SOUTH AUSTRALIAN
CENTRE FOR ECONOMIC STUDIES
ADELAIDE & FLINDERS UNIVERSITIES

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

Final Report

Report commissioned by

Local Government Association of South Australia

Report prepared by

SA Centre for Economic Studies

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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

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.

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

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
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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 Sown

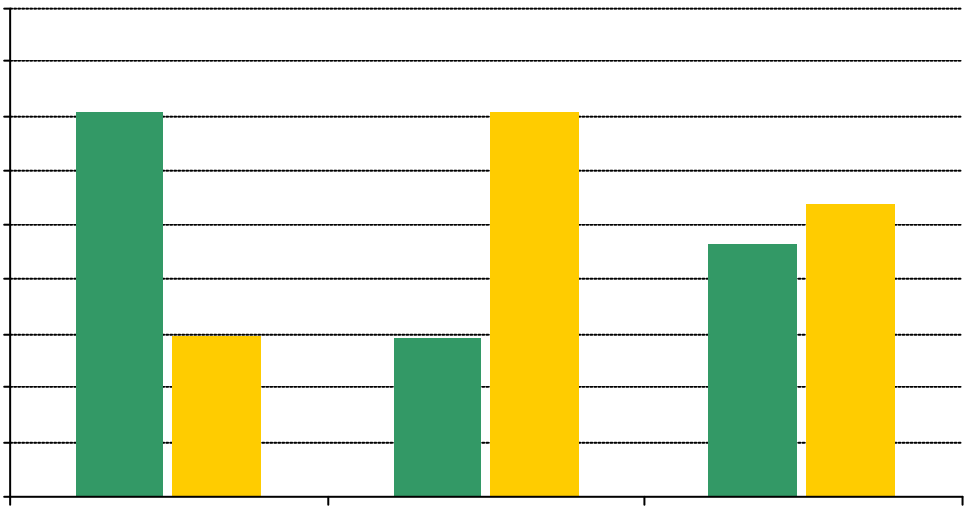
Respondents identified a variety of other types of water conservation targets that have been adopted in respect of their facilities, including:

- 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



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 derivese 1odese 1aTj ET 6

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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, 2giy-udng to (S)5erted mi 9nAall irrig7 /9rkin irrigated public 0 Tc -0.336 Tw ( ) T T

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] [illegible]

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

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

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.

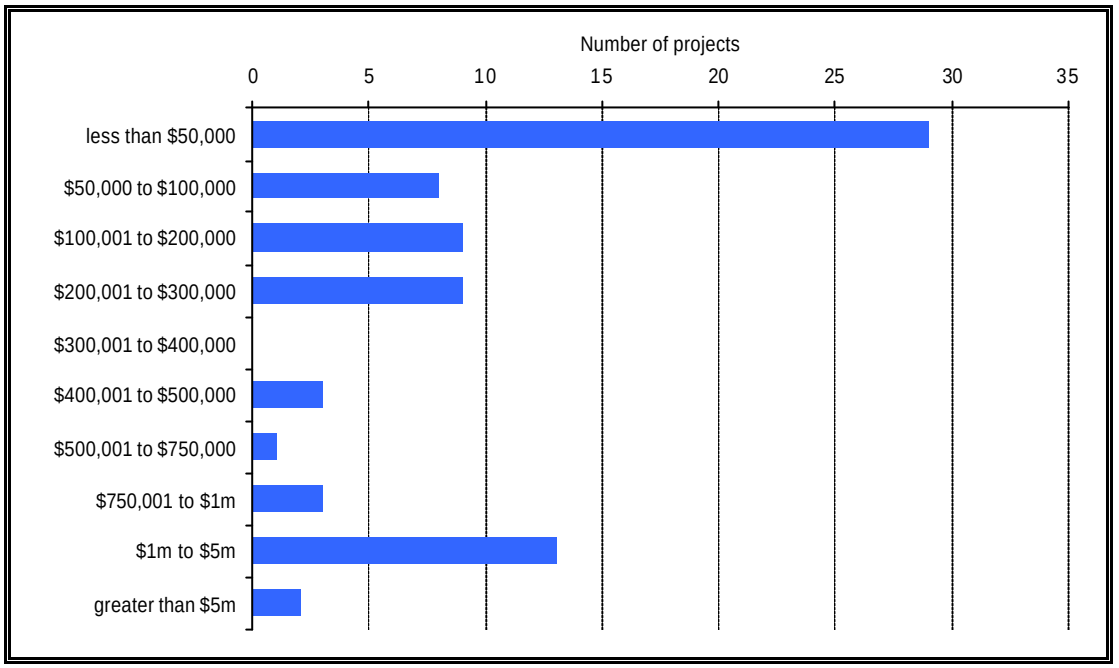
The total funding contribution from respondent councils in relation to the major projects they identified was $61 million. Councils funding contributions were in some instances dependent on funding programs or joint funding from other sources, particularly federal and state government (e.g., Waterproofing 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.

