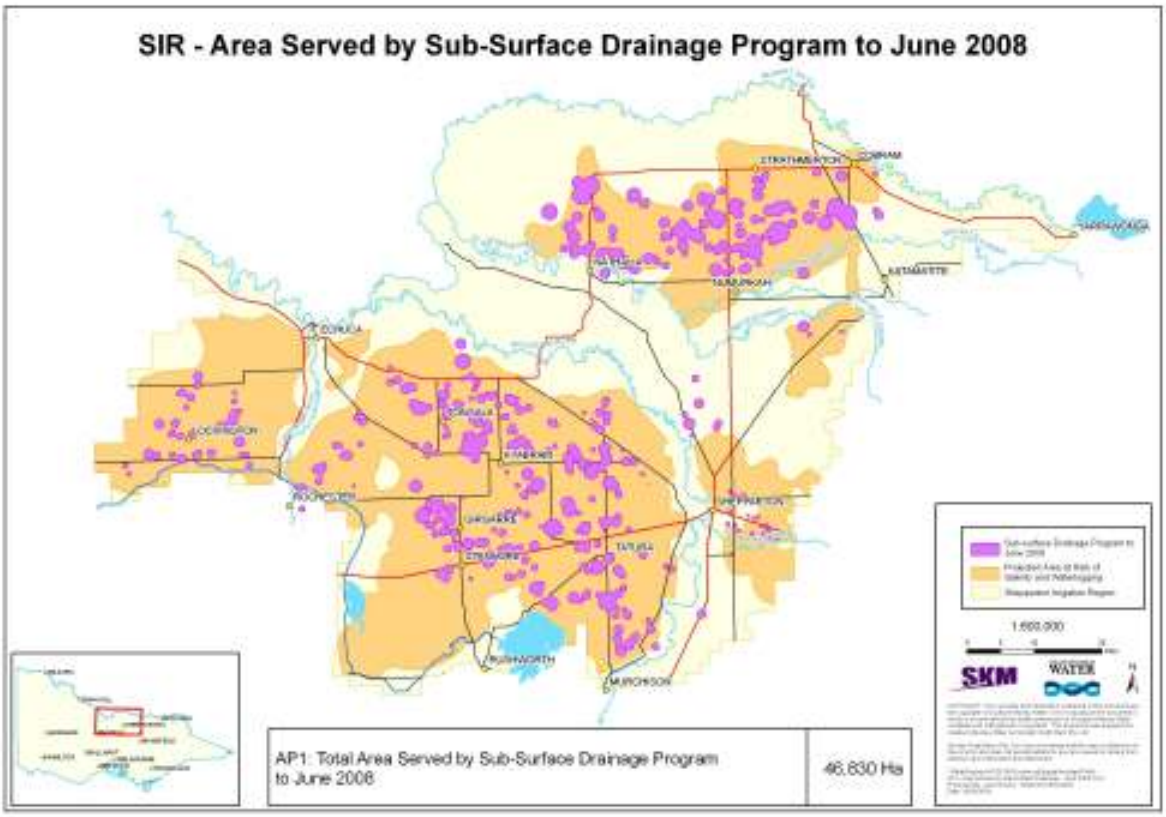
Shepparton Irrigation Region Catchment Implementation Strategy

Key Performance Indicators for the Sub-Surface Drainage Program



Goulburn-Murray Water

Annual Report for Period ending 30th June 2008

Victoria The Place To Be

GOULBURN-MURRAY WATER

GOULBURN BROKEN CATCHMENT MANAGEMENT AUTHORITY

NORTH CENTRAL Catchment Management Authority

Australian Government

Funding

This project is funded as part of the Goulburn Broken Catchment Management Authority Regional Catchment Strategy in the Shepparton Irrigation Region and is provided with support and funding from the Australian Government and Victorian Government through the National Action Plan for salinity and water quality and the Natural Heritage Trust. This project is delivered primarily through partnerships between the Department of Primary Industries, Goulburn-Murray Water, Department of Sustainability and Environment, the Goulburn Broken Catchment Management Authority/Shepparton Irrigation Region Implementation Committee, North Central Catchment Management Authority and the community.

Goulburn-Murray Water Project Manager: Stephen Feiss

G-MW File No. 2009/212/1

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Subsurface Drainage Program 2007/08 Key Performance Indicator Summary

Goulburn-Murray Water is responsible for implementing the Sub-Surface Drainage Program (SSDP) for the Shepparton Irrigation Region Catchment Implementation Strategy (SIRCIS). The SSDP employs private groundwater pumping, public groundwater pumping, and tile drainage to manage groundwater levels for salinity control and salt disposal within the region. Key Performance Indicators were developed for the program in response to a need for annual performance reporting to key stakeholders. Key Performance Indicators have been used in order to provide a standard method for evaluating and reporting important aspects of program performance to key stakeholders, including government funding bodies, statutory and regulatory agencies, and community organisations and groups. Annual performance and cumulative achievements for the program are provided.

Three categories of Key Performance Indicators have been used:

- Operations
- Management
- Environmental

The headline indicators for these three categories are presented below to give an overall indication of the performance of the SSDP.

Table 1 SIRCIS – Sub-Surface Drainage Program 2007/08 - Headline Indicator Summary

ASPIRATIONAL TARGET AGAINST CUMULATIVE ACHIEVEMENTS	**Target**	**Achievement**	**% Achieved**
Operations Indicators			
Total area served by SSDP (ha)	45993	46830	102%
Public Salinity Control Pump sites completed for the SSDP	52	47	90%
Private irrigation SSDP assisted bores installed/upgraded	344	354	103%
Private irrigation bores operating as Salinity Plan Bores	395	492	125%
Environmental Indicators			
Area of Environmental Features Protected by SSD works (ha)	NA	2,604	NA
ANNUAL TARGET AGAINST ANNUAL ACHIEVEMENTS	**Target**	**Achievement**	**% Achieved**
Operations Indicators			
Total area served by SSDP (ha)	2448	3699	151%
Public Salinity Control Pump sites completed for the SSDP	2	1	50%
Private irrigation SSDP assisted bores installed/upgraded	20	20	100%
Public Salinity Control Pump volume pumped for the year (ML)	59	50	85%
Private Assisted Bores pumped volume vs 65% Safe Volume (ML)	Range 32640 to 49886	44101	Achieved

Management Indicators			
Annual SSDP expenditure compared with budget ($millions)	$2.86	$2.72	95%

Achievement Against Target

	Exceeded (100%+)
	Satisfactory (70-99%)
	Below (26-69%)
	Well Below (<25%)
NA	Not Applicable

The SSDP was focussed on the private pump program due to continued community demand because of drought conditions. Additional drought funding in 2007/08 supported the Private Pump Program.

Overall implementation work targets were met with the exception that only one new public pump was installed and commissioned due to efforts being directed to the Private Pump Program.

The success rate of FEDS was lower than in previous years due to the significantly lower watertable rendering many sites unsuccessful.

Despite the budget uncertainty and therefore the slow start to implementation works early in the financial year, the program expenditure was well managed achieving 95% of the available budget.

1. Introduction

This report presents the annual Key Performance Indicators for the SSDP for the Shepparton Irrigation Region (SIR) for 2007/2008 as such it represents a performance report of the SSDP.

1.1 Shepparton Irrigation Region

The SIR is located in the Murray Darling Basin on the southern end of Riverine Plain in Northern Victoria. The SIR covers an area under the jurisdiction of both the GBCMA and the North Central Catchment Management Authority (NCCMA).

