

# Irrigation Futures

of the Goulburn Broken Catchment



Final Report 9 – Scenario implications for  
land use planning



Departments of  
Sustainability and Environment  
Primary Industries



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### **Documents in this series.**

#### **Final Report – Summary**

Provides a brief introduction to the project and how the project objectives have been met.

#### **Final Report 1 – Scenarios of the Future: Irrigation in the Goulburn Broken Region**

Provides an overview of the region, drivers for change, scenarios, implications and strategies.

#### **Final Report 2 – Regional scenario planning in practice: Irrigation futures of the Goulburn Broken Region**

Provides a manual of project methodology for next-users.

#### **Final Report 3 – Perspectives of future irrigation**

Describes scenario implications for irrigation supply infrastructure.

#### **Final Report 4 – Handbook of flexible technologies for irrigation infrastructure**

Provides guidelines and tools for irrigation supply infrastructure design.

#### **Final Report 5 – Scenario implications for catchment management**

Describes scenario implications and strategies for catchment management.

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# **Irrigation Futures of the Goulburn Broken Catchment**

## **Final Report 9 – Scenario implications for land use planning**

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## Introduction

### *Irrigation Futures of the Goulburn Broken Catchment*

The Goulburn Broken Catchment is known as the food bowl of Australia. It covers 2.4 million hectares and has a population of around 200,000 people (Department of Sustainability and Environment, 2005). Irrigated agriculture is a major business engine in the Goulburn Broken region, producing more than \$1.2 billion at the farm gate in 2001-2002 from about 280,000 hectares of irrigated agricultural land. Investment in on-farm and processing infrastructure is about A\$100 million per annum (Michael Young & Associates, 2001). The region is therefore a major contributor to the state and national economies and the quality of life of consumers.

The region faces significant challenges and opportunities. Issues such as free trade agreements, climate change, water reform, and technological developments will have a significant influence on the future. As one of the oldest gravity irrigation systems in Australia, Goulburn-Murray Water's irrigation system needs substantial renewal of its ageing infrastructure in the next 20 years. The consequences of these pressures for the region are highly uncertain and will include impacts on the region's economy, environmental assets and social fabric. Therefore, it is critical that the region develops a sound plan to strategically position itself for irrigation in the future.

Regional planning is highly challenging. In addition to the complexity of issues and high level of uncertainty, a diverse range of stakeholders have interests in the planning process and its outcomes. Enabling all stakeholders access to the planning process is important to managing their expectations and developing plans that are robust and likely to be adopted.

The Goulburn Broken Irrigation Futures project was established to assist the regional community to plan for the future. It was a regional initiative, funded by the Goulburn Broken Catchment Management Authority, Goulburn-Murray Water, Victorian Department of Primary Industries, Victorian Department of Sustainability and Environment, and National Program for Sustainable Irrigation. The project adopted a scenario planning approach in collaboration with the region's stakeholders to:

- develop a shared vision for the future of irrigation in the Goulburn Broken catchment over the next 30 years;
- identify scenarios of major constraints and opportunities and of regional response options;
- understand the social, economic and environmental consequences of various scenarios; and
- facilitate key stakeholders to build consensus on preferred regional strategies for future irrigation.

Scenario planning is a relatively new approach to strategic planning developed and applied famously by the Royal Dutch Shell Company to anticipate and plan profitably for the oil shocks of the 1970s (O'Brien, 2000; van der Heijden, 1996). Scenario planning explicitly acknowledges ambiguity and uncertainty in the strategic question by creating a set of scenarios that describe plausible, coherent pictures of alternative futures. These scenarios become a powerful tool for testing the robustness of strategies, as well as for generating new strategic options. Scenario planning also provides a useful means for organisational learning. While scenario

planning has become widely used by private corporations and public organisations (O'Brien, 2000), there are few examples of its application for regional planning.