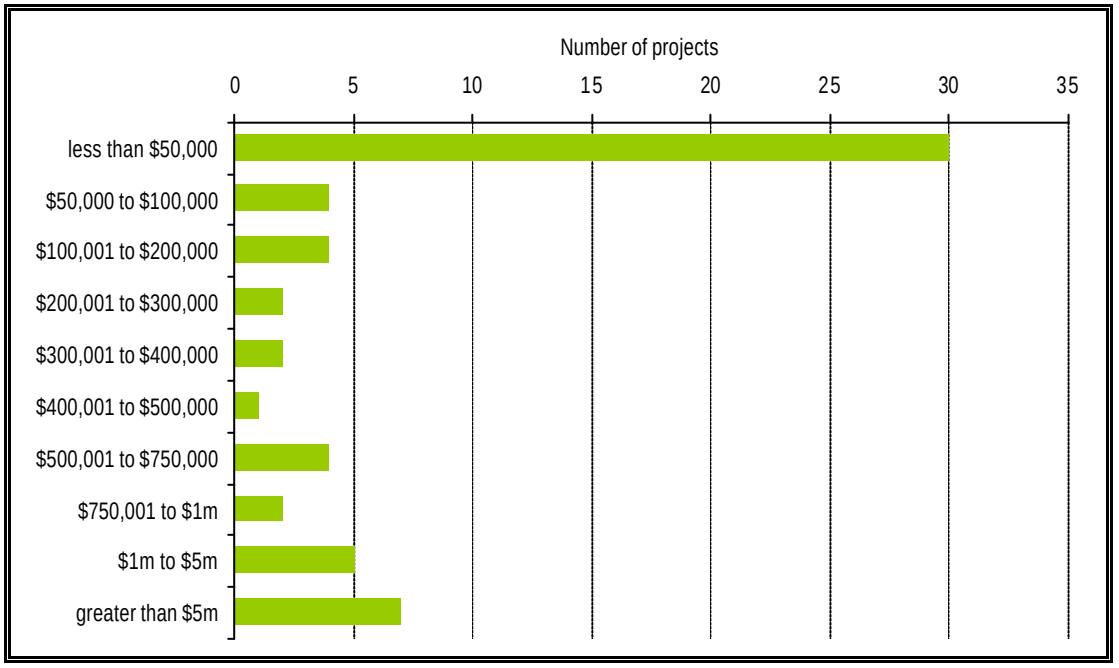
Figure 3.5 shows the number of projects by the level of funding provided by other stakeholders in total. Large projects involving contributions over $10 million from other stakeholders generally involved contributions from State or Federal Government, or SA Water expenditure.

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,

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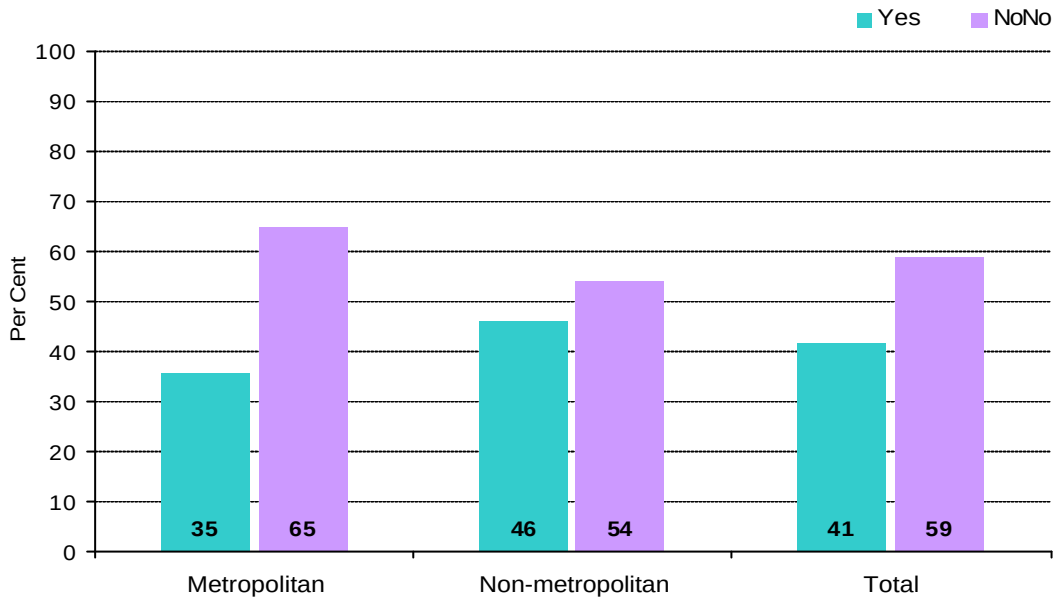
Figure 3.9
Proportion of Councils That Have Received Approaches From Industry/Business to Consider Possible Future Initiatives



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-

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;
-

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 w (te to decs decs 3s);)eweAs8Iw (5 TD -0Tj 0 Tc 0.75 ple.)acthip opr

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

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 gove

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

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)? :D ( ) 25 1 -21 TD 0 T

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

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:

---

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?

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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**

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)

Appendix C

Survey Results - Tabulated Data

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.

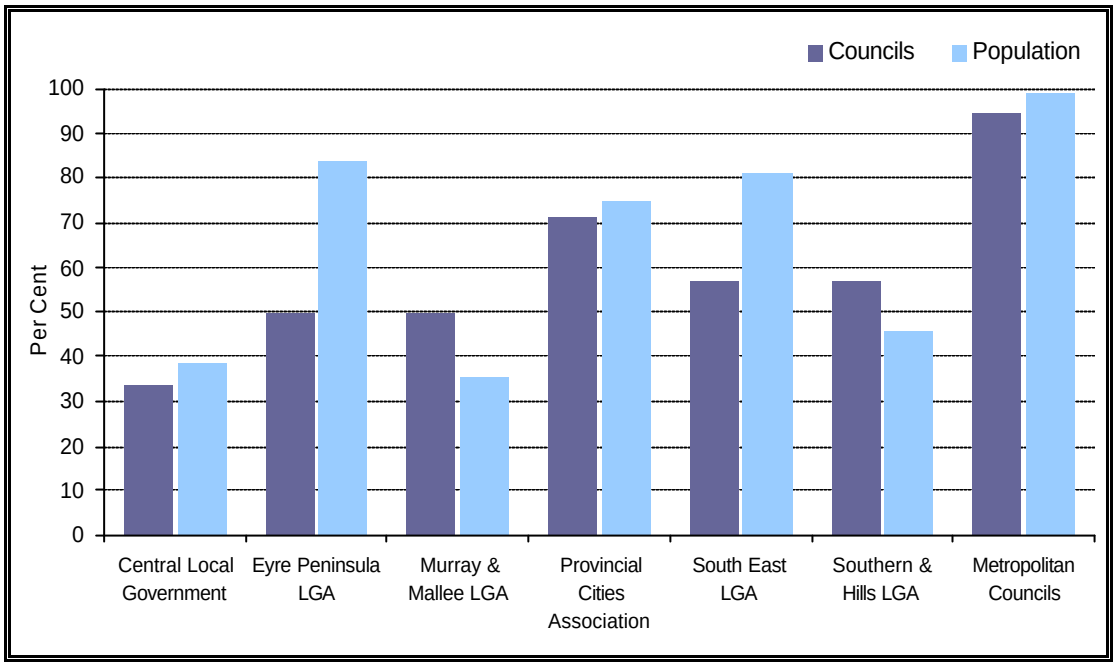
Table D.1
Region Definitions[a]

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

Gom275 re f 18t0 TD 0j 89.25 0 e

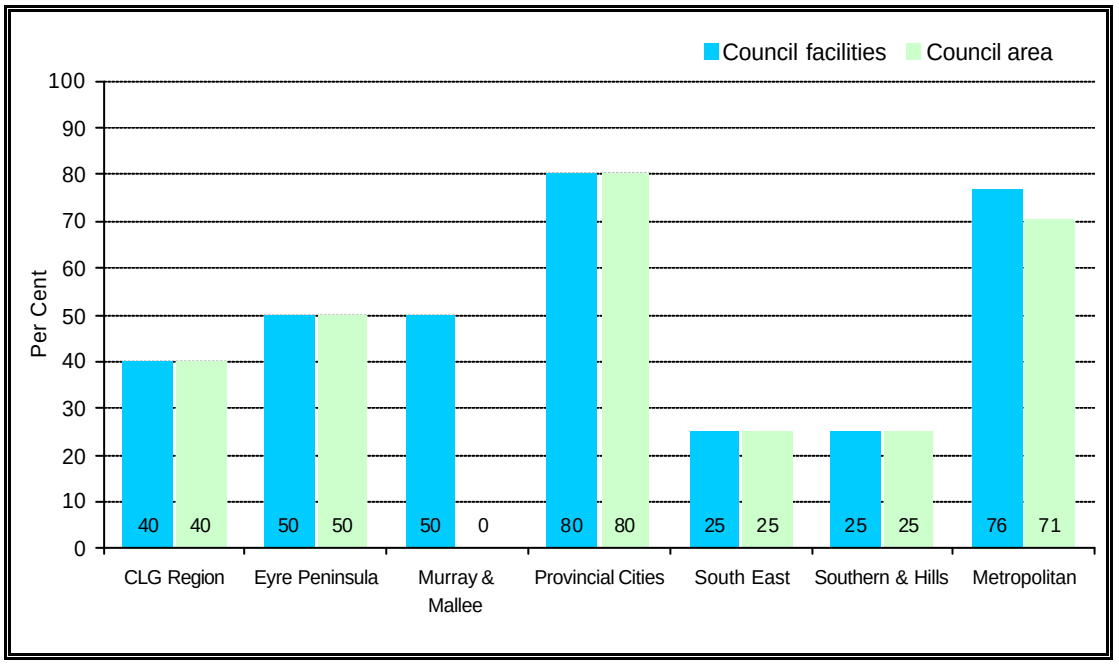
3 0 TD 0.75 Tw (T... Port Augusta Port Lincoln ... Whyalla Regiomyy BayeMnda 43.5 -nda 43.5uiwR0.75 0.75 re f 297.75 a0 Te6 0 T61.25 TD -0.09g0 Tw vr4 5

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	60.0				

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

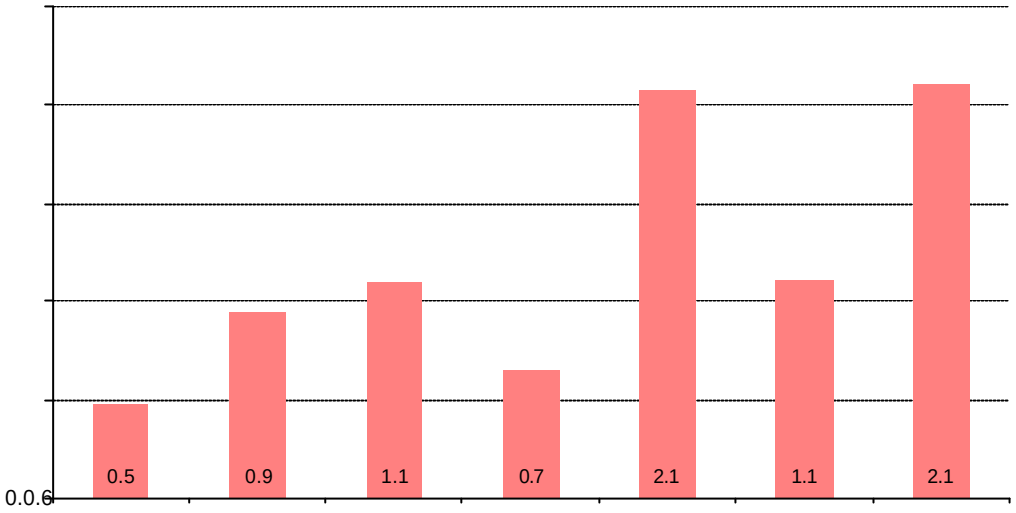


Figure D.8
Council View's on Existence of Barriers or Factors That Prevent Councils From Playing A Greater Role in Water Conservation and Management, By Region of Council, Per Cent[a] SA Ce75 0.75 s.75 s.75 s.7w (Role in Ws

Appendix E

List of Water Projects (Office for Water Security)

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

Project Name.1

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		