance with legislative responsibilities and Governments' strategic direction can be difficult. Many staff involved in environmental regulation do so because of a strong personal interest in environmental protection. Consideration of a development with environmental risk and trade-offs therefore may run counter to personal interest or natural inclination.

This creates an internal conflict which may subconsciously pervade decision-making if not managed through organisational culture and alliance with overall government policy and direction.

Government should be further modernised so that individuals apply public sector values over their personal beliefs. Public servant training and career pathways will need to encourage collaborative effort and engaging with the risk that comes with entrepreneurship; to consistently apply the precautionary principle as intended and not as a reason to stop development.

Job descriptions may need to be altered towards a 'matrix-management' approach that coordinates multi-disciplinary teams across the public sector with greater freedom to propose and implement process improvements. These reforms take years to optimise.

Interestingly, stakeholders revealed stories of regional regulators being confident to exercise the full extent of their discretion in order to make faster decisions during the recent COVID-19 pandemic, when previously under different circumstances they may not have.



Observations on the COVID-19 decision making behaviours demonstrates how administrative workflows between decision points can become more fluid and flexible, in order for individuals to collaborate more freely. To sustain this approach regulators will need to acquire 'whole-of-government' knowledge when exercising discretion with reasonableness and procedural fairness.

Recommendations in this report have been made to speed up the flow of information between decision points across the industry, particularly inter-agency referral times, knowledge transfer, infrastructure investment, strategic partnerships and case management.

Building a culture of trust will depend on not just harnessing the commitment of stakeholders but also harnessing individual hearts and minds. 'Encourage the Heart'² is a process that enables others to act. Put simply, it favours an engaging and collaborative operating environment at the grass roots.

Collaboration for mutual outcomes

Collaborative action can unlock agriculture and aquaculture resources in northern Western Australia more effectively and efficiently than any single stakeholder acting alone.

Collaborative alliances in the industry span different parts of the world and at different ends of the supply chain. Being able to create and sustain fruitful alliances gives the industry a significant competitive advantage in the global economy.

However, not all stakeholders involved in agricultural and aquaculture development have the same priorities. It is these differences which provide the leverage that is to be gained from collaboration. A key benefit of collaboration is instilling clarity for investors to invest in projects.

By nature, collaborations are complex. In committing to be a part of a collaborative, a stakeholder is, often unwittingly, committing to have their own autonomy checked. In one sense it infers each party is willing to let the other parties inside, which entails a risk; the risk of change.

Asian companies are the most comfortable with relationships, and therefore they are the most adept at using and exploiting them. The Ord Stage II project is a good example of negotiating with Chinese investors. A well-structured strategic partnership was built on instruments, mechanisms, processes, and skills necessary to bridge differences, find synergy and build capacity.

Many stakeholders declared that there was a reasonable degree of teamwork involved in their project, suggesting that project team meetings across the industry are a regular and valuable way for sharing knowledge. This shows how knowledge transfer can build capacity and is the reason why the unique knowledge of an individual is of immense value to the industry.

² Kouzes, J. M., & Posner, B. Z. (1999). *Encouraging the heart: A leader's guide to rewarding and recognizing others*. San Francisco, Calif: Jossey-Bass.

In economic terms, harnessing the different types of knowledge across the industry is important because it can be commercially exploited and shared as an asset, leading to a collaborative advantage. Often when individuals move to new places of employment within the industry, they replicate learnt behaviours and practices. For regulators, industry learning on regulatory behaviours can limit new ways of thinking, particularly when engaging with the risk that comes with entrepreneurship.

The current COVID-19 lockdown demonstrates how disruptive technology like 'Zoom' can be used to overcome the tyranny of distance when building alliances within the industry. Although there is already considerable investment in E-government (ICT infrastructure) it should be expanded and intensified in northern Western Australia because E-government will do more than empower stakeholders with new technology.

E-government facilitates the flow of information between decision points and makes coordination and interactions between and within regulators easier. For proponents, being able to digitally track the status of their project in real-time makes cash-flows and capital investments easier to manage.

Formalising industry guidelines for entrepreneurship, conduct, and diplomacy within the industry will help facilitate interactions between proponents, regulators and local communities. Government could facilitate this in consultation with industry stakeholders.

Similarly, an annual 'State of Industry Report' or 'Strategic Plan' can represent a common set of principles, terminology, definitions strategic directions and priorities that stakeholders can embrace and commit their efforts towards.

A 'Social Room' is an online channel, where a core team of stakeholders host a conversation through the use of social media. They are becoming popular in the USA, Canada and the United Kingdom because they engage a much broader conversation in real-time with local and global stakeholders as equal players. A "Social Room" provides a platform for building commitment to a common cause or interest and could be used to discuss agricultural developments between proponents and government departments.

In this regard a central online web-based platform for the industry was suggested as an important collaborative tool for:

- Tracking the number, status and value of projects;
- Showcasing latest farm management systems and innovations;
- Establishing common vocabulary, benchmarks and practices;
- Online training modules, guidelines, advice and support
- Building 'value-chain' alliances, such as supplier-customer blogs
- Sharing real-time soil suitability and water availability data-sets;
- 'Social Rooms' for stakeholders to converge and think strategically about pressing issues.

