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Achieving sustainable recycled water initiatives through public participation

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Abstract

Sustainability or “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [1] remains a relatively new concept for the water industry. The challenge is to develop sustainable recycled water projects that meet the needs of a water business as the responsible service authority, while at the same time meeting the individual needs of a particular community. The community consultation model that has been adopted by Grampians Wimmera Mallee Water to assist in the implementation of our urban Water Quality Improvement Program is widely considered to be a water industry benchmark. The integration of this tried and tested consultation model with our recently adopted Recycled Water Strategy is now providing us with a framework for informing and educating local communities and other key stakeholders about recycled water. The model also encourages local stakeholders to play a major role in identifying and evaluating opportunities for potential sustainable recycled water projects to meet the needs of their particular community. The successful elements of the model that have been further developed include community newsletters, information packages and public workshops. Initial newsletters and an information workshop seek local community input into identifying potential projects. Subsequent information packages and workshop(s) provide further information for interested individuals and/or organisations in the development of project proposals. Local community input into prioritising the criteria used to assess project proposals are also sought, usually through these workshop(s). Grampians Wimmera Mallee Water has challenged the perceived ‘we know what’s best for you’ culture by providing key stakeholders with the opportunity to have informed input during the decision making process. This is allowing us to develop sustainable recycled water projects that take into consideration the needs of individual communities and key stakeholders. It is also assisting us to build strong relationships with our customers through educated and informed communities.

Keywords: Community consultation; Recycled water; Sustainability; Triple bottom line; Integration

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1. Grampians Wimmera Mallee Water — an overview

Grampians Wimmera Mallee Water provides water supply services to approximately 4,500 farming enterprises and 52,000 urban customers living in 74 towns throughout northwest Victoria. Environmental services are provided to 21 of these towns.

We also manage several irrigation areas, ground-water extraction and stream diversions within the region. Our water supplies are obtained from four major sources.

The primary source is the Grampians Wimmera Mallee water supply system. Covering an area of some three million hectares, the system includes 12 headwork reservoirs in the Grampians Ranges and an associated 17,500 km of open channels, making it one of the largest water distribution systems in the world.

Other water sources are groundwater and the Northern Mallee Pipeline system that draws its water from the Murray River. Water is also harvested directly from local catchments, particularly in the southern parts of the region.

The region has been in a situation of prolonged drought, with some areas experiencing below average rainfalls for the last six years. Regional water storages have continued to deplete, with major storages falling to unprecedented levels in recent years.

Table 1 provides an overview of annual water consumption by our 52,000 urban customers over the last four years in response to the ongoing drought conditions being experienced throughout our region.

Grampians Wimmera Mallee Water also provides environmental services to 21 towns and operates 22 wastewater treatment plants.

New town sewerage schemes are currently being constructed in Hopetoun, Minyip and

Table 1
Total bulk water supplied to towns over the past four years

Year	Amount supplied (ML)
2000/2001	10,414
2001/2002	11,180
2002/2003	10,229
2003/2004	9,440

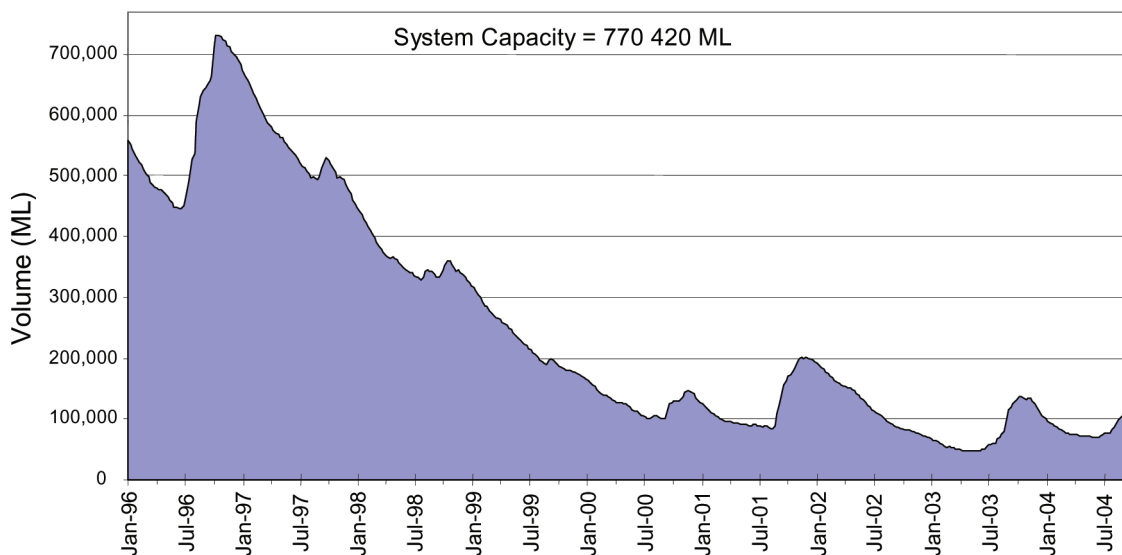


Fig. 1. Total volume in GWMW's 12 storages 1996–September 2004.

Ouyen and these will be completed by the end of 2004, bringing the number of towns serviced to 24.

2. Recycled water use

The efficient use of water to meet the social, economic and environmental needs of our communities is one of our highest priorities, particularly given the extremely dry conditions that continue to be experienced in the Wimmera and Mallee regions of Western Victoria.

Once considered as a product that needs to be disposed of, recycled water is now being viewed as a valuable and sustainable resource that is being increasingly accepted as an alternative to limited fresh water supplies.

For over 32 years, Grampians Wimmera Mallee Water has been supplying recycled water for community benefit and regional development. In 2003/04 some 30 third party customers were supplied with recycled water for:

- Irrigation use, through the development of 12 vineyard operations including Montara Winery in Ararat who commenced the watering of grape vines in 1972, and the Victorian Institute of Dryland Agriculture's (VIDA) plant breeding and research facility based in Horsham; and
- Watering of community facilities, including 6 golf clubs, 3 racetracks, 2 cemeteries and 7 other recreational facilities such as public gardens, sporting ovals and tennis courts,

Recycled water is also applied to land at 15 wastewater treatment facilities to irrigate pasture and woodlots. Of the 3,789 ML of wastewater produced at our wastewater treatment facilities in 2003/04, 92% was recycled and used in the above applications, with 7% evaporating and only 1% discharged to waterways (Table 2).

Our aim is to recycle 100% of treated wastewater from all towns, except where there are evaporation systems, in the future.

Table 2
Percentage of recycled water use for the last three years

Total recycled water use (%) ¹	Year (financial)
92	2003/04
90	2002/03
83	2001/02

¹Excluding evaporation based systems that account for approximately 6% of the total wastewater collected.

3. Our recycled water strategy

We have recently adopted a Recycled Water Strategy for the region that provides us with a definitive and measurable planning mechanism for assessing the efficiency, effectiveness and sustainability of our recycled water initiatives. The objective of the Strategy is primarily to integrate the technical, environmental, economic and social aspects of beneficially using recycled water using a Triple Bottom Line approach. It provides an improved framework for the future management of recycled water and aims to balance regional development needs and emerging environmental imperatives.

Ultimately, potential projects are evaluated against a set of Triple Bottom Line criteria, namely:

- Environmental impacts: soils, surface waters, groundwater, native vegetation
- Water resource impacts: substitution, security, reduced impacts
- Regional development impacts: increased value, jobs, growth
- Social impacts: health, amenity, confidence, recreation
- Technical factors: infrastructure needs, design, quality, quantity, compliance
- Costs and benefits: capital, operating, revenue, sharing
- Risk factors: viability, environmental, health, management, demand, liability

The Strategy is consistent with Victorian Government objectives and includes the requirement to deliver the sustainable water initiatives outlined in the White Paper ‘Securing our Water Future Together’. It also links closely to the recently released Department of Sustainability and Environment ‘Draft Guidelines for Planning and reporting Recycled Water Programs’ and remains consistent with the Essential Services Commission requirement to consult.

The principles of Triple Bottom Line and sustainable development are also inherent in many Commonwealth water resource policies and well documented in a number of international treaties of which Australia is a signatory to. The Strategy builds on the knowledge, experience and capability that we have attained through our existing schemes. It also contains key guidelines and criteria that enable existing schemes to be benchmarked and future recycled water initiatives to be quantitatively assessed. For further details on particular indicators used to assess the efficiency, effectiveness and sustainability of recycled water initiatives please refer to [2].

The development of the strategy took over 15 months and involved extensive stakeholder engagement through a series of workshops, interviews and feedback from staff, current recycled water customers, a number of government agencies and other interested stakeholders. As a result, a key feature of the Strategy itself is that it actively engages the community in the development of recycled water initiatives, which promotes an improved community understanding of reuse viability issues and management requirements.

4. Involving the community in decisions that will impact upon them

The Board of Grampians Wimmera Mallee Water is committed to providing our customers with the opportunity to be involved in decisions that need to be made about the services we provide

to them. To reflect our commitment, we have developed a community consultation model to assist us in involving customers in the decision making process. The model has been used extensively as one of the key drivers in the delivery of our urban Water Quality Improvement Program. The model has provided an excellent framework for informing and educating local communities and other key stakeholders about the issues associated with the current situation, as well as encouraging their input into the final decision.

The main feature of the model has been the establishment of community reference groups (CRG) in each town where water quality improvements are being considered. The CRG usually consists of up to 12 local community representatives who act in an advisory capacity to the Board of Grampians Wimmera Mallee Water. The objective of the CRG is to represent the local community with respect to water quality options for the town and to develop, where possible, a consensus on what action needs to be taken. We seek nominations to the CRG from interested members of the local community through newsletters and public advertisements. If more than 12 nominations are received, membership of the CRG is determined by a ballot of all nominees at the first meeting. Once elected, the CRG then elects its own chairperson. If we are unable to attract sufficient interest from local community members to form a CRG, the local promotion and development group is approached to act as the forum for engaging the local community in the consultation process. CRGs usually meet on a fortnightly basis, for a period of up to six months. During this time the CRG receives information from Grampians Wimmera Mallee Water and others regarding:

- The current water supply and the issues associated with the current supply arrangement;
- The options that are available for improving/ changing the supply arrangement and what can be achieved;
- Legislation and regulatory requirements (for

both customers and Grampians Wimmera Mallee Water); and

- The consequences of the various solutions available to the community (cost, quality of service, management of risk, etc).
- The process is supported by regular newsletters to all town residents on the activities of the CRG and the issues being addressed.
- A series of information booths are also opened in the town during the life of the CRG. Information booths provide the opportunity for:
 - Local residents to become directly involved in the consultation process;
 - Members of the CRG and Grampians Wimmera Mallee Water representatives to receive feedback on local community attitudes and opinions; and
 - Local residents to seek information on a variety of water supply issues from the representatives of Grampians Wimmera Mallee Water who are in attendance.

Workshops for special interest groups who are directly affected by the issues being considered are also organised by the CRG, and include topics such as the obligations of the Food Act 1984 on food preparation businesses and organisations.

Tours of water treatment facilities similar to those being considered by Grampians Wimmera Mallee Water are also organised for CRG members.

Ultimately, the CRG seeks to form a consensus view regarding the preferred level of service with respect to the future water quality for their particular town that forms the basis for recommendation to the Board of Grampians Wimmera Mallee Water.

Comments received from CRG members who have been involved in the consultation process include:

“I sincerely thank the Board for initiating the consultation process and for providing the resources to enable the group and the community to become better informed about their water

supply” — Robert Gloster, Chairman Underbool Community Reference Group.

“CRG members have expressed how much they have enjoyed the consultation period, how much more of an understanding they have of water quality and the various treatment options that are currently available” — Cr Roslyn MacInnes, Chairman Natimuk Community Reference Group.

“A good learning experience” — Brian Herdman, Kaniva Community Reference Group Member.

5. Application of the consultation model for recycled water projects

Through our Recycled Water Strategy, we have adopted many of the successful elements of the urban Water Quality Improvement Program consultation model to inform, educate and engage local communities in identifying and evaluating options for recycled water use.

The consultation model adopted for recycled water projects involves a series of newsletters, information packages and public workshops.

The first workshop is an information workshop that provides an opportunity for interested members of the local community to learn more about the project and the potential uses for recycled water. Invitations to the workshop are issued through newsletters and advertisements in the local media, as well as personalised letters to identified key stakeholders and potential users such as sporting clubs and recreational facilities. The information workshop provides information about the potential options for use of recycled water, as well as the environmental and health aspects of managing recycled water projects. A main objective of the information workshop is to ensure that all potential opportunities that may exist for the possible future use of recycled water in a particular community are identified. The ultimate outcome from the information workshop is the lodgement of Expressions of Interest from

individuals or organisations interested in further exploring opportunities for recycled water use.

Invitations to the second workshop are extended to all those who submitted an Expression of Interest following the information workshop. This technically based workshop further explores opportunities and requirements for recycled water projects.

During the workshop we work through the Recycled Water Proposal that is required to be submitted by those wishing to proceed further. During the technical workshop participants are also given the opportunity to provide input into the criteria that will be used by Grampians Wimmera Mallee Water to assess the Recycled Water Proposals received. Following the technical workshop, our staff are available to work closely with interested parties to develop project proposals, which are required to be submitted to Grampians Wimmera Mallee Water by a specified date. These proposals are then assessed by Grampians Wimmera Mallee Water to establish the preferred option, based on the established criteria and weightings developed in association with the individual community and other key stakeholders.

Further details on the Grampians Wimmera Mallee Water Recycled Water Framework can be viewed in [2].

6. Case study — Ouyen recycled water project

Grampians Wimmera Mallee Water is currently completing construction of a reticulated sewerage system in the township of Ouyen. During the planning of the scheme, a number of potential options for the use of an estimated 80 ML of recycled water per annum were identified by Grampians Wimmera Mallee Water and preliminary discussions were undertaken with selected parties. To ensure that all opportunities for the possible use of recycled water had been identified, Grampians Wimmera Mallee Water organised an information workshop to discuss the potential options for use, the environmental and

health aspects and constraints associated in developing a recycled water project. This session was presented to attract as many interested parties as possible. The fundamental difference in this method is that it addresses the audience in a manner that stimulates interest. This varies from previous consultation programs that involved presentations of large amounts of technical content and potentially alarming the community about the complex issues of health and environmental protection measures outlined in regulatory agency documentation. In the past this method has restricted potential users from actively being involved.

Invitations to the information workshop were extended to all members of the Ouyen community through a newsletter drop to all households, advertisements in the local newspaper and letters to identified key stakeholders and potential users. A total of 22 members of the Ouyen community attended the information workshop, which was held on 11 February 2004. Organisations represented included private individuals, the Trotting Club, Bowling Club, Golf Club, Regional Saleyards, Blackburn Park Recreation Reserve, the Primary School, Secondary College, Caravan Park and local development association Ouyen Inc. A total of 13 Expressions of Interest were received from participants wishing to further pursue potential recycled water projects following the workshop.

On 14 July 2004 a second workshop was held to further explore the opportunities for recycled water use in Ouyen. Invitations to this workshop were extended to those people and/or organisations that had formally lodged an Expression of Interest at the first workshop, as well as other identified key stakeholders including the Mildura Rural City Council, the Environment Protection Authority, the Department of Sustainability and Environment and the local Catchment Management Authority. A total of 14 people attended this workshop, which was aimed at providing more detailed technical and regulatory information to assist these people and/or organisations in

deciding whether they wished to proceed with the submission of a Recycled Water Proposal. During the workshop, information was also provided to participants on the criteria that Grampians Wimmera Mallee Water would be using to assess and evaluate the Recycled Water Proposals received. Participants were invited to ‘weight’ these criteria based on their particular relevance and importance to the local Ouyen community. The weightings given to the assessment criteria, as submitted by participants at the technical workshop and consolidated by Grampians Wimmera Mallee Water, are outlined in Table 3.

This information was then provided to all those participants intending to proceed with the submission of a Recycled Water Proposal to assist them in the development of their Proposal. Participants were offered the opportunity to object to the adopted weightings, however no objections were received. At the closing date for the submission of proposals on 10 September 2004, a total of three Recycled Water Proposals had been received from the Ouyen community, namely:

- Ouyen Inc. Irrigation of sporting and recreational ovals
- Brian O’Callaghan. Pasture production for improving the Mallee Prime Lamb industry
- Scott Munro. Establishment of new vineyard

Each proposal was assessed against a base case, which would involve purchasing or leasing the neighbouring property for irrigation of pasture for

stock, managed by Grampians Wimmera Mallee Water staff or through a third party lease arrangement. To determine the overall outcome for each proposal, the scores and weighting for each criterion were combined. This provides an indication as to which proposal/s generates the most sustainable outcome for the Ouyen community and can be used to identify the preferred option.

The proposal submitted by Ouyen Inc, on behalf of 11 community members, is the most socially orientated proposal. The costs, technical factors and risks involved in this proposal, however, are greater than the Prime Mallee Lamb proposal and vineyard option. The strengths of the Prime Mallee Lamb proposal are based on low costs, low technical requirements and low risk, due to the proponent’s property being located adjacent to the wastewater treatment plant. This scheme also provides benefits to other local businesses through greater promotion and production of the Prime Mallee Lamb industry in the area.

The vineyard proposal provides a higher risk due to uncertainty in the level of commitment and the level of detail provided in the proposal, but does potentially offer better commercial returns. The social benefit and technical criteria resulted in a lower ranking for the vineyard option.

However, the evaluation indicated that each option would provide acceptable sustainable outcomes. The Ouyen Inc. proposal, however, was the preferred option due to its social orientation and the importance placed on this criterion by the local Ouyen community. As a result of this extensive evaluation process, the following recommendation was considered and adopted by the Board of Grampians Wimmera Mallee Water at its December 2004 meeting:

- 1) That further discussions and negotiations take place with Ouyen Inc. to confirm the preferred piping route and customers to be supplied recycled water. The preliminary discussion to include details of costs, supply arrangements and ensure sites chosen can meet regulatory requirements;

Table 3
Criteria for assessing proposals and weightings determined by the Ouyen community

Criteria	Weighting (%)
Environmental impacts	10
Water resources impacts	10
Regional development impacts	15
Social impacts	30
Technical factors	10
Costs and benefits	15
Risk factors	10

- 2) When costs are determined, Ouyen Inc. be offered a period of 12 months to source funding beyond Grampians Wimmera Mallee water's proposed contribution to the scheme, which would represent the cost of the base case option. There may be a need for additional time to enable Ouyen Inc. to apply for external funding; and
- 3) If suitable funding arrangements cannot be finalised within an acceptable timeframe, the Prime Mallee Lamb proposal be pursued as the next preferred option for beneficial use of recycled water at Ouyen.

7. Concluding comments

Grampians Wimmera Mallee Water has challenged the perceived 'we know what's best for you' culture by providing key stakeholders with the opportunity to have informed input during the decision making process. Our consultation programs have taught us that:

- Every community is different, and we don't necessarily know what is 'best' for our customers
- Education is the key to informed decision making and community acceptance. Not all customers will agree with the decision, but if

they understand why it was made they will generally accept it

- Familiarity breeds favourability
- Building strong relationships with our customers is based on credibility, transparency and trust.

This knowledge is allowing us to develop sustainable water quality improvements and recycled water projects that take into consideration the needs and expectations of individual communities and key stakeholders. This has been achieved whilst still meeting the aims and obligations of Grampians Wimmera Mallee Water as the responsible service provider. Combining an effective consultation program with an appropriate Triple Bottom Line framework, progresses Grampians Wimmera Mallee Water's Recycled Water Strategy one step closer to attaining state, national and international goals of sustainable development.

References

- [1] World Commission on Environment and Development, Earth Summit, Rio De Janeiro, Brazil, 1987.
- [2] S. Coutts, A Recycled Water Strategy for Regional Urban Communities, Grampians Wimmera Mallee Water, Victoria, 2004.