Making Water Work
Governance group: May 23

Subproject 2: South Yaamba Planning Foundations Report

Preferred Option Study



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South Yaamba Project

- Engaged in July 2022
- 12 month project under CRC-NA with contribution from RCC
- Aims to develop a Preferred Option irrigation concept assessment for growers in South Yaamba district
- Water delivery from source to potential demand point (irrigators)





Scheme Development Methodology



- Identified need & water source
- Barriers to development
- Targeted demand assessment, multi-step process
- Business case development
- Funding constraints and models
- Infrastructure development (pipes, pumps, dams)
- Private investment on/off farms & regional economic benefit

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Project Overview

Where we are at

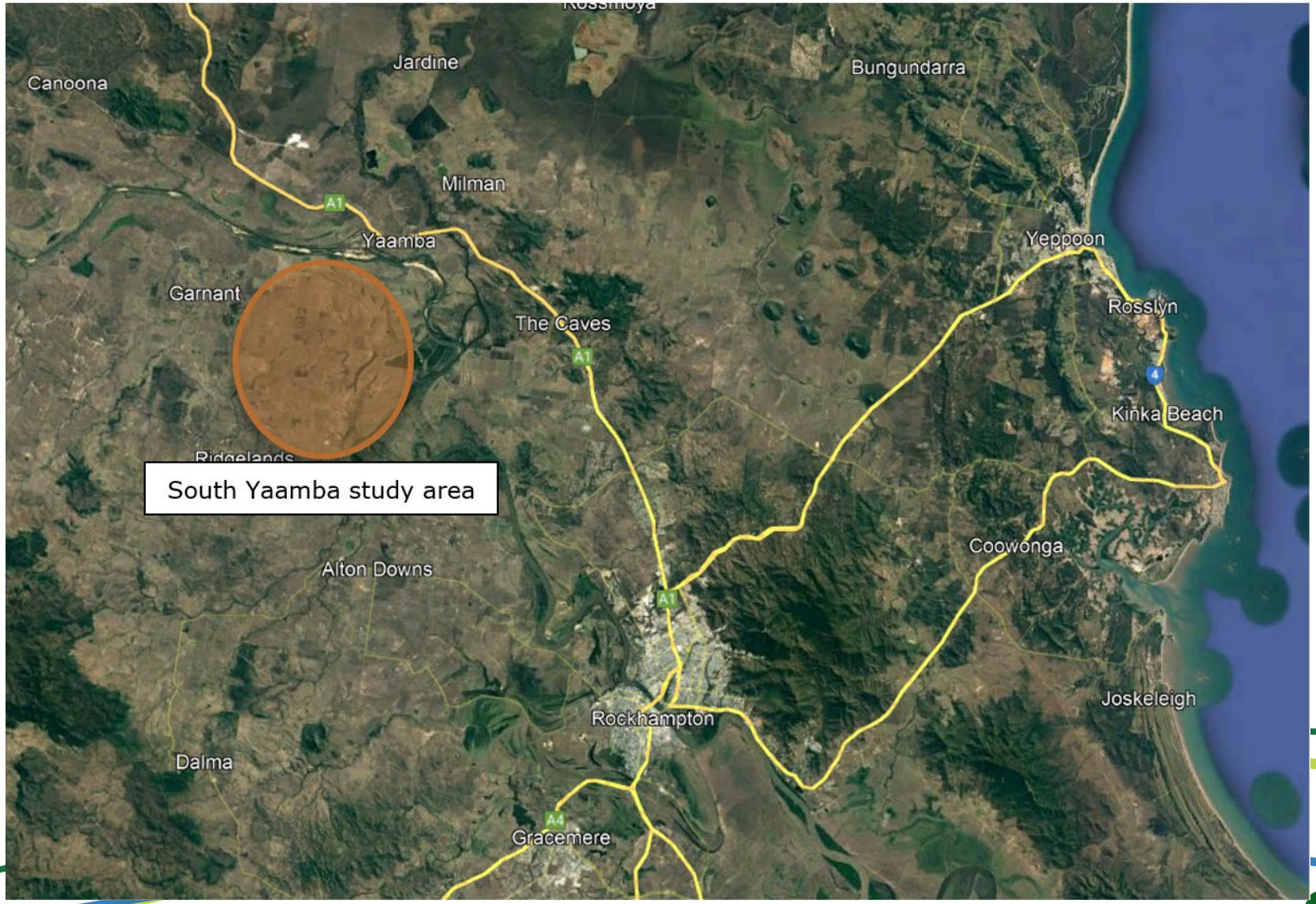


- Final reporting June 2023

(12 month project)