The importance of leadership cannot be underestimated because it unites stakeholders behind a collaboration and persuades them of the need for change. Leaders with united stakeholders help maintain new values and directions and then, must function in the new environment by bridging the gap between how things are and how they should be.

The support of the national and State political leadership is essential to focus on adapting to change in the industry, rather than resisting it. If stakeholders' sense that political commitment is weak, they may passively resist reform that comes with collaboration, waiting for political commitment to sway and for the reform to be abandoned and the collaboration dissolved.

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Appendix A – Pilbara Agriculture Prospectus



CRCNA

- Investment Opportunity
- Agriculture Industry Expansion
- Government Partnerships

Draft Pilbara Agriculture Prospectus

PLAY A ROLE IN THE EMERGENCE OF NEW AGRICULTURAL INDUSTRY IN THE PILBARA

Pilbara Agriculture Opportunities and Government Partnerships

The Pilbara region is in the North West of Western Australia and covers 507,896 square kilometres with a population of 62,000. It is a critical economic region for Australia with iron ore and liquefied natural gas (LNG) industries valued at over A\$70 billion, representing more than 70 per cent of mineral and energy production in Western Australia.

With its vast land area, the Pilbara also has an agricultural industry focused on pastoralism that supports the grazing of cattle. Rainfall in the region varies from 250 mm/y to 500 mm/y.

With the support of irrigated agriculture in areas that have access to artesian water, the growing of fodder crops all year round with a warm climate has been proven to be profitable. There is approximately 2,550 hectares (ha) of irrigated land in the region, supporting primarily pasture and fodder production using centre pivot irrigation. Over 100 GL/y of water resources that is of a suitable quality for irrigation has been identified with the potential to support 5,000 to 12,000 ha of irrigable land in the Pilbara region. Mine dewater surplus (MDS) has also been identified a water resource that can support agriculture as well as the needs of the mining industry.

The Australian Government is supportive of agriculture investment in the Pilbara through its Northern Australia agenda which includes funding of the A\$5 billion Northern Australia Infrastructure Facility (NAIF). The Australian Government also supports the Cooperative Research Centre for Developing Northern Australia and other research and science initiatives.

The Western Australian Government is supportive of expanding agriculture in the Pilbara to further develop the natural resources and irrigation opportunities in the region. This support included the Pilbara Hinterland Agricultural Development Initiative (PHADI) through two agriculture pilot projects to establish irrigated agriculture opportunities using mine dewater at Woodie Woodie Station. The PHADI project also undertook assessment of the soil, land and water resources in the Pilbara. The State Government is also currently supporting the Transforming Agriculture in the Pilbara (TAP) project to ground truth soil and water resources in the region for potential horticulture, fodder and field crop production for a range of development sizes.

These commitments by the Australian and Western Australian Governments support investors to explore the opportunities for developing irrigated agriculture in the Pilbara.

Prospectus



Significant water resources of suitable quality for irrigation have been identified with the potential to support 5,000 to 12,000 ha of irrigable land in the Pilbara region



Potential Agriculture Precincts

Investment in Pilbara agriculture using centre pivot irrigation and identification of land and water resources for expansion provides a basis for investors to participate in developing agriculture precincts.

Additional areas have been identified with the potential for irrigation support for agriculture in the Pilbara

A combination of investment by pastoral stations with the support of mining companies has grown the development of Pilbara agriculture precincts using centre pivot irrigation.

Wall Station located 250 km north east of Port Hedland covers approximately 202,343 ha and currently has six centre pivots with a plan for a further six and 15GL/y of water currently licensed for extraction and up to 20GL/y potentially available from the aquifer. Fodder is grown for the property's cattle.

Pardoo Station is approximately 120 km east of Port Hedland and covers an area of 199,800 ha. Pardoo station is in the process of investing in eighteen centre pivots supporting irrigation for 840 ha of pasture and is planning improvements to support fodder production for its purebred Wagyu beef for niche Asian markets.

Minderoo Station 41 km south of Onslow occupies an area of 240,000 ha and has access to three centre pivots. Minderoo Station is owned by the Harvest Road agriculture group that grows fodder for its cattle.

Other sites that involve mining companies include Hamersley Agricultural Project (HAP) at Marandoo 45 km east of Tom Price with sixteen centre pivots and Nammuldi Agricultural Project with nineteen centre pivots both owned by Rio Tinto covering approximately 1,850 ha.

The Warrawagine Pastoral Station is another example operating three centre pivots using water from the Woodie Woodie manganese mine.

Studies under the PHADI project have identified additional areas with the potential for irrigation support for agriculture in the Pilbara.

Current water availability and potential for future water allocations can be obtained from the Department of Water and Environmental Regulation.