The SIR area covers approximately 500,000 ha of which approximately 60 percent is irrigated. The SIR comprises four irrigation areas: the Rochester, Central Goulburn, Shepparton and Murray Valley Irrigation Areas.

1.2 Stakeholder Relationships

A flow diagram showing the stakeholder relationships and program inputs is given in Figure 1.

1.3 The Shepparton Irrigation Region Catchment Implementation Strategy

1.3.1 Sub-Surface Drainage Strategy

The Shepparton Irrigation Region Catchment Implementation Strategy (SIRCIS) has evolved from the Shepparton Irrigation Region Land and Water Salinity Management Plan that was endorsed in 1990. The Sub-Surface Drainage Program (SSDP) is one of the core programs within the SIRCIS. The core programs include:

- The Sub-Surface Drainage Program
- The Farm Program
- The Environment Program
- The Surface Water Management Program
- The Waterways Program.

The SSDP employs private groundwater pumping, public groundwater pumping, and tile drainage to manage groundwater levels for salinity control and salt disposal within the region.

Salinity of the shallow groundwater is often above GBCMA catchment strategy guidelines for applied irrigation water salinity, and it is often necessary to dilute (shandy) with channel water before being used for irrigation. This is called conjunctive re-use. Guidelines are designed to ensure leaching of salt from the root zone will occur thereby allowing sustainable agricultural productivity to be achieved. Water efficiency is enhanced by both recycling irrigation water and maintaining land productivity.

Private groundwater pumping for farm re-use is encouraged and assistance is available in the form of capital grants, as well as the Farm Exploratory Drilling Scheme (FEDS). The cost of private irrigation bore pumping (including operation, maintenance and replacement) is met by the landholder.

Public groundwater pumps for salinity control may be installed where:

- Private groundwater pumping is not feasible;
- The area is affected by high watertables;
- There is sufficient landholder support.

The feasibility investigations and capital costs for new public groundwater pumps are jointly funded by the Victorian Government and the National Action Plan for salinity and water quality through the sub-surface drainage component of the SIRCIS. The direct and indirect beneficiaries of the scheme – landowners and local government, meet operating and maintenance costs of the public groundwater pumps.

A series of maps that show the area served by each of the program elements and as a cumulative area served are presented in Appendix B.

1.3.2 Goulburn Broken MER Strategy

The Goulburn Broken Monitoring, Evaluation and Reporting (MER) Strategy is intended to draw together aspects of natural resource monitoring in the Goulburn-Broken region at a strategic level that are relevant to the practices, policies and activities of the Regional Catchment Strategy.

This SSDP Performance Report is one of many reports detailing monitoring, evaluation and reporting within the Goulburn Broken region. It is consistent with the principles and objectives of the MER strategy.

1.4 Key Performance Indicators for the SSDP

Goulburn-Murray Water is responsible for implementing many aspects of the SSDP. Key Performance Indicators were developed for the program in response to a need for regular performance reporting to key stakeholders. Key Performance Indicators have been used in order to provide a standard method for evaluating and reporting important aspects of program performance to key stakeholders, including government funding bodies, statutory and regulatory agencies, and community organisations and groups.

The SSDP was initiated in 1990 with a vision to achieve an increasing level of watertable control over a timeframe of 25 years. The most recent program review (2000-2005) assessed the need to extend this horizon to 30 years and set long-term targets to achieve a total area of salinity protection of 185,000 ha to be served by the SSDP. The review has also set shorter term targets for the period 2005/06 to 2010/11 that are thought to be reasonable given historic funding levels and levels of implementation. The 2007/08 KPI report records the progress to date against these new aspirational targets.

The indicators aim to provide concise at-a-glance reporting on important monitored parameters, allowing evaluation of enterprise or program performance on an annual basis and long term cumulative basis, thus ensuring that key information and trends are more easily absorbed and understood by the stakeholders.

Combined graphical and numerical indication is a key feature of the reporting, enabling comparison against previous periods and visual trend recognition whilst retaining the raw data.

The Indicators are grouped into a range of categories that extend beyond purely financial and economic aspects and include environmental impacts/benefits and other indicators.

Interpretive notes for each of the Key Performance Indicators are provided in the Section 2 to 4.

A summary of the KPIs is given in Table 2.

1.5 Report Layout

This report is comprised of the following sections:

1. Subsurface Drainage Program 2007/08 Key Performance Indicator Summary – provides a brief summary of the report
2. Introduction – gives a overview of the SSDP
3. Operational Indicators
4. Management Indicators

5. Environmental Indicators
6. Appendices – contains tables of information regarding the 3 indicator categories (Appendices A, C and D), maps of the area protected by the Subsurface Drainage Program (Appendices B and E) and a glossary of abbreviations and terms used is given at the end of this report (Appendix F).

1.6 Changes to Previous KPI Report

The KPI "MI-4 Soil Salinity Measurements" has been removed in the 2007/08 KPI report and it was decided that this indicator should no longer be recorded in future KPI reports. This KPI was intended to provide an indication of the effectiveness of public pumps for soil salinity control.

The KPI was removed for the following reasons;

- A lack of continuity of data renders the KPI ineffective for obtaining soil salinity trends over time.
- The data has not been collected on a regular annual basis because the dry soil conditions do not allow a reliable electromagnetic response to be obtained.
- The KPI data is only related to one public pumps site, and does not provide any statistical representation for all sites.
- Given that the drought has been the major influence in lowering watertables in the region, it is unclear what the relative contribution groundwater pumping has to soil salinity protection.

DPI (2007) have reported the results of the of the soil salinity surveys from 2000 to 2005. Overall the conclusion is that soil salinities have decreased both within the area of influence of the public pump and in areas outside of the pumps influence. DPI recommended that soil salinity sampling should be continued on a regular basis, with further statistical research input to improve the methodology and outcomes of the work. On the basis that the methodology requires refinement, the need for reporting the KPI should be postponed until the methodology provides a confident outcome.

PO-3b was removed from the 2007/08 KPI report. This KPI was designed to give an indication of the degree to which pumps were actually operated against the time the pumps were required to operate. The PO-3b indicator relies on simplified data extracted from G-MW Groundwater database reports which is not considered suitable to make a reasonable judgement on this KPI. It is for this reason, that the indicator was removed.

MI-3 was modified to better reflect the achievement of successful FEDS against the benchmark 25% target level. Previously this indicator reported the percentage of successful FEDS (i.e. number of successful/ number of FEDS for the year *100) directly against this 25% benchmark target. Presently the KPI for successful FEDS is a direct comparison of the number of successful FEDS for the year against the 25% benchmark number of successful FEDS.

1.7 Assumptions used for Aspirational Targets

The '2000-2005 Five Year Review' report for the Subsurface Drainage Program completed in 2007, had reviewed the achievements and assumptions of the program for the period 2000/01 to 2004/05. The Five Year Review report assesses the achievements against targets for the 5-year period and consequently clarified a number the assumptions behind estimating 'area served' by the SSDP. The review had revised the targets for the 5 year period in light of historical funding levels which were less than initially forecast when targets were initially set.

The new targets are recorded in the 2006/07 and the 2007/08 KPI report. The 2007/08 KPI report therefore includes the series of original aspirational targets for 2001/02 to 2004/05 and the more recent revised targets for 2005/06 and 2006/07.