- Milestones:
  - Engagement
  - Expression of interest (EOI) process
  - Options analysis
  - Agronomic review
  - Scheme design and infrastructure costing (final stages)
  - Economic analysis (in progress)
  - Final reporting & lessons learnt (yet to complete)

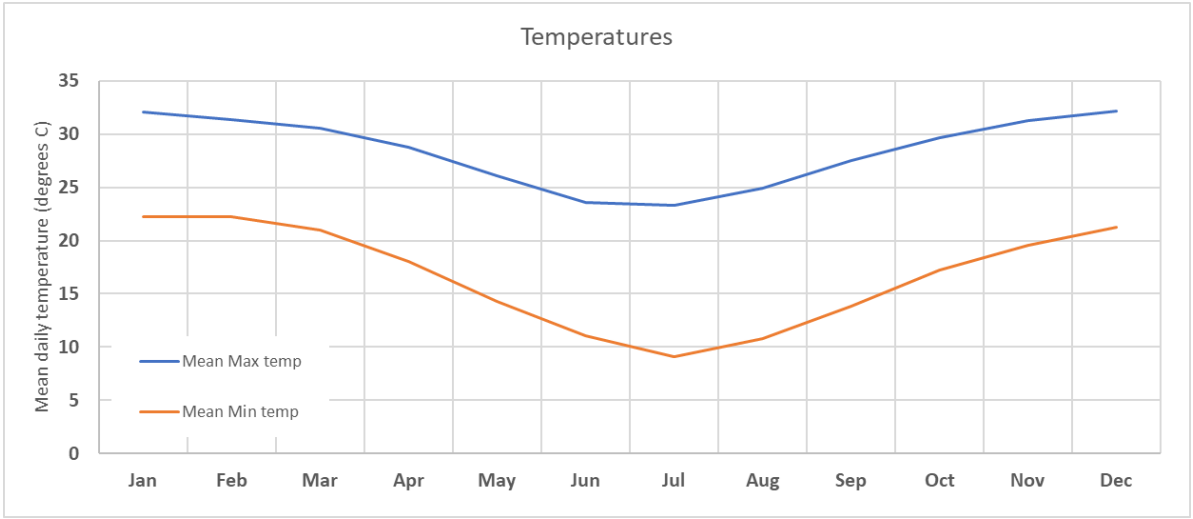
Area Overview

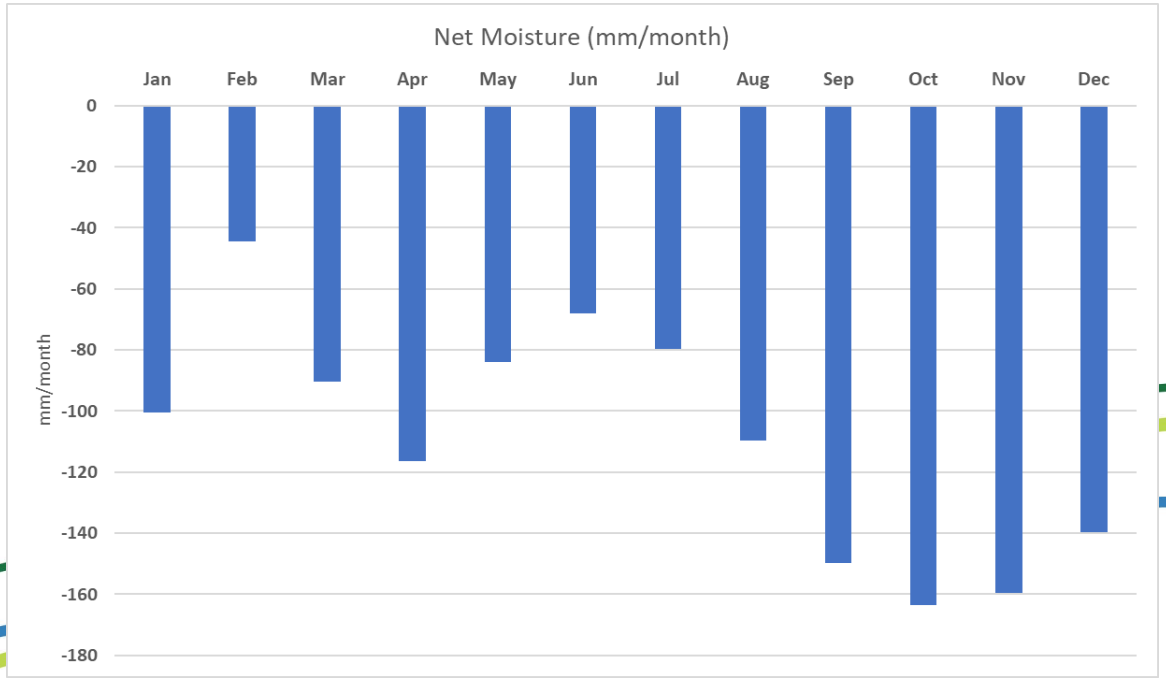


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Area Overview

- Agronomics:
  - Soil types – typically considered suited for irrigated agricultural use
  - Climate (costal sub-tropical)