The Goulburn Broken Irrigation Futures project used scenario planning in conjunction with the regional community to explore and plan for the future of irrigation in the region. The project was undertaken in four stages. Following an initial stage that developed the project, community perspectives on the future for irrigation were captured by an extensive stakeholder-engagement program. The third stage involved developing detailed scenarios and examining their regional implications. The final stage involved examining the implications of the scenarios for specific issues, in collaboration with the region's agencies and organisations.

### ***Scenario implications for land-use planning***

The Irrigation Futures scenarios highlight that the future for agriculture is highly uncertain. Market preferences, competition and access, government policy, water availability, technology will all change and potentially place significant pressure on the viability of agricultural businesses. To stay competitive in a global market place, agriculture will need to be increasingly flexible and adaptable. One element that will support the development of flexibility and adaptability in agriculture is appropriate land-use planning and zoning that allows businesses to adjust to changing conditions. In addition, increasing interest in ecosystem services, such as carbon sequestration, will potentially create opportunities and challenges for land-use planning.

The land-use planning process needs to create zones within which farming systems can adapt in order to stay competitive. This adaptation may involve the amalgamation or subdivision of land or the transformation of farm businesses between industries. Planning to create such a flexible environment is not likely to be easy. It will need to consider zone sizes, proximity to major transport links, the ability to adjust lot sizes, inter-industry synergies, the provision of services to and within zones, and the provision of security for long-term investment.

There are also inter-dependencies to consider. The regional economy is underpinned by agriculture and associated service industries. If the region experiences the potentially significant changes to agriculture highlighted by the scenarios, economic managers will need to focus on the development of greater resilience within their regional economies. Similarly, community managers will need to consider the implications for agriculture, and develop programs to prepare the community for change.

In Victoria, Local Government has responsibility for land-use planning and zoning. To enable the Goulburn-Murray region to prepare for the future, the Shires of Moira and Campaspe and the City of Greater Shepparton have initiated the collaborative development of a Rural Strategy. The Irrigation Futures project team was invited to contribute a scenario planning perspective to the Rural Strategy development process. This was delivered through a program of workshops and support activities.

The objectives of the workshop program were to:

- introduce the concept of scenarios to the planning teams, and build their capacity to undertake scenario planning,
- expose the planning teams to the diversity of perspectives on the future of agriculture within the community (ie economic and community development, service provision, primary producer and processing industries),
- explore the insights, opportunities and challenges for the Rural Strategy produced by the Irrigation Futures scenarios,



- facilitate the identification of strategies and actions within (and between) the planning and other groups.



## **Method**

To assist planners and others to explore the scenario implications for the Rural Strategy, the project team worked collaboratively with Local Government CEOs, planners and economic development managers to plan and deliver two full-day workshops and supporting documentation. Limited time meant that the development of understanding of scenarios, their implications, and the transfer of ownership from the project team to the planning and other teams was not as effective as we would have liked. In hindsight, our aims may have been too high, and our processes not sufficiently focussed, to enable the planners to gain all that they could from the process.

### ***Workshop 1***

In the first workshop, we provided participants with an introduction to scenario planning and how it might contribute to the development of the Rural Strategy. A range of participant groups were invited. They included planners, economic and community development managers, environmental groups and primary producers. We deliberately placed participants in mixed groups to ensure participants were exposed to a diversity of views and perspectives. We then asked participants to articulate their aspirations for the region. The characteristics of one of the scenarios were then outlined, and participants were asked to consider and discuss how that scenario might influence their aspirations.

After lunch, we placed participants in their discipline groups (Land-use Planners, Economic Development and Community Development), and asked them to explore:

- what were the key messages that they heard in the morning session, and
- what were the implications of those messages for their discipline.

This was followed by a reporting session, and a 'where to from here' session where participants chose to explore the remaining three scenarios at the next workshop, rather than attempt to organise consideration between workshops.

### ***Between workshops***

The project team compiled and synthesised workshop outputs. These synthesised outputs were then circulated to participants along with the remaining three scenarios. Participants were encouraged to familiarise themselves with each remaining scenario.