The changes to the aspirational targets and the assumptions used in the 2006/07 report are documented in the 2006/07 KPI Report.

1.8 Further Information

Requests for further information and comments regarding this KPI report can be directed to:

Mr Stephen Feiss

Goulburn-Murray Water

PO Box 165, Tatura, VIC 3616

Further related information about the Goulburn Broken Regional Catchment Strategy and the Shepparton Irrigation Region Catchment Implementation Committee can be obtained from the Goulburn Broken Catchment Management Authority Annual Report on www.gbcma.vic.gov.au.

Figure 1 Shepparton Irrigation Regional Catchment Implementation Strategy – Subsurface Drainage Program – Stakeholder Relationships

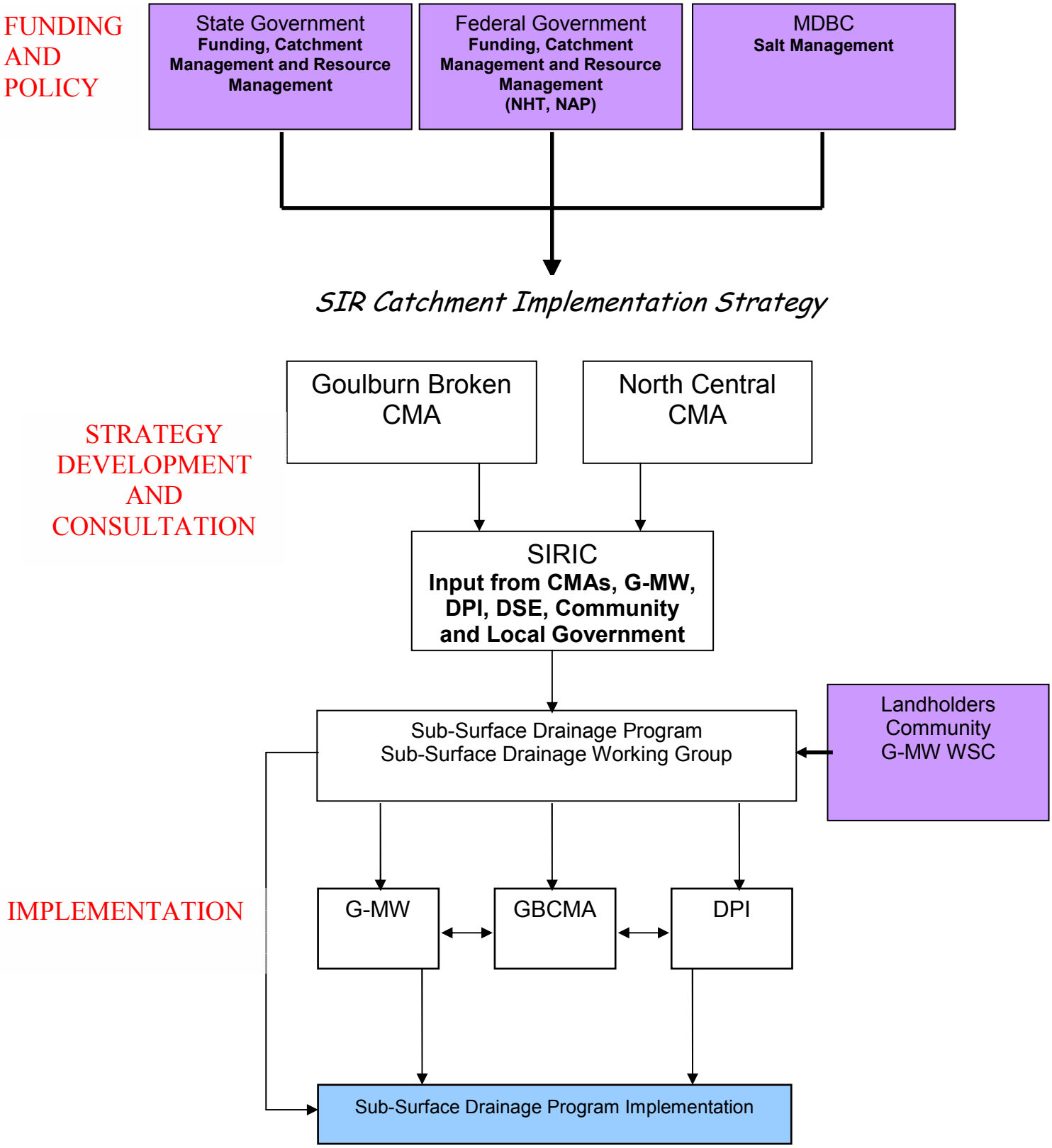


Table 2 SIRCIS – Sub-Surface Drainage Program – Summary of Indicators for 2007-08

		Aspirational Cumulative Totals			Funded Annual Totals		
		Target	Achieved	% Achieved	Target	Achieved	% Achieved
Operations Indicators							
AP-1	Total area served by SSDP (ha)	**45993**	**46830**	**102%**	**2448**	**3699**	**151%**
AP-2	Area served by Public Salinity Control Pumps (ha)	**10348**	**9673**	**93%**	**398**	**163**	**34%**
AP-4	Area served by SSDP assisted private irrigation bores (ha)	**35200**	**38037**	**108%**	**2050**	**3536**	**172%**
AP-3	Area served by SSDP assisted horticultural protection bores (ha)	**409**	**389**	**95%**	**0**	**0**	**NA**
AP-5	Area served by SSDP assisted tile drainage systems (ha)	**16**	**16**	**100%**	**0**	**0**	**NA**
PW-1	Public Salinity Control Pump sites completed to date for the SSDP	**52**	**47**	**90%**	**2**	**1**	**50%**
PW-2	Private irrigation bores installed or upgraded to date with SSDP assistance	**344**	**354**	**103%**	**20**	**20**	**100%**
PW-3	Private irrigation bores operating as Salinity Plan Bores	**395**	**492**	**125%**	**no target**	**6**	**NA**
PW-4	Private horticulture protection bores completed with assistance from the SSDP	**21**	**20**	**95%**	**0**	**0**	**NA**
PW-5	Private low volume pasture1 sub-surface drainage systems completed with assistance from SSDP	**0**	**1**	**>100%**	**0**	**0**	**NA**
PW-6	Total number of Tile drain sites assisted by the SSDP	**0**	**4**	**>100%**	**0**	**0**	**NA**

		Informational Annual Totals		
		Target	Achieved	% Achieved
Operations Indicators (continued)				
PW-7	Number of FEDS investigations completed (pasture only)		**44**	**NA**
MI-2	Number of FEDS applications		**62**	**NA**
MI-3	Percentage of successful FEDS investigations	**25%**	**6**	**14%**
PO-1	Public Salinity Control Pump volume pumped for the year (ML)	**59**	**50**	**85%**
PO-2	Public Salinity Control Pump salt load exported from the region for year (kT)	**0.03**	**0.03**	**100%**
PO-3a	Phase A pumps volume pumped for the year (ML)		**641**	**NA**
PO-3c	Girgarre annual pumping (ML) – T101, T102 and T103 pumping combined	**352**	**323**	**92%**
PO-4	Private Irrigation Bores SDA pumping for the year (ML)		**0**	**NA**
PO-5	Private Irrigation Bores SDA salt exported for year (T)		**0**	**NA**
PO-6	Metered Private Irrigation Bores volume pumped for the year (ML)		**85801**	**NA**
PO-7	Metered Private Irrigation Bores assisted by the SSDP volume pumped for the year compared to 65% Safe Use Volume (ML)	**Range 32640 to 49886**	**44101**	**Achieved**
MI-1	Number of Metered Irrigators using more than licence entitlement volume	**813**	**774**	**95%**
Management Indicators				
BE-1	Annual SSDP expenditure compared with budget	**$2,860,000**	**$2,720,000**	**95%**
BE-2	Revenue from operation of public salinity control works		**$645,000**	**NA**
CG-1	Average cost to manage grants process per site		**$12,088**	**NA**
FE-1	Average cost per FEDS investigation		**$20,051**	**NA**
Environmental Indicators				
EV-1	Groundwater levels - Area threatened by shallow watertables (ha) i.e. water levels less than 2 m below ground surface		**7087**	**NA**
EV-3	Area of Environmental Features Protected (ha)		**2604**	**NA**