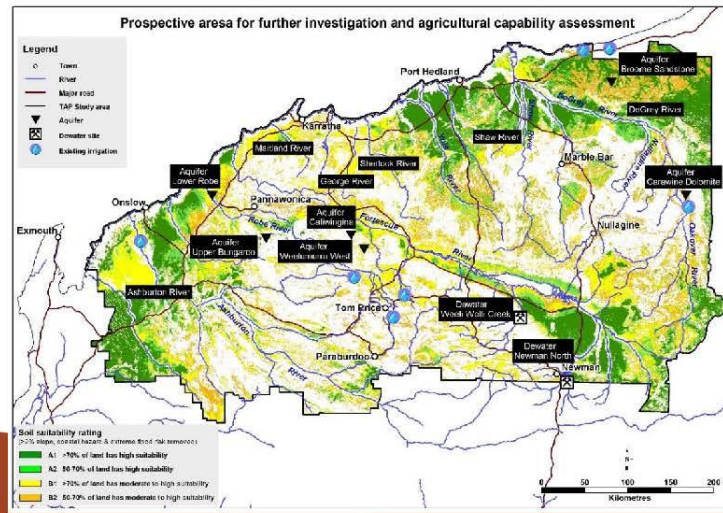
Sites identified include:

- Lower Robe River with potential water supply of 5 GL/y for 250–500 ha of development area.
- West Canning with potential water supply of 10 GL/y for 500–1,000 ha of development area.
- Upper Bungaroo with potential water supply of 10 GL/y for 500–1,000 ha of development area.
- Caliwingina /Weelumurra with potential water supply of 5-10 GL/y for 250–1,000 ha of development area.
- Oakover River Valley with potential water supply of more than 5 GL/y for 250–500 ha of development area.

- Newman North with potential water supply of 10 GL/y for 250–1,000 ha of development area.
- Marillana and Weeli Wolli Creeks with potential water supply of 5-15 GL/y for 250–1,500 ha of development area.
- De Grey River with potential water supply of 30 GL/y for 1,500–3,000 ha of development area.
- Shaw River with potential water supply of 5 GL/y for 250–500 ha of development area.
- Ashburton River with potential water supply of 5 GL/y for 250–500 ha of development area.

The TAP project of the Western Australian Government has focussed on four prospective sites for investment in irrigated agriculture in the Pilbara. These are:

- Newman North
- De Grey River
- Shaw River
- Karratha Hinterland





Land Tenure

Understanding land tenure is a critical factor in planning for investment in Pilbara agriculture with land tenure including Native Title, pastoral leases, mining leases, conservation reserves and Crown land areas managed by the Western Australian Government.

When Native Title rights and interests exist, engage early and often with Native Title parties and negotiate an Indigenous Land Use Agreement

The Pilbara region covers 20 percent of the Western Australia's land mass. The Pilbara is divided into four local government authorities which are the City of Karratha, the Town of Port Hedland, the Shire of Ashburton and the Shire of East Pilbara.

Land tenure in the Pilbara consists of Native Title, pastoral leases, mining leases, conservation reserves and Crown land areas managed by the Western Australian Government. More than 50 per cent of Pilbara land is under pastoral leasehold.

Native Title is the recognition in Australian law that some Aboriginal and Torres Strait Islander people continue to hold rights to their lands and waters which come from their traditional laws and customs. Native Title requires investors to consider the potential for partnering with Native Title holders and a formal process exists for negotiation of an Indigenous Land Use Agreement (ILUA). Guidelines can be provided by the Western Australian Government, which is party to an ILUA. An ILUA can support Aboriginal and Torres Strait Islander people to gain benefits from investment in new economic activity, such as access to employment opportunities.

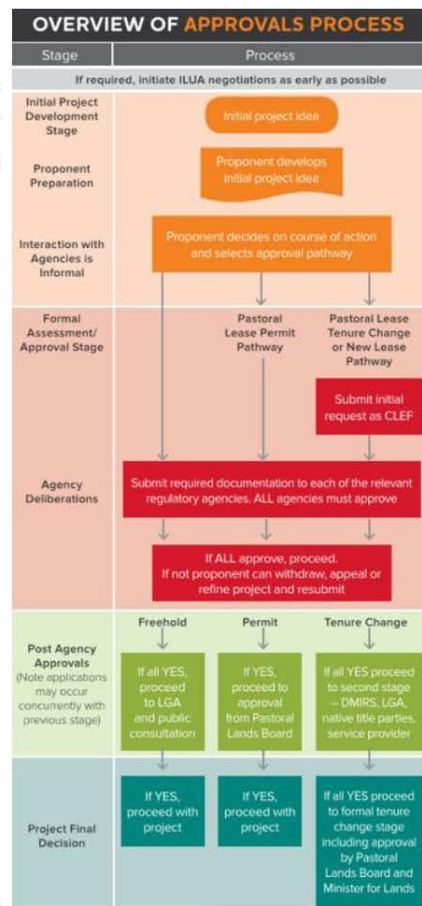
An Indigenous Land Use Agreement (ILUA) can support Aboriginal and Torres Strait Islander people to access new employment opportunities.

In order to invest in agriculture and irrigation in the Pilbara, the potential exists to partner with a Pilbara pastoral station or purchase a Pilbara pastoral station and seek a Diversification Permit under land tenure arrangements.

A Diversification Permit under the Land Administration Act 1997 can be sought through the Department of Planning Lands and Heritage of the Western Australian Government. A Diversification Permit allows pastoralists to enter into diversified economic activities beyond cattle grazing, including horticulture, fruit and vegetables and many of non-pastoral agricultural activities. Issues to be addressed in a Diversification Permit include Native Title, native vegetation clearing, water allocations, and any other relevant licence for expanded economic activity.

