



Making Water Work

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Australian Government
Department of Industry,
Science and Resources

Cooperative Research
Centres Program



- 01.** **THE CRCNA**
Industry research and development
for impact
- 02.** **WATER RESOURCES**
Leading sustainable development
- 03.** **LOWER FITZROY**
Central Queensland catchment
- 04.** **WHERE TO NEXT**
The future of northern development

Research and Development for Northern Australia

The **Cooperative Research Centre for Developing Northern Australia (CRCNA)** is investing \$75 million in Australian Government funds over ten years (2017 to 2027) to support industry-led research and development collaborations to make doing business in the north easier, more efficient and with less risk.



CRCNA vision

To invest in industry-based research that de-risks development in Northern Australia to realise a resilient and sustainable economic future.



CRCNA focus

Research collaborations that develop new technologies, products and services to address industry issues unique to the north.



CRCNA origins

Established as a key initiative of the Australian Government's 2015, *Our North, Our Future: White Paper on Developing Northern Australia*.

Northern Australia development partners



Northern Australia
Indigenous Reference Group



Industry-led research themes



First Nations-led business development



Agriculture, incl. horticulture and forestry



Aquaculture and seafood



Water resources







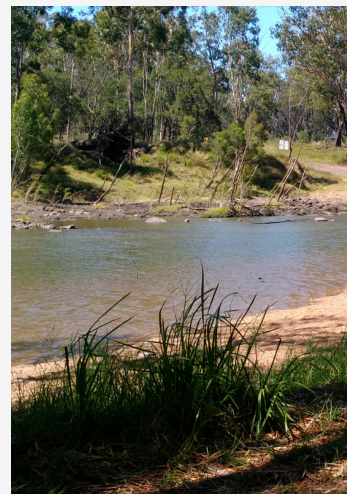
Health service delivery incl. tropical health



Education program

CRCNA water resource projects

-  Making Water Work program
-  Cape York water project
-  Water ledger, water markets
-  Water Security for Northern Australia



Lower Fitzroy catchment (CQ)



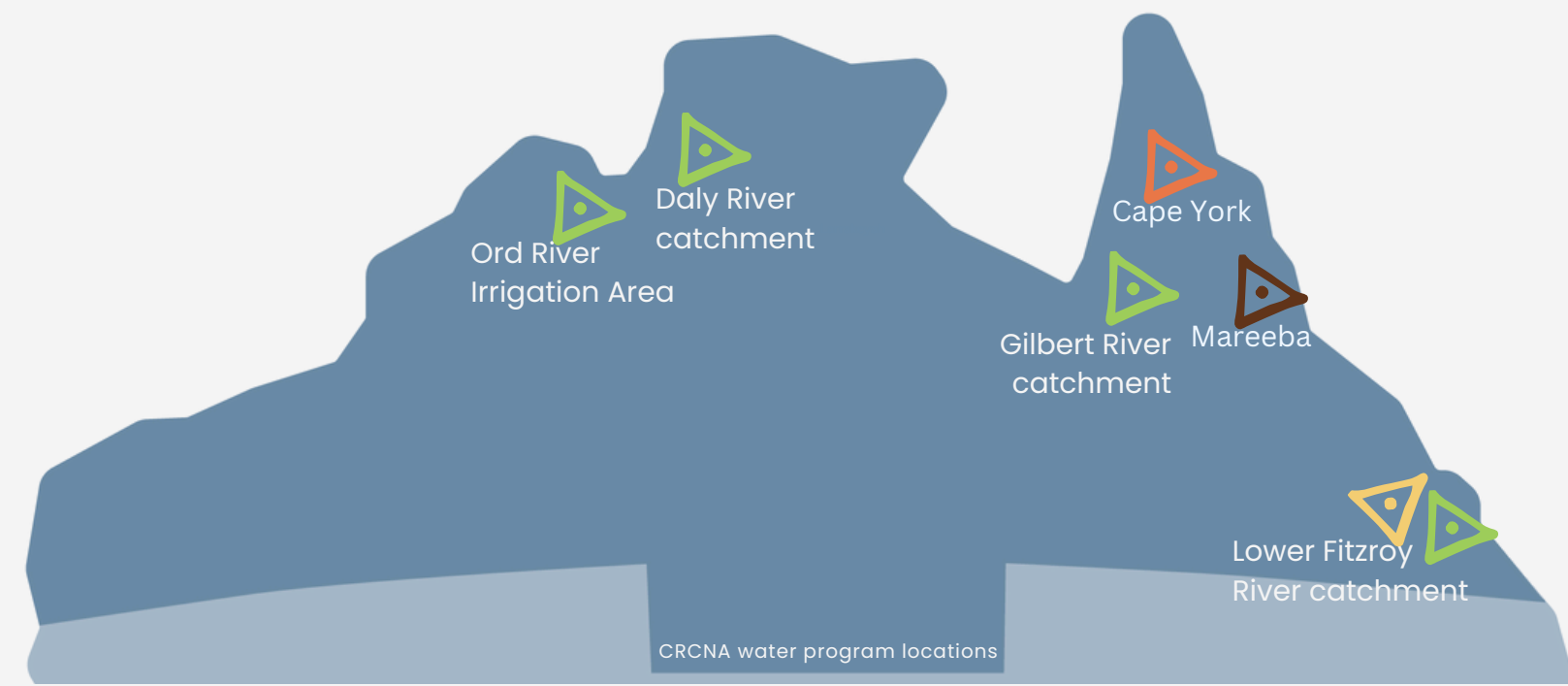
Gilbert River catchment (NQ)



