



# Lined Catchment Learnings

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# Funding Acknowledgement



**Government  
of South Australia**

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Primary Industries  
and Regions SA

## Regional Growth Fund

# Coorong Lined Catchment Project

## Currawong, Merravale, Woods Well & Cornish Pastoral dams & catchments

- The 4 lined catchments have a combined catchment area of 12.2 hectares
- They will catch 61 Megalitres of water
- The value of water captured is \$164,275 annually based on SA Water mains price of \$2.775 Kilolitre and 500mm rainfall

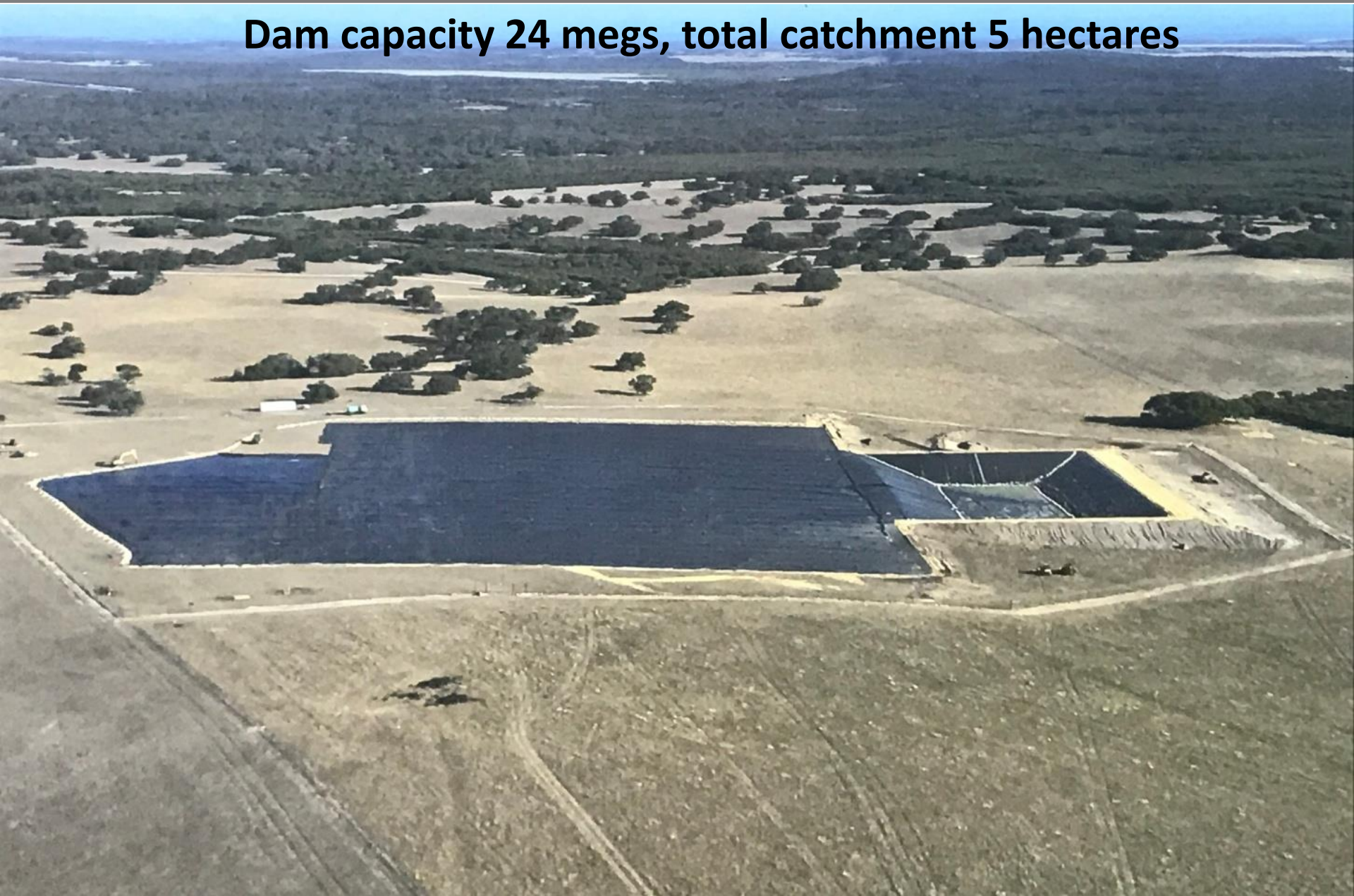
# Coorong Lined Catchment Project

- Total cost of the 4 catchments & dams, including earthworks, liners, pumps, tanks, pipes, fencing etc is approx \$1.5m
- Costs ranged from \$230,000 to \$800,000  
Costs varied significantly due to size, new infrastructure inc. pipes, troughs, tanks, telemetry etc