Investment in larger scale crop and horticultural production outside of pastoral station activities, such as fruit and vegetable production can be pursued through alternate land tenure arrangements. This may involve applying for an alternative lease to a pastoral lease on Crown land through the Department of Planning Lands and Heritage of the Western Australian Government under the Land Administration Act 1997. The Act allows and enables a broad range of agriculture activities including third party investment.

Mining Land tenure features prominently in the Pilbara with the region producing 95 per cent or A\$62 billion per year of the value Western Australia's iron ore production. Mining tenements granted under the Mining Act 1978 permit the mining lease holder to undertake mining activities and associated works within that tenement. Mining leases may be granted over pastoral leases. Water taken from land covered by both a mining tenement and a pastoral lease may be used for either mining or agricultural purposes.





Water Access

Water is a precious resource for investment in Pilbara agriculture with the Pilbara having a semi-arid to arid climate that is characterised by high temperatures, low and variable rainfall and high evaporation. Access to water and irrigation infrastructure is required to support agriculture development.

Groundwater is the main source of water in the Pilbara for agricultural use

Pilbara water resources are characterised by surface water and groundwater resources. The major river systems of the Pilbara are the Fortescue and the De Grey. Intermittent systems include the Fortescue and Oakover rivers that source water from the Hamersley Ranges, the largest mountain range in Western Australia. River systems are characterised by dry periods during the year with streamflow supported by large variable rainfall events, between December and May from tropical thunderstorms and cyclones.

Groundwater is the main source of water in the Pilbara for agricultural use with aquifers recharged by water sourced from variable tropical thunderstorms and cyclones.

Opportunities exist to access groundwater as well as surface water for agriculture with managed aquifer recharge and mine dewater also offering opportunities for water access.

Water access in the Pilbara is supported under the Rights in Water and Irrigation Act 1914 and is licensed and managed by the Western Australian Government Department of Water and Environmental Regulation (DWER). The Pilbara has 43 GL/y of water licensed to be used annually for irrigated agriculture on about 700 ha of land. An estimated 50 GL/y of mine dewater surplus has also been licensed for use on around 1,850 ha of irrigated land in the Pilbara.

Pilbara groundwater resources are sourced from alluvial, sedimentary basin and basement rock aquifers.

There are nine aquifers in the Pilbara managed by DWER as existing or potential water supplies for industry and community use.

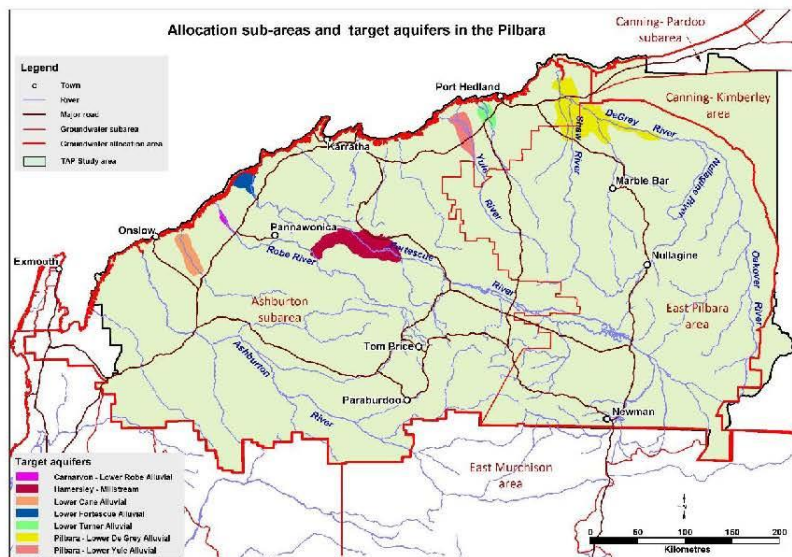
DWER has developed detailed management plans, including objectives, allocation limits, local policy and performance indicators for these aquifers. Water license access for new projects are possible from the Lower Robe alluvial aquifer on the coastal plain between Onslow and Karratha and the Broome sandstone aquifer in the West Canning Basin to the north east of Port Hedland.

DWER has also identified a number of other aquifers in the Pilbara which are regarded as non-targets. Some of these have allocation limits and others have allocated limits on a case by case basis.

Non target aquifers include:

- The Ashburton coastal sub-area of the Pilbara groundwater area with potential access to 7 GL/y.
- The Wittenoorn formation in the Ashburton sub-area supported by river alluvial aquifers with a possible water allocation of 20 GL/y.
- The Wittenoorn formation in the East Pilbara sub-area with a possible water allocation of 50 GL/y.
- The Sholl shear zone near Roebourne with a possible water allocation of 3 GL/y.
- The Ashburton/Carnarvon area supported by the Carnarvon basin with a possible water allocation of 2 GL/y.

DWER has an established process for water licensing for investors in Pilbara agriculture.





Aboriginal Community Engagement

Investment in Pilbara agriculture requires engagement with the Aboriginal people to ensure local community support and exploration of mutually beneficial partnerships including support for local employment and involvement in project development.