### ***Workshop 2***

At the second workshop, participants were initially seated in mixed groups. A brief overview of the remaining three scenarios was provided. Participants were asked to record the key elements that influenced their particular role. These perspectives were then discussed at a table level, and reported to the other groups.

In discipline groups, we asked participants to explore:

- the key messages from the four scenarios for their work,
- the implications, learnings or insights pertaining to their responsibilities, and
- the key integration points with other disciplines.

The key issues for each discipline and key integration points were then reported to the wider group.

After lunch, participants were asked to choose one of the key integration issues raised, and to move to a table with like-minded people to discuss how those integration needs might be satisfied. Outputs were recorded.

At the conclusion of the workshop, the project team reviewed the objectives of the workshop series and indicated that future initiatives for inter-agency co-operation would have to come from participants themselves.

### ***Post workshop activities***

Workshop outputs were processed and distributed to all participants, with a number of suggestions as to how the Rural Strategy might take this work forward.

## Results

This section provides a summary of the output generated by the workshop process. The output includes:

- a list of aspirations for the region from this process.
- a summary of the new perspectives for the land-use planning, the environment and economic development groups,
- an outline of the integration points between disciplines, and next step actions.

### *Aspirations for the region*

- Region taking responsibility for its own destiny
  - More certainty – longer term, clearer planning directions
- Vibrant, viable, prosperous community
  - Viable agribusiness enterprises, the area continues to grow – more opportunities for future generations
  - Diversity in the region – including population (age), environment, cultures
  - Maintenance of food variety, and continued production of “real food”
  - Adaptability to change
  - Making best use of our resources for maximum financial return
  - Fulfilling jobs for people and availability of work
- Irrigation systems modernized – efficient
  - Optimisation of infrastructure, resources
- Stronger community networks
  - More co ordination between regions, industry groups / segments
  - Happy people – regional pride increases
  - Certainty, security – work lifestyle, sense of place/ role within the community
- Sustainable, better balance between intensive agriculture, rural/urban, broad-acre etc:
  - Protect our resources - agriculture and environmental areas from inappropriate use
  - Healthy environment – Urban, rural, cleaner waterways
  - Aesthetics of the region to be pleasing

## ***New perspectives***

This section captures the new perspectives from the scenarios for each discipline.

### **Land Use Planning**

The challenging terms of trade will dictate agricultural practice (area, water availability, soil type). As a result, planning processes and planning controls will need to:

- Adequately identify areas of land where productive agricultural land is protected and lifestyle areas encouraged
- Accommodate flexibility in agricultural practices, encourage adaptations
- Providing opportunities for larger farm operations – encourage farm consolidation and appropriate lot configuration
- Excisions allowed subject to (commensurate to) consolidation
- Existing small lots need to be protected to ensure continued agricultural use rather than default ‘lifestyle’ lots

### **Environment**

The lifestyle, intensive agriculture mix may produce a mosaic or chequerboard of cleared / native vegetation. This requires:

- Management of the interface between different land uses, landowners expectations and aspirations
- Subdivision with allowance for vegetated areas must be considered. Policy revamp to support environment / residential mix – driven by a change in public perception
- Terms of trade will impact on our ability to fund environmental works
- Carbon trading – part of the future landscape
- Climate change – decline in species composition – different ecological systems. Pest, plant and animal control will need to be increased. Redefinition of what are weeds / not weeds

### **Economic Development**

The scenarios mean that Economic Development Managers will need to consider different approaches to facilitate continued economic development. This requires:

- As a region, we will need to explore our comparative advantage (pick winners encourage diversity of endeavour)
- Educate new farmers and new businesses to new opportunities - gourmet foods and farm stays.
- Establish measures of economic development – jobs, economic output, community development
- Identify infrastructure demands and how these might produce economic multipliers.
- Seek to establish economic return for water remaining locally – provide opportunities to return water back into other agricultural pursuits and high value issues.
- Look at attracting farm investment from overseas UK, NZ, China
- Attract new population from city and overseas
- Support the aged care industry