Achievement Against Target

- Achieved or Exceeded (100%+)
- Satisfactory (70-99%)
- Below (26-69%)
- Well Below (<25%)

2. Operations Indicators

The Operations indicators consist of Area Protection, Program Works and Program Outputs indicators. These are summarised in table form in Appendix A for the current period 2007/08 and five previous annual periods.

2.1 Area Protection Indicators AP-1 to AP-5 and Program Works PW-1 to PW-7

The Area Protection is the estimated area of salinity protection through watertable control and is described as "Area Served" in this report. Area served therefore, is the estimated impact from the "Program Works".

Individual performance indicators relate to one or more of the following key implementation areas:

- Groundwater Pumping - Public
    - Public Salinity Control Bores
    - Watertable Control Bores
- Groundwater Pumping - Private
    - Private Irrigation Bores (for pasture areas)
    - Private Irrigation Bores (for Horticulture areas)
    - Low Volume Bores (for pasture areas)
- Tile drainage - Private

The performance results of the key SSDP elements for 2007/08 in terms of area served and program works are summarised below in sections 2.1.1 to 2.1.5.

2.1.1 Area Protection Indicators

The Area Protection indicators focus on reporting the area of land protected by the SSDP. The area of land protected by each of the key implementation areas of the SSDP are reported separately and also amalgamated to report on the total area served.

The approach to calculating "area served" utilises Geographic Information System (GIS) technology to map the areas spatially and analyse area of protection in hectares based on assumptions of volume of groundwater pumped equating to an area of salinity protection. Appendix B includes the GIS maps of 'area served' for various aspects of the Subsurface Drainage Program.

The methodology for calculating the served area for each of the elements of the SSDP is more fully explained in the "Manual for Compiling 2007/08 Annual KPI Reports for the Subsurface Drainage Program, March 2008" (G-MW document number DM #2651845).

The area served by public pumps is the area within the 'zero drawdown' contour and is based on pumping test data. Area served by private pasture groundwater pumps assumes that 1 ML of licence volume equates to 1 ha of salinity protection. The area served by horticultural bores is assumed to be 1 hectare protected for every 2 ML/d annual volume of groundwater pumped.

Annual targets are based upon budget availability, community demand and program priorities. Meeting these annual targets provides an indication of the efficiency and effectiveness of the SSDP in implementing works and measures.

Reporting of cumulative achievements indicates the longer-term progress and trends of the program.

The method for calculating the area served has been significantly improved over the approach used previous years' approach. The main improvement has been the ability to map the areas served from each of the program elements.

Summary of Achievement

The total Area Served by the SSDP ("AP-1") up to 30 June 08 was 46,830 ha. The estimated annual achievement was 3699 ha served.

Explanation of Results

The cumulative area served (AP-1) has marginally increased by 965 ha in 2007/08 compared to the previous year while the annual achievement was 3699 ha. The annual achievements reported for area served does not take into account the effect of overlap between the SSDP sub-programs which include private pumping bores, public pumps, private horticultural pumping bores and tile drainage.

A further reason for the marginal increase in cumulative area served was due to a number of private bores that have had a revision of licence volume and several bores had their licence relinquished for various reasons.

The available funding has largely been focussed on SSDP assisted private pasture irrigation bores program element (AP-4) due to two main reasons;

- Private pumping for salinity control where feasible is the most cost effective option.
- The extended drought conditions has caused and maintained significant interest in the Private Pumping Program, and the reduced threat of high watertables has lessened community interest for public pumping.

Minimal expenditure has occurred on SSDP assisted private horticultural protection bores (AP-3), SSDP assisted tile drainage systems (AP-5) or SSDP assisted public salinity control pumps (AP-2).

Area Served by SSDP with and without SSDP Funding

The cumulative area served by subsurface drainage works includes those works funded by the SSDP and those not funded by the SSDP. This includes the 'Phase A Public Pumps' and private pumping bores. The cumulative area served for 2007/08 of 95,049 hectares was similar to 2006/07 area served of 95,149 hectares.

2.1.2 Program Works Indicators

Program Works are concerned with gauging the completion, operation and upgrade of bores, tile drainage systems, evaporation basins and other works that dispose to land under the SSDP.

For pasture areas, bores (i.e. public salinity control pumps and private irrigation bores) have been used exclusively to date. For horticultural areas, a combination of private water table control bores and tile drainage have been used, although new SSDP assisted tile drainage systems have not been used for several years.

It should be noted that no SSDP assisted evaporation basins for drainage disposal exist in the SIR. Public salinity control pumps are primarily used to protect agricultural assets and have not specifically been used for environmental protection purposes to date.

2.1.3 Public Groundwater Pump Program

Program Works	Link	Area Served
PW-1 *Public Salinity Control Pump Sites Completed for the SSDP*	⇦ ⇨	***AP-2*** *Area Served By Public Salinity Control Pumps*

The total area served by Public Salinity Control Pumps (AP-2) was 9,673 ha. One additional public pump, CG25, was commissioned and handed over in 2007/08 against a funded annual target of 2 pumps. Given the current dry conditions and lower watertable, it was considered reasonable to ensure funding priorities were biased toward the private pumping program as was the case last year.

2.1.4 Private Groundwater Pump Program

Program Works	Link	Area Served
PW-2 *Private Irrigation Bores Installed or Upgraded with SSDP Assistance*	⇦ ⇨	***AP-4*** *Area Served By Private Irrigation Bores with SSDP Assistance*
PW-3 *Private Irrigation Bores Operating as Salinity Plan Bores*		
PW-5 *Private Low Volume Pasture Subsurface drainage systems Completed with SSDP Assistance*		*Included in* ***AP-1***
PW-4 *Private Horticultural Protection Bores Installed or Upgraded with SSDP Assistance*	⇦ ⇨	***AP-3*** *Area Served By SSDP Assisted Horticultural Protection Bores*
PW-7 *Number of FEDS investigations completed*		
MI-2 *Number of FEDS applications*		
MI-3 *Successful FEDS investigations*		

Annual achievements (PW-2) were 20 pumps (which included 17 new pumps and 3 system upgrades) which were in line with funded targets. The annual achievements were higher than the aspirational target of 10 pumps due to annual funding priorities biased toward private pumping.

The number of Salinity Plan Bores (SPBs) (PW-3) has increased by 6 for this year. The aspirational target for Salinity Plan bores has not been revised and remains at 395. SPBs are licensed irrigation bores that are required to meet special operating requirements in order to qualify registered SPB owners for reduced charges. For those bore owners who have not received assistance under government funded catchment management programs, registration of their irrigation bore as a SPB is voluntary. All irrigation bores receiving financial assistance under the government funded catchment management programs are mandatory SPBs. SPB operators have their annual fixed fee waived during the time their bores are operating as registered SPBs.