Aboriginal people have lived in the Pilbara for more than 40,000 years

Aboriginal people have been living in the Pilbara for more than 40,000 years. There are more than thirty one Aboriginal cultural groups in the Pilbara with their own cultural traditions and language. In recognition of Aboriginal people being the original inhabitants of Australia, Native Title recognises that Aboriginal and Torres Strait Islander people have rights and interests to land and waters according to their traditional law and customs as set out in Australian Law. Native Title is governed by the Australian Government Native Title Act 1993.

The Australian Government also supports Aboriginal and Torres Strait Islander groups to form corporations for a social or economic purpose. The Corporations (Aboriginal and Torres Strait Islander) Act 2006 of the Australian Government establishes the role of a Registrar of Indigenous Corporations and allows Aboriginal and Torres Strait Islander groups to form corporations.

Aboriginal Corporations have benefited from agreements with the mining and oil and gas industry in the Pilbara.

In the Pilbara there are twenty one Aboriginal corporations that are based in the region. These corporations have benefited from partnerships and agreements with the mining and oil and gas industry in the Pilbara. Many resource companies have entered into agreements with Aboriginal corporations. These agreements include a range of economic and non-economic benefits to Aboriginal people. These include royalty payments from mining,

training and job opportunities, access to contracts for services and support for environmental and heritage activities.

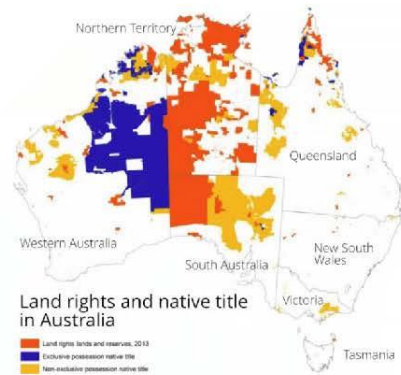
For agriculture investors in the Pilbara, engagement with the local Aboriginal community is an important requirement to ensure local community support for investment.

In relation to Pastoral leases, Native Title can co-exist with pastoral leases. Any change to a pastoral lease such as a Diversification Permit, will impact on Native Title and will require engagement with the local Native Title group. The consent of the Native Title group can be defined through an Indigenous Land Use Agreement (ILUA) that can include how an investor will work with an indigenous group for mutual benefit.

Agriculture investors also need to be aware of Aboriginal heritage protection supported by Section 17 of the Aboriginal Heritage Act 1972. A heritage survey may be required for an agricultural investment. The Western Australian Government Department of Planning, Land and Heritage, provides guidelines for preparing Aboriginal survey reports and information on Aboriginal sites.

The Western Australian Government supports Aboriginal Economic Development (AED) within the Department of Primary Industries and Regional Development (DPIRD). It builds local capacity and supports new business and jobs for Aboriginal people. This support can assist agriculture investors in the Pilbara to engage with local Aboriginal communities.

Land Rights & Native Title In Australia





Soils and Crop Suitability

Western Australian Government research has identified soils that are suitable for agriculture investment

Potential export crops valued at more than US\$100 million have been identified for the Pilbara

As a result of the Western Australian Government support, digitally-enhanced soil maps have been developed for the Pilbara combining existing land surveys with remote sensing data supporting a statistical modelling framework to predict where soil types are most likely to support agriculture.

Soil types have been mapped according to their suitability to support agriculture as follows:

- >70% of land has high suitability
- 50–70% of land has high suitability
- 70% of land has moderate to high suitability
- 50–70% of land has moderate to high suitability

Areas with high suitability for agriculture land development and irrigation infrastructure in the Pilbara were chosen based on areas having low risk of water erosion, flooding and ocean surges as well as having alluvial soils adjacent to prospective water resources.

The Western Australian Government has undertaken research to identify prospective crops with good market opportunities that could be produced in the Pilbara.

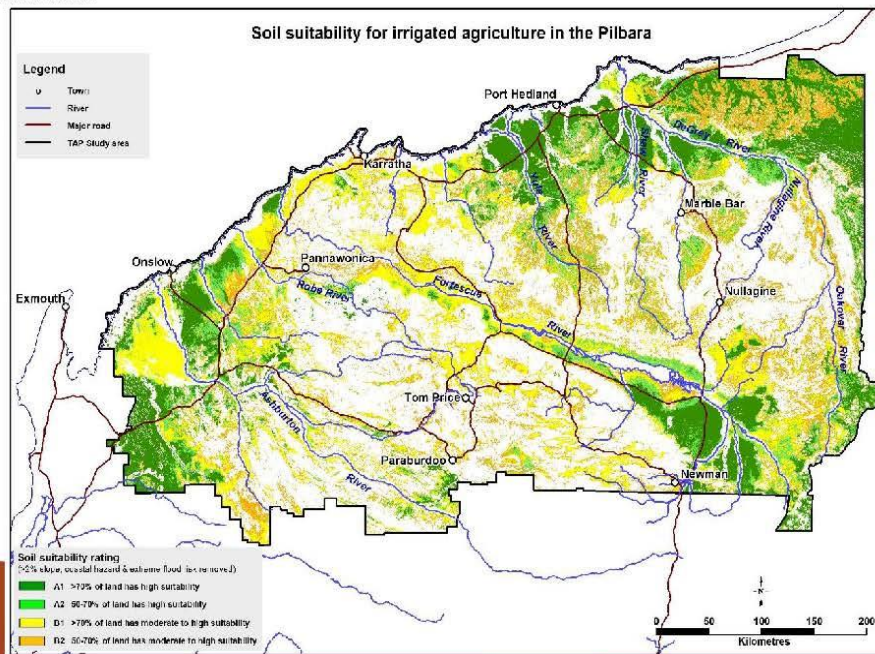
Cassava, sesame seeds, sorghum, almonds and cotton have been identified as high value crops that can be grown in the Pilbara.