  - Drainage
  - Existing enterprises – grazing, annual cropping, some horticulture
  - Water quality





Net Moisture = rainfall – evaporation

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Area Irrigation Demand

Crop	Irrigation water demand (ML/Ha/annum)
Cereals	4-5
Citrus	6-8
Corn	5-7
Grazing pasture	7-9
Lucerne (multiple cuts/repeat grazing)	6-8
Macadamia	4-6
Melons	4-5
Sorghum (forage/grain)	5-7
Soybeans	5-7
Wheat	4-5
Vegetables	3-6



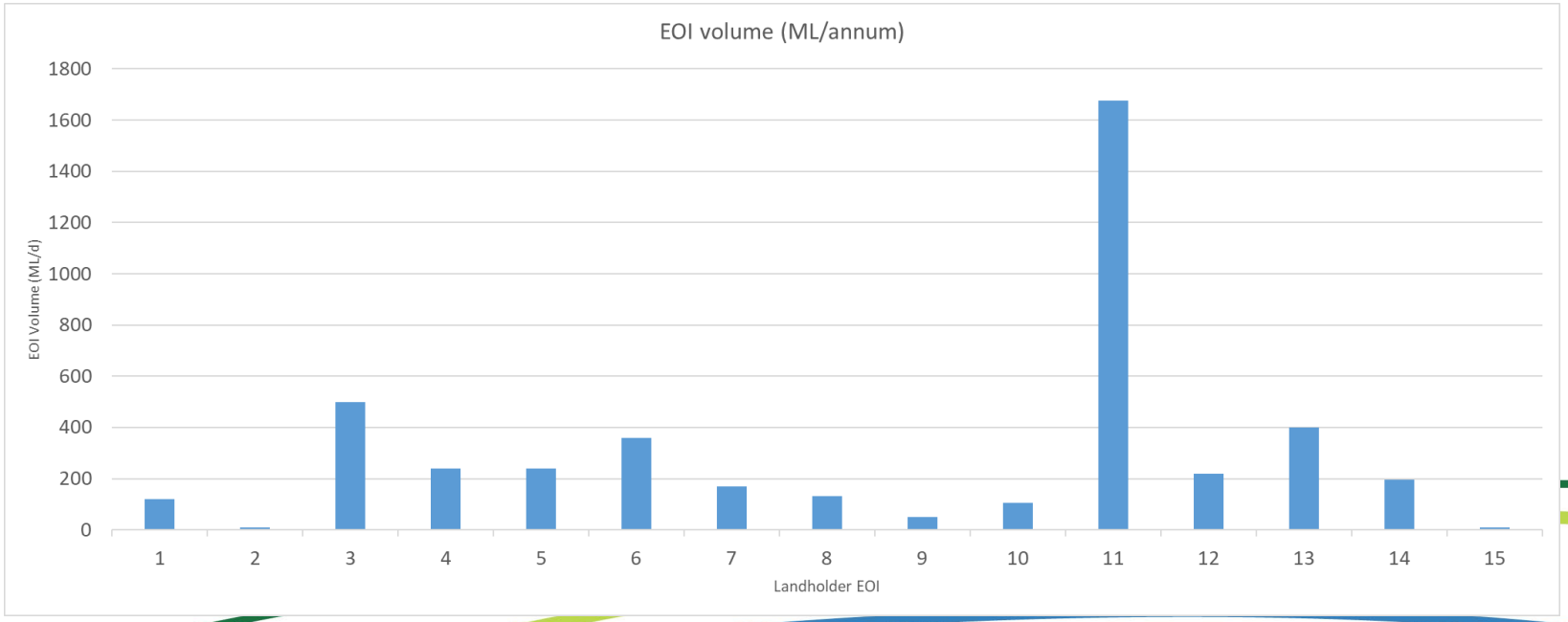
- yield
- variety
- agronomic management