Daly River catchment (NT)



Ord River Irrigation Area (WA)



Tiwi Islands, NT



Barramundi

Water resources

Sustainability, reliability, resilience

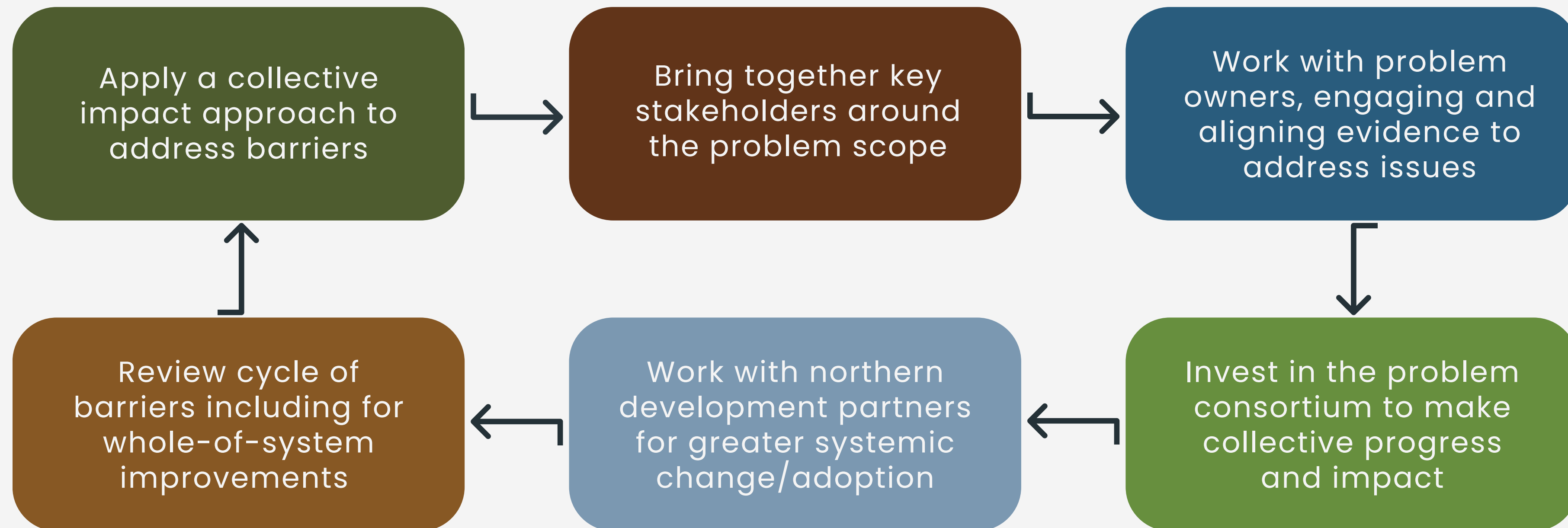
Why water is political

- ↳ Water planning
- ↳ Environmental flow objectives
- ↳ Cultural flow objectives
- ↳ Biodiversity
- ↳ Ecological impacts
- ↳ ESG economic frameworks
Storage | Delivery | Energy
- ↳ Hydrology and interactions
Terrestrial | Freshwater | Marine
- ↳ Nature positive reforms



