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## **Irrigation development study - Central Gippsland**

Southern Rural Water has completed a study exploring opportunities to expand irrigated agriculture in the Latrobe, Thomson, Macalister and Avon catchments in central Gippsland. The aim of the study was to consider projects that may create regional development and boost employment for the region.

This pre-feasibility study reviewed the potential for new irrigation development, including water resources available, level of demand, costs of supply and environmental, economic and social risks.

### **What was the purpose of this study?**

The aim of the study was to consider projects that may promote regional development and boost employment for the region, and help to boost Gippsland's reputation as a reliable food bowl.

As an indication, the only currently managed irrigation supply zone in Gippsland – the Macalister Irrigation District (MID) - is estimated to generate greater than \$500million in economic value to Victoria each year.

### **How was this project funded?**

The study was funded from the Australian Government National Water Infrastructure Development Fund, an initiative of the Northern Australia and Agricultural Competitiveness White Papers, along with Southern Rural Water.

### **Will there be expansion of irrigation supply in central Gippsland?**

The study has been gathering information to determine whether there is potential for irrigation be expanded. There is no funding to begin work on any expansion into new irrigation areas at this stage.

## **What work was undertaken in the pre-feasibility study?**

### Phase 1 – Strategic Assessment

- assessment of land capability across Central Gippsland, considering climate, topography, soil quality and potential for irrigation
- assessment of water resources across Gippsland, identifying potential current and future sources of bulk water
- synthesise data to identify potential matches between land capability and water resources to identify 4 areas for more detailed assessment
- the four areas identified for inclusion in the next stage were the east side of the Avon River; between Toongabbie and the existing Macalister Irrigation District; along the Latrobe River between Traralgon and Sale; and the Dutson area

### Phase 2 – Pre-feasibility Assessments

- irrigation demand study including survey of landholders in the focus areas, plus irrigation businesses outside the study area
- develop concept schemes and high-level cost estimates informed by the demand study, a field survey and water resource analysis
- economic analysis of the concept schemes, based on the high level cost estimates and consideration of enterprise returns and on-farm costs associated with recent irrigation development projects (e.g. in Tasmania)
- assess environmental and cultural heritage risks and develop project risk register
- rank prospective new irrigation areas for future investigation

## **What were the specific areas of interest for this study?**

Based on the Phase 1 assessment of land capability and water resources, four focus areas were selected for more detailed assessment. The areas were:

- Latrobe River – Glengarry to Rosedale on the northern side of the river.
- Toongabbie – between Toongabbie township and the western edge of the MID (north of the Latrobe River focus area).
- Avon River – Bushy Park to Llowalong along the eastern side of the Avon River.
- Dutson – covers the sandy soils between Longford and Dutson Downs.

The Kilmany area was also investigated in response to interest expressed from landholders in the early stages of consultation.

## **How were the areas of interest selected?**

The study areas were initially selected based on assessment of surface water and groundwater resources and comparison to land capability including soils, topography and climate. These areas were refined following the consultation regarding demand and the preliminary investigation of supply options.

### **What were the key findings for the Latrobe River focus area (including Kilmany)?**

The Latrobe River area has good access to road and rail infrastructure, moderate land capability and potentially good access to surface water resources. There is potential to extend irrigation beyond the narrow river flats area.

Demand identified along the Latrobe River was concentrated in an area between Rosedale and the Sale-Toongabbie Road. A concept design was investigated for this area, involving supply from the Nambrok-Denison Main channel.

There is also the potential for landholders to access additional irrigation water through pumping from the Latrobe River. This could apply to both sides of the river and to the Kilmany area, as well as between Glengarry and Rosedale.

### **What were the key findings for the Toongabbie focus area?**

Supply to a Toongabbie scheme may be sourced from the Thomson River via the Cowwarr channel, or via a rising main from the Latrobe River. It could then be pumped to a header storage for distribution to customers via a gravity pipeline.

The key issues for this area are distance to water resources, which will increase infrastructure cost and the medium to heavy clay subsoils, which will limit land capability. This is a relatively large area and a low level of demand (per hectare) was identified, compared to the other areas.

### **What were the key findings for the Avon focus area?**

Some irrigation is already in existence along the eastern side of the Avon, but this is limited by low security water supplies. There are permeable soils suited to high value agriculture and irrigation could be intensified through the provision of additional water.

A concept scheme was investigated involving supply from the MID channel system, including a possible balancing storage.