This research ranked according to production value, with the highest value crops including cassava, sesame seeds, sorghum, almonds and cotton. The research also recognised the importance of export markets given limited commercial opportunities within the small Western Australian domestic market and examined the demand for products that could be produced and exported to Middle Eastern and Asian markets.

Potential Export Crop Values in the Pilbara

	Under US\$20m	US\$20–99m	US\$100m+
High ●	—	Sorghum	Cassava Sesame seeds
Medium ○	Sunflower seeds Essential oils of mint Fresh grapes Olive oil Beans, dried shelled walnuts	Raw cane sugar Pistachio Lentils Lucerne hay Castor oil	Almonds Cotton
Low ○	Dried black pepper Laskis, etc. Peanuts Palm oil/cake Cashew nuts Coffee, unroasted Mangoes, etc.	Sunflower seed oil	Soya beans

(Coriolis, 2015)





Environmental Regulation

Environmental protection is covered by both Australian and Western Australian Government law and investment in Pilbara agriculture requires engagement with the responsible agencies to determine whether environmental assessments and approvals are required.

National environmental significance includes nationally threatened species and ecological communities.

The Western Australian Government and Environmental Protection Authority (EPA) and Department of Water and Environmental Regulation (DWER)) are responsible for environmental approvals for irrigated agriculture.

The EPA considers the following when determining environmental approvals:

- Considers the object and principles of the Environmental Protection Act 1986.
- Uses environmental factors and environmental objectives to organise and systemise environmental impact assessment and reporting.
- Takes a holistic view of the environment and a proposal or scheme's potential impact on the environment.
- Considers significance when determining whether or not to assess a proposal or scheme and recommend whether or not an assessed proposal or scheme may be implemented.

The Australian Government requires environment assessment and approval for projects that are likely to have a significant impact on the environment which is a factor for larger scale investments. The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) is the Australian Government's key piece of environmental legislation.

The Australian Government Department of Agriculture, Water and the Environment is the agency responsible for the EPBC Act and manages a referral process to determine whether or not a proposed action requires approval under the EPBC Act.

Irrigated Agriculture on a pastoral lease or other lease may require an environmental assessment to ensure environmental impacts are minimised.

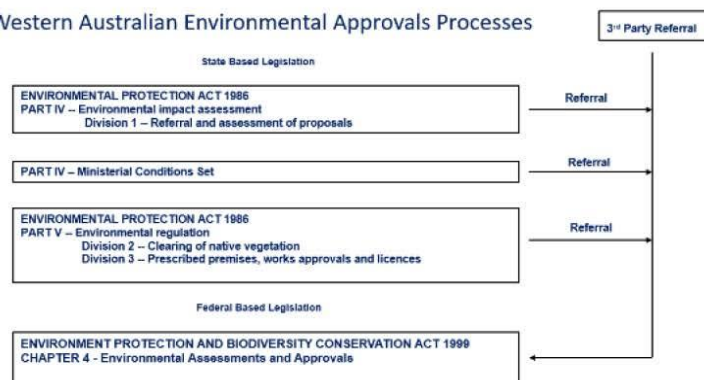
Clearing native vegetation under the Environmental Protection Act 1986 of Western Australia requires a permit, or an exemption

Clearing native vegetation under the Environmental Protection Act 1986 of Western Australia is permitted in accordance with a permit, or if an exemption is granted.

Permits are assessed by either the DWER or the EPA, and clearing is not generally permitted where the biodiversity values, land conservation and water protection roles of native vegetation would be significantly adversely impacted.

Submission of referrals can be made at the same time to the Western Australia EPA and DWER and the Australian Government Department of Agriculture, Water and the Environment. If the project needs to be assessed under both Western Australian and Australian Government law the two relevant agencies will seek to undertake the assessments under a single process.

Western Australian Environmental Approvals Processes





The development of the resources industry in the Pilbara has resulted in the development of modern state of the art infrastructure that can support investment in agriculture. The Australian Government also supports a A\$5 billion lending facility to provide loans to support private sector needs for infrastructure in northern Australia through the Northern Australia Infrastructure Facility (NAIF).

Key infrastructure in the Pilbara includes:

- *Ports*

The Pilbara enjoys strong access to global markets and is recognised as an Australian export hub through three major ports. Port Hedland is the world's largest bulk export port, with exports including iron ore, lithium and salt as well as the export of cattle and general cargo. Dampier Port supports exports including iron ore, salt, LNG, ammonia as well as project cargo, break bulk and general cargo. The Ashburton Port supports a strategic industrial area accommodating LNG and natural gas processing for Western Australia's domestic gas supply. Mining companies also support significant private port operations.