CRCNA's engagement style

The CRCNA approach to collective development



Sustainable development and healthy eco-systems can co-exist if we work together

Water Security for Northern Australia program

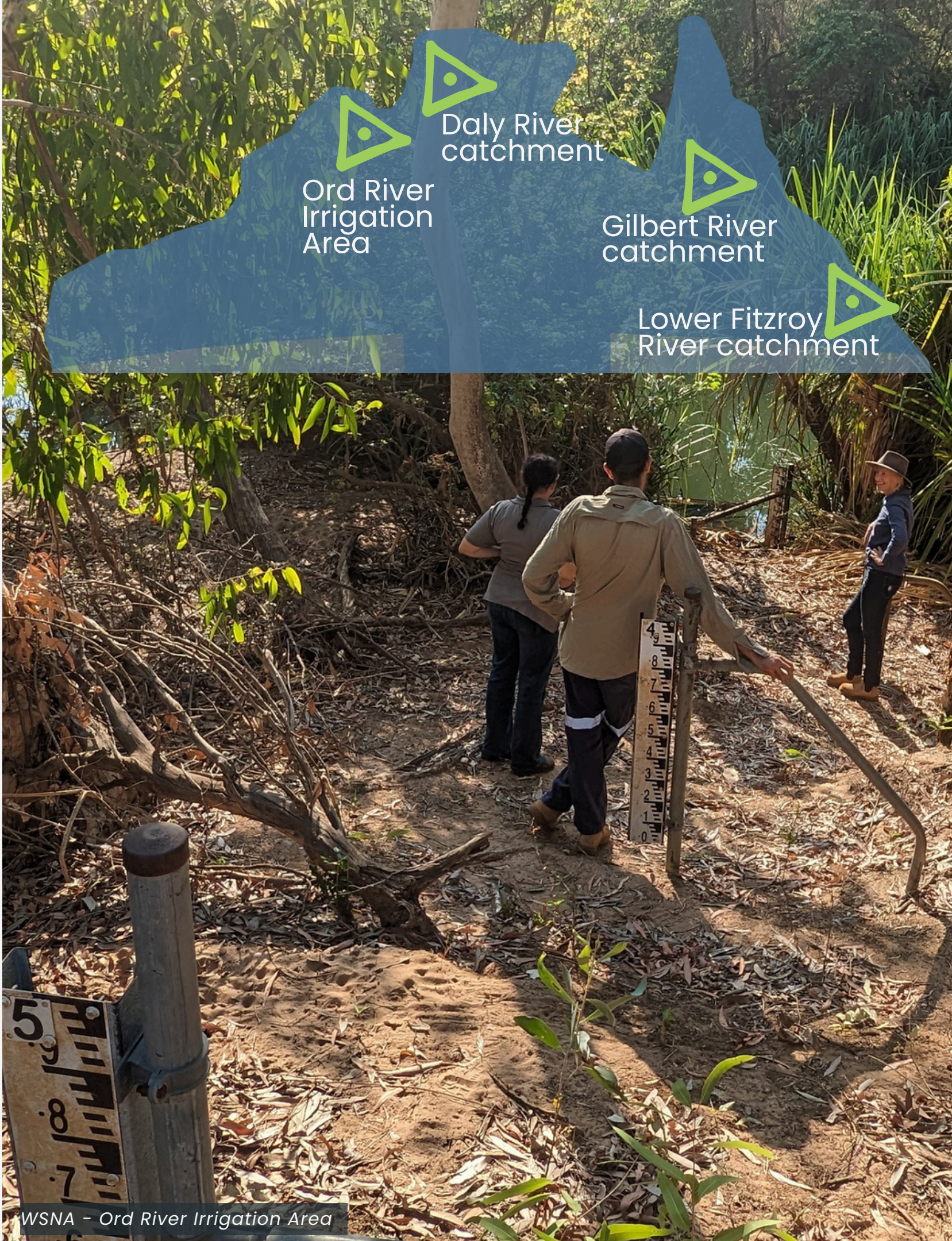
Delivered through the Northern Australia Universities Alliance from 2023 to 2026

Work packages

- ↳ Research across Northern Australia
- ↳ Water quality, availability, and the environment
- ↳ New and existing cropping systems
- ↳ Supply chain and alternative economies

Research focus

- ↳ Water availability and allocation
- ↳ Environmental management
- ↳ Economic returns with water resources
- ↳ First Nations water assets



First Nations Water Rights under the Cape York Water Plan

Working with Aboriginal Corporations in Cape York to leverage opportunities through their water rights.