Only 1 SSDP assisted private low volume sub-surface drainage system has been installed for pasture areas (PW-5). Low volume sub-surface drainage systems are used to target areas with poor aquifer systems. These areas are categorised as C Type areas based on their high groundwater levels and low yielding aquifer systems. Areas with high yielding aquifer systems are referred to as B Type.

Private Horticultural Bores (AP-3, PW-4)

The total area served by SSDP horticultural protection bores effectively has not changed since there are no new horticultural bores.

FEDS Program (MI-2, MI-3, PW-7)

The Farm Exploratory Drilling Scheme (FEDS) is a program that offers financial and technical support for the exploration of groundwater in the SIR. Investigations are carried out in both horticultural and pasture areas, though most investigations have been in pasture areas in recent years.

The strong interest from landholders for the FEDS scheme was maintained in 2007/08 with similar numbers of applications to previous years and similar number of completed FEDS.

MI-3 is the number of successful FEDS compared to an arbitrarily selected target success rate of 25% of the funded number of FEDS investigations. A successful site is where an investigation found groundwater with low salinity and suitable yield. The 2007/08 achievements of 6 successful out of 44 investigations represents 14% success rate, which is lower than previous years. The low success rate is attributable in part to significant falls in groundwater levels making many investigations unsuccessful.

2.1.5 Tile Drainage Systems

AP-5	***Area Served By SSDP Assisted Tile Drainage***
PW-6	***Tile Drainage Sites with SSDP Assistance***

The total area served by SSDP assisted tile drainage systems remains at 16 ha. The 'served area' is the 'footprint' of the tile drainage area. No further tile drains are planned for the period 2005/06 to 2010/11 according to the aspirational targets as set in the 'Five Year Review 2006/07'.

2.2 Program Outputs Indicators PO-1 to PO-8, MI-1

Program Output Indicators for the SSDP report the performance of salinity control works for Public Salinity Control Pumps (PSCP), Public Watertable Control Pumps (also referred to as 'Phase A' pumps), and Private Irrigation Bores (including those with capital grants assistance). The performance is measured in terms of groundwater volumes pumped and salt exported.

Outputs for the Public and Private pumping components of the SSDP are affected by a range of factors, including climate, surface water allocations and water application. Of particular note, winter/spring disposal pumping from private and public groundwater bores has not been conducted in recent years due to insufficient dilution flows in the River Murray (largely a response to extended dry conditions during the past few years). The requirement for winter salt disposal from private pumps was removed in May 2007 (SIRIC Meeting Number 7-02).

2.2.1 Public Pumping Program

PSCP were originally intended to operate for 60 days in winter/spring (subject to suitable dilution flows in the Murray River), and 60 days in summer. A management decision was made in 2007 to change the process for deciding which bores should operate. The following risk assessment criterion was used as a decision support tool.

For watertable levels;

- <1.5m – High Risk
- 1.5 – 2m Moderate Risk
- 2m – 3m Watch Mode
- >3m Low Risk

It was proposed that Moderate and High Risk pump sites should operate subject to disposal conditions, pump sites in Watch Mode should be monitored throughout the potential pumping season and operated if watertable levels increase into the Moderate – High Risk category. Low Risk sites should not operate.

During 2007/08, only two PSCP were operated (Ro 105 and Ro 107) in the Rochester area. These pumps were operated in the summer period only.

The amount pumped this year by the Public Salinity Control Pumps (PO-1) was significantly lower than previous years at 50 ML. The last 2 years have been significantly less water pumped due to the low watertables in the region.

The actual amount exported by the Public Salinity Control Pumps (PO-2) was 30.3 tonnes (0.03 kT) compared to a salt export capacity of 30.2 tonnes (0.03 kT).

The Phase A or Watertable Control Pumps pumped volume (PO-3) for this year was 641 ML, a decrease of 1387 ML compared to last year volume of 2027 ML.

PO-3b which is designed to give an indication of the degree to which pumps operated against the time the pumps were required to operate. The PO-3b indicator does not have suitable data to make a reasonable judgement on this KPI, and therefore it has been removed from the 2007/08 KPI report. Girgarre pumps T102 and T103 did not operate in 2007/08 because of the reasons listed above. Girgarre pump T101 pumped 323 ML to the evaporation basin.

2.2.2 Private Irrigation Pumping

Private Irrigation SDA Bore pumping (PO-4, PO-5) has not occurred since 1996 as climatic conditions have not provided sufficient dilution flows to allow salt disposal pumping. The GBCMA has decided to remove this requirement for all licensees in April 2007 because it was determined that it does not provide salinity management benefits.

Private Irrigation Bores with verified usage data pumped a total volume of 85,801 ML (PO-6) for the year a significant decrease of 23,446 ML compared to last year. The usage represents 44% of the total licence volume for these bores. Note that although more bores were installed and an increased in licence volumes occurred in 2007/08, the percentage usage is significantly down from the previous year.

Whilst the drought has continued and demand for groundwater is strong, the low usage data is probable due to the inability to pump groundwater due to reduced groundwater levels. The relatively low number of licensed irrigators using more that their entitlement (MI-1) is likely due to be due to a combination of factors including low groundwater levels and difficulty in accessing groundwater and greater compliance awareness. This represents 95% compliance with respect to irrigators pumping within their groundwater licence volume.

The private assisted irrigation bore volume pumped was 44,101 ML (PO-7). This volume is within optimal operational target range of the upper safe use volume limit and the lower 65% Safe Use Volume limit.

3. Management Indicators

These indicators focus on financial statistics of the SSDP Program. Financial data presented includes budget and expenditure data for the SSDP program, private and public sector contributions to Public Salinity Control, Capital Grant Scheme costs and FEDS costs. These indicators are tabulated in Appendix C.

3.1 BE-1 – SSDP Expenditure Compared to Budget

SSDP expenditure for this year was $2.72 million against a budget of $2.86 million. This represents expenditure of 95% of budget.

The expenditure for the ***program development*** component includes research and investigation, which represents 19% of the total budget for 2007/08 and has decreased as a percentage of total expenditure compared to the last two years.

The ***program support*** component, which includes meetings, coordination, program management, extension and capacity building was 26% of total budget for 2007/08 and is a similar level to previous years as a percentage of total expenditure.

The ***implementation*** component, which includes all on ground works, was 45% of the total program expenditure and has increased as a percentage of total expenditure over the previous year.

The ***monitoring and reporting*** component was 10% of 2007/08 total expenditure and is similar levels to previous years.

3.2 BE-2 – Revenue for Operation of G-MW Public Salinity Control Works

Revenue from the operation of the Public Salinity Control Works is raised from landholder and local government contributions. Contribution of $110,000 from local government is in line with previous years funding levels which is normally calculated at 17% of SSDP funded works.

3.3 CG-1 – Capital Grants Scheme

Demand continued for groundwater pumps during 2007/08 due to continued drought conditions. The level of grants available was boosted by the drought incentives resulting in greater proportion of contribution to previous years. This year, landholders contributed 39% and the capital grants contribution was 61% compared to approximately 50: 50 ratio in previous years.

