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Local Government's Current and Potential Role in Water Management and Conservation

Final Report

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Glossary

c.f.	compare
GL	gigalitre (one gigalitre = 1,000 megalitres)
ICLEI	International Council for Local Environmental Initiatives
IPOS	Irrigated Public Open Space
KL	kilolitre (one kilolitre = 1,000 litres)
ML	megalitre (one megalitre = 1,000 kilolitres)
WSUD	Water Sensitive Urban Design

Executive Summary

This report summarises the results of a survey into *Local Government's Current and Potential Role in Water Management and Conservation*. The aim of the survey was to develop an accurate picture of local government's current and potential role in pursuing strategies to better manage water resources in local and regional areas.

The results of the survey show that a significant proportion of councils take an active and coordinated approach towards water conservation and management. For example, a slight majority of those councils surveyed (54 per cent) have adopted specific targets for water conservation and management in respect of their own facilities, while just under a half (46 per cent) have adopted targets in respect of the whole council area. There was considerable variability in terms of the specific water targets that were set which reflects the decentralised nature of local government policy setting.

Councils have participated in or instigated a range of projects of varying sizes in relation to water management and conservation. The most significant projects were those relating to Waterproofing Adelaide, namely Waterproofing Northern Adelaide and Water Proofing the South. These projects are designed to ensure the supply of potable water to residents and reduce the metropolitan's area's reliance on River Murray water. They are comprised of various activities including construction of wetlands, Aquifer Storage and Recovery, distribution mains, and wastewater and stormwater reuse.

The full range of projects and activities instigated and/or participated in by councils includes:

- Aquifer Storage and Recovery;
- wastewater and stormwater reuse;
- development of wetlands;
- existing infrastructure upgrades, particularly in relation to irrigation infrastructure;
- operation of desalinisation plant;
- water efficiency or best practice demonstration projects (e.g., low water use garden);
- adoption of Water Sensitive Urban Design solutions for development and water efficiency measures as part of the development process;
- Adelaide Sustainable 1000 - a pilot environmental improvement program targeting local small business in respect of their water, energy and waste management;
- reuse of swimming pool filtration system backwash water;
- shower timer campaign;
- distribution of showerheads and rebates for water efficient appliances (e.g., washing machines, dual flush toilets) and rain water tanks;
- installation of solar covers over swimming pool to reduce heat loss and evaporation;
- development of residential land development standards for best practice in water use;
- installation of waterless urinals; and
- flood management planning.

The average council financial contribution in relation to identified projects was just under $800,000 per project. This will be an overestimate to the extent that councils were asked to identify "major" projects rather than all water conservation and management projects they

have participated in. Individual council financial contributions ranged from $500 in respect of waterless urinals to $8 million in relation to Waterproofing Northern Adelaide.

Councils have a demonstrated ability to participate with other stakeholders with a majority of water conservation and management projects (70 per cent) involving participation with other stakeholders. Major stakeholders included the Australian Government (typically as a consequence of the Community Water Grants program), the State Government and its relevant agencies and departments including, *inter alia*, SA Water, the Land Management Corporation, Natural Resources Management Boards, the Environment Protection Agency and the Department of Water, Land and Biodiversity Conservation. Other stakeholders included local business and industry, community and sporting organisations, Regional Development Boards, United Utilities Australia, consultants, research organisations, end users such as irrigators, and media.

A number of benefits were identified by councils in relation to the water conservation and management projects they were involved in. Approximately one half of councils reported that they derived cost savings from the water conservation projects, while less than one third were also aware of annual cost savings that were derived by industry/business. Moreover, all metropolitan councils could identify environmental and/or social benefits resulting from their water projects while 92 per cent of rural councils did so. The range of environmental and social benefits identified included:

- reduction in water use, including a reduction in "demand on potable water supplies";
- greater community awareness of water issues and conservation practices;
- an improvement in the quality of sporting and recreational facilities;
- improved use or maintenance of groundwater resources;
- a reduction in water discharges to water bodies including the marine environment;
- improved water quality;
- provision of environmental flows;
- an increase in habitat and maintenance or increase in biodiversity;
- reduced soil salinity and improved soil moisture levels;
- improved management of facilities for community organisations;
- increased potential for development;
- reduced pressure on infrastructure;
- reduced energy usage; and
- lower costs due to reduced water use.

Councils were asked a series of questions that explored various aspects of their community leadership role. The results show that:

- 93 per cent of councils felt they had a leadership role to play in water resource management;
- 73 per cent provided educational material to households/ratepayers supporting water conservation measures (though this was often in a passive role);
- 66 per cent provided support to broader community projects;
- 29 per cent provided incentives to households to adopt water saving measures; and
- 7 per cent had subsidies in place which now needed to be reviewed or discontinued.

A majority of councils (82 per cent) felt that they should play a greater role in improving water conservation and management. The most appropriate roles were considered to be adopting improved water management practices and initiatives in relation to their own facilities and activities, and leading by example. The other appropriate role considered for local government was to educate the community about water conservation measures and practices.

Approximately three quarters of councils (76 per cent) felt there were barriers or factors that prevented their council from playing a greater or more effective role in terms of improving water conservation and management in their area. The most significant barrier was a lack of funding or "resources" with three quarters of those councils which identified existing barriers nominating funding related issues.

Resource constraints related not only to budgetary and funding constraints but also to a lack of staff resources and expertise. Staff were generally focused on core council business activities while there was a lack of financial resources available to employ staff to focus on water issues.

A number of barriers were identified in respect of the existing statutory and management framework governing water conservation and management. These concerns related to the complex and opaque nature of the existing system whereby it was felt there was a "lack of clearly defined roles and responsibilities", with there being a large number of stakeholders "pursuing their own agenda competing for the limited funds and resources required to manage water for the future". Such concerns may reflect the "lack of a clear and agreed delivery model for facilitating community uptake of best practice water conservation and management behaviour."

Other barriers identified included:

- technical barriers related to geography and geology that prevented implementation of projects and significantly increased their cost (e.g., lack of space for wetlands and reuse projects, poor quality of aquifers, low water table);
- the relative low price of potable water which makes infrastructure projects not cost effective from a benefit-cost perspective;
- constraints in relation to the Development Act and planning more generally which make it difficult to encourage water sensitive design; and
- difficulties arising from reconciling local impacts with broader impacts (e.g., benefits that spill-over to other council areas or stakeholders who themselves do not contribute to the costs of these initiatives).

A number of councils felt that an appropriate opportunity to influence the policy development process in South Australia was by lobbying the State Government through the Local Government Association. There was a concern that individual councils don't have sufficient power to influence the policy development process and that there was a risk of sending mixed or uncoordinated messages to State and Federal government if councils acted independently. Other appropriate opportunities for influencing policy included promoting water conservation through the property development process, engaging in lobbying efforts to promote water conservation and management in administrative practices and legislation, and including local government representatives on the boards of key agencies such as the Storm Water Management Authority, Environment Protection Authority, SA Water etc.

The results of the surveys show some interesting discrepancies between metropolitan and regional councils as there appears to be more active engagement by metropolitan councils in water management and conservation. For instance, 82 per cent of metropolitan councils felt they could play a greater role in improving water conservation and management compared to 63 per cent of rural/regional councils. Furthermore, 76 per cent of metropolitan councils had adopted specific targets for water conservation in respect of their own facilities compared to 38 per cent of rural/regional councils.

1. Introduction

This report summarises the results of a survey into *Local Government's Current and Potential Role in Water Management and Conservation*. The Local Government Association of South Australia commissioned the SA Centre for Economic Studies (SACES) to conduct the survey. The aim of the survey was to obtain an accurate picture about local government's current and potential role in pursuing strategies to better manage water resources in local and regional areas.

The report is structured as follows. Section 2 describes the methodology and approach used to conduct the survey. Section 3, the final section, summarises the results of the survey and is broken up as follows:

3.1 Priority Areas and Targets - presents information on priority areas of action in terms of water conservation and management for the whole council area and the extent and nature of water conservation targets that have been adopted by councils;

3.2 Stakeholders - summarises the level of participation with other stakeholders;

3.3 Existing Programs and Initiatives - summarises participation in International Council for Local Environmental Initiatives and the Code of Practice for Irrigated Public Open Space;

3.4 Constraints and Opportunities - presents information on the constraints facing councils in terms of addressing water conservation and management issues and the opportunities for influencing the policy development process;

3.5 Current Activities and Major Projects - describes the types of projects undertaken by councils, including the stakeholders involved, financial contributions received, the level of water savings achieved, the cost savings achieved by councils and business, and the environmental and social benefits that have been attained;

3.6 Community Leadership: Management and Conservation - summarises the level of council participation in community leadership activities in relation to water management and conservation; and

3.7 Future Role in Water Management - discusses council views on the most appropriate role for local government in water conservation, whether they should play a greater role in this respect, and possible future projects or initiatives

2. Methodology

A range of qualitative and quantitative information on council's involvement in water conservation and management activities was collected through a questionnaire administered to all councils in South Australia. The survey was designed by SACES in close collaboration with the Local Government Association of South Australia (LGA). A copy of the final survey instrument is presented in Appendix A.

The survey was administered in a Word document format that was emailed to all councils in the State by the LGA. Respondents were asked to email back the completed survey to SACES by Friday, 21st November 2008.

The survey was initially emailed in early November 2008. A reminder email was dispatched in mid-November.

There was significant interest from councils in completing the survey and several were unable to respond to the survey before the original deadline. Councils were subsequently allowed to submit responses beyond the original due date. In the meantime, the LGA encouraged councils that had not responded to do so.

In all, 41 responses were received out of a total of 70 councils in the State.[1] This represents a 59 per cent response rate which is an excellent result given the length and complexity of the survey.

Results from the surveys were exported from Word into an Excel spreadsheet for analysis purposes. The results have subsequently been summarised in this report in graphical and tabular form where appropriate.

[1] The 70 councils referred to here are based on those Local Government Areas for which the ABS reports. These are composed of the 68 traditional councils and two Aboriginal Councils: Anangu Pitjantjatjara and Maralinga Tjarutja. Under the Local Government Act 1999 there are 68 Councils, 5 outback Aboriginal Communities and the Outback Areas Community Development Trust.

3. Analysis

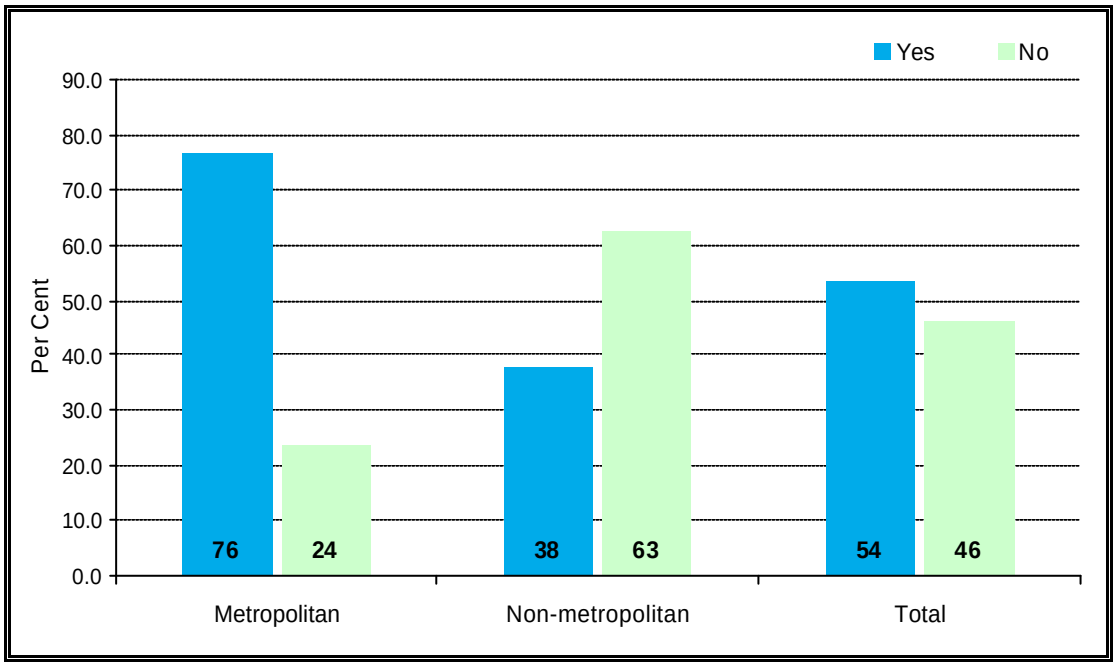
The following section summarises the results of the survey. A list of those councils that responded to the survey is presented in Appendix B. Tabulated data for data shown graphically in this section are presented in Appendix C. Survey results for various region classifications as identified by the Local Government Association of South Australia are presented in Appendix D.

3.1 Priority Areas and Targets

3.1.1 Water conservation targets in respect of council facilities

A majority of councils (54 per cent) have adopted specific targets for water conservation in respect of their own facilities - refer Figure 3.1. Metropolitan councils (76 per cent) were much more likely than rural/regional councils (38 per cent) to have adopted targets for their facilities.

Figure 3.1
Whether Councils Have Adopted Specific Targets for Water Conservation in Respect of Their Own Facilities[a]



Note: [a] Reported percentages may not add up to 100 per cent due to rounding and "not stated" results, where applicable, not being shown.

Nature of targets in respect of council facilities

Of those councils which had set water conservation targets in respect of their own facilities, some two-fifths had set specific quantitative targets. These targets generally took the form of a proportional reduction in water use (usually mains water) by some future date with reference to a base year. Given the decentralised nature of local government policy setting there was natural variation in terms of the level of reductions that were set, the timeframe over which they were expected to be achieved, and the base year against which they were set. The quantitative targets ranged from a 10 per cent reduction in water use by 2010 to a 50 per cent reduction by 2020. Most reduction targets were in the order of 20 per cent or higher. The base year against which reduction targets were set were generally based between 2004 and 2006, though a couple councils set base years as far back as 1999.

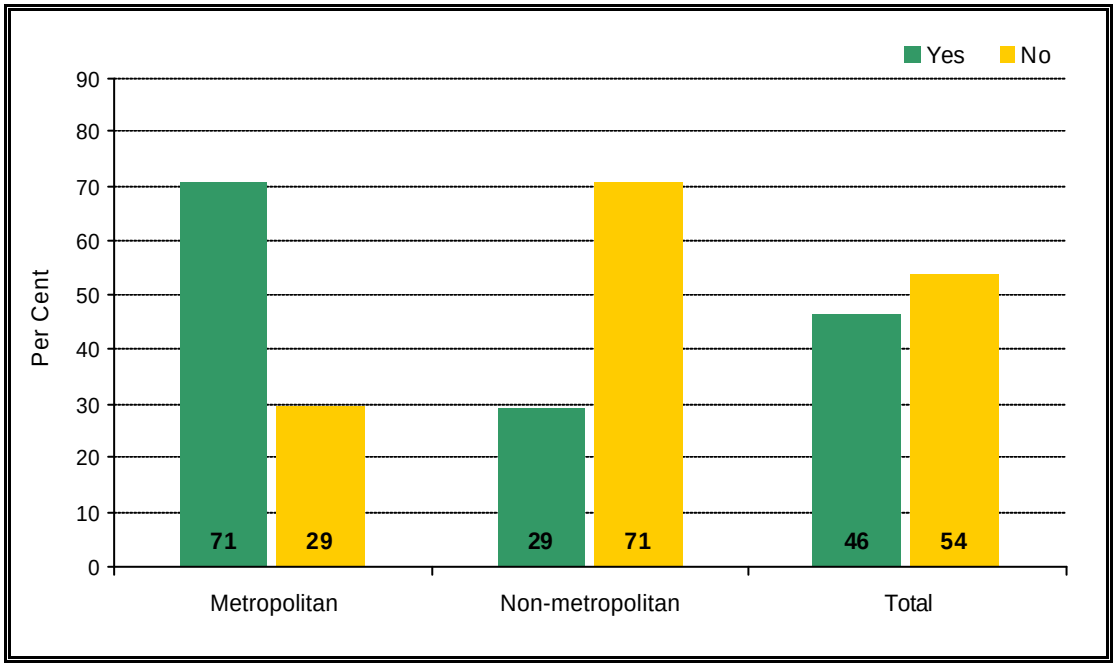
Respondents identified a variety of other types of water conservation targets that have been adopted in respect of their facilities, including:

- ensuring that facilities are maintained in accordance with current water restrictions and/or codes of practice;
- increasing the use of recycled/reclaimed water, including specific targets for the level of recycled water use;
- reducing the load on the River Murray by a certain volume (i.e., kilolitres per day);
- ensuring that all water use, including bore water, is metered; and
- adopting measures to reduce water consumption in respect of open spaces.

3.1.2 Water conservation targets in respect of council areas

Councils were less likely to have adopted specific targets for water conservation in respect of the whole council area. Approximately 46 per cent of councils had adopted targets for the whole council area whereas 54 per cent had adopted specific targets in respect of their facilities. Metropolitan councils (71 per cent) were again more likely than regional councils (29 per cent) to have adopted water conservation targets for the whole council area.

Figure 3.2
Whether Councils Have Adopted Specific Targets for the Whole Council Area



Nature of targets in respect of council areas

Approximately two-fifths of those councils which had water conservation targets in respect of their broader communities had quantitative targets. These targets generally took the form of overall water reductions by a particular date or an improvement in water use efficiency (i.e., reduction in per capita consumption). The quantitative targets ranged from a 5 per cent reduction in residential water use by 2016 to a 30 per cent reduction in mains water consumption by 2020. Most reduction targets were in the order of 20 per cent over a 10 to 15 year period.

Councils identified a range of other qualitative targets or policy actions that have been adopted for the wider community area. These targets included:

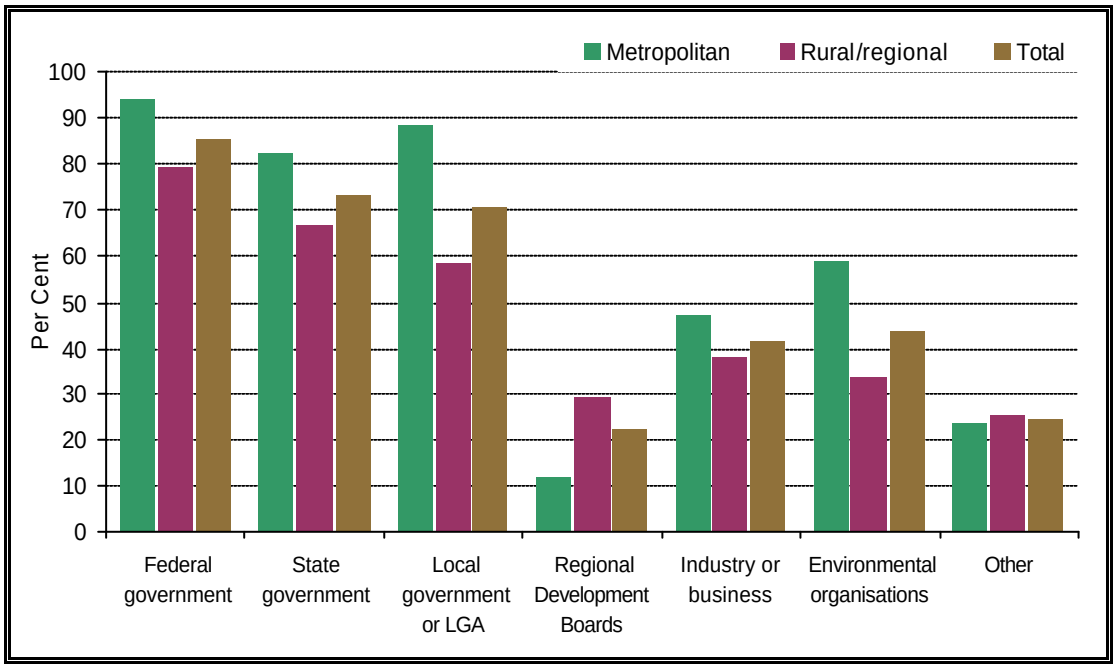
- increasing provision of recycled and reclaimed water and/or water derived from Aquifer Storage and Recovery (ASR), sometimes in order to substitute for mains water use;
- provision of rebates for rainwater tanks and connection of rainwater for household use; and
- improving water efficiency though building regulations e.g., compulsory water tanks, dual flush systems and low flow shower heads for new dwellings.

3.2 Stakeholders

3.2.1 Collaboration with stakeholders

Figure 3.3 shows the level of participation with particular types of stakeholders in respect of water conservation projects. There were quite high levels of participation with federal government (85 per cent of all councils), state government (73 per cent) and other local government(s) and/or the Local Government Association (71 per cent).

Figure 3.3
Proportion of Respondents That Have Participated with Particular Stakeholders by Location of Council



Source: Table C.1.

Participation with stakeholders was generally higher among metropolitan councils than rural/regional councils. The main exception was collaboration with regional development boards which was relatively higher among rural/regional councils than metropolitan councils (29 per cent c.f. 12 per cent). This would largely reflect that the majority of the metropolitan area does not fall within the jurisdiction of any regional development boards.

Natural Resources Management Boards figured prominently in terms of "other" stakeholders councils had participated with. Other stakeholders that had been engaged included universities, government environmental organisations (CSIRO, Environment Protection

Agency), water companies (SA Water, United Water), the Water Industry Association, the Department of Health, consultants to the water industry, and local sporting and community organisations (e.g., golf course and local indigenous organisation).

3.3 Existing Programs and Initiatives

3.3.1 International Council for Local Environmental Initiatives

Almost half of all councils (46 per cent) had participated in water conservation and management measures that are supported by the International Council for Local Environmental Initiatives (ICLEI - Local Governments for Sustainability). Of these councils, almost all explicitly stated that they were part of the ICLEI Water Campaign, which is a "freshwater management program that aims to build the capacity of local government to reduce water consumption and improve local water quality" (ICLEI). The Water Campaign is currently made up of two modules - Water Quality and Water Conservation - and is designed to improve water management at both the council and broader community level. The campaign involves a milestone framework that is composed of the following milestones:

- Milestone 1: complete an inventory of water consumption and a water quality practices gap analysis;
- Milestone 2: set goals to improve water management;
- Milestone 3: develop a local action plan;
- Milestone 4: implement the local action plan; and
- Milestone 5: complete a second inventory and report on progress.

Most councils indicated the highest milestone they were currently working towards or had completed. Councils were currently engaged with various milestones, though the majority were working on or had completed milestone 1 or 2. Only one council indicated that they had completed all five milestones, while another had completed milestone 4.

3.3.2 Codes of Practice for Irrigated Public Open Space (IPOS)

The Code of Practice for Irrigated Public Open Space (IPOS) provides a "management framework for best practice turf and irrigation management for all irrigated public open space, including that managed by local government, the education sector and other IPOS managers".[1] The development of the Code of Practice was overseen by a reference group made up of various groups including, but not limited to, SA Water, SA Local Government Association and the Murray Darling Association.

Approximately 56 per cent of councils indicated that they had implemented water conservation and management measures as part of the Code of Practice for IPOS. A significantly larger proportion of metropolitan councils (94 per cent) than rural councils (29 per cent) had implemented measures as part of IPOS.

3.4 Constraints and Opportunities

3.4.1 Constraining factors

Approximately 90 per cent of councils indicated that there were constraining factors in addressing water conservation and management issues in their council area. All metropolitan based councils indicated there were constraining factors compared to 83 per cent of rural councils.

Financial, budgetary or resource constraints were identified as the most common constraining factor (by approximately 70 per cent of those councils who indicated a constraining factor). Councils indicated that a lack of budgetary resources prevented them from undertaking infrastructure improvements that could improve water conservation. This was compounded by the "high cost" nature of infrastructure solutions such as water storage, stormwater harvesting, aquifer storage and recovery, wetlands, and upgrading irrigation systems. Several councils noted that there was a lack of funding or external finance to undertake these types of investments.

Related to the issue of resource constraints, several councils identified a lack of staff as an important constraint. Staff are generally focused on core council business activities, and there is a lack of financial resources available to employ additional staff to focus on water initiatives.

Technical or environmental issues were also identified as a constraint to improving water conservation. In particular, 16 per cent of councils that identified constraints indicated that a lack of open space prevented them from implementing infrastructure solutions such as wetland stormwater recycling and additional stormwater storage. A lack of open space was a particular issue in urban areas. Other technical constraints related to hydrology of the region, such as local climate conditions (i.e., high evaporation, storm event nature of rainfall) and high water table.

Other constraints that were identified include:

- a lack of coordinated management, either between regional councils or other stakeholders such as SA Water, EPA etc;
- related to the previous point, jurisdictional confusion over the roles and responsibilities of relevant Commonwealth and State government departments and agencies and other stakeholders;
- ongoing public demand for open green space in the current water-limited environment;
- changes to EPA guidelines which draws out the process for approving Irrigation Management Plans;
- a lack of control or influence over other activities in the region such as building and construction which have a significant impact on water use;
- inadequate resources within SA Water to assist with planning and respond to enquiries; and
- water pricing policy which sets a relatively low price, making water conservation projects less attractive from a benefit-cost perspective.

Several councils also noted that there was a lack of support or focus on flood prevention and mitigation despite this being an important planning issue.

3.4.2 Opportunities

The question asking councils what potential opportunities they saw for Council to influence the policy development process in South Australia received some of the most significant feedback. Unfortunately councils were generally rather liberal in responding to this question; they raised a variety of issues that were not directly related to the question such as existing barriers to greater involvement and problems associated with the current regulatory structure.

Several councils observed that an appropriate opportunity to influence the policy development process was by lobbying the State Government through the Local Government Association. One respondent felt that "council bodies are currently 'pushing the boundaries' but it has been shown that individually we don't seem to have sufficient power to influence the policy development process in South Australia". It was consequently argued that the "LGA should use its strength and the combined knowledge of its local bodies to influence and lobby for policy development that benefits our local environment and SA as a whole". There was also a risk of local government sending mixed or uncoordinated messages to State and Federal Government if councils acted independently.

One suggested method to formally increase local governments influence would be to include local government representatives on key boards such as the "Stormwater Management Authority, EPA, SA Water Board, LMC Board" etc. More generally, local government should contribute to relevant reviews and consultations in relation to relevant State Government policy and provide comment to media on water issues.

Respondents argued that councils should increasingly promote water conservation through the property development process. This includes promoting reuse in the residential and commercial development process. It also extends to civil works such as ensuring that subdivisions, road reconstructions and streetscapes incorporate "Water Sensitive Urban Design". For instance, through their Development Plans, councils can "influence issues such as stormwater retention and [the] amount of [available] private open space to allow for permeable ground covering" in order to ensure that water is able to replenish the groundwater table. However, it was felt that there were some legislative restrictions preventing councils from fully promoting water conservation through the property development process. For instance, one council argued that "current legislation and Building Code requirements for tanks at new premises appear to be worded in a manner which allows builders to not install tanks (only to make provision for future installation of tanks); and local government is not well equipped to take on the additional monitoring and policing role (i.e., we have been given the responsibility, but lack the resources to adequately monitor and prosecute lack of compliance)".

One of the advantages of engaging local government in the policy development process is their significant knowledge of local on-the-ground issues. It was also observed that council's generally have "strong connections to the community and local issues" and are "therefore well placed to identify opportunities for improvement".

Engaging in lobbying efforts to promote water conservation and management in administrative practices and legislation was also identified as an appropriate role for local government. Examples include lobbying for change to the "building code to ensure the most water efficient/sustainable developments occur in all new housing developments", providing input to "strategies and plans developed by other organisations who manage water such as NRM boards, DWLBC, SA Water, Dept Planning and Local Government (DPLG), and the role of the State Strategic Plan, State NRM Plan and the Planning Strategy". There was particular support for encouraging reuse of stormwater and wastewater; it was felt local government "must advocate for policy change to maximise the availability of this valuable resource".

Several councils noted a need for common management practices in respect of water management and conservation. One council mentioned a role in terms of advocating for "government support programs to assist in funding and delivering on the development of

appropriate common management practices for arid regions via common plant selections, streetscapes, subsurface irrigation, low cost catchment options etc". Common management approaches were also suggested for other regions and infrastructure solutions with one council arguing there was a "need for a metropolitan wide approach to stormwater capture and reuse". Another council noted that there needs to be a "consistent approach to water conservation and management issues within the development process". On the other hand, it was observed that councils "have different needs and approaches to water issues that cannot by solved by a blanket policy solution". This was particularly an issue for regional and rural councils.

A number of comments, in various ways, highlighted the constraints facing local government in terms of playing a greater role in the policy development process. A number of councils observed that the high costs of water infrastructure projects prevented councils from playing a greater role in adopting solutions. In this respect, the low price of reticulated water was sometimes identified as a hindrance since it "provides no incentive to save or better -re-use" [sic] water. Other councils were compromised by a lack of resources. For example, one council experienced "frustrations" from "not being able to service residents requests regarding water conservation and management" as they do not have "the resources to take advantage of the community motivation to do the right thing".

Some of the criticisms raised by councils were short sighted. For example, a suggestion that potential projects should be allowed access to SA Water infrastructure at user cost fails to recognise that SA Water earning a return on its infrastructure allows it to fund future infrastructure upgrades. Nonetheless, there were criticisms of SA Water in terms of its monopoly status and its ability to assist local government in respect of water conservation issues and supply needs.

3.5 Current Activities and Major Projects

3.5.1 Major Projects

Types of Projects Undertaken

Table 3.1 shows a proportional breakdown of major projects identified by councils by project type. The results should be interpreted with caution since information on project type was not collected in a systematic manner - project type was interpreted based on qualitative responses from councils, meaning the results are somewhat subjective. Some important considerations are that individual projects were allocated to more than one project type, while some project types are closely related e.g., rainwater harvesting versus installation of rainwater tanks.

The most significant projects instigated or significantly contributed to by councils were those relating to Waterproofing Adelaide, namely Waterproofing Northern Adelaide and Water Proofing the South. The general aim of these projects are to ensure the supply of potable water to residents while reducing the metropolitan area's reliance on water derived from the River Murray. This is achieved in part by substituting "fit for purpose" water for drinking water. The strategies employed include establishing wetlands and water recycling projects - particularly stormwater harvesting projects.

The Waterproofing Adelaide projects represent coordinated action across various stakeholders with funding derived from a range of sources. For instance, Waterproofing Northern Adelaide involves a consortium comprising the City of Tea Tree Gully, the City of Playford and the City of Salisbury. The project is administered through a Regional Subsidiary established by the three councils (Waterproofing Northern Adelaide Regional Subsidiary).

Other project stakeholders include the Adelaide and Mount Lofty Ranges Natural Resource Management Board, the Land Management Corporation, CSIRO and SA Water. The project comprises construction of wetlands, Aquifer Storage and Recovery infrastructure and distribution mains in order to harvest and distribute cleansed stormwater to parks, reserves, open spaces, sports grounds, schools and potentially residential and industrial areas. Initial project funding was $90.2 million with $22.1 million coming from Local Government, $38 million from the Australian Government via the Water Smart Australia Program, $31.7 million from State Government, and $14.4 million from private funding.[2]

Water Proofing the South seeks to provide alternative sources of water such as reclaimed water and stormwater to reduce dependence on mains water and ground water resources. The project is being delivered by the City of Onkaparinga, SA Water and the privately owned Willunga Basin Water Company. Other stakeholders include the Adelaide and Mount Lofty Ranges Natural Resource Management Board and Flinders University's Research Centre for Coastal and Catchment Environments. Stage One of the project comprises a range of reclaimed water and stormwater projects that amount to a total investment of $116 million, of which $112 million is provided by external stakeholders, including $34.5 million from the Australian Government via the Water Smart Australia Program. The project is expected to offset 3,800 ML of mains supply. The Second Stage of the project is currently at the feasibility stage and involves investigating "the creation of a broad scale stormwater capture and reuse scheme City wide".

Table 3.1
Major Projects Identified by Councils by Project Type, Per Cent[a]

Project type	Per cent
Wastewater reuse, CWMS planning[b]	26.8
Stormwater reuse, management	17.5
Irrigation (efficiency)	14.4
Aquifer Storage and Recovery	9.3
Water reuse, harvesting	8.2
Rainwater tanks	6.2
IPOS	5.2
Wetlands	5.2
Water Management Planning, Strategy Planning	4.1
Reuse of backwash water	3.1
Infrastructure (pipelines, irrigation)	3.1
Waterless urinals	3.1
Water Sensitive Urban Design	3.1
Water efficient appliances (e.g., shower heads)	2.1
Information provision	2.1
Solar covers on swimming pool	2.1
Demonstration projects (water efficiency)	1.0
Desalinisation	1.0
Flood Management Plan	1.0
Grants	1.0
Pollutant trap	1.0
Water efficiency standards via development process	1.0

Note: [a] As percentage of total "major projects" identified by respondent councils. A total of 97 major projects were identified by councils.
[b] Community Wastewater Management Systems.

[2] Department of the Environment, Water, Heritage and the Arts, "Waterproofing Northern Adelaide", [Online]. Available: http://www.environment.gov.au/water/programs/wsa/projects/sa08.html

Turning to other projects, the most common type of activity being undertaken related to reuse of wastewater. There were at least two dozen projects in progress or being considered that were related to reuse and management of wastewater. A significant number of councils noted that wastewater is currently used to irrigate sporting facilities (e.g., Strathalbyn Racecourse, Ardrossan Golf Course, sporting ovals), reserves, parks and school ovals. In many rural areas councils have implemented wastewater reuse as part of their Community Wastewater Management Systems (i.e., Port Broughton, Allendale East, American River). Some councils are currently planning or undertaking CWMS upgrades (i.e., Kingscote, Parndana, Penola, Pinnaroo) while others are constructing new sewage treatment plants (i.e., Paringa).

The other most common type of activity being undertaken related to stormwater harvesting and reuse. Larger stormwater harvesting projects typically involve collection of stormwater which is treated by passing the water through a series of wetlands and, in some cases, then recharging the water to an aquifer. Examples include Port Road median water sensitive urban design in Salisbury, extension of the wetlands and ASR system in Charles Sturt to the Cheltenham Park Race Course site, and an Aquifer Storage and Recovery trial at Barker Inlet. Stormwater infrastructure including rainwater tanks have also been established in a number of council areas in order to harvest rainwater from public or private facilities for irrigation purposes or for reuse within those facilities. Examples of these measures include, inter alia, stormwater collection from Tumby bay silos, collection from the grandstand at Norwood Oval, rainwater tanks at Keith Institute, rainwater tanks at Brighton Civic Centre, the Kilburn Depot water harvesting project, a storm water retention basin in Port Elliot, storage tanks in the Copper Coast, and industrial sheds in Cleve.

Improvements in irrigation infrastructure and/or management practise were also commonly adopted or being planned by councils. These plans include measures such as upgrading existing infrastructure to improve "efficiency and distribution uniformity" of the irrigation system (e.g., Bowker Oval Irrigation Efficiency Upgrade, pop up sprinklers in parks in Bordertown, Vansittart Park in Mount Gambier); implementing a computer operated distribution system or central irrigation management system (e.g., City of Whyalla, Copper Coast); and subsurface irrigation (e.g., City of Whyalla, Cleve and Marion).

Other projects and activities that were in operation or were being pursued by councils included:

- Aquifer Storage and Recovery operation or development (i.e., Port Augusta, Torrens Valley Oval ASR in Campbelltown, proposed ASR scheme for new residential development in Evanston South, ASR trial in Whyalla);
- development of wetlands (e.g., Warriparinga Wetland);
- reuse of swimming pool filtration system backwash water (i.e., Adelaide aquatic centre, Strathalbyn community swimming pool, Payneham swimming pool);
- Adelaide Sustainable 1000 - collaboration between the City of Playford, the City of Salisbury and a wide range of state government stakeholders to pilot an environmental improvement program targeting local small businesses in respect of their water, energy and waste management. The program comprised a process of sustainability assessments, workshops and training;
- Burnside shower timer campaign, involving "delivery of a 4 minute (egg) timer and information pack to all households in Burnside";

- distribution of showerheads (Unley) and a Water Conservation Incentive Scheme (Burnside) which involves providing rebates to residents for installing "dual flush (AAAA) toilets, AAAA washing machines, AAA showerheads, rainwater tanks plumbed to house, and drought tolerant landscaping";
- adoption of Water Sensitive Urban Design solutions for development (e.g., Mitcham Village Cultural Hub) and water efficiency measures as part of the development process (e.g., Ceduna Development Plan conditions in respect of rainwater tanks);
- operation of a desalinisation plant (e.g., Marion Bay Desalinisation Plant on the Yorke Peninsula);
- water efficiency or best practice demonstration projects (e.g., Linden Gardens low water use demonstration garden);
- adherence to the Irrigated Public Open Space (IPOS) Code of Practice;
- installing solar covers over swimming pool to reduce heat loss and evaporation (e.g., Bordertown swimming pool);
- development of residential land development standards for best practice in water use;
- installation of waterless urinals; and
- Flood management planning (Brown Hill and Keswick Creeks Flood Management Master Plan).

In addition to the major projects identified by the Councils in this study SACES was provided with a list of State Government sponsored water-related projects by the Office of Water Security, at the request of the LGA. This list of projects is included in Appendix E and is intended to provide a more complete picture of current and future projects on a state wide basis. It should be noted that there maybe duplication with those projects identified by individual Councils. While it was outside the scope of the study it is recommended that an integrated list of project and priorities should be developed as follow up to this study.

Stakeholders

The majority of projects (approximately 70 per cent) involved partnerships with other stakeholders. The Australian Government was the most common stakeholder, although the State Government was also a significant stakeholder through its various funding programs and initiatives (e.g., Water Proofing Adelaide, Regional Communities Drought Fund, former Places for People Funding) and relevant agencies and departments such as SA Water, the Land Management Corporation, Natural Resources Management Boards, the Environment Protection Authority and the Department of Water, Land and Biodiversity Conservation.

Partnerships with the federal government were generally the result of projects that were funded by the Community Water Grants (CWG) program. Waterproofing Northern Adelaide and Water Proofing the South were two projects that received significant funding under the CWG program. There will be no further funding rounds as part of the program which has the potential to reduce the involvement of the Australian Government and local councils in water conservation. However, other Federal government initiatives such as Water Smart Australia, the National Urban Water and Desalination Plan and the National Water Security Plan for Cities and Towns provide opportunities for continued involvement.

Other stakeholders that were regularly involved with projects were Natural Resources Management Boards, other Councils and the Local Government Association of SA. Other stakeholders that were identified included, *inter alia*:

- local businesses and industry (e.g., Willunga Basin Water Company, AusBulk, Brighton Irrigation, AV Jennings and developers);
- community organisations (multicultural association, Aboriginal community);
- Regional Development Boards;
- United Utilities Australia;
- sporting organisations, especially golf courses, but also football clubs, race courses and Racing SA;
- consultant and research organisations (e.g., University of South Australia);
- end users such as irrigators; and
- media (Advertiser Newspapers).

Financial Contributions

Data in relation to financial contributions to major projects needs to be interpreted with a degree of caution given that councils provided data in relation to projects which operated over varying timescales and at different points in time, while some council's who were engaged in projects with other councils that responded to the survey reported financial contributions that were inconsistent.

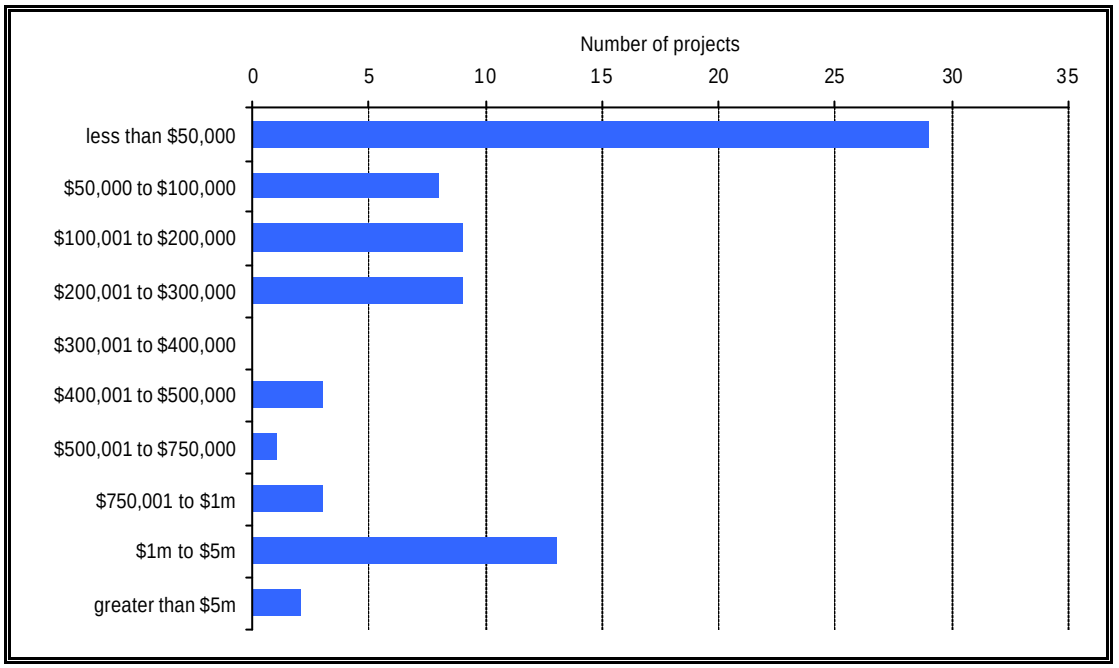
The total funding contribution from respondent councils in relation to the major projects they identified was $61 million. Councils funding contributions were in some instances dependent on funding programs or joint funding from other sources, particularly federal and state government (e.g., Waterproofing Adelaide, Water Proofing the South). Councils' funding contributions would probably have been significantly lower in the absence of these other sources of funding.

The average council financial contribution was just under $800,000. Individual council financial contributions ranged from $500 in respect of waterless urinals to $8,000,000 in relation to Waterproofing Northern Adelaide. Figure 3.4 shows the number of projects by the range of funding provided by councils.

Funding contributions from other stakeholders ranged from a low of $10,800 in relation to rainwater tank installation to a high of $112 million in respect of Water Proofing the South. It is not possible to provide an estimate of total or average funding from other stakeholders due to double counting of other stakeholders' contributions where more than one council was involved in a particular project.

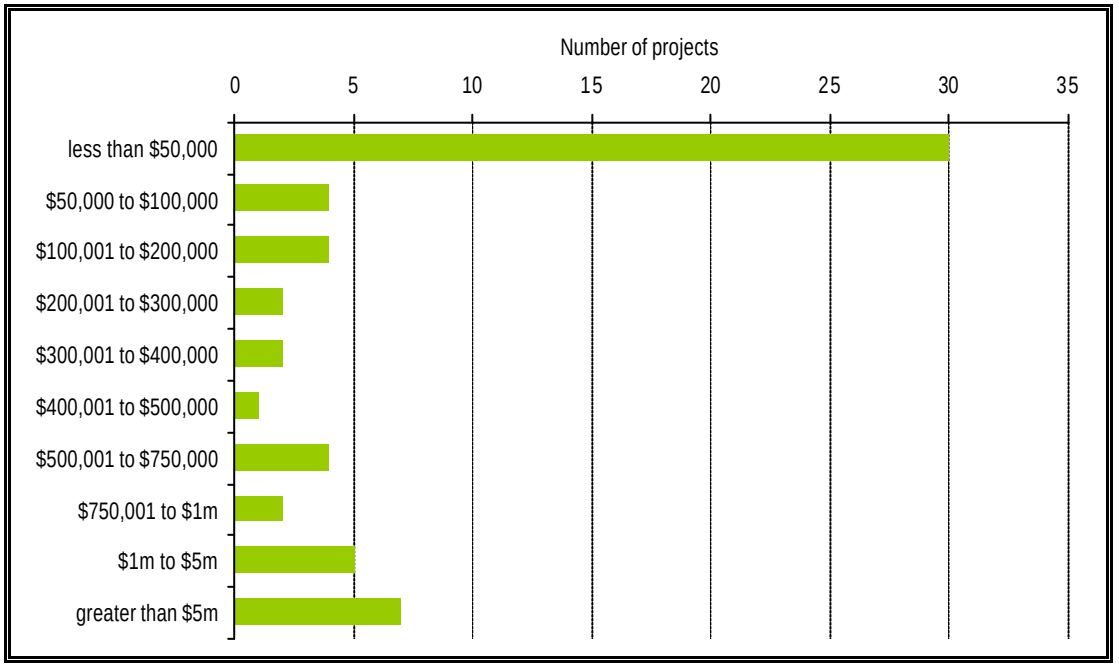
Figure 3.5 shows the number of projects by the level of funding provided by other stakeholders in total. Large projects involving contributions over $10 million from other stakeholders generally involved contributions from State or Federal Government, or SA Water expenditure.

Figure 3.4
Number of Projects by Council Contributions[a]



Note: [a] The number of projects includes do uble counting due to some projects involving more than one council.
Source: Table C.2.

Figure 3.5
Number of Projects by Total Contributions by Other Stakeholders[a]



Note: [a] The number of projects includes double counting due to some projects involving more than once council.
Source: Table C.2

Water Savings

Water savings associated with a number of projects identified by councils were either not known or the projects were too early in the development phase to be able to report expected savings.

It is not possible to report total estimated water savings derived from projects that councils have instigated or participated in for various reasons, including, inter alia:

- councils reporting savings in various terms, such as proportion, aggregate (i.e., litres, megalitres etc) and cost (i.e., dollars);
- councils reporting savings over varying time periods (i.e., per annum, between two years of various separation); and
- council's reporting the amount of water harvested or reclaimed water used, which may not necessarily correspond directly with water savings.

Reported water savings ranged from 0.1 megalitres per annum in respect of a low water use demonstration garden up to a potential 16 gigalitres per annum (i.e., 16,000 megalitres) in respect of the Water Proofing Northern Adelaide project. Large infrastructure projects involving stormwater harvesting and reuse of wastewater typically had the potential for making the greatest water savings. Larger wastewater reuse projects could provide from 100 to 300 megalitres per annum.

Some of the projects instigated by councils produced water savings that were relatively insignificant. Of the 46 projects for which quantitative estimates of water savings were made, approximately one-fifth reported water savings of less than 1,000 kl per annum. This compares with an average annual household consumption in South Australia of 244kl in 2004/05.[3] Nonetheless, these projects are important in terms of encouraging community participation in water conservation and demonstrating water efficient practices to households and industry.

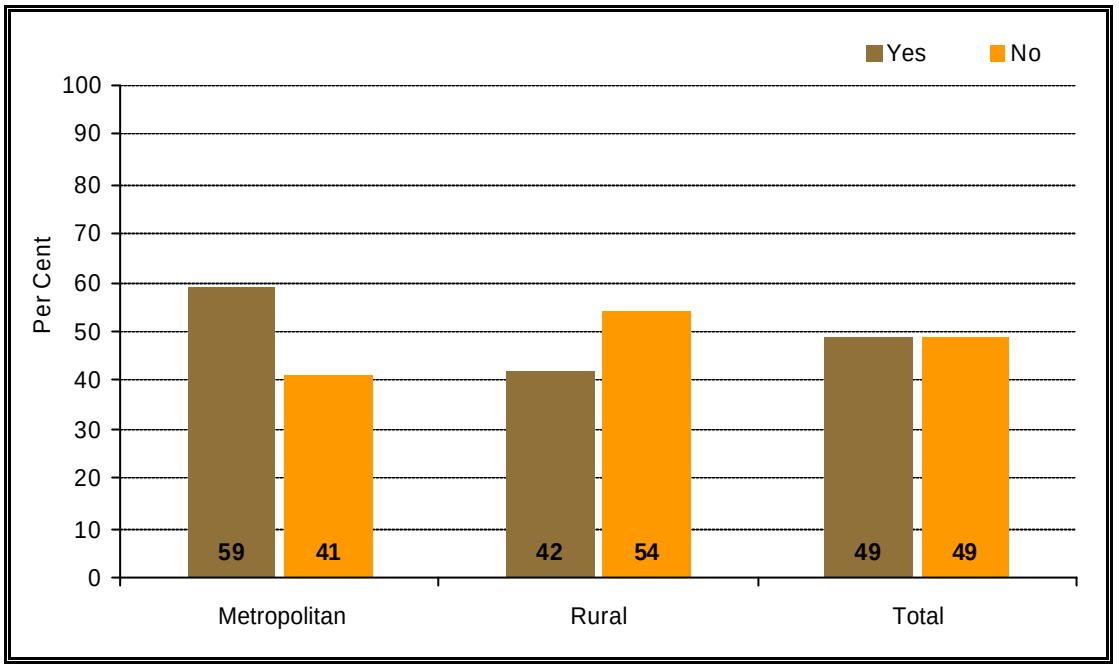
3.5.2 Cost Savings for Council

Approximately a half of councils reported that they derived cost savings from the water projects they had identified. A larger proportion of metropolitan councils (59 per cent) reported cost savings than did metropolitan councils (42 per cent).

A number of councils were unable to quantify the extent of cost savings associated with projects. For those reporting cost savings, the average cost saving per council was $95,000 based on savings reported in relation to all projects identified. Reported cost savings ranged from a low of $1,500 to date up to a high of $300,000 derived from reuse of recycled stormwater for irrigation. One large metropolitan council reported a reduction in total water use of 366ML between 2001/02 and 2007/08. The extent of water savings may be exaggerated to the extent that water restrictions over recent years have artificially reduced water use. Furthermore, these savings do not take account of the potentially significant costs that may have been incurred in delivering the various water projects. Nonetheless, benefits in terms of reduced water usage are expected to rise over time as water costs increase.

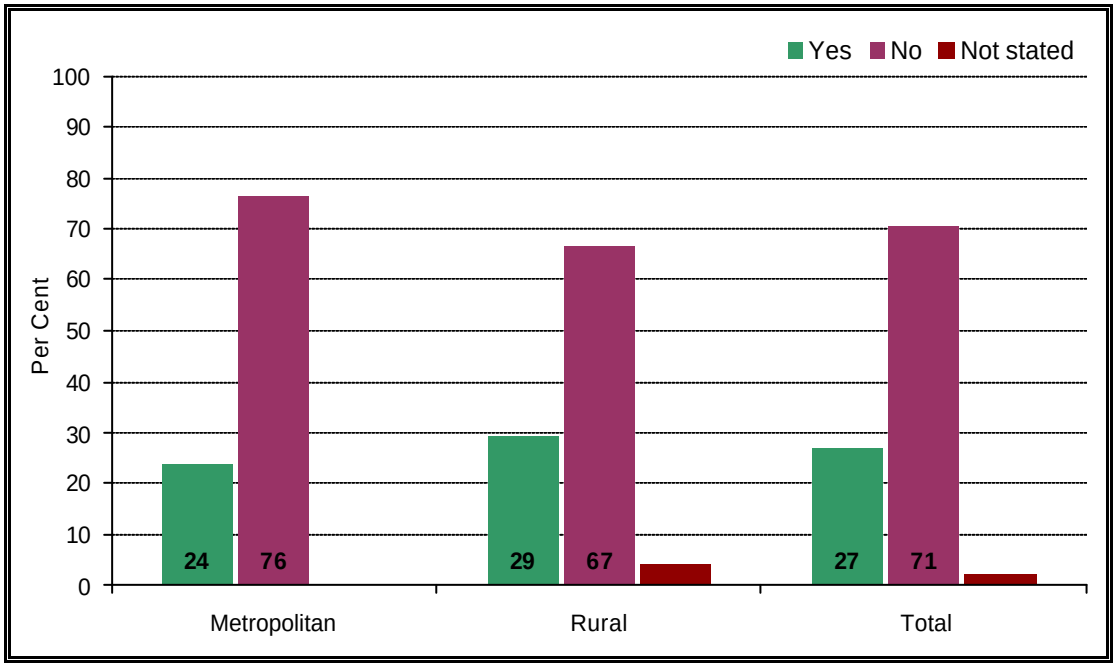
[3] ABS (2006).

Figure 3.6
Proportion of Councils that Derived Annual Cost Savings From Projects[a]



Note: [a] Reported percentages may not add up to 100 per cent due to rounding and "not stated" results, where applicable, not being shown.

Figure 3.7
Proportion Of Councils That Knew If Industry/Business Had Derived Cost Savings From Projects



3.5.3 Cost Savings for Business/Industry

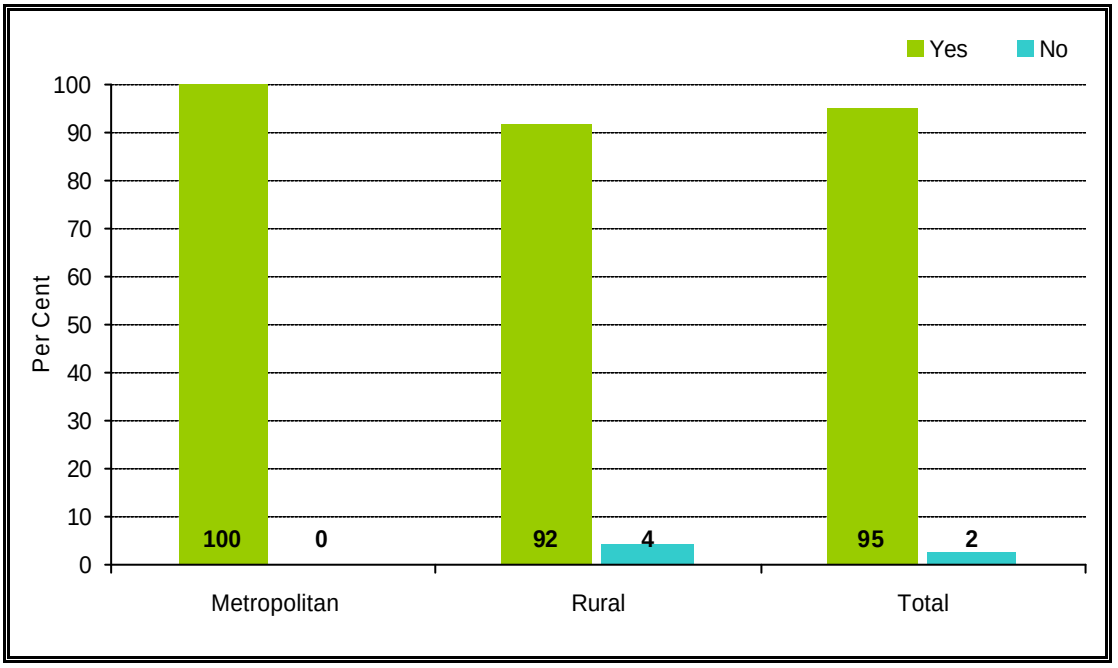
Less than one third of councils (27 per cent) indicated that they were aware of annual cost savings derived by industry/business from the water conservation projects they had identified - refer Figure 3.7. A slightly greater proportion of rural councils than metropolitan councils were aware of cost savings derived by industry/business (29 per cent c.f. 24 per cent).

Councils were generally unable to identify the extent of cost savings. Several councils indicated that an individual sporting organisation and/or community club may save in the order of $20,000 to $30,000 per annum. Other councils noted that local sporting organisations now received wastewater at no cost or reduced cost relative to potable water. One metropolitan council identified cost savings to industry/business of up to $225,000 per annum.

3.5.4 Environmental and Social Benefits

Councils overwhelming identified environmental and social benefits associated with the water project that they reported - see Figure 3.8. All metropolitan councils identified environmental and social benefits while 92 per cent of rural councils did so.

Figure 3.8
Proportion of Councils That Identified Environmental and Social Benefits From Projects[a]



Note: [a] Reported percentages may not add up to 100 per cent due to rounding and "not stated" results, where applicable, not being shown.

The most common environment or social benefit identified was a reduction in use of water with approximately half of all councils reporting some form of benefit in this respect. A reduction in "demand on potable water supplies" and a reduced impact on the River Murray was often mentioned.

An important social benefit identified by approximately one quarter of all councils was an improved "community awareness of water conservation and management" issues and practices. Water saving measures adopted by council, demonstration projects and specific education initiatives all contributed to an increase in "awareness of water scarcity and importance of management". The various measures showed residents how they may improve their own water use efficiency and encouraged community participation. The benefits extended to business with at least one program providing assistance to business to help them reduce the environmental impact of their practices

Another significant social benefit of the projects identified by councils was an improvement in the quality of sporting and recreational facilities, including maintaining facilities in better condition than they otherwise would be in given existing water supply constraints. Projects provided greener parks and gardens for locals and visitors, and enabled "sporting activities and social functions and community events to be staged". It was also observed that they enable a full covering of grass for 12 months of the year which increases the scope for sporting and community activities, while provision of higher quality playing surfaces reduces the risk of injury. Together these factors have flow on benefits in terms of ensuring the "wellbeing and fitness of the community". Savings derived from reduced water use could also be used to "fund other community projects and services".

Projects instigated by or involving significant participation by councils also had important environmental benefits in terms of improving or maintaining groundwater resources. Projects that led to reuse of stormwater and reclaimed water reduced "reliance on existing ground water supply" while Aquifer Storage and Recovery projects facilitated recharging of groundwater.

Other environmental benefits provided by projects include:

- reductions in water discharges (which have relatively high levels of pollutants) to water bodies including the marine environment;
- improvements in water quality more generally;
- provision of environmental flows which promotes habitat and biodiversity;
- increase in habitat (e.g., streams, wetlands, parks);
- maintenance or increase in biodiversity due to the various factors identified above including increased habitat, improved environmental flows, reduced pollutant discharges and improved water quality;
- reduced soil salinity; and
- improved soil moisture levels.

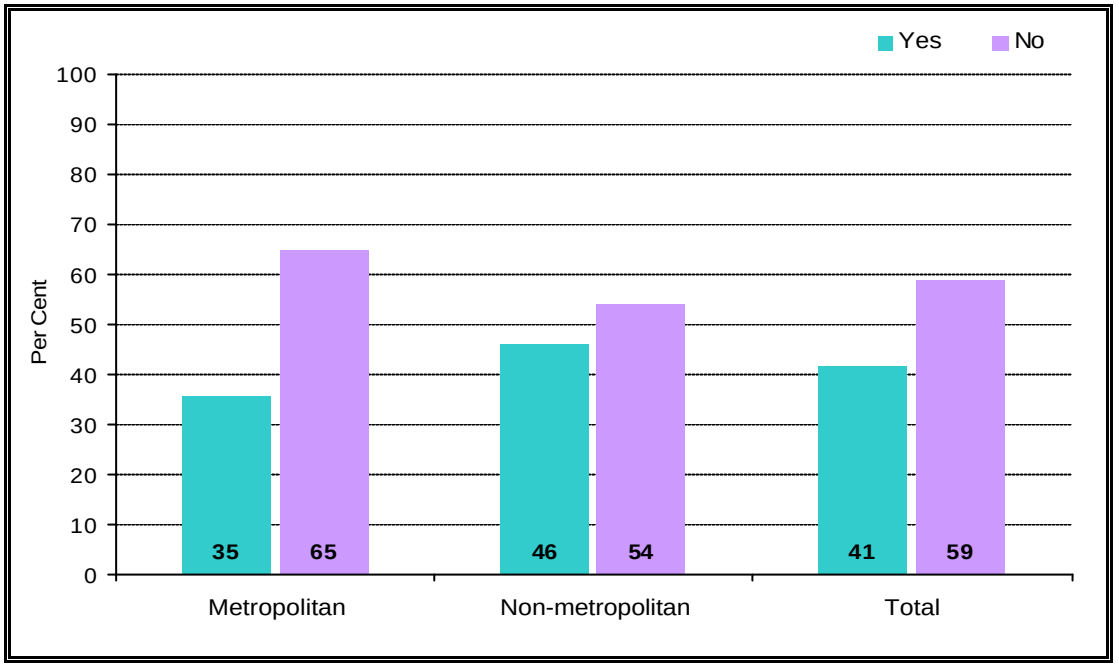
Other social, economic or broader community benefits include:

- improved management of facilities for community organisations;
- increased potential for development (i.e., reclaimed water is provided to areas which may have been unable to access or fully access mains water due to current restrictions);
- reduced pressure on infrastructure (e.g., on stormwater infrastructure due to increased stormwater harvesting);
- reduced energy usage; and
- lower costs due to reduced water use.

3.5.5 Initiatives with Industry and Business

Figure 3.9 shows that 41 per cent of councils have received approaches from industry/business to consider possible future initiatives. A larger proportion of rural councils than metropolitan councils (46 per cent c.f. 35 per cent) have received approaches from businesses. The exact causes of this discrepancy and the nature of the approaches are not known. We speculate that it might reflect that water issues are relatively more significant in rural areas due to their economies being more dependent on water supplies given the significance of agricultural activities.

Figure 3.9
Proportion of Councils That Have Received Approaches From Industry/Business to Consider Possible Future Initiatives

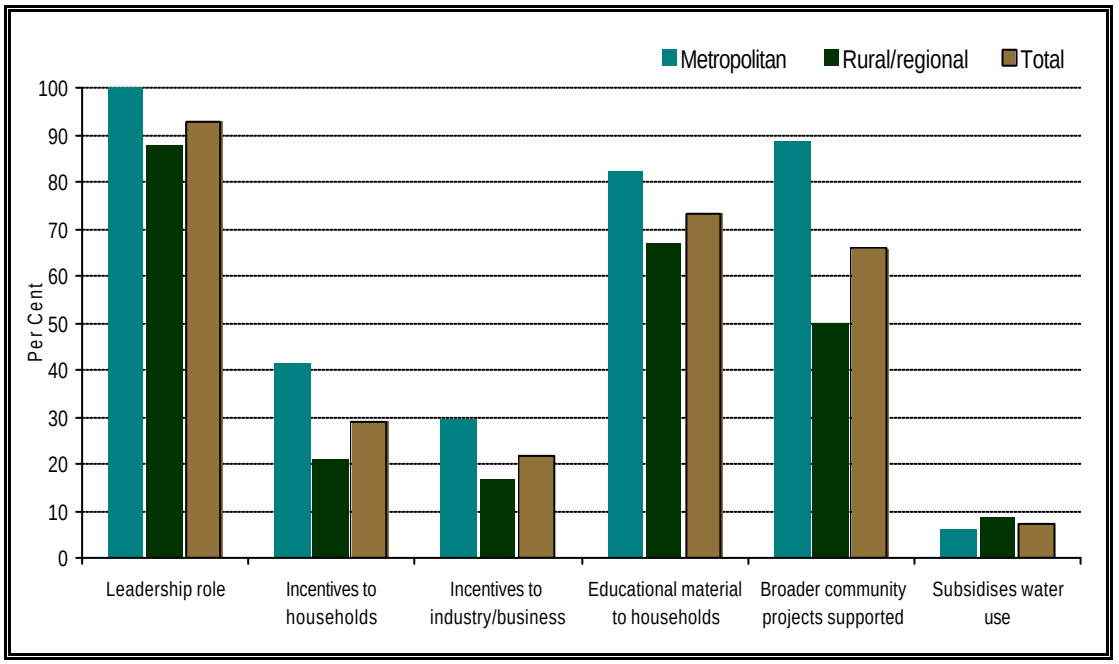


3.6 Community Leadership: Management and Conservation

3.6.1 Leadership Activities

Figure 3.10 summarises the level of council participation in a range of community leadership activities in relation to water management and conservation.

Figure 3.10
Council Participation in Community Leadership Activities, Per Cent[a]



Note: [a] Proportion of councils that indicated "yes".
Source: Table C.3

An overwhelming majority of councils (93 per cent) felt that council had a leadership role to play in water resource management. All metropolitan councils believed that council had a leadership role to play compared to 88 per cent of councils located in rural/regional areas.

Over half (55 per cent) of those councils who agreed they have a leadership role to play implemented this role through "demonstrating" water saving to the community, generally by adopting water saving measures in respect of council activities or through "demonstration projects".[4] Reducing internal water use in relation to council's own activities was explicitly stated by about one-fifth of these councils as one method in which they fulfilled their leadership role.

Almost one-third of councils fulfilled their leadership role by encouraging or promoting water saving activities and behaviour. This generally involved educating the community and business about water saving measures such as rainwater tanks, reuse water, water saving alternatives etc.

Leadership through formal strategic planning and policy development was identified by one-fifth of councils. This included, among other things, setting formal environmental targets and actions within existing formal strategic and budget planning activities (i.e., 5 year community plan); undertaking ICLEI initiatives; development of an Environment Action Plan, engagement in Natural Resources Management Board activities and other stakeholders (e.g., SA Water, EPA, other local councils).

Other methods in which councils implemented their leadership role included setting formal water conservation targets (7.9 per cent), contributing to research (5.3 per cent) and adhering to regulations and best practice (5.3 per cent).

3.6.2 Provision of education material

73 per cent of councils provided educational material to households/ratepayers supporting water conservation measures (see Figure 3.9). This was the most common form of leadership activity of those activities formally asked within the survey. Metropolitan councils (82 per cent) were more likely to provide education materials than rural councils (67 per cent).

While a high proportion of councils provided education materials, comments describing the education material provided indicates that provision of such information was sometimes conducted in a passive role. For instance, some councils simply provided access to SA Water or other state government materials in relation to water conservation (e.g., Watersmart brochures), or provided relevant information on a "as requested" basis. Brochures and fact sheets on water conservation were sometimes made available through council Service Centres, civic centres, and/or libraries, while relevant information was posted on council websites together with links.

Other councils took a more proactive approach, undertaking activities including providing a limited number of presentations to schools and community groups; conducting occasional seminars and workshops for schools and the general public; establishing demonstration sites; promoting water conservation at community events such as fairs; providing regular information through council newsletters; conducting a local television advertising campaign on conserving water; responding to local media more generally; providing relevant

[4] Unless otherwise stated, proportions and percentages referred to in the remainder of this section are expressed as a proportion of those councils who agreed they have a leadership role to play.

community signage; and forwarding SA Water brochures and Natural Resources Management information to households.

Councils provided information on a variety of topics including:

- rainwater tank installation, sizing and maintenance;
- greywater and wastewater reuse, including aerated wastewater reuse systems;
- drought tolerant native species;
- stormwater retention and detention requirements for new development;
- composting and mulching;
- water auditing;
- information and referrals in respect of State and Federal government rebates;
- preventing waste intrusion into stormwater (e.g., cigarette butts and dog waste); and
- maintenance of roof water systems.

3.6.3 Broader Community Projects Supported

Two-thirds of councils provided support to broader community projects. Metropolitan councils were more likely than rural councils to provide support to community projects (88 per cent c.f. 50 per cent).

Approximately one-third of those councils who provided broader community support did so through the provision of community grant programs.[5] Examples of activities funded include installation of rainwater tanks, indigenous plantings, mini wetlands, and improved irrigation of parks, gardens etc.

Measures related to establishing rainwater tanks were mentioned by one third of councils, sometimes in the context of community grant programs. These measures included the provision of rebates to sporting clubs, installation of rainwater tanks on council properties, and installation of tanks on other community buildings and facilities, such as sporting clubs, kindergartens and schools.

Several councils indicated that they assisted broader community projects with the preparation of applications to state or federal government grant programs, such as the former Community Water Grants program. Examples of such assistance include the provision of letters of support and technical support.

Other forms of support for broader community projects included provision of ad hoc funding and in kind support (e.g., lending machinery and equipment) to community and sporting groups.

3.6.4 Incentives to Households, Industry and Business

Less than one third of councils (29 per cent) provided incentives to households to adopt water saving measures. Metropolitan councils were more likely than rural councils to provide incentives (41 per cent c.f. 21 per cent).

[5] Unless otherwise stated, proportions and percentages referred to in the remainder of this section are expressed as a proportion of those councils who indicated that they do provide support to broader community projects.

The types of incentives provided included:

- rebates for rainwater tanks;
- interest free loans for plumbed rainwater tanks;
- exchange system for reduced flow shower heads;
- gardens grants program which provides access to grants so that households may "gain information and techniques to improve the water use" in gardens;
- reduction in the Community Wastewater Management System (CWWMS) charge where enviro cycle units for reuse are adopted; and
- annual give away of arid land plants.

Approximately one-fifth of councils (22 per cent) provided incentives to business and/or industry to adopt water conservation measures. Metropolitan councils were again more likely to provide such incentives compared with rural councils (29 per cent c.f. 17 per cent).

The primary types of incentives provided to business were rebates for installing rain water tanks including upgrading tank sizes and grant programs for "innovative water solutions" and water saving measures more generally. One council used annual environmental awards to promote and recognise water initiatives undertaken by local business. Another council had previously provided seed funding to small scale projects that had struggled to attract interest or uptake from the sector.

Subsidise Water Use

Only 7 per cent of councils had subsidies in place which now needed to be reviewed or discontinued. These subsidies related to sporting grounds and venues (e.g., golf club); one council had to review the annual charge for reuse water provided while another was reviewing the irrigation of sporting and recreation areas as part of the implementation of the IPOS management program.

Sporting activities

Councils were asked "what measures have been implemented to ensure sporting activities are not impacted by the drought or, in the longer term, climate change?" The most common measure adopted was the utilisation of reuse water to irrigate sporting grounds and recreation parks: one-third of councils either already utilised reuse water on ovals and parks or were in the process of investigating water reuse options. Such measures typically involved harvesting of stormwater and the utilisation of treated effluent.

Another common measure (adopted by a third of councils) was maintaining sporting ovals and recreation parks according to the IPOS Code of Practice. This aims to ensure that "Fit for Purpose playing fields are provided" through a "system of management including improvements in turf management, soil structure and irrigation system efficiency". Interestingly, adherence to the IPOS code of practice was only explicitly mentioned by metropolitan councils.

Prioritisation of sporting grounds for irrigation was another measure adopted. Some councils ensured that sporting grounds received priority for irrigation while "passive recreation reserves" and "secondary open space areas" were no longer irrigated, especially given the level 3 restrictions imposed by SA Water.

Other measures adopted include:

- encouraging efficient irrigation practice through sharing of technical knowledge and information;
- implementing conditions in lease agreements that further promote water conservation;
- overarching irrigation management through use of fertilizers and wetting agents;
- installation of artificial turf (e.g., bowling club);
- independent monthly sports ground assessments;
- installation of water efficient irrigation technology;
- provision of grants to assist sporting groups adopt and implement improved irrigation infrastructure and management; and
- correct turf selection.

One concern is that some councils had ensured that sporting activities were not impacted by utilising or switching to bore water. There is a risk that ground water resources may currently or in the future suffer from overuse and/or adverse quality impacts (i.e., rises in salinity), and may be subject to prospective regulation.

3.7 Future Role in Water Management

3.7.1 Most Appropriate Role

Councils were given an open slate to describe what they thought was the most appropriate role for local government in water conservation. Two closely related roles were most commonly identified by councils: adopting improved water management practices and initiatives in respect of their own facilities and activities, and leading by example. Approximately half of all councils identified sustainable water practices and leadership as the most appropriate role respectively, while the two roles were often mentioned together.

Adoption of sustainable water practices involved implementation of "best practice water management". This was achieved not only through alternative irrigation practices but also development of "waterwise" open spaces through appropriate landscaping (e.g., utilising indigenous plants). It was also achieved through infrastructure measures that reduced water use or established "additional supplies". Such measures included "improved harvesting and reuse of stormwater resources". At a more general level sustainable water practices were achieved through adhering to established guidelines and standards.

The role of leadership was to "demonstrate best practice" and "leading water management practices" to the community in order to encourage water conservation.

The other appropriate role considered for local government was to educate the community about water conservation measures and practices. Some councils felt their role was to act as a "point of reference for educational material information" for the community. Other councils took a more active role in terms of promoting "water conservation throughout the community". Many councils felt their educational role involved "demonstrating best practice, on-ground measures", and other water saving initiatives.

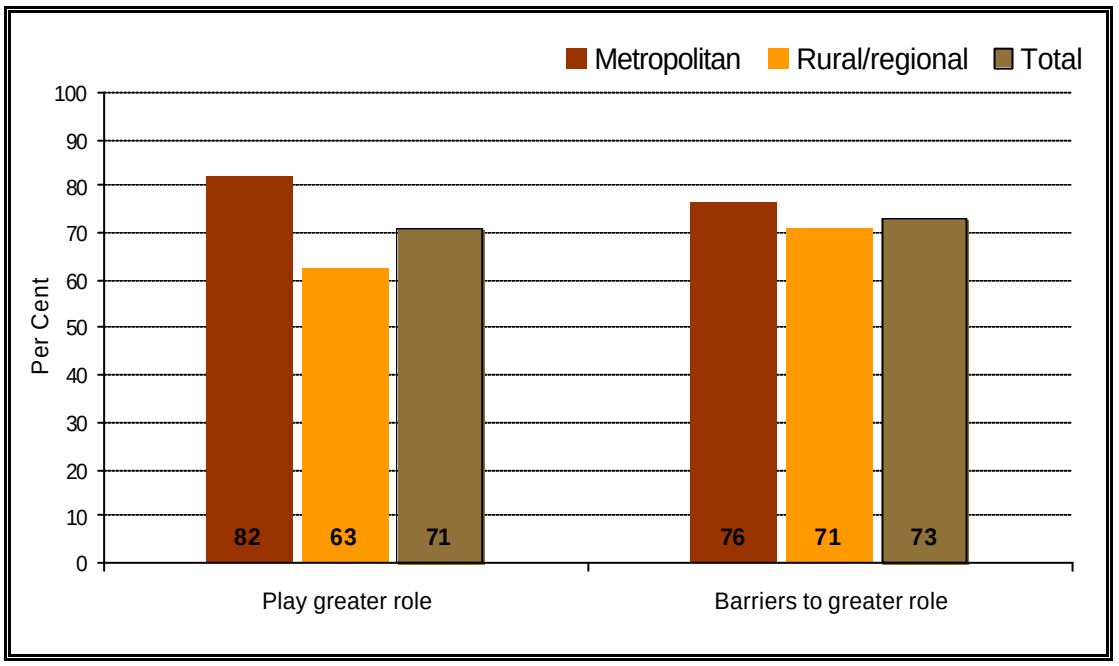
3.7.2 Playing a Greater Role in Water Conservation and Management

Almost three quarters of councils felt that they should play a greater role in improving water conservation and management - refer Figure 3.11. A larger proportion of metropolitan councils than rural councils considered that they should play a greater role (82 per cent c.f. 63 per cent).

Approximately three quarters of councils also felt that there were barriers or factors that prevented their council from playing a greater or more effective role in terms of improving water conservation and management in their area (see Figure 3.11). A similar proportion of metropolitan and rural councils felt there were barriers or obtrusive factors (76 per cent and 71 per cent respectively).

By far and away the most significant barrier identified related to a lack of funding with approximately three quarters of those councils identifying existing barriers nominating funding related issues.[6] Internal budget constraints and/or external funding and investment constraints were typically identified, while some council's identified a general lack of "resources". One council had experienced several years of drought which would have increased demand for services while limiting growth in resources. Another felt that there was "a lack of small grant funding opportunities to implement onground local projects".

Figure 3.11
Council View's on Playing a Greater Role in Improving Water Conservation and Management and Existence of Barriers[a]



Note: [a] Proportion of councils that indicated "yes".

In relation to funding constraints, a number of councils noted that infrastructure projects were typically expensive and therefore "beyond the financial capability of local governments". The existing roles and responsibilities of local government, where there were "competing priorities for local government" and councils were "not the manager of the potable water

[6] Unless otherwise stated, proportions and percentages referred to in the remainder of this section are expressed as a proportion of those councils who indicated that they felt that there were barriers or factors that prevented their council from playing a greater role.

infrastructure", means that councils are not well placed to deliver or support infrastructure projects.

Resource constraints related not only to budgetary and funding constraints but also to a lack of staff resources and expertise (identified by about a fifth of councils).

A number of barriers were identified in respect of the existing statutory and management framework governing water conservation and management. It was observed that there was "a lack of clearly defined roles and responsibilities between all water management 'stakeholders' ", and that "there are too many players each with their own agenda competing for the limited funds and resources required to manage water for the future". One council felt that the confused management framework was "not conducive to interactive involvement with other stakeholders – e.g., SA water", while another argued that adoption of solutions was compromised by "parochial" attitudes. The confusion surrounding the existing statutory and management framework may arguably reflect the "lack of a clear and agreed delivery model for facilitating community uptake of best practice water conservation and management behaviour."

Other barriers and factors preventing councils from playing a greater of more effective role in terms of water conservation and management in the future included:

- technical barriers related to geography and geology that prevented implementation of projects or significantly increased their cost. Such limitations included a lack of space for water storage and reuse projects such as wetlands and aquifer storage recovery (ASR), poor quality of aquifers, and a low water table.
- the relatively low pricing of water, which makes infrastructure projects not cost effective from a benefit-cost perspective.
- constraints in relation to the Development Act and planning more generally which make it difficult to encourage water sensitive design. The planning system was considered to be a "blunt instrument at the moment", with there possibly being a case for "strict and enforceable water conservation targets for all new development". There was currently little incentive for developers driven by profits to implement Water Sensitive Urban Design (WSUD). For instance, one council had tried to "encourage developments with wider roads" to allow for WSUD measures but to no avail.
- difficulties associated with "local issues versus wider gain". For instance, the benefits from some measures may spill-over to other council areas or other stakeholders within the local community but these beneficiaries do not necessarily contribute to the costs of implementing these measures.

Future Projects

The significant majority of councils (85 per cent) were able to identify future projects or initiatives that they may initiate or contribute to in order to improve water conservation and management in their area. A somewhat greater proportion of metropolitan councils than rural councils were able to identify future initiatives (94 per cent c.f. 79 per cent).

The range of water conservation and management initiatives identified by councils are summarised in Box 3.1.

Box 3.1
Future Water Conservation and Management Projects and Initiatives

- Harvesting and reuse of stormwater.
- Installation of wetlands, often as part of plans to increase stormwater harvesting and possibly wastewater reuse.
- Reuse of wastewater, including wastewater reuse being built into future Community Wastewater Management System initiatives.
- Increased use of rainwater through installation of rainwater tanks on council facilities and programs to encourage take up of rainwater tanks among the community.
- Desalination, typically in respect of ground water resources which are saline, and with an emphasis on environmentally sustainable provision (i.e., wind or solar powered).
- Embracing and encouraging Water Sensitive Urban Design, through councils own activities (i.e., open space development, public facilities) and broader community activities (i.e., residential gardens, private sector development through the approvals process), applying to both new developments and renewal of existing infrastructure. Examples of WSUD in public facilities include the implementation of "swales, biofiltration pits, permeable paving" as part of road upgrades. In some instances this could involve stronger development requirements for water conservation.
- Implementing improved irrigation techniques and management including sub-surface irrigation, improved knowledge of soil moisture requirements, improved maintenance programs, installation of timers to permit night time watering, closer site management to set irrigation needs based on usage of site, upgrading irrigation infrastructure with more efficient up-to-date infrastructure, and installing sub-metering at council sites where multiple uses are in operation to accurately record water consumption.
- Adoption of low water use plants, typically indigenous species, in council areas as part of "sustainable landscapes", and promoting the use of such species in private gardens. In addition to reducing irrigation requires native species promote biodiversity.
- Installation of water efficient appliances and practices within council facilities and other public facilities operated by council, and encouraging the adoption of water efficient appliances by the broader community through initiatives such as a shower head exchange program. Water efficient appliances and practices include "dual flush toilets, low flow shower heads, real time water monitoring, non-potable water use".
- Replacing natural turf with artificial turf.
- Conducting investigations and commissioning projects to assess current practices and explore possible water initiatives, including "opportunities for water harvesting", development and consolidation of "stormwater asset management plans", "opportunities for access to recycled waste water", "options for adaptive reuse and retofitting [sic] of existing housing stock", "watercress modelling", investigating opportunities for Aquifer Storage and Recovery, and "stormwater asset and performance review".
- Further community demonstration and education campaigns to "provide information to the community about costs and benefits of water conservation and management", including "Green Community Hubs" which demonstrate "smart water use in newly constructed Council owned community centres".
- Rehabilitating and improving existing waterways and water bodies. This includes initiatives such as improving "creek bed and bank indigenous vegetation to improve stormwater quality and minimise erosion" and restore the health of Torrens Lake through "filtration, carp removal, and replanting of macrophytes".

References

Australian Bureau of Statistics (2006), Water Account, Australia, 2004/05. Cat. No. 4610.0.

International Council for Local Environmental Initiatives, The Water Campaign, [Online], Available: http://www.iclei.org/index.php?id=2384 [2009, January 27].

SA Water, Code of Practice, Irrigated Public Open Space, [Online]' Available: http://www.sawater.com.au/NR/rdonlyres/5D05C0E5-28C8-40F9-B936-4CA1875509AB/0/CoP_IPOS.pdf [2009, January 30] .

Appendix A

Survey Instrument

Local Government's Current and Potential Role in Water Management and Conservation

Introduction

This project was commissioned by the Local Government Association of SA on your behalf. The project is designed to obtain an accurate picture about local government's current and potential role in pursuing strategies to better manage water resources in local and regional areas. In order to document, summarise and present back to councils information on current activities and initiatives in water conservation, the LGA has commissioned the South Australian Centre for Economic Studies (SACES) to conduct this sector-wide survey on water management and conservation.

The aim of the project is to:

a) examine local government's current and possible future roles in water conservation and management across the State;
b) gather information about the range of issues that local government is dealing with regarding water conservation, including costs and benefits (community/council) and the areas of the State that are undertaking activities; and
c) 'case study' selected Councils' approaches to water conservation and management, including information regarding:
   - the areas of activity most appropriate for local government involvement;
   - partnering opportunities gained/explored;
   - economic, social and environmental savings;
   - role of local government as a community leader in influencing behaviour change in the community; and
   - potential opportunities for local government to influence the policy development process for the management of water resources in Australia.

SACES is working with a reference group established by the LGA and is required to provide a final report that illustrates the range of activities currently being undertaken by Councils.

Councils are asked to provide details in response to the questions provided. The questions relate to the sustainable use of water resources by council, residents, industry and business in your local government area.

Respondents should complete this survey in digital form by clicking in the grey squares: . There are no limits to the length of responses, though responses should ideally be succinct.

When you have completed the survey, please save the Word file to your computer using the "Save As" function to ensure you have a copy for your records. Please return it to SACES by Friday, 21st November 2008 by emailing it to saces@adelaide.edu.au.

Should you need any clarification please contact Anthony Kosturjak, Senior Research Economist at SACES on (08) 8303 4547.

1. Organisation contact details and council characteristics

Name of Council: .....

Location of Council (i.e., metro or regional): Please click here to answer

Contact for queries

Name: .....

Email: .....

Telephone: .....

Estimated population of local council: ..... persons

Considering the **whole Council area**, what are the priority areas of action in terms of water conservation and management (e.g., storm water harvesting, improved management, waste water reuse, recycling, STEDS/CWWMS etc)?

Please list in order of importance

1. .....
2. .....
3. .....
4. .....
5. .....

2. Current policy related to water conservation and management

2.1 Considering only your **Council's facilities** (i.e., council buildings, ovals etc), has your Council adopted specific targets for water conservation?

Please click here to answer

If yes, please describe the nature of the targets *(if no, go to question 2.2)*:

.....

2.2 Considering the **whole council area**, has Council adopted specific targets for water conversation?

Please click here to answer

If yes, please describe the nature of the targets *(if no, go to question 2.3)*:

.....

2.3 Has your Council collaborated with any of the following stakeholders in respect of water conservation projects? *(please tick all that apply)*

Federal Government ☐
State Government ☐
Local Government/Local Government Associations ☐
Regional Development Boards ☐
Industry/Business ☐
Environmental organisations ☐
Other (please specify below) ☐

.....

2.4 Has your Council participated in any water conservation and management measures supported by the International Council for Local Environmental Initiatives (ICLEI – Local Governments for Sustainability)?

Please click here to answer

If yes, please describe the nature of the measures *(if no, go to question 2.5)*:

.....

2.5 Has your Council implemented any water conservation and management measures as part of the *Code of Practice for Irrigated Public Open Space* (IPOS)?

Please click here to answer

2.6 Are there any constraining factors in addressing water conservation and management issues in your council area?

Please click here to answer

If yes, what are the constraining factors? *(if no, go to question 2.7)*

2.7 What potential opportunities do you see for Council to influence the policy development process in South Australia? You may have frustrations as well, please describe.

---

3. Water management: current activities and major projects

3.1 Could you please list and describe up to 3 major projects your council has instigated or significantly contributed to in respect of water conservation and management in your council area.

Project 1

Description of the project and actions involved: .....

Partnerships: .....

Financial contribution from Council: .....

Financial contribution from others (e.g., state and federal government, industry, users, other etc): .....

Has the project resulted in any water savings? If so, please indicate the extent of savings: .....

Project 2

Description of the project and actions involved: .....

Partnerships: .....

Financial contribution from Council: .....

Financial contribution from others (e.g., state and federal government, industry, users, other etc): .....

Has the project resulted in any water savings? If so, please indicate the extent of savings: .....

Project 3

Description of the project and actions involved: .....

Partnerships: .....

Financial contribution from Council: .....

Financial contribution from others (e.g., state and federal government, industry, users, other etc): .....

Has the project resulted in any water savings? If so, please indicate the extent of savings: .....

3.2 Please list any other water conservation and management projects your council has instigated or had a major involvement with including the estimated water savings achieved (if known):

Name of project	Estimated water savings (megalitres)
1.	.....
2.	.....
3.	.....
4.	.....
5.	.....

Note: 1 megalitre = 1,000,000 litres.

3.3 Has Council derived annual cost savings from any of the projects listed in Questions 3.1 and 3.2?

Please click here to answer

If yes, what is the extent of savings? *(if no, go to question 3.4)*

.....

3.4 Do you know if industry/business has derived annual cost savings from any of the projects listed in Questions 3.1 and 3.2?

Please click here to answer

If yes, are you able to provide an estimate of the extent of savings? *(if no, go to question 3.5)*

.....

3.5 Can you identify environmental and social benefits from any of the projects listed in Questions 3.1 and 3.2?

Please click here to answer

If yes, what is the nature of these environmental and social benefits? *(if no, go to question 3.6)*

.....

3.6 Have you had approaches from industry/business to consider possible future initiatives?

Please click here to answer

4. Community Leadership: Management and Conservation

4.1 Does Council consider it has a leadership role in water resource management?

Please click here to answer

If yes, how is this leadership role implemented?

4.2 Does Council provide incentives for households to adopt water saving measures?

Please click here to answer

If yes, please describe the incentives provided:

4.3 Does Council provide incentives for local industry/business to adopt water saving measures?

Please click here to answer

If yes, please describe the incentives provided:

4.4 Does Council provide educational material to households/ratepayers supporting water conservation measures? *(educational material includes internally and/or externally developed material)*

Please click here to answer

If yes, please describe the educational material provided:

4.5 Are there broader community projects which council supports (e.g., rainwater tanks for community gardens, ovals, recycle grey water, etc)?

Please click here to answer

If yes, please describe these projects:

4.6 Are there examples where Council subsidises water use (in terms of rates forgone or other offsets) which now need to be reviewed or discontinued?

Please click here to answer

If yes, please describe these subsidies:

.....

4.7 What measures have been implemented (e.g., projects, management practices, policies etc) to ensure sporting activities are not impacted by the drought or, in the longer term, climate change?

.....

5. Future role in water management

5.1 What do you consider is the most appropriate role for local government in water conservation and management?

.....

5.2 Do you consider your Council should play a greater role in improving water conservation and management in your council area?

Please click here to answer

If yes, please go to question 5.3. If no, go to question 5.4.

5.3 Are there any barriers or factors that prevent your Council from playing a greater or more effective role in terms of improving water conservation and management in your council area?

Please click here to answer

If yes, please describe these barriers and/or factors:

.....

5.4 Can you identify future projects or initiatives that your Council may initiate or contribute to in order to improve water conservation and management in your council area?
Please click here to answer

If yes, please list any future projects together with a short description of the project:

1. .....
2. .....
3. .....
4. .....

5. ---------

5.5 Are there any other comments you would like to make concerning the future role of local government in respect of water conservation and management?

---

6. Completion

Please save the completed file using the "Save As" function using the name of your Council. Then return the completed file to the South Australian Centre for Economic Studies by emailing it to the following address: **saces@adelaide.edu.au**

Appendix B

Respondent Councils

Table B.1 provides a full list of the councils that responded to the survey.

Table B.1
Councils That Responded To The Survey

Adelaide (C)	Norwood Payneham St Peters (C)
Alexandrina (DC)	Onkaparinga (C)
Barunga West (DC)	Playford (C)
Berri and Barmera (DC)	Port Adelaide Enfield (C)
Burnside (C)	Port Augusta (C)
Campbelltown (C)	Port Lincoln (C)
Ceduna (DC)	Port Pirie City and Districts (M)
Charles Sturt (C)	Prospect (C)
Cleve (DC)	Renmark Paringa (DC)
Coober Pedy (DC)	Salisbury (C)
Copper Coast (DC)	Southern Mallee (DC)
Flinders Ranges (DC)	Tatiara (DC)
Gawler (T)	Tea Tree Gully (C)
Grant (DC)	Tumby Bay (DC)
Holdfast Bay (C)	Unley (C)
Kangaroo Island (DC)	Wattle Range (DC)
Karoonda East Murray (DC)	West Torrens (C)
Marion (C)	Whyalla (C)
Mitcham (C)	Yankalilla (DC)
Mount Barker (DC)	Yorke Peninsula (DC)
Mount Gambier (C)	

Appendix C

Survey Results - Tabulated Data

Table C.1
Proportion Of Respondents That Have Participated With Particular Stakeholders By Location Of Council, Per Cent

Stakeholder	Metropolitan	Rural/regional	Total
Federal government	94.1	79.2	85.4
State government	82.4	66.7	73.2
Local government or LGA	88.2	58.3	70.7
Regional Development Boards	11.8	29.2	22.0
Industry or business	47.1	37.5	41.5
Environmental organisations	58.8	33.3	43.9
Other	23.5	25.0	24.4
Total	100.0	100.0	100.0

Table C.2
Number of Projects by Level of Council Contributions and Total Contributions by Other Stakeholders

Range	Council Contributions: Number	Other Stakeholders: Number
less than $50,000	29	30
$50,000 to $100,000	8	4
$100,001 to $200,000	9	4
$200,001 to $300,000	9	2
$300,001 to $400,000	0	2
$400,001 to $500,000	3	1
$500,001 to $750,000	1	4
$750,001 to $1m	3	2
$1m to $5m	13	5
greater than $5m	2	7

Table C.3
Council Participation In Community Leadership Activities, Per Cent[a]

	Leadership role	Incentives to households	Incentives to industry/ business	Educational material to households	Broader community projects supported	Subsidises water use
Metropolitan	100	41.2	29	82	88	6
Rural/regional	88	20.8	17	67	50	8
Total	93	29.3	22	73	66	7

Note: [a] Proportion of councils that indicated "yes".

Appendix D

Survey Results - Regional Data

The following section summarises the results of the survey according to various regional classifications provided by the Local Government Association of South Australia. The regional results are summarised in tabular and graphical form.

The regions and their constituent councils are listed in Table D.1. It should be noted that the regions are not mutually exclusive as some councils belong to two or more regions.

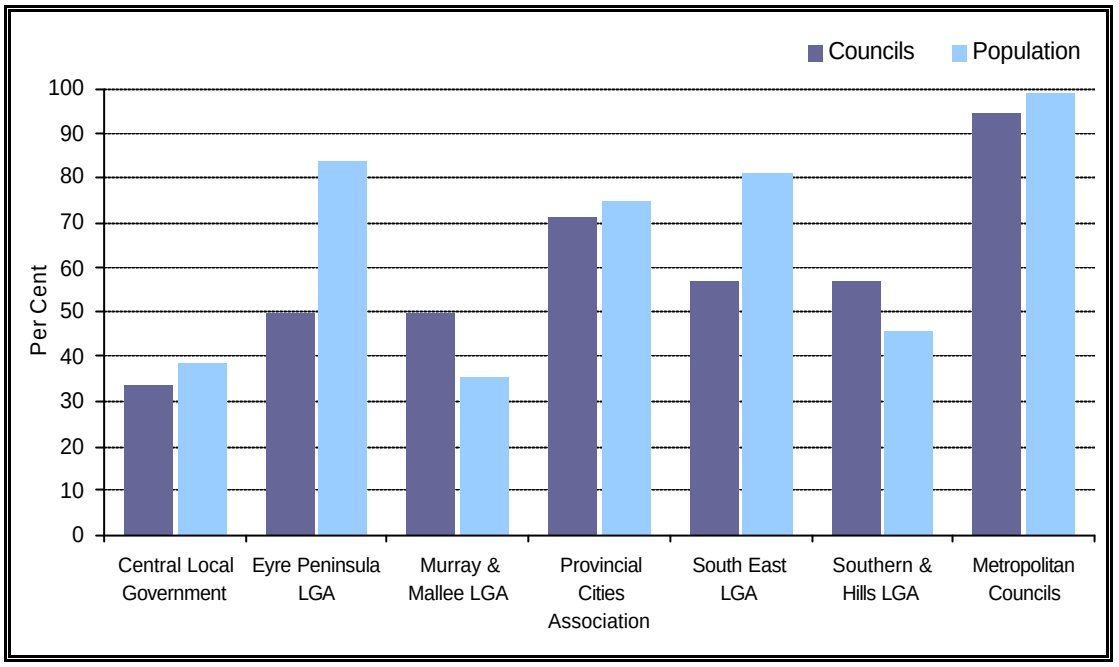
As Figure D.1 shows, the response to the survey was not consistent across all regions. The metropolitan area is best represented with 94 per cent of councils in the metropolitan region responding to the survey, while the Central Local Government Region is the least well represented with one third of councils responding. Coverage for all other regions is generally good with at least half of councils in those regions responding to the survey.

Table D.1
Region Definitions[a]

Central Local Government (CLG) Region			
Port Pirie City and Dists	Barunga West	Copper Coast	Flinders Ranges
Yorke Peninsula	Barossa	Clare and Gilbert Valleys	Goyder
Light	Mallala	Mount Remarkable	Northern Areas
Orroroo/Carrieton	Peterborough	Wakefield	
Eyre Peninsula LGA			
Ceduna	Cleve	Elliston	Franklin Harbour
Kimba	Le Hunte	Lower Eyre Peninsula	Port Augusta
Port Lincoln	Streaky Bay	Tumby Bay	Whyalla
Murray & Mallee LGA			
Berri and Barmera	Karoonda East Murray	Loxton Waikerie	Mid Murray
Murray Bridge	Renmark Paringa	Southern Mallee	The Coorong
Provincial Cities Association of SA			
Mount Gambier	Murray Bridge	Port Augusta	Port Lincoln
Port Pirie City and Dists	Victor Harbor	Whyalla	
South East LGA			
Grant (DC)	Kingston	Mount Gambier	Naracoorte and Lucindale
Robe (DC)	Tatiara	Wattle Range	
Southern & Hills LGA			
Adelaide Hills (DC)	Alexandrina	Kangaroo Island	Mount Barker
Murray Bridge (RC)	Victor Harbor	Yankalilla	
Metropolitan Councils			
Adelaide	Burnside	Campbelltown	Charles Sturt
Gawler	Holdfast Bay	Marion	Mitcham
Norwood Payneham St Pet's	Onkaparinga	Playford	Port Adelaide Enfield
Prospect	Salisbury	Tea Tree Gully	Unley
Walkerville	West Torrens		

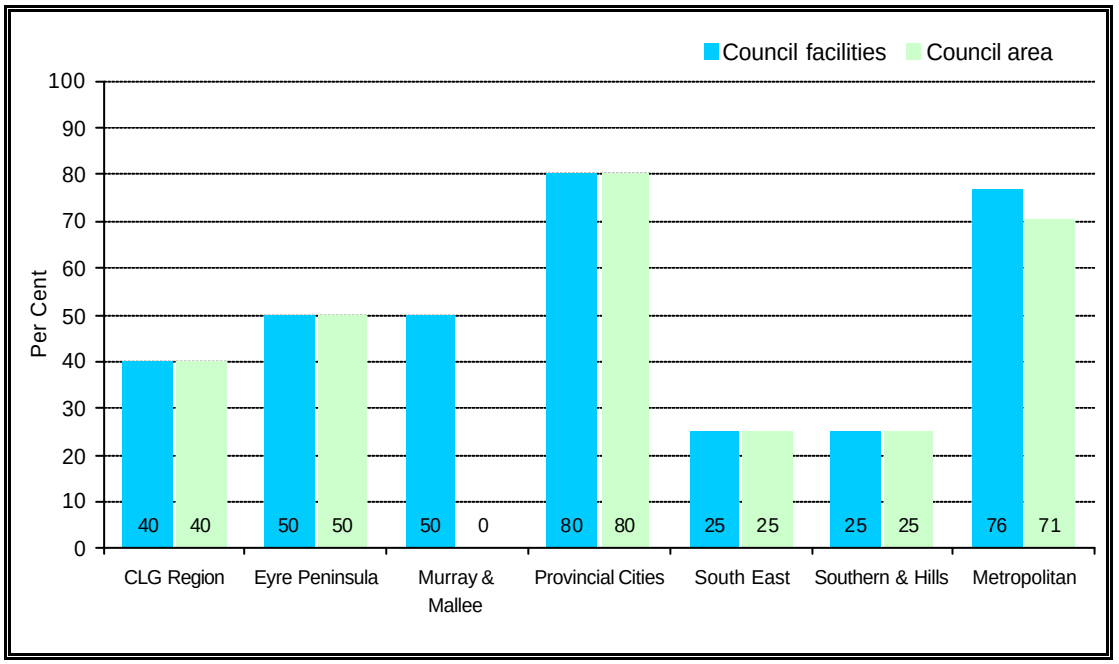
Note: [a] Constituent regions refer to local government areas.

Figure D.1
Survey Response: Coverage of Regions
Proportion of Councils that Responde d and Population Covered



D.1 Adoption of Targets

Figure D.2
Proportion of Councils That Have Adopted Specific Targets for
Water Conservation in Respect of Their Own Facilities and The Whole Council Area



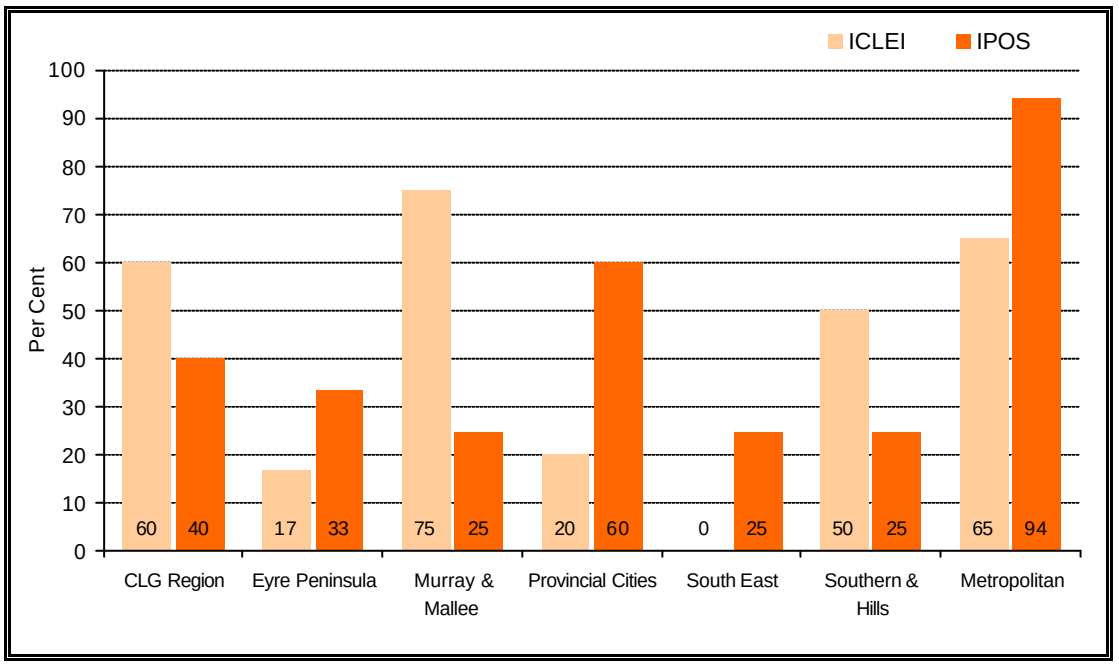
D.2 Participation With Stakeholders

Table D.2
Proportion Of Respondents That Have Participated With Particular Stakeholders By Region Of Council, Per Cent

	Federal govt	State govt	Local govt. or LGA	RDBs	Industry or Business	Environmental organisations	Other
CLG Region	80.0	60.0	80.0	80.0	40.0	40.0	0.0
Eyre Peninsula	83.3	83.3	50.0	16.7	66.7	66.7	16.7
Murray & Mallee	75.0	50.0	75.0	25.0	25.0	25.0	25.0
Provincial Cities	100.0	60.0	40.0	40.0	80.0	60.0	40.0
South East	75.0	75.0	50.0	0.0	0.0	0.0	50.0
Southern & Hills	75.0	50.0	50.0	25.0	50.0	25.0	50.0
Metropolitan	94.1	82.4	88.2	11.8	47.1	58.8	23.5

D.3 Participation With Existing Measures and Programs

Figure D.3
Proportion Of Respondents That Have Participated in ICLEI And Implemented Measures As Part Of The Code Of Practice For Irrigated Public Open Space By Region Of Council, Per Cent[a]



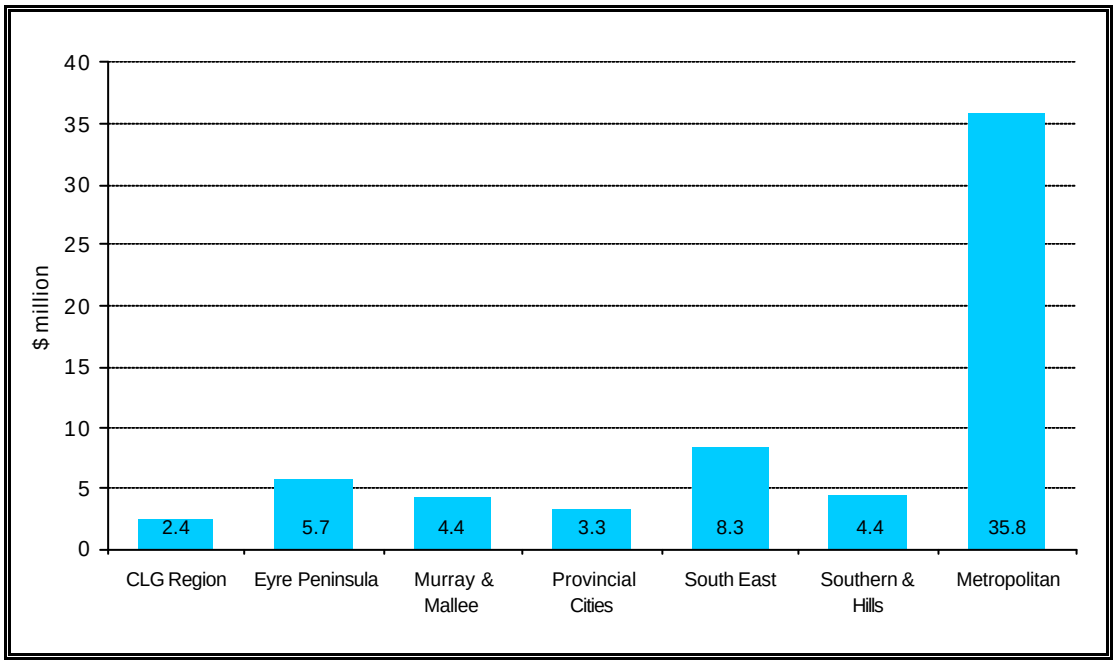
Note: [a] ICLEI = International Council for Local Environmental Initiatives.

D.4 Constraints

Figure D.4
Proportion Of Respondents Experiencing Constraining Factors In Addressing Water Conservation and Management Issues in Their Local Area, By Region Of Council, Per Cent[a]

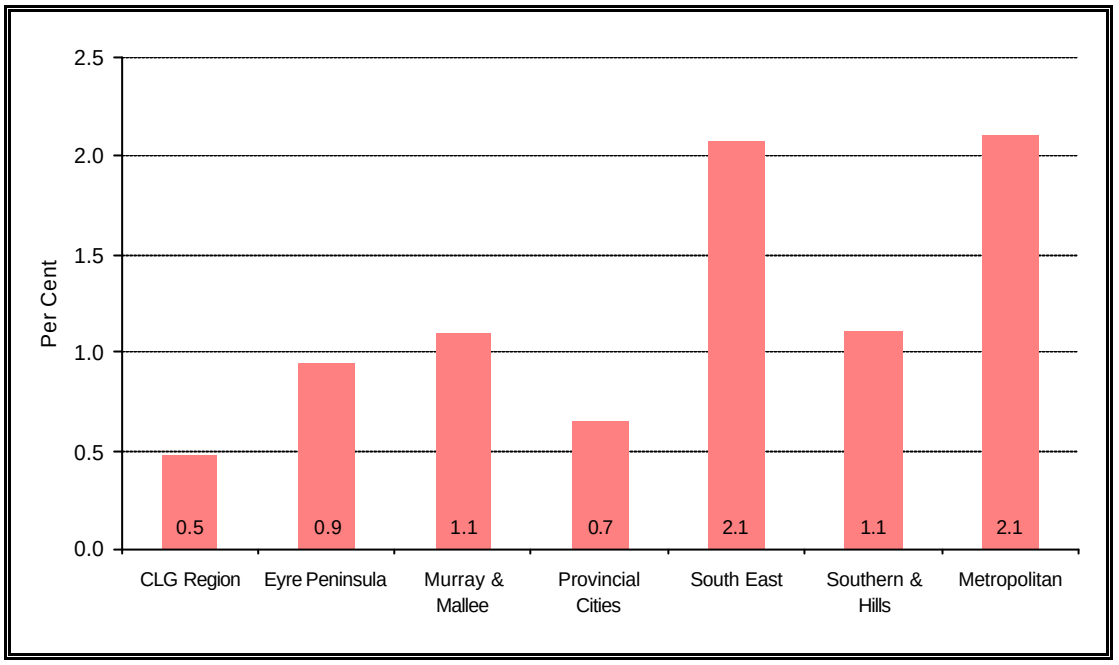
D.5 Council Financial Contributions to Major Projects

Figure D.5
Total Council Financial Contributions To Major Projects By Region of Council, $ million[a]



Note: [a] Refers only to financial contributions from councils that responded to the survey.

Figure D.6
Average Total Financial Contribution Per Council To Major Projects
By Region of Council, $ million[a]



Note: [a] Refers only to financial contributions from councils that responded to the survey.

D.6 Impact of Current Activities and Major Projects

Table D.3
Impacts of Current Activities and Major Projects, and Involvement of Industry/Business, Per Cent

	CLG Region	Eyre Peninsula	Murray & Mallee	Provincial Cities	South East	Southern & Hills	Metropolitan
Council derived any cost savings from projects involved in							
Yes	60.0	50.0	25.0	60.0	25.0	25.0	58.8
No	20.0	50.0	75.0	40.0	75.0	75.0	41.2
Not stated	20.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Know if industry or business has derived any annual cost savings from projects							
Yes	20.0	50.0	0.0	40.0	25.0	50.0	23.5
No	60.0	50.0	100.0	60.0	75.0	50.0	76.5
Not stated	20.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Identify any environmental and social benefits from any of the projects							
Yes	60.0	100.0	100.0	80.0	100.0	100.0	100.0
No	20.0	0.0	0.0	20.0	0.0	0.0	0.0
Not stated	20.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Had approaches from industry/business to consider possible future initiatives							
Yes	60.0	66.7	50.0	80.0	0.0	50.0	35.3
No	40.0	33.3	50.0	20.0	100.0	50.0	64.7
Not stated	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

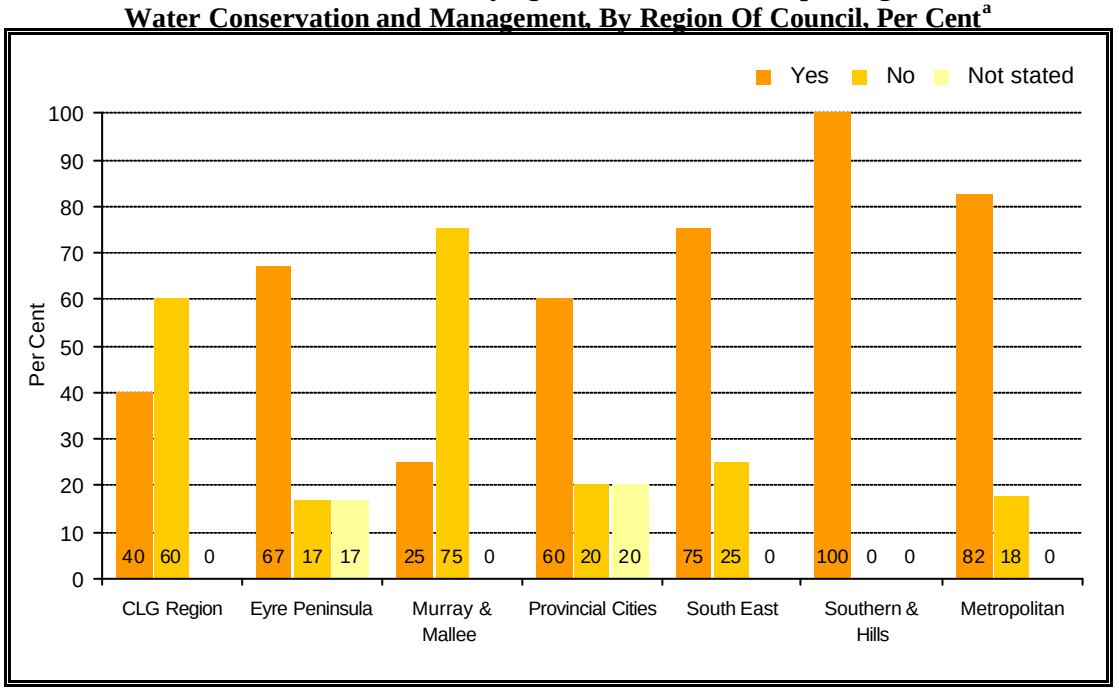
D.7 Community Leadership

Table D.4
Council Participation in Community Leadership Activities by Region of Council, Per Cent[a]

CLG Region	Eyre Peninsula	Murray & Mallee	Provincial Cities	South East	Southern & Hills	Metropolitan
Leadership role in water resource management						
100.0	66.7	100.0	60.0	100.0	75.0	100.0
Provides incentives for households to adopt water saving measures						
0.0	50.0	0.0	60.0	25.0	25.0	41.2
Provides incentives for local industry/business						
0.0	33.3	0.0	60.0	25.0	25.0	29.4
Provides education materials to households/ratepayers						
60.0	83.3	75.0	80.0	50.0	75.0	82.4
Supports broader community projects						
60.0	66.7	0.0	60.0	25.0	75.0	88.2
Subsidises water use which now needs to be reviewed or discontinued						
20.0	16.7	0.0	0.0	0.0	0.0	5.9

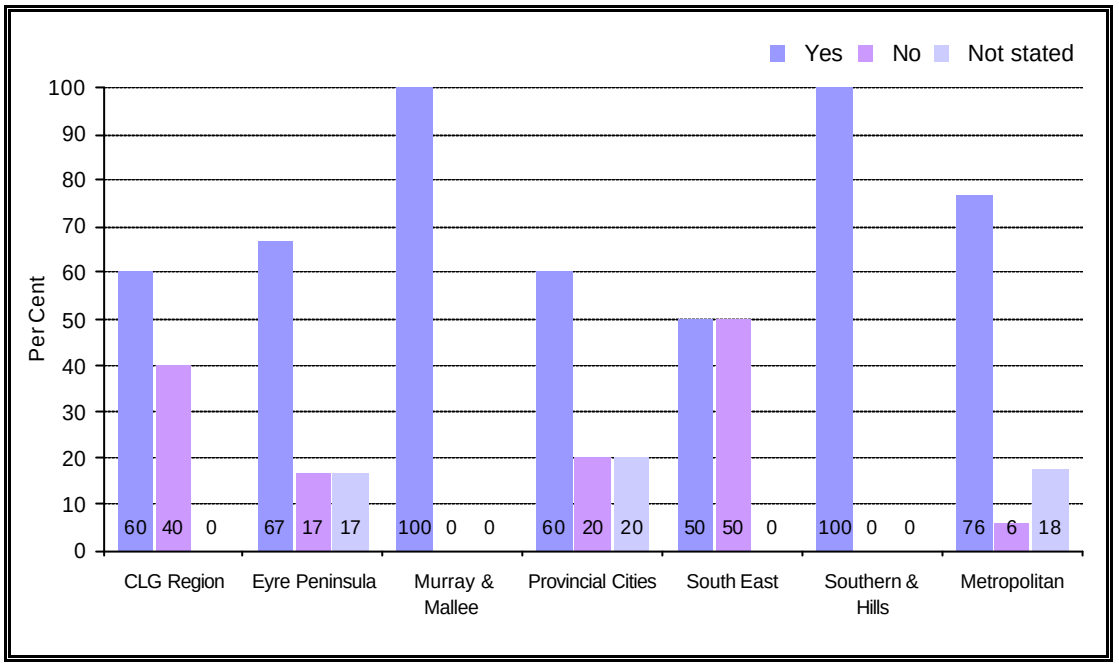
Note: [a] Proportion of councils that indicated "yes".

Figure D.7
Council View's on Playing a Greater Role in Improving Water Conservation and Management, By Region Of Council, Per Cent[a]



Note: [a] Proportion of councils that indicated "yes".

Figure D.8
Council View's on Existence of Barriers or Factors That Prevent Councils From Playing A Greater Role in Water Conservation and Management, By Region of Council, Per Cent[a]



Appendix E

List of Water Projects (Office for Water Security)

Table E.1
Greater Adelaide Region: Proposed Stormwater Reuse Projects

Project Name	Main Proponent	Partners	Estimated Reuse Volume (ML)	Estimated Capital Cost of Project ($)
Salisbury Stormwater Harvesting Project	City of Salisbury	Australian Government	5,000	13,000,000
Christies Creek Upgrade	City of Onkaparinga	Australian Government, AMLR NRM Board	850	14,000,000
Playford North	City of Playford	Land Management Corporation, SA Water	800	Not Known
Hart Rd Wetland – Aldinga Scrub	City of Onkaparinga	CIC-Aldinga, Stormwater Management Authority, DEH	40	1,500,000
McLaren Flat Oval	City of Onkaparinga	Australian Government	18	500,000
Cheltenham/St Clair/TOD	City of Charles Sturt		Up to 1200	20,000,000
Total			**7,908**	

Note: Proposed projects are planned with funding approved but not yet under construction.

Table E.2
Greater Adelaide Region: Active Stormwater Reuse Projects

Project Name	Main Proponent	Partners	Estimated Reuse Capacity Volume (ML)	Estimated Capital Cost of Project ($)
Waterproofing Northern Adelaide	Waterproofing Northern Adelaide Regional Subsidiary	National Water Commission, Land Management Corporation, AMLR NRM Board, DECS, DPC, Stormwater Management Authority	12,100	95,000,000
Morphettville Racecourse	South Australian Jockey Club	AMLR NRM Board	512	2,400,000
Grange Golf Course	The Grange Golf Club	AMLR NRM Board	300	2,300,000
Royal Adelaide Golf Course	The Royal Adelaide Golf Club	AMLR NRM Board	250	2,300,000
Glenelg Golf Course	Glenelg Golf Club	AMLR NRM Board	250	2,300,000
Bruschi	Potters Clay Vineyards		110	Not Known
Olive Grove/Adams Creek	City of Playford		100	1,200,000
The Vines Golf Course	The Vines of Reynella Golf Club		80	750,000
Northgate	City of Port Adelaide Enfield		75	150,000
Regent Gardens	City of Port Adelaide Enfield		60	150,000
Tea Tree Gully Golf Course	Tea Tree Gully Golf Club	Australian Government Community Water Grant, City of Tea Tree Gully	50	250,000
Scotch College	Scotch College		40	Not Known
Lochiel Park	Land Management Corporation	Campbelltown City Council	38	1,529,103
Osborne FR	Private – Not Known		12	Not Known
Torrens Valley Sportsfield	Campbelltown City Council		10	130,000
Acacia Tce	City of Onkaparinga		4	150,000
Mildara Blass	Mildara Blass		4	Not Known
Marion Cultural Centre	City of Marion		2	Not Known
St Elizabeth Anglican Church	St Elizabeth Anglican Church	City of Marion	1	Not Known
New Brompton Estate	City of Charles Sturt		1	Not Known
Total			**13,999**	

Note: Active projects are either in operation or under construction and have their funding approved.