- ↳ Create a situation analysis of Aboriginal Corporations rights to water allocations under the *Cape York Water Plan*.
- ↳ Research catchment based case studies to better understand challenges in accessing and leasing water allocations.
- ↳ Develop a Cape York Water Manual to build the capacity in receiving allocations, utilising, or leasing water and engagement with First Nations holding water rights.
- ↳ Inform broader water policy, leveraging First Nations knowledge.



Scaling water markets

Contemporary water market and trading systems with Civic Ledger's Water Ledger, blockchain technology.

Intent

- ↳ Improve water access with water market design and governance.
- ↳ Create investor confidence with grower-led access to water markets.

Progress

- ↳ Mareeba-Dimbulah Water Supply Scheme moved to blockchain water market and trading platform: *Water Ledger*.
- ↳ Created a model for application across the north in other industries like tropical health, supply chains.



Sugarcane irrigation, north Queensland

Making Water Work program

- ↳ Providing water for irrigation is not enough by itself to guarantee development.
- ↳ Collaborative governance was applied to new water infrastructure at Rookwood Weir in Lower Fitzroy region, Central Qld.
- ↳ Farmers leveraging sustainable water resources to improve production, diversify and meet market demands.
- ↳ Creating circular economies with positive environmental outcomes.

Working group:

- Agforce
- CQUniversity*
- CRCNA
- Darumbal
- Dept Agriculture and Fisheries*
- Dept Environment and Science
- Dept Regional Dev, Manufacturing and Water
- Rockhampton Regional Council: Advance Rockhampton*
- Fitzroy Basin Assoc
- NBNC0
- RDA – Fitzroy
- Stanwell
- Sunwater*





Rookwood Weir downstream

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Project 1

Visionary land use planning to facilitate development precincts

Aim: Support the viability of a local irrigation water supply scheme (4,423ML/ annum) for South Yaamba to landholders that have suitable land without direct river access.

Partners: Rockhampton Regional Council, Pinion Advisory (Tasmania irrigation infrastructure design experience)

Outcomes: Apply model to other regional water development that balances water security, agricultural productivity, diversification, and environmental values.

Timeframe: Jul 2022 to Nov 2023



Wheat in South Yaamba



Mango exports



Lower Fitzroy catchment

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Project 2

Defining a Supply Chain for Lower Fitzroy

Aim: Provide a more coordinated approach to development of agricultural precincts, using the lower Fitzroy as a water development model.

Partners: CQUniversity, KPMG, Qld DAF

Outcomes: Identify and improve planning and coordination processes to develop agricultural precincts and improve services including information and engagement with potential investors.

Timeframe: Oct 2022 to April 2024



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Project 3

Achieving reef water quality requirements in new agricultural developments

Aim: Assist landholders to meet Reef Water Quality regulations from new Rookwood Weir allocations.

Partners: Rockhampton Regional Council – Advance Rockhampton, Qld DAF, Sunwater

Outcomes: Avoid possible regulation cliff from expanded agriculture by:

- ↳ creating land management toolkits for regulation (19 certified plans to date)
- ↳ monitoring and record keeping practices e.g. farm plans, sediment and nutrient plan accounting, case studies.

Timeframe: Jun 2023 to Dec 2024





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Project 4

Mobilising strong water governance arrangements

Aim: Work with landholders to form a network to address issues in irrigation systems management. Improve market trading mechanisms for information, platform access and consistencies between ownership structures.

Partners: CQUniversity, Qld DAF

Outcomes: Develop a cooperative framework for the regions irrigation sector, creating efficiency of water allocations and water use. Improve the water allocation process and generate new efficiencies in the way that water is used - higher value crops, investor access, markets.

Timeframe: Jan 2023 to Dec 2024





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Project 5

Integrating nutrient, waste and energy streams in agriculture development through hyacinth harvest and processing

Aim: Develop a circular economy by recycling water hyacinth in the Fitzroy River, then reusing as a soil ameliorant in agriculture, reducing weed management.

Partners: Fitzroy Basin Association, Rockhampton Regional Council, Qld DAF

Outcomes: Improved water quality and ecosystem condition through reduction of invasive aquatic weeds. Adoption of recycling principles for the aquatic weed biomass as a soil ameliorant, reduced weed management, and cost benefit analysis.