**These costs don't include farmers labour and machinery**

# Currawong

**Dam capacity 24 megs, total catchment 5 hectares**



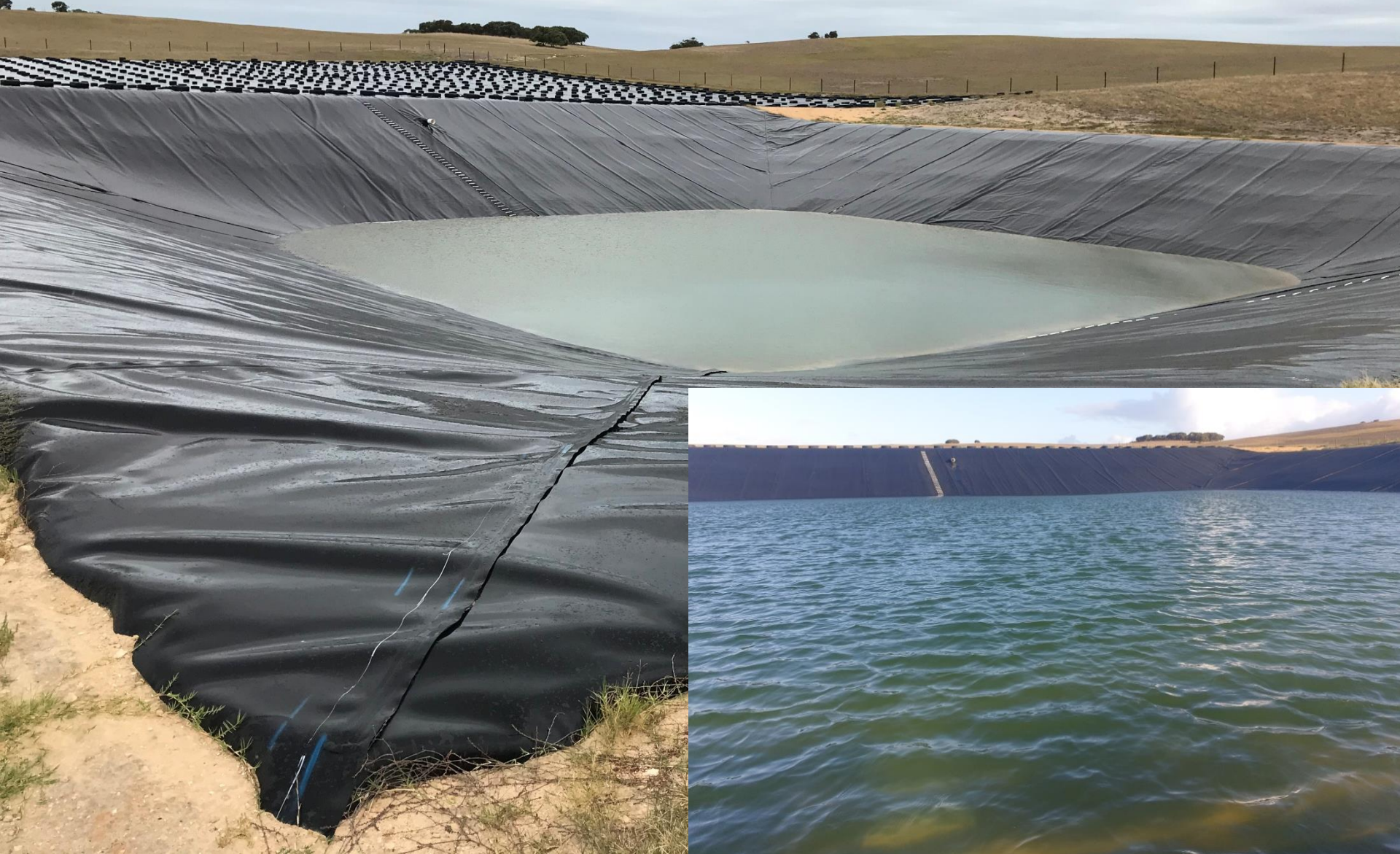
# Currawong

**07/08/2021 - Dam overflowing 24 megalitres**



# Merravale

**Dam capacity 15.1megalitres, total catchment 2.8ha**



# Cornish Pastoral

**Dam capacity 11.5megs, total catchment 2.4 hectares**





# Woods Well Station

Dam capacity 9.4megalitres, total catchment 1.8ha



# Orlunda Downs



**Lined Catchment, Salt Creek**

# Daniels

**Dam capacity 7megs, total catchment 1.54ha**



# Warranty On Liners

**1.5mm poly liner has a 20 years warranty**

**1.0mm poly liner has a 10 years warranty**

**All 8 dams are 1.5mm poly**

**6 of the catchments are 1.5mm poly**

**2 of the catchments are 1mm poly**



# Evaporation

- Allow for evaporation when calculating the capacity of the dam
- Likely to be 1.4 to 1.7 meters annually
- Dam covers are very expensive. A floating cover for a 2ha dam is likely to be over \$100,000
- It is much cheaper to make the dam bigger to compensate for evaporation
- A deeper dam with less surface area is best

# Fencing



**Coorong District Council Development approval condition:**

***Following construction, the site must be securely fenced with a 1.8 m high fence and a locked gate***

# **DEVELOPMENT PLAN CONSENT CONDITIONS: (CDC cost \$693.00)**

- (1) The development may proceed in accordance with the stamped approved plans and details submitted with the application and contained in Development Application 571- 121-19 except where varied by the conditions below (if any).

**Reason To ensure that the development is undertaken in accordance with the application details.**

**The following conditions (2) – (11) have been imposed at the direction of the Department for Environment and Water - Natural Resources South East:**

- (2) The dam must be constructed to a water holding capacity of no more than 23,000 kilolitres (23 megalitres).
- (3) The dam must not be constructed to intersect groundwater or have a finished base below any groundwater water table.
- (4) The dam must be constructed in such a manner that prevents water leaking into the groundwater table, by lining the dam with 1.5 mm thick high density polyethylene (HDPE).
- (5) The spillway must be constructed to cater for a 1% Annual Exceedance Probability. Overflow from the dam must not cause soil erosion.
- (6) Any work must not increase the risk of flooding.
- (7) There must be a minimum distance of 20 metres between any water features (including wetlands, watercourses, drains) or wells and the fuelling site for machinery used to undertake the construction of the dam.
- (8) The works must be undertaken in a manner that prevents silt or sediment leaving the site.
- (9) The proposed works must not have a detrimental impact on any nearby trees.
- (10) To minimise erosion, the dam walls and all other disturbed areas must be vegetated with suitable perennial pasture species.
- (11) Following construction, the site must be securely fenced with a 1.8 m high fence and a locked gate.