- *Airports*

The Pilbara has four of Australia's top 40 airports by passenger numbers and these are Karratha, Port Hedland, Newman and Tom Price. Karratha and Port Hedland airports are the major airports in the region. Karratha Airport is the second busiest airport in Western Australia and Port Hedland airport has international flights to Indonesia.

Access to Infrastructure

A key issue in determining the feasibility of an investment in Pilbara agriculture is access to infrastructure supporting water, energy, transport and communications and determining the need to develop infrastructure to support a project.

- *Digital Connectivity*

Many businesses in the Pilbara have access to the global digital economy and are using advanced technologies. Resources companies are leading with their use of digital technology. Broadband capacity through the rollout of sub-sea telecommunications cables and delivery of the National Broadband Network (NBN) have enhanced capabilities.

- *Roads*

The Pilbara roads network supports two main highways, namely the Great Northern Highway, which travels north through the region to Port Hedland and north-west along the coast, as well as North West Coastal Highway, which heads south-west from Port Hedland. The roads network supports industry transport for mining, agriculture, and tourism.

- *Rail*

The Pilbara rail network is privately owned by resource companies BHP, Rio Tinto, FMG and Roy Hill and are the main transport means for delivering iron ore to ports for export. The network is not publicly accessible.

- *Water*

The Water Corporation of Western Australia is the Government water utility that supports water supply and wastewater treatment for the towns of the Pilbara. Many resources companies also operate their own private water infrastructure systems.

Horizon Power Microgrid Onslow Renewable Energy Project



- *Electricity*

Horizon Power, the Western Australian Government owned energy utility operates the North West Interconnected System (NWIS), which covers generation, transmission and distribution assets in the Port Hedland and Karratha areas. Many resources companies in the Pilbara own private energy systems that support both commercial operations and town supply.

Port Hedland is the world's largest bulk export port, with exports including iron ore, lithium and salt as well as the export of cattle and general cargo



Co-Existence & Collaboration with Mining

The mining industry dominates the Pilbara economy and investors in agriculture need to engage to support collaboration and co-development.

Agricultural industries in the Pilbara need to recognise the dominance of the mining industry and seek to co-exist and where possible collaborate

More than A\$17.2 billion was invested into the Western Australian mining and petroleum industries in 2019 with much of this investment in the Pilbara. Mining is largest employer in the Pilbara, supporting almost 50 per cent of jobs. Given this, Pilbara land tenure is influenced by the resources sector through mining leases as well as mining company control of pastoral leases.

Agricultural industries in the Pilbara need to recognise the dominance of the mining industry and seek to co-exist where possible and collaborate with mining companies. The mining industry has common interests with agriculture in areas including water management, Aboriginal development, mine site rehabilitation, environmental management and community engagement which can be developed to support cooperation and collaboration. Approaches to common interests between mining and agriculture include numerous aspects.

- *Water Management*

Some Pilbara mining operations require dewatering to allow the extraction of mineral resources that extend below the water table. Mining companies are required to use dewatering volumes to mitigate environmental impacts and use the water on mine sites. The Western Australian Government Department of Water and Environmental Regulation (DWER) has a policy position on acknowledging that surplus water from mine dewatering operations is a valuable resource with potential to benefit the State.

Warrawagine Pastoral Station support for three centre pivots using mine dewater from the Woodie Woodie mine is an example of cooperation between Pilbara mining and agriculture through agreement on water access. Rio Tinto is also involved in using excess water from dewatering its mines to develop irrigated cropping for growing hay.

- *Aboriginal Development*

Major Pilbara mining companies recognise that engagement and partnering on economic and social development with Aboriginal communities is required in order to support mining industry development through a social licence to operate. Agriculture investment can support employment and economic diversification for indigenous communities that can be of interest to mining companies engaging with these communities.

- *Mine Site Rehabilitation*

The Western Australian Government through the Department of Mines, Industry Regulation and Safety has a requirement for mine-site rehabilitation including environmental criteria that mine operators can use to demonstrate they have successfully and sustainably rehabilitated their site after mining. The potential exists for the agriculture industry to work with mining companies to repurpose mining infrastructure for agriculture use, saving removal costs.

- *Environmental Management*

The agriculture industry can support the bio remediation of land for the mining industry to support meeting their environmental obligations.

- *Community Engagement*

The mining industry relies on communities to support mining operations through access to a work force, support services and public infrastructure. Agriculture investment can support diversification of the economic base of a community which can support the mining industries social licence to operate.

Woodie Woodie Mine Water Discharge





Economic Returns

The Western Australian Government has supported preliminary economic analysis of options for developing irrigated agriculture in the Pilbara.

Pilbara broadacre crops research noted development costs at \$10,000 per hectare and positive NPVs for six crops (GHD, 2015)

The Western Australian Government has in the past commissioned preliminary economic analysis of options for developing irrigated agriculture in the Pilbara to provide an understanding of the commercial potential for investment.

The economic analysis investigated the viability of a range of irrigated crop options, including crops grown for livestock fodder (grain and hay), fibre (cotton), human food (mungbeans, peanuts, tomatoes, capsicums) and industrial use (guar).

Economic analysis was on the basis that irrigation water would be available from mine dewatering, at zero cost for agricultural use. The analysis also assumed water was to be available to irrigate a total area of 8,000 ha for a period of 30 years.