### **What were the key findings for the Dutson focus area?**

This area has a proven ability to successfully grow vegetables through use of groundwater. It is drier than the other areas resulting in higher unit demand for irrigation. However, it is distant to potential surface water supplies and groundwater is capped and fully allocated.

In the Dutson area, consideration was given to supply via a storage and pipeline network from the Latrobe River, or treatment and supply of water from the Regional Outfall Sewer. Both of these options have very high costs and are not considered feasible.

Landholders could consider accessing groundwater for irrigation development through trade with existing licence holders.

### **What type of irrigation development was discussed in the study?**

Participants in the demand survey were generally very positive about the future of agriculture in the region and are looking to expand or diversify to continue to grow their businesses.

The key demands for water are expected to come from vegetables, dairy and fodder cropping (including feed grain). Other enterprise types may occur but are likely to be at a comparatively smaller scale.

Non-agricultural demands for water identified include environmental flows for the Avon River, town water supply for Briagolong, and supply to rural residential properties along any proposed pipeline routes.

### **How would water be supplied to any potential new irrigation area?**

The concept designs vary based on the location, but generally include:

- Balancing or header storage at the top of the supply systems
- Gravity distribution pipelines
- On farm storage. Two options were investigated:
  - Small storages to balance between peak monthly demand and daily demand variability
  - Larger storages to balance between average and peak monthly demandsThe preference will be a balance between on farm cost and supply system cost. Practicality of on farm storage may also be an issue based on land capability and availability.
- No minimum pressure is adopted at the farm supply point. Pumping is expected to be required on-farm, particularly where spray irrigation is used.

### **What might the water cost?**

We don't yet know the potential cost of water supply to these areas, more detailed investigations will be required. However, the following indicative price points were discussed with landholders during consultation.

Indicatively, annual charges could range from \$50/ML to \$150/ML. Infrastructure and water entitlement purchase cost could range from \$1,500/ML to \$3,000/ML.

These costs are relatively consistent with the annual charges and entitlement purchase costs in the MID and with schemes developed in other parts of Australia, particularly Tasmania.

**What about the environmental and cultural heritage impacts associated with irrigation development?**

Screening environmental and cultural heritage assessments were undertaken. The work included a review of the legislative requirements, desktop assessments and field surveys.

The project sites and surrounding areas are almost entirely converted to agricultural land with some areas of native vegetation along water courses and within road reserves. Some of these remnant patches meet the definition of native vegetation and may also provide habitat for a range of flora and fauna. Where possible, pipe alignments have been adjusted to avoid areas with significant cultural heritage and environmental values (e.g. waterways).

**What impact might new irrigation development have on the reliability of supply to the Macalister Irrigation District?**

Southern Rural Water is committed to ensuring that any new irrigation development does not impact on supply reliability for existing customers. As a high priority, a detailed water resource analysis will be undertaken as part of the next stage to investigate and assess any potential impacts.

**Which of the focus areas are considered to be potentially viable?**

Supply to the east side of the Avon River may be feasible. This is due to the concentration of demand and because it is the target for the vegetable growers. There are higher net economic benefits associated with vegetable production.

Supply to the Dutson, Latrobe and Toongabbie areas is not considered viable at this stage. Their future consideration should not be ruled out in the longer term as farming practices/activities continue to transition in response to the demands of local and international markets. Due to the lack of economic viability, SRW will not progress investigations for the Dutson, Latrobe and Toongabbie areas at this stage.

**What other opportunities have been identified as part of the project?**

While it is not considered economic to provide an irrigation scheme to the Latrobe river flats, the demand study indicates that there is significant demand along the river which may be better serviced by increased river supply. SRW will consider all available opportunities to service this demand.

### **If work progresses for the Avon system, what other investigations would occur?**

The following items have been identified for any future investigation:

- Further investigation of water resource availability and reliability (high priority)
- Further development of scheme demand, design and cost estimates
- Siting of balancing storages, including geotechnical investigation of material suitability for construction and negotiations regarding land acquisition
- Capacity of supporting infrastructure required, particularly power
- Practicality of on-farm storages in the Avon area – availability of suitable land
- Potential for exchange of surface water and groundwater licences to improve environmental flows in the Avon River

### **How do I progress development of irrigation on my individual property?**

To discuss the potential for irrigation development for your property, please note the following contacts at Southern Rural Water on 1300 139 510: Chris Hughes, groundwater and river customers, or Terry Clapham, MID customers.