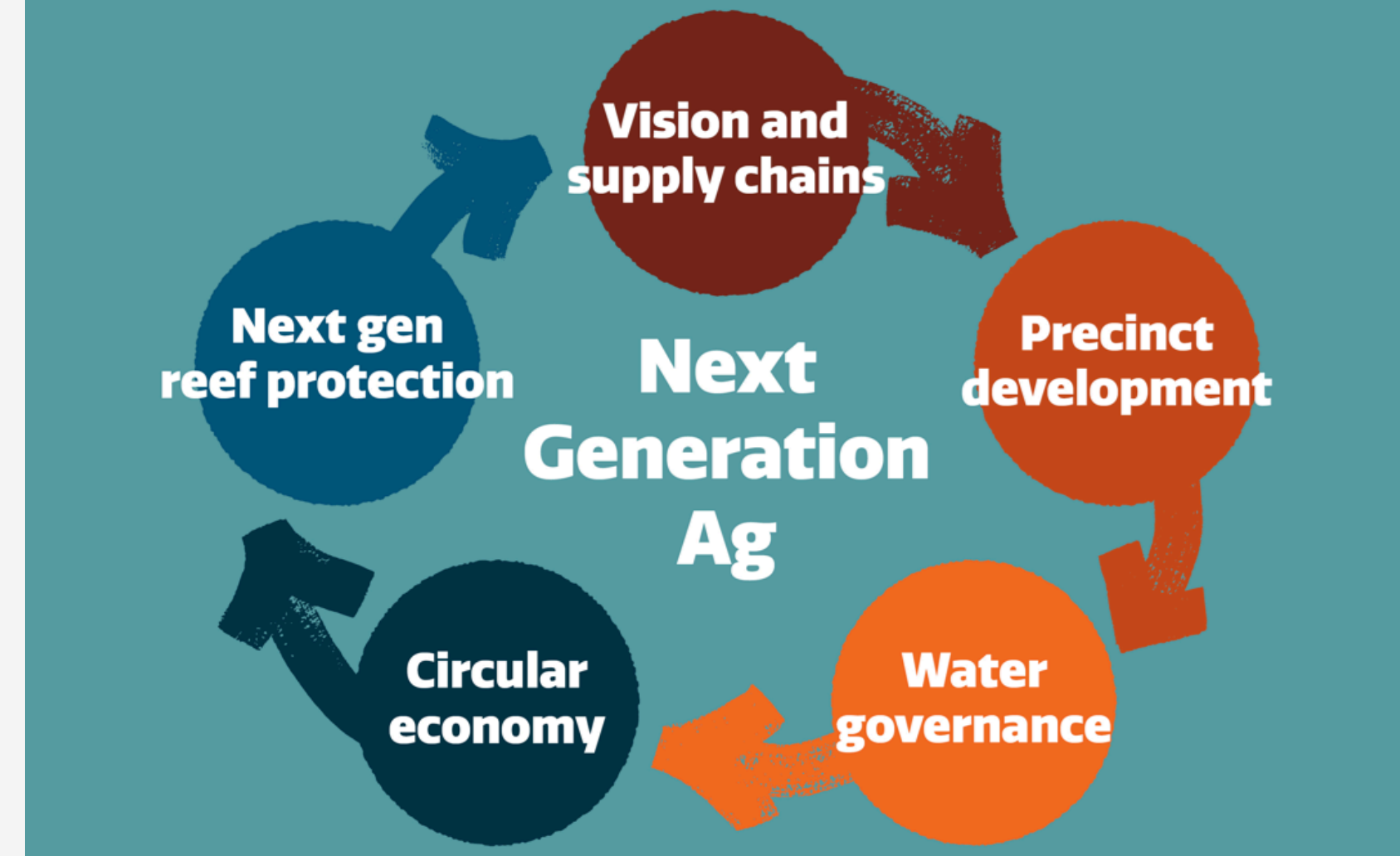
Timeframe: Jan 2023 to Dec 2024



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Together we've achieved..

- ↳ A local irrigation water supply scheme that balances water security, agricultural productivity, diversification, and environmental values.
- ↳ Planning and coordination processes to improve services, information and engagement.
- ↳ Resources so landholders can meet Reef Water Quality regulations.
- ↳ A governance model that improves market trading, platform access and consistencies between ownership structures.
- ↳ Improved water quality and ecosystem condition by recycling invasive weeds for soil improvers.





Where to from here

- ↳ Strategy for the future of CRCNA
- ↳ Commitment to nature positive development that's inclusive of local aspirations
- ↳ Ensuring collective involvement of all research institutions
- ↳ Informing and delivering for all levels of government
- ↳ Tailoring research to northern conditions and application across jurisdictions
- ↳ Leveraging investment, relationships, outcomes and memberships to date



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