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Expression of Interest

EOI summary – October 2022	
Total entities	15
Total expressed volume (ML/annum)	4,423
Average ML/response	295

- Methodology & purpose
- Run in conjunction with RRC
- Information to potential customers
- Mix of no irrigation & some existing irrigation



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Project ground truthing





- On-farm consultation
- Reconnaissance visits
- Inspect & observe critical infrastructure locations
- Validate assumptions
- **Cannot be desktop only exercise!!!**

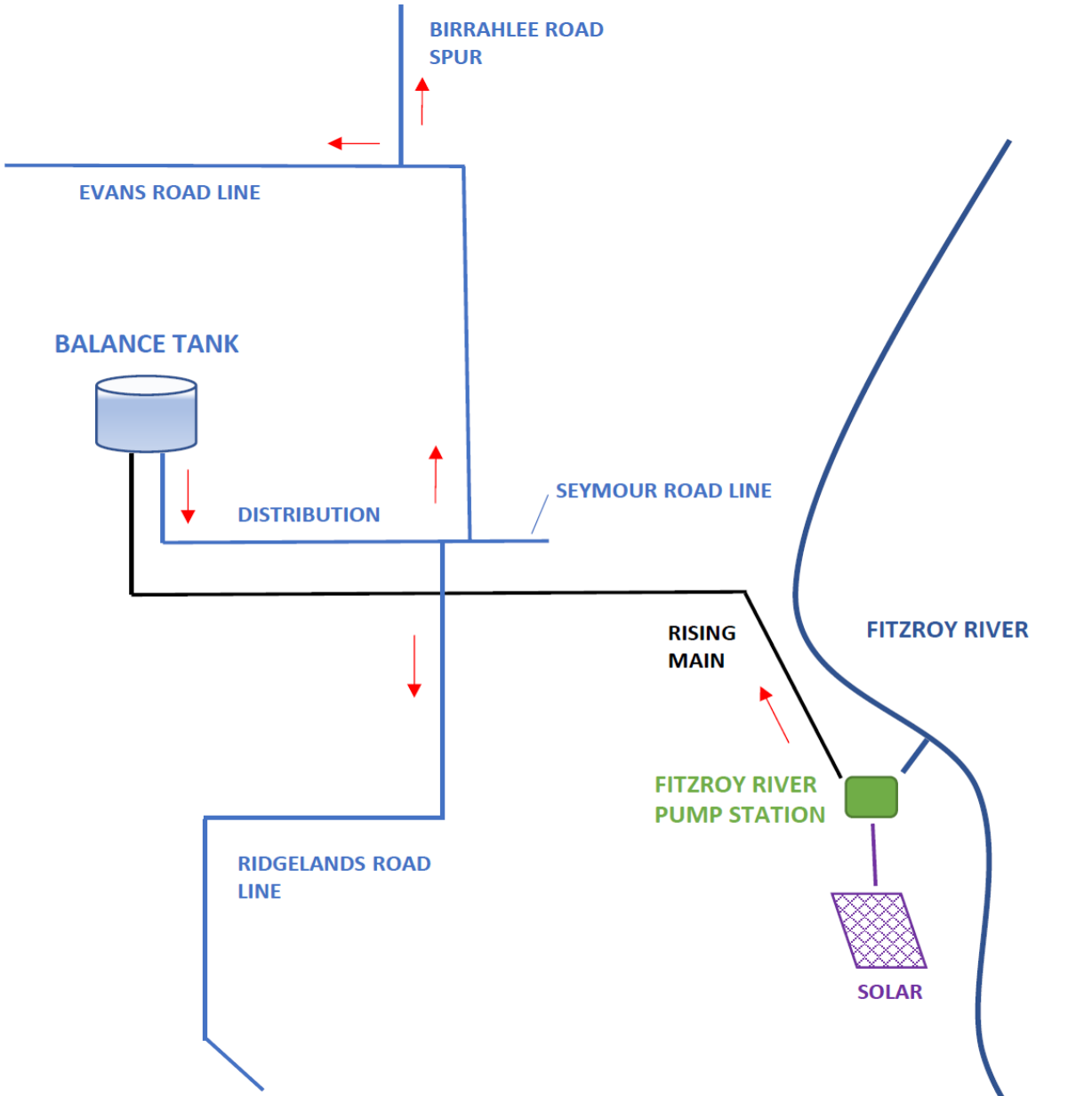
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Irrigation scheme parameters

Design Parameter	Requirement	Comment
Scheme reliability	Medium priority water monthly. Rookwood weir: 84% reliability for medium priority	Water allocation is assumed to be secured as a third party customer as medium priority. High priority may also be available. Bulk water entitlement is assumed to be purchase through proponent from SunWater
Scheme annual allocation	4,420 per annum to be pumped	4,420 ML medium priority
Season length	180 day flowrate period of irrigation design supply. Supplied over a 350 day available irrigation season	Minimum period customers can take their allocation over. 180 days can be split or moved within the 350 day period.
Nominal peak scheme flowrate	24.4 ML/d (282L/sec)	4,420 ML over 180 day season length
Peak Flowrate	Annual entitlement delivered evenly (24 hours/day) over irrigation season	Example: 200ML annual entitlement translates to $\frac{200\ ML}{180\ days}$ = 1.11ML/d = 12.9 L/sec
On-farm Pressure	Guaranteed minimum residual pressure at customer outlet valve	Depending on outlet location and scheme demand residual pressure will vary

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Scheme design – schematic



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Infrastructure examples







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Costing assessment

*Subject to change with final milestone reporting

Capital

Capital cost	ML Demand per Annum	$/ML (pre-subsidy)	Customer contribution	Customer cost ($/ML)
$43.3M	4,420	$9,800	25%	$2,500

Operational

Zone Reference	ML Demand per Annum	$/ML
All distribution	4,420	$175

- Includes Parts A, B, C & D charges
- Typically, a bigger barrier to scheme participation

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Comparisons to other built schemes

Scheme	ML	Capital ($M)	$/ML
South Yaamba	4,423	$43	$9,700
Don* (2022)	4,500	$40	$8,900
SWAN (2017)	2,000	$19	$9,500
Duck (2018)	5,200	$30	$5,800
North Esk (2017)	4,680	$31	$6,600

- Pre-subsidy costs between $8,000-$10,000/ML
- Customer contributions range 20-40%
- Earlier scheme development (lower hanging fruit) as low as $6,000/ML inclusive of water entitlement, particularly schemes with total season capacity above 5,000ML/annum

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Final project stage

- Economic and financial analysis – enterprise examples and farm level investment and decision making
- Environmental desktop considerations
- Final infrastructure design placement, scoping and costing
- Final reporting, lessons learnt and implantations plan
- Project wrap-up July 2023



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