Net Present Value (NPV) of the different crops was calculated and then used as the basis for comparing crops and developing potential scenarios for irrigation development on 8,000 ha. NPVs were calculated for crops based on two values for land and irrigation development costs, with \$10,000 per ha and \$27,000 per ha.

Three groups of investment options were assessed which were broadacre crops, vegetables and value add (cattle feedlot, biofuels). The findings for broadacre crops noted that for \$10,000 per ha development costs, NPVs were positive for six crops: lucerne hay, Rhodes grass hay, cotton, peanuts, sweet potato and canning tomatoes.

The economic analysis concluded that decisions on the adoption of different crops and value add options could be categorised into three generations of development. The three generations of development identified were:

- *First Generation (years 1-5)*
Fodder crops (grain and hay for export).

- *Second Generation (years 6-10)*
Cattle feedlot. In addition, ongoing development of first generation crop production systems (expansion of area, lifting yields, specialisation, further development of export or niche markets, further on-farm processing (e.g. stockfeed pellets), further development of supply chain infrastructure).

- *Third generation (years 11+)*
Cotton, peanuts, pulses, canning tomatoes and capsicums and biofuel (ethanol).

Net Present Value for Pilbara Broadacre Crops at A\$10,000 ha Development

Crop	Break even for \$10,000/ha development costs			
	Yield (t/ha) ¹	(%)	Price (\$/t)	(%)
Maize	13.01	9%	\$ 298	6%
Sorghum	16.39	15%	\$ 263	9%
Lucerne	10.90	-27%	\$ 220	-19%
Lablab	21.33	113%	\$ 287	59%
Rhodes grass	21.33	-29%	\$ 153	-15%
Guar	2.57	29%	\$ 780	25%
Cotton	1.49	-28%	\$ 1,661	-25%
Peanuts	4.42	-12%	\$ 762	-10%
Sweet potato	5.24	-13%	\$ 622	-11%
Pulses/lentils (bulk grain)	7.54	116%	\$ 547	82%
Canning tomato	45.38	-9%	\$ 1,250	-7%
Canning capsicum	38.02	9%	\$ 1,117	6%

(GHD, 2015)



Partnerships, Collaboration and Key Contacts

Investment in Pilbara agriculture requires partnerships and collaboration with key community, government and business organisations.

Agriculture investment in the Pilbara requires a commitment to regional community engagement

Engaging with key contacts in a regional area and demonstrating how an investment supports community development contributes to the social license of an investor to operate and makes good business sense. Developing a business case for investment will be enhanced by effective community engagement and collaboration with local people. Partnerships, collaboration and key contacts can be sought through the following organisations:

Australian Government

- Office of Northern Australia: <https://www.industry.gov.au/about-us/our-structure/office-of-northern-australia>
- Northern Australia Infrastructure Facility (NAIF): <https://naif.gov.au/>
- Cooperative Research Centre for Northern Australia: <https://crcna.com.au/>
- Regional Development Australia Pilbara: <http://www.rdapilbara.org.au/>

Western Australian Government

- Department of Primary Industries and Regional Development: <https://dpir.wa.gov.au/>
- Department of Jobs, Tourism, Science and Innovation: <https://jtsi.wa.gov.au/>
- Department of Water and Environmental Regulation (DWER): <https://dwer.wa.gov.au/>
- Department of Mines, Industry Regulation and Safety: <https://www.dmir.wa.gov.au/>
- Department of Planning Lands and Heritage: <https://www.dplh.wa.gov.au/>
- Pilbara Development Commission: <https://www.pdc.wa.gov.au/>

• *Local Government*

- City of Karratha: <https://karratha.wa.gov.au/>
- Town of Port Hedland: <https://www.porthedland.wa.gov.au/>
- Shire of Ashburton: <https://www.ashburton.wa.gov.au/>
- Shire of East Pilbara: <http://www.eastpilbara.wa.gov.au/>

Indigenous Organisations

- Ashburton Aboriginal Corporation: <https://www.ashburton.net.au>
- Gumula Aboriginal Corporation: <http://www.gumula.com.au>
- IBN Corporation: <http://www.ibngroup.com.au>
- Karla Nyiyaparli Aboriginal Corporation: <https://karladevelopments.com.au/>
- Murujuga Aboriginal Corporation: <https://www.murujuga.org.au/>
- Ngarliyarndu Bindirri Aboriginal Corporation: <http://www.bindirri.com/>
- Ngarluma Aboriginal Corporation: <http://www.ngarluma.com.au/>
- Ngarluma Yindjibarndi Foundation: <http://www.nyfl.org.au/>
- Western Desert Lands Aboriginal Corporation: <http://www.wdlac.com.au/>
- Yamatji Marpa Aboriginal Corporation: <http://www.ymac.org.au>

Industry Associations

- Karratha & Districts Chamber of Commerce & Industry: <https://kdcci.com.au/>
- Port Hedland Chamber of Commerce: <https://www.phcci.com.au/>
- Newman Chamber of Commerce and Industry: <http://www.newmanchamber.com.au/>
- Onslow Chamber of Commerce and Industry: <http://www.onslowcci.com.au/>
- Pilbara Inland Chamber of Commerce and Industry: pilbarainlandcci@gmail.com

Pilbara in Australia