## ***Integration points***

This section outlines some of the integration points between disciplines

### **Land Use Planning**

- Planning to create investment opportunities, and produce a prosperous sustainable community
- Promoting an area for agricultural purposes by way of economic development
- Community planning need to gain a better understanding of 'isolated' – long term 'social needs' need to be investigated
- Enhance environmental / aesthetic / landscape values around lifestyle areas
- Balance between short-term community pressure and long-term sustainable planning
- Requirements for infrastructure provision – roads, water, electricity

### **Environment**

- Move towards a better alignment between the Regional Catchment Strategy and land use planning activity
- Partnership agreements between agencies to deal with cross-boundary issues eg drainage
- Municipal Catchment Co-ordinator is a valuable and integral connector for three Shires.

### **Economic Development**

- Linkage to education facilities which complement industry
- Links with agriculture, tourism, recreation, eco tourism (farm gate trials)
- Local restaurants linking to local produce - special events
- Automation technologies which are relevant and work within the system and on-farm (irrigation technologies cluster)
- Talk and work with – recreation, arts and community services, land use planning to provide infrastructure for noxious industry and intensive farming
- Mix of hobby farms clusters
- Making sure that planning and land-use considerations are in-line with Economic Development.

## Next Step Actions

Next step actions – not in priority order	Leader	Start
<p>Greater consultation / community involvement / community research - What does (a given issue) mean for land use planning?</p> <p>Work closely with G-MW partnership</p> <p>Integration between RCS and LUP. Municipal Catchment Co-ordinator -enables Local Government to input to Regional Catchment Strategy, and CMA to input to LUP</p>	<p>Planners</p> <p>Steering committee G-MW</p>	<p>Has started</p>
<p>Cross-disciplinary ‘Think Tank’ – group of people who can be pulled in to discuss strategic issues raised – testing robustness of plan / sounding board</p> <p>Community / business group as a sounding board – testing local community, community champions – lobby group for government</p>		
<p>Work toward better strategy alignment</p> <p>Make district community plans available to relevant government department / agencies</p>	<p>Community development</p>	<p>Annually at review time</p>
<p>Have Goulburn Murray Landcare Network (GMLN) express desire to be involved in Rural Strategy Development process</p> <p>Field Naturalists, SP group, field and game, bird observers, GVEG to organise a regional “environmental” groups forum to make bigger strategic voice (Refugees groups)</p> <p>Shepparton Urban Landcare Sustainability centre (for example)</p>	<p>GMLN</p>	<p>June 07</p>
<p>Facilitate continued inter-agency dialogue – circulate email list</p>		<p>June 07</p>



## **Conclusions**

The scenarios and workshops have highlighted a number of issues which are critical for the region.

Pressures such as globalization and climate change mean that agriculture will have to operate quite differently in order to be viable in the future. This requires changes to the planning and support environment provided to agricultural enterprises. Issues such as the ability to aggregate land, and the infrastructure needs of new enterprises (particularly water and electricity supply) will need to be planned in a manner different to the past.

The interface between zones for production agriculture, amenity and tourism, industrial and urban, need to be handled with flexibility, clarity and certainty.

Engagement with DSE, GBCMA and others is required to cater for the emerging opportunities created by a market for carbon sequestration, and the requirements to enhance ecosystem health, in the zoning process.

Achievement of these goals will require a renewed commitment to inter-agency collaboration, and a mechanism for genuine engagement with affected stakeholders. The workshops have identified a number of new perspectives, both within and between their disciplines, and have put together a number of next step actions to deal with issues of greater consultation and integration.

## ***Recommendations***

These are long-term challenges. It is therefore recommended that the Rural Strategy process:

1. Clearly articulates the long-term vision of the Rural Strategy for the region.
2. Maintains a sustained emphasis on doing the things which will achieve that long-term vision, particularly when the way ahead is not clear. This is a role for senior management.
3. Maintains a commitment to participatory processes so that decision making is well informed, and brings the community along with it.