# Monitoring Telemetry





# Telemetry is being used for:

- Leak detection
- Tank sensors
- Salinity level alarms
- Remote pump start-up and stop
- Valve shut offs
- Monitoring cameras
- Soil temperature probes
- Ground water monitoring
- Automatic weather stations



**Pros and Cons**

**Water Security Options**

# Leak Detection Units

## PROS:

- Significant savings of mains water
- Reduced reliance on River Murray Water
- Relatively cheap and easy to install
- Locally manufactured & serviced
- Data available on-line or via text
- Tax incentives for construction costs

## CONS:

- A unit is needed for each SA Water meter
- Need mobile phone reception
- Leaks can be very difficult to find

# Reducing On-farm Pipeline Pressure

## PROS:

- Pressure reducers and pressure gages are cheap and easy to install
- Reduces leaks, particularly with low grade poly pipe
- Tax incentives for construction costs

## CONS:

- Need to closely monitor water infrastructure and regularly check pressure gauge

# Piping Water From Off-farm Sources, eg Bore, Lake, River

## **PROS:**

- Significant mains water savings
- Shandyng opportunities with mains or bore water
- Reduced reliance on River Murray Water
- Tax incentives for construction costs
- Improved land values
- Asset attached to land

## **CONS:**

- Cost of pipeline and instillation
- Approvals for laying pipes on road and road crossings
- Native veg clearance on road reserves
- Many landholders under estimated the size of the pipes and pumps needed
- Reliability of input water source?

# Upgrade On-farm Water Pipes & Infrastructure

## **PROS:**

- Can significantly reduce leaks
- Less time spent on maintenance
- Less time spent on leak finding
- Tax incentives for construction costs
- Improved land values

## **CONS:**

- Cost of the pipes, tanks and troughs
- Instillation time and costs

# Desalinating Groundwater

## PROS:

- Can reduce costs of water to less than \$1.00/kl
- Shandyng opportunity can reduce infrastructure costs or increase output
- Reduced reliance on Murray Water
- Improved stock health & production
- Improved land values, asset on land
- Tax incentives for construction costs
- Reliability of input water

## CONS:

- Ongoing costs of membranes and reagents
- Power requirements needs either mains, generator or large bank of solar panels
- Effluent disposal
- EPA approvals?
- Water quality and water contaminates can be a limiting factor

# Shandyng Water

## PROS:

- Can use groundwater, mains, bores, lined catchments, lake & river water
- Relatively cheap, significant savings
- Tax incentives for installation costs

## CONS:

- Monitoring needed to prevent layering
- Water needs to be mixed thoroughly to prevent stock losses

# Telemetry

## PROS:

- Very significant time savings,
- Detects leaks and overflowing tanks & troughs.
- Can be viewed and operated from almost anywhere.
- Remotely turn valves on and off.
- Alarms for salinity, tank levels etc.

## CONS:

- Initial cost.
- Stock damage if not protected.
- Theft of solar panels & electronics.
- Lack of mobile phone coverage.

# Lined Catchments

## PROS:

- Very little maintenance and long warranty on poly liners.
- Shandyng can increase output and reduce construction costs.
- Reduced reliance on Murray Water.
- Tax incentives for construction costs.
- Improved stock health & production.
- Improved land values, asset with land

## CONS:

- Initial construction costs.
- Algae control.
- Development applications & approvals.

# A Few Final Points When Planning and Constructing a Lined Catchment

- When selecting the site (and fencing it) make sure there is sufficient room to expand the catchment area in future
- Make sure there are ladders installed in the dam, as it can be difficult to get out
- Investigate the option of shandyng water when planning the project, it may reduce construction costs
- Avoid installing catchments on steep ground. A very gentle slope is sufficient (tyres can wash into the dam)
- Consider the warranty on the liner when planning the project
- Generally landholders have under estimated the amount of tyres required to hold down the liner

# Tax Incentives and Grants

- **Instant asset write-off for eligible businesses**  
ATO until 30 June 2023
- **On-Farm Emergency Water Infrastructure Rebate Scheme**  
PIRSA Round 3 2021-22 Up to \$25,000
- **Regional Growth Fund**  
PIRSA - yearly rounds 2018 to 2028



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