The proportion of landholder contributions compared to capital grants for upgrades systems has traditionally been variable due to the variability in system upgrade requirements. The diversity of upgrade requirements includes such items as electrical connection when converting from diesel power, replacement of header lines, additional header lines and discharge lines and replacement of existing pumps with larger system. Replacement of existing pumps is excluded from financial assistance and is considered as maintenance unless the new system requires a larger pump.

The average cost to manage the capital grants scheme in 2007/08 was $12,088 per site, which is lower than most previous years. The average cost is the total cost of administering the capital grants ($241,750) divided by the number of bores installed and upgraded for the reporting year (20 bores installed and upgraded).

3.4 FE-1 – Farm Exploration Drilling

The total cost for FEDS has reduced to $902,284 in 2007/08 compared to $995,335 in 2006/07. Average cost per investigation in 2007/08 has decreased to $20,050 from $21,177 in 2006/07.

Although the number of FEDS investigations was at similar levels to previous years, the average cost has decreased due to the lower number of successful FEDS in 2007/08. A successful FEDS investigation usually requires a greater expense due to the need for several stages to identify the optimal site.

4. Environmental Indicators

The environmental indicators are intended to demonstrate the environmental benefits and impacts of the SSDP. The indicators focus on groundwater levels, environmental features protected and salinity. These indicators are tabulated in Appendix D.

4.1 EV-1 – Area Threatened by Shallow Watertables

This indicator provides information on the area within the SIR that is threatened by shallow watertables. The specific reporting indictors are based on the August monitoring data and relate to depth of watertables below ground level;

- less than 2m and;
- less than 3m

The 2007/08 KPI data uses the August 2007 Watertable study data.

There is a very significant decreasing trend in area of shallow watertables and is shown in both the 'watertable less than 2 metres' and 'watertable less than 3 metres' data. The 'annual change' data highlights the significant decrease area of shallow watertables over the last 2 years.

4.2 EV-2 - Area of Environmental Features Protected

The area of environmental features protected by subsurface drainage works to the end of 2007/08 was calculated to be 2,604 ha, which is a slight decrease over the previous year.

The area of protection is lower than previous year despite the increase in total number of bores, possibly due to changeover from BICCS to SAM left some bores which had 2 service points on the same bore and therefore may have included duplicated licence volumes in last years KPI report. This was rectified in 2007/08 data. Additionally, there were a number of bore licence that were cancelled or not renewed.

The map "SIR - Environmental Features Protected by Subsurface Drainage Works to June 2008 is included in Appendix E.

References

Department Primary Industries, 2008. *Shepparton Irrigation Region Public Pumps Key Performance Indicators (SIRPPKPIs) Project 2007 Annual Report Ongoing Monitoring Results, June 2008*. Unpublished internal document.

Goulburn-Murray Water, March 2008. *Report for Subsurface Drainage Program Key Performance Indicators - Manual for Compiling the 2007/08 KPI Report March 2008*. Unpublished internal document.

Appendix A

Operations Indicators

Area Protection - KPI Indicators AP-1 to AP-5

Program Works - KPI Indicators PW-1 to PW-7, MI-2, MI-3

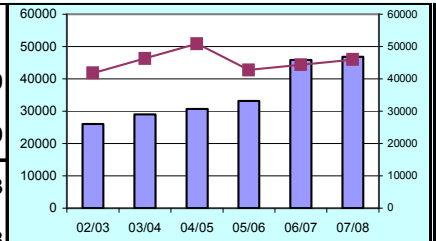
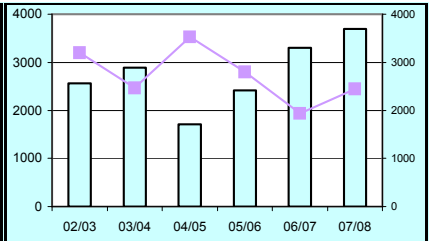
Program Outputs – KPI Indicators PO-1 to PO-7, MI-1

SIRCIS - Sub-Surface Drainage Program

Operations Indicators

Area Served - AP-1, AP-2

2007-08 PERFORMANCE REPORT

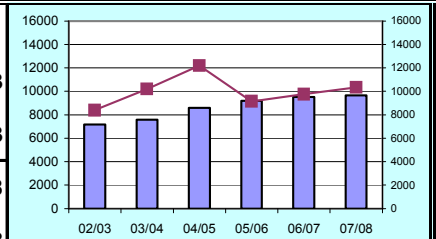
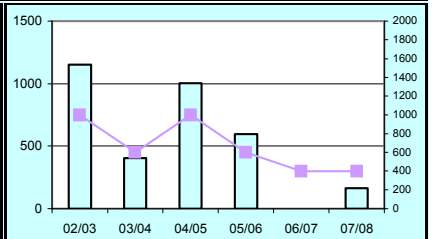
Indicator			Previous Periods					Current Period	Comparison	
			02/03	03/04	04/05	05/06	06/07	07/08	Cumulative Total	Annual Total
AP-1	**Total area served by SSDP (ha)** [1, 2]									
	Achievements	Cumulative Total	26072	28963	30677	33098	45865	**46830**		
	Achievements	Annual Total	2562	2890	1715	2421	3302	**3699**		
	Aspirational Target [2, 3]	Cumulative Total	41872	46320	50855	42756	44377	**45993**		
	Funded Target [4]	Annual Total	3200	2470	3530	2800	1936	**2448**		

Note 1 *Does not include Pre-SSDP pumps - SSDP began in 1990, so bores before this time are excluded*

Note 2 *Combines targets for AP2, 3, 4 and 5*

Note 3 *Aspirational targets changed in SSDP 2000-2005 Review*

Note 4 *Funded target determined by annual funding and management and SSDP 2000-2005 Review assumed area served by number of pumps*

Indicator			Previous Periods					Current Period	Comparison	
			02/03	03/04	04/05	05/06	06/07	07/08	Cumulative Total	Annual Total
AP-2	**Area served by Public Salinity Control Pumps (ha)**									
	Achievements [5]	Cumulative Total	7192	7596	8600	9195	9510	**9673**		
	Achievements	Annual Total	1150	404	1004	595	0	**163**		
	Aspirational Target [3]	Cumulative Total	8400	10200	12200	9154	9751	**10348**		
	Funded Target [4]	Annual Total	1000	600	1000	600	398	**398**		

Note 5 *Assumptions refined in 2006/07 resulting in larger area served than previously reported.*

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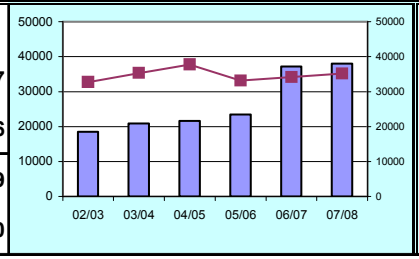
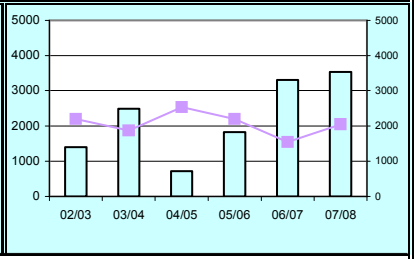
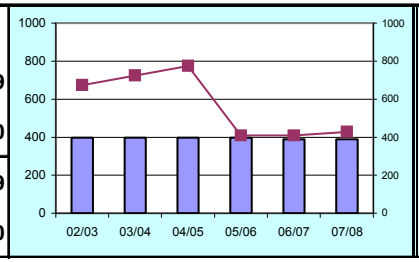
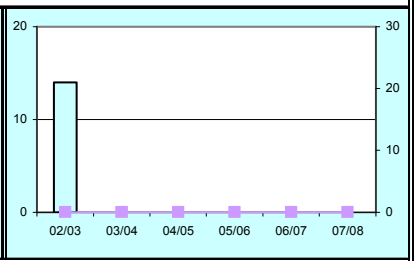
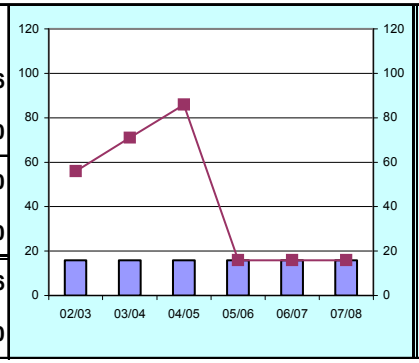
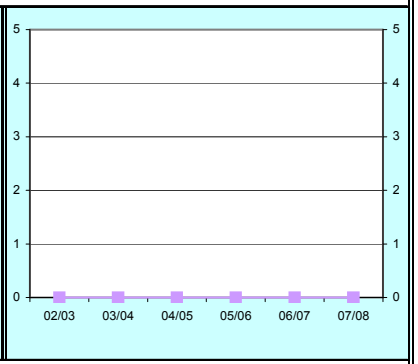
Operations Indicators

Area Served - AP-3, AP-4, AP-5

2007-08 PERFORMANCE REPORT

	Indicator		Previous Periods					Current Period	Comparison	
			02/03	03/04	04/05	05/06	06/07	07/08	Cumulative Total	Annual Total
AP-4	**Area served by SSDP assisted private irrigation bores (ha)**									
	Achievements [6]	Cumulative Total	18466	20952	21663	23489	37200	**38037**		
	Achievements	Annual Total	1399	2486	711	1826	3302	**3536**		
	Aspirational Target [3]	Cumulative Total	32741	35324	37794	33178	34202	**3699**		
	Funded Target [4]	Annual Total	2200	1870	2530	2200	1538	**2050**		
Note 6	*Method refined in 2006/07 resulted in larger area served than reported in previous KPI reports. Refer to 2006/07 KPI report text.*									
AP-3	**Area served by SSDP assisted horticultural protection bores (ha)**									
	Achievements	Cumulative Total	399	399	399	399	389	**389**		
	Achievements	Annual Total	14	0	0	0	0	**0**		
	Aspirational Target [3]	Cumulative Total	675	725	775	409	409	**409**		
	Funded Target	Annual Total	0	0	0	0	0	**0**		
AP-5	**Area served by SSDP assisted tile drainage systems (ha)**									
	Horticulture	Cumulative Total	16	16	16	16	16	**16**		
		Annual Total	0	0	0	0	0	**0**		
	Pasture	Cumulative Total	0	0	0	0	0	**0**		
		Annual Total	0	0	0	0	0	**0**		
	Aspirational Target [7]	Cumulative Total	56	71	86	16	16	**16**		
	Funded Target	Annual Total	0	0	0	0	0	**0**		
Note 7	*Target is for horticulture, there is no target for pasture.*									

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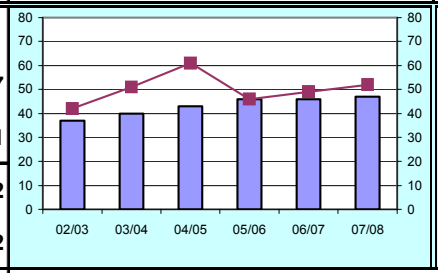
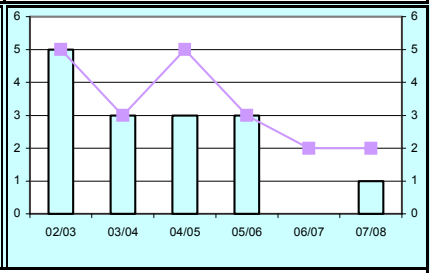
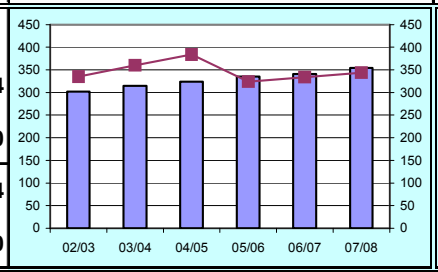
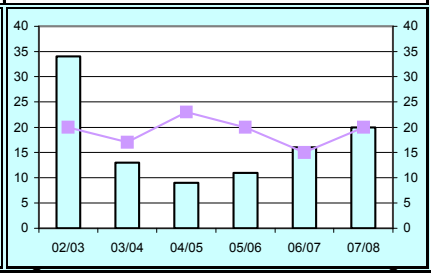
Operations Indicators

Program Works -PW-1, PW-2

Indicator			Previous Periods					Current Period	Comparison	
			02/03	03/04	04/05	05/06	06/07	07/08	Cumulative Total	Annual Total
PW-1	**Public Salinity Control Pump sites completed to date for the SSDP**									
	Achievements	Cumulative Total	37	40	43	46	46	**47**		
	Achievements	Annual Total	5	3	3	3	0	**1**		
	Aspirational Target [1]	Cumulative Total	42	51	61	46	49	**52**		
	Funded Target [2]	Annual Total	5	3	5	3	2	**2**		

Note 1 Aspirational target changed in SSDP 2000-2005 Review

Note 2 Funded target determined by annual funding and management

Indicator			Previous Periods					Current Period	Comparison	
			02/03	03/04	04/05	05/06	06/07	07/08	Cumulative Total	Annual Total
PW-2	**Private irrigation bores installed or upgraded to date with SSDP assistance**									
	Achievements [3]	Cumulative Total	302	315	324	335	341	**354**		
	Achievements	Annual Total	34	13	9	11	16	**20**		
	Aspirational Target [1]	Cumulative Total	335	360	384	324	334	**344**		
	Funded Target [2]	Annual Total	20	17	23	20	15	**20**		

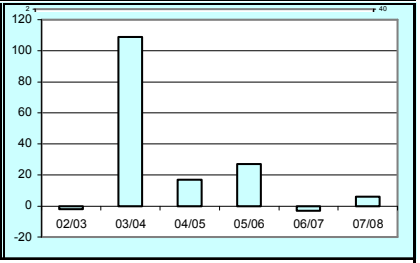
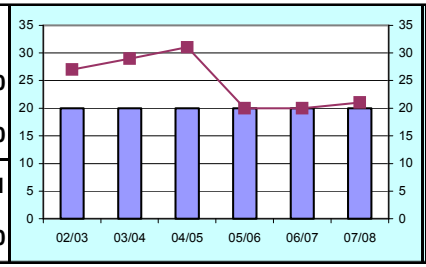
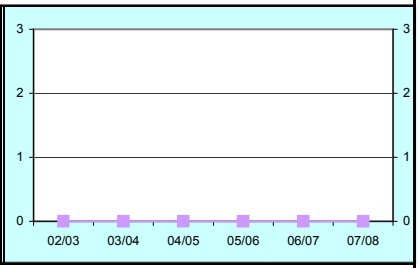
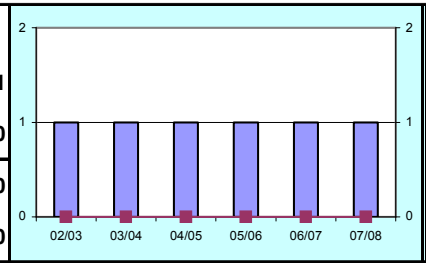
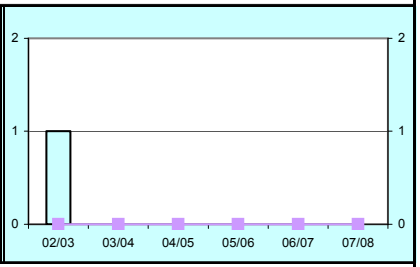
Note 3 Cumulative total takes into account additional bores for current year and bores that have been removed. Annual total achieved include new bores and upgraded for current year only

SIRCIS - Sub-Surface Drainage Program

Operations Indicators

Program Works - PW-3, PW-4, PW-5

2007-08 PERFORMANCE REPORT

	Indicator		Previous Periods					Current Period	Comparison	
			02/03	03/04	04/05	05/06	06/07	07/08	Cumulative Total	Annual Total
PW-3	**Private irrigation bores operating as Salinity Plan Bores**									
	Achievements	Cumulative Total	336	445	462	489	486	**492**		
	Achievements	Annual Total	-2	109	17	27	-3	**6**		
	Aspirational Target	Cumulative Total	303	349	395	395	395	**395**		
	Funded Target	Annual Total	n/a	n/a	n/a	n/a	n/a	**n/a**		
PW-4	**Private horticulture protection bores completed with assistance from the SSDP**									
	Achievements	Cumulative Total	20	20	20	20	20	**20**		
	Achievements	Annual Total	0	0	0	0	0	**0**		
	Aspirational Target	Cumulative Total	27	29	31	20	20	**21**		
	Funded Target	Annual Total	0	0	0	0	0	**0**		
PW-5	**Private low volume pasture[3] sub-surface drainage systems completed with assistance from SSDP**									
	Achievements	Cumulative Total	1	1	1	1	1	**1**		
	Achievements	Annual Total	1	0	0	0	0	**0**		
	Aspirational Target	Cumulative Total	0	0	0	0	0	**0**		
	Funded Target	Annual Total	0	0	0	0	0	**0**		

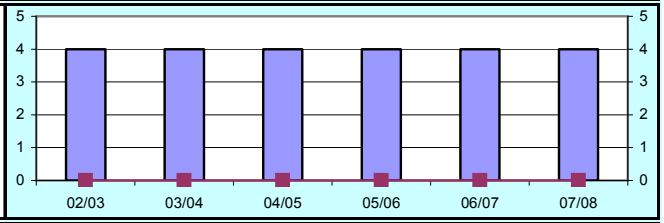
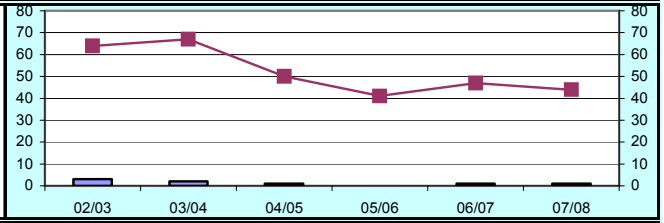
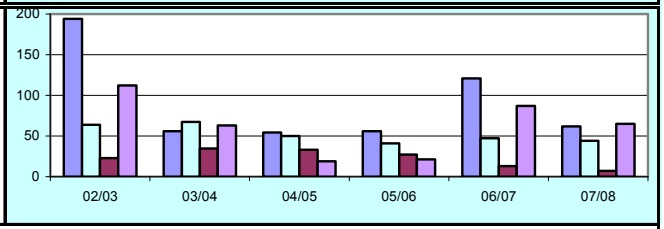
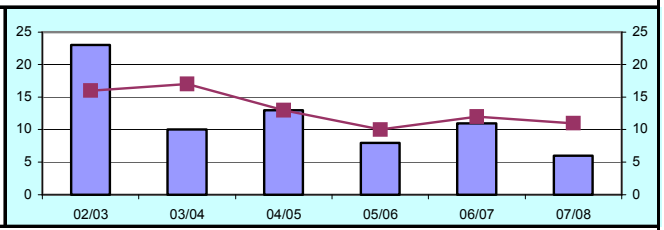
Note 3 Private C-type pumps (low volume pasture) - no targets set as yet.

SIRCIS - Sub-Surface Drainage Program

2007-08 PERFORMANCE REPORT

Operations Indicators

Program Works - PW-6, PW-7, MI-2, MI-3

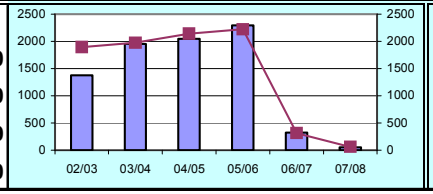
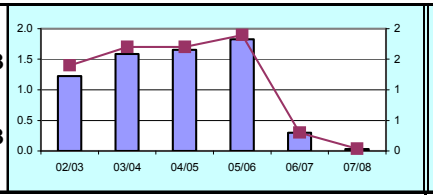
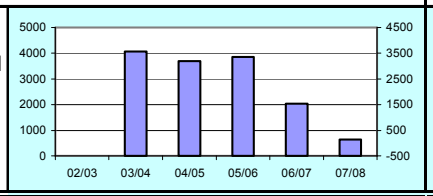
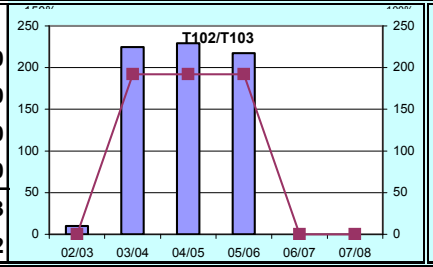
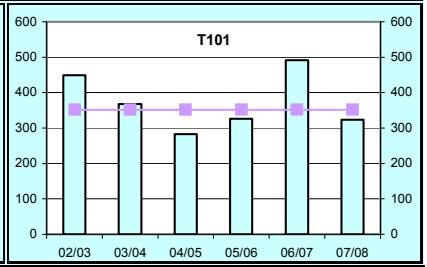
	Indicator		Previous Periods					Current Period	Comparison
			02/03	03/04	04/05	05/06	06/07	07/08	
PW-6	**Total number of Tile drain sites assisted by the SSDP**								
	Horticulture	Cumulative Total	4	4	4	4	4	**4**	
		Annual Total	0	0	0	0	0	**0**	
	Pasture	Cumulative Total	0	0	0	0	0	**0**	
		Annual Total	0	0	0	0	0	**0**	
PW-7	**Number of FEDS investigations completed**								
	Horticulture	Annual Total	3	2	1	0	1	**1**	
	Pasture	Annual Total	64	67	50	41	47	**44**	
MI-2	**Number of FEDS applications**[1]								
		Received	194	56	54	56	121	**62**	
		Completed	64	67	50	41	47	**44**	
		In Progress	23	35	33	27	13	**7**	
		Waiting List	112	63	19	21	87	**65**	
Note 1	*Only Refers to pasture FEDS.*								
MI-3	**Successful FEDS investigations**[2]								
	Achievements		23	10	13	8	11	**6**	
	Target		16	17	13	10	12	**11**	
Note 2	*Achievements are number of successful FEDS. Target is number of successes based on 25% success rate*								

SIRCIS - Sub-Surface Drainage Program

Operations Indicators

Program Outputs -PO-1, PO-2