

Best Practice Water Conservation Principles

Reducing dependency on River Murray water

DRAFT FOR CONSULTATION

This guide covers:

1. An introduction to water conservation and its relevance to Local Government
2. Five Best Practice Water Conservation Principles
3. How Councils can implement these principles

1.0 Background

Why is water conservation an issue?

Fresh water is one of the world's most valuable resources with the useable portion of fresh water resources less than 0.01 per cent of all water on Earth. South Australia is the driest state in the driest inhabited continent in the world, yet our per capita consumption is high in world terms. The majority of households in South Australia are dependent on the continuous flow of good quality water from the River Murray. In the last 10 years the average annual extraction of River Murray water to supplement Adelaide's metropolitan water supply has been 90 Gegalitres or equivalent to the volume of around 90,000 Olympic size swimming pools! In other parts of the State the availability of water resources for environmental, social and economic benefit is a critical issue.

Benefits of water conservation

The State Water Plan 2000 identified the efficient use of water as vital for South Australia's environmental, social and economic well being. The benefits of water conservation include:

- ▶ the provision of water for the environment;
- ▶ cost savings in terms of rates and electricity through reduced use of hot water;
- ▶ delaying or eliminating the need to expand potable water supply and treatment facilities;
- ▶ water conservation coupled with pollutant source reduction is an effective approach to reducing the adverse effects of all types of non-point source pollution;
- ▶ reduction in the amount of energy needed to treat wastewater, resulting in less energy demand and fewer by-products (eg greenhouse gas emissions); and
- ▶ contributing towards achieving sustainability.

What is the relevance of water conservation to local government?

Councils are increasingly being encouraged by their communities to address water conservation as a priority environmental issue. There are a number of systems that can be implemented by Local Government to promote water conservation - some Councils are already implementing these water-saving measures. Some of these conservation methods also offer the added advantage of substantial cost savings for both Councils and local residents.

Local Government has an important role in facilitating water conservation as it is:

- ▶ responsible for the provision of infrastructure and services;
- ▶ responsible for local environmental management and regulation; and
- ▶ able to provide opportunities for local education, public participation and local action.

The important role of Local Government in promoting sustainability initiatives is acknowledged through the Intergovernmental Agreement on the Environment, Local Agenda 21 and the following sections of the Local Government Act 1999:

Principal role of Councils

Section 6 (b) outlines Councils' roles to provide and co-ordinate various public services and facilities, and to develop its community and resources, in a socially just and ecologically sustainable manner.

Functions of Councils

Section 7 (e) outlines Councils' functions to manage, develop, protect, restore, enhance and conserve the environment in an ecologically sustainable manner.

Objectives of Council

Section 8 (d) outlines Councils' objectives to give due weight in all its plans, policies and activities to regional, State and national objectives and strategies concerning the economic, social, physical and environmental development and management of the community.

Section 8 (f) outlines Councils' objectives to encourage sustainable development and the protection of the environment and to ensure a proper balance within its community between economic, social, environmental and cultural considerations.

The Water Conservation Partnership Project is an initiative that in part seeks to assist the local function of managing the environment in an ecologically sustainable way.





The Water Conservation Partnership Project

The Water Conservation Partnership Project (WCPP) is a joint initiative between the community, Local Government, State Government, Catchment Water Management Boards, and the CSIRO. The project's vision is to reduce the dependency on water from the River Murray, particularly in the River Murray Urban Users Region (RMUUR). This can be achieved through:

- ▶ the use of alternative sustainable water supplies; and
- ▶ more efficient use of water.

The WCPP is a demonstration project of the Local Government Association (LGA) and the Department for Environment and Heritage and Council's Partnership for Local Agenda 21 program in South Australia. It is an integral part of the River Murray Urban Users Local Action Planning Committee (RMUULAPC) Strategy.

Principles of water conservation

The WCPP has drafted a framework of five 'best practice' water conservation principles based on the waste management hierarchy (avoid, reduce, reuse, recycle and disposal) as a model. The framework includes a technique for implementing the 'best practice' principles that will assist Councils to address water conservation.

Implementing the principles in the framework will assist Councils that rely on River Murray water to reduce their dependency on River Murray water.

Councils can apply the principles when they are:

- ▶ considering upgrading or constructing infrastructure;
- ▶ preparing Strategic Management Plans, Management Plans or Annual Reports (reporting indicator);
- ▶ incorporated in their Development Plan for development assessment purposes;
- ▶ considering opportunities for local education, public participation and local action which encourage residents to use water in a more efficient way.

State Government, business and industry can apply the principles when they consider water use and water sourcing for new and existing developments. This will help ensure that water is used in the most efficient and sustainable manner in South Australia.



2.0 The five 'best practice' water conservation principles

- 1 **Avoid water use**
- 2 **Reduce water use**
- 3 **Recycle water**
- 4 **Dispose of water appropriately**
- 5 **Ensure feedback and adaptive management**

First Principle – Avoid

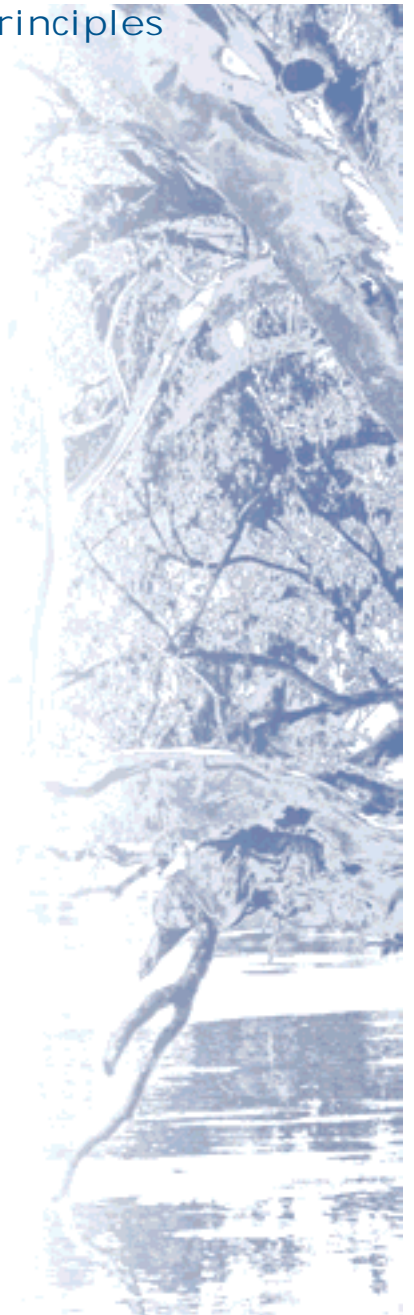
This principle seeks to encourage where possible the use of water where waterless options exist through the use of alternative techniques to reduce dependency on reticulated water by:

- ▶ sweeping paths and pavements instead of hosing them;
- ▶ using dry composting toilets;
- ▶ using insulation, shading and natural ventilation to cool houses; and
- ▶ adopting water free gardens and landscape design.

Second Principle – Reduce

This principle seeks to reduce the amount of water use by:

- ▶ Taking advantage of water efficient landscaping. This can be achieved by:
 - ▶▶ appropriate plant selection;
 - ▶▶ minimizing lawn areas;
 - ▶▶ efficient irrigation practices such as the use of water moisture monitors;
 - ▶▶ garden tap timers;
 - ▶▶ garden mulch to avoid water loss by evaporation; and
 - ▶▶ permeable rather than impermeable paving, where appropriate.





- ▶ Using locally collected and alternative water supplies, for example:
 - ▶▶ collecting and using rainwater for irrigation and internal household purposes (including drinking when considered safe to do so);
 - ▶▶ reusing stormwater by storing in on-site retention schemes. Examples can be found in New Haven (City of Port Adelaide Enfield), New Brompton Estate (City of Charles Sturt) and St Elizabeth Square (City of Marion); and
 - ▶▶ investigations into aquifer storage and recovery schemes.
- ▶ Practical installation of water efficient devices:
 - ▶▶ AAA rated water-saving fixtures (for example showerheads, dual flush toilets, low flow taps and front-loading washing machines); and
 - ▶▶ water efficient irrigation, including soil moisture meters and timers. Optimising soil moisture budgets through smart metering systems.
- ▶ Adopting 'water conservation management practices' that educate residents and Council staff about water conservation. These practices encourage:
 - ▶▶ the implementation of watering regimes that result in minimum loss of water by evaporation by watering in the early morning to minimize evaporation loss;
 - ▶▶ increasing Council staff awareness and input into management practices (including information on the benefits of reducing dependency on River Murray water);
 - ▶▶ regular water auditing and monitoring practices;
 - ▶▶ reporting Councils' water usage and water conservation techniques in annual reports;
 - ▶▶ repair of water leaks within 24 hours of the leak being detected;
 - ▶▶ retrofitting water efficient devices in Council buildings and private homes; and
 - ▶▶ applying a whole-of-life costing approach when developing new (or replacing existing) park and reserve irrigation equipment and ensuring designers and installers of irrigation systems are cognisant of water conservation techniques.



Third Principle - Recycle

This principle seeks to use waste water or reclaimed water from one application such as wastewater treatment for another application.

Where health and other regulatory requirements are satisfied, Councils can encourage recycling by promoting, for example in their Development Plans, the installation of reuse systems in all new residential developments.

In relation to this principle, reference should be made to:

- ▶ Draft Environment Protection (Water Quality) Policy; Environment Protection Authority (EPA), <http://www.environment.sa.gov.au/epa/water.html>
- ▶ Reclaimed water guidelines EPA and Department for Human Services (DHS) <http://www.environment.sa.gov.au/epa/pdfs/reclaimed.pdf>

When using recycled water, Councils must ensure that black/grey water that is treated and used in local areas will comply with the Environment Protection (Water Quality) Policy standards. This policy seeks to:

- ▶ avoid discharges into receiving waters;
- ▶ avoid causing environmental damage;
- ▶ ensure that no listed pollutants are discharged or disposed of into waters or onto certain land;
- ▶ avoid discharging wastewater onto certain land;
- ▶ avoid discharging wastewater into groundwater except with the approval of the relevant authority.

Fourth Principle - Disposal

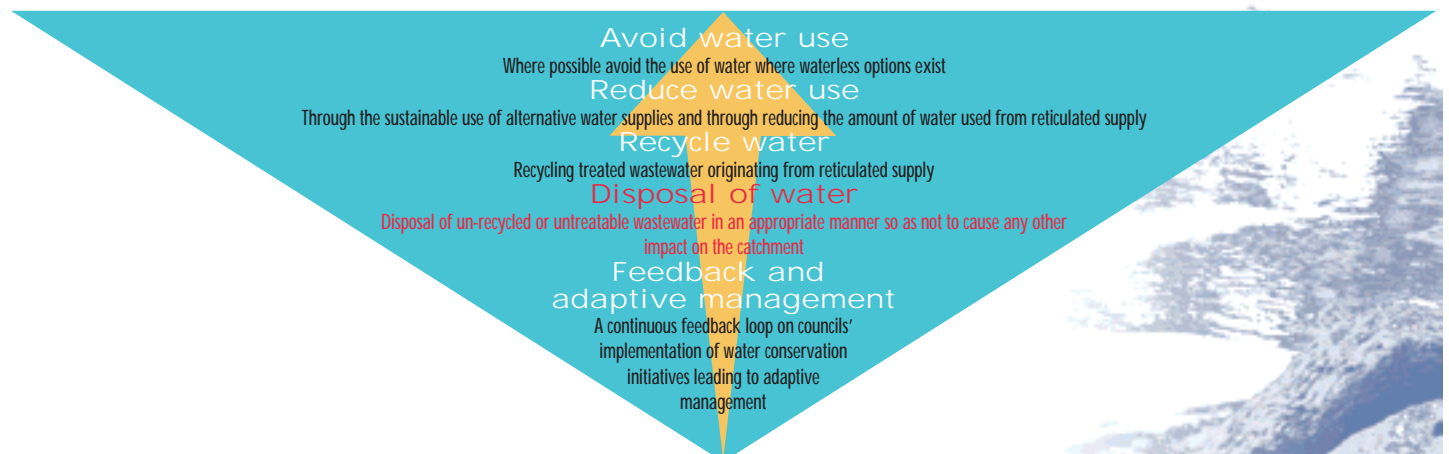
This principle seeks to ensure that the disposal of water or treated wastewater that is not recycled or reused does not cause degradation of the catchment, coastal or marine environments.

Fifth Principle - Feedback and Adaptive Management

This principle seeks to ensure feedback and adaptive management is a continuous approach used by Councils in determining the success of implementation of the best practice principles. (Refer section 3 of the guide)

The Water Conservation Management Hierarchy

Reducing dependency on the River Murray by Local Government and residential sectors in the RMUUR



3.0 How to implement the five 'best practice' principles

Stage 1 Investigation and data collection

BASELINE

Conduct a water use inventory and baseline water consumption study over the past 5 years (if possible). The study should include data on:

- ▶ any municipal operations, buildings, facilities, irrigation use and waste streams (waste water streams or waste refuse streams);
- ▶ the wider community, including residential homes;
- ▶ the Council area including its size, demographics, residential allotment sizes and stormwater runoff.

TARGETING

Discussion and consideration of achievable water reduction targets.

DEADLINE

Set an estimated timeline to achieve the water reduction targets.

Stage 2 Council Resolution

This stage consists of an agreement at Council level to reduce consumption of River Murray water as a key strategic policy. This agreement should include the commitment of sufficient resources to implement the water conservation strategy.

Stage 3 Policy development and support mechanisms

Stage 3 involves an agreement to adopt the five 'best practice' water conservation principles. These principles should be used to help decide what actions will be taken to reduce water consumption from the reticulated supply.

At this stage, Council should also investigate any possible integration of the water conservation principles with policies, planning frameworks and/or support mechanisms that are already in place. If this is not possible, appropriate plans should be developed to support the Council's commitment to water conservation. These plans could incorporate:

- ▶ Section 30 Reviews/Plan Amendment Reports
- ▶ public and environmental health planning
- ▶ strategic and/or corporate planning
- ▶ LA21 / environmental management plans
- ▶ infrastructure planning
- ▶ catchment management / local water planning.

Stage 4 Implementation processes

Stage 4 involves the development of an 'action plan' that supports the discussion on reduction targets and timelines established during stage 1, which may result in Councils setting water reduction targets. This action plan will be directed by the 'best practice' water conservation principles. Ideally, it will include public awareness and education campaigns as well as direct measures for water consumption reduction.



Stage 5 Monitoring

The final stage should involve the review and evaluation of the results of the action plan through a continuous loop of feedback and improvements through an annual report and reviewing process.

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River Murray Catchment Water Management Board

SA Water

Torrens Catchment Water Management Board



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www.environment.sa.gov.au/sustainability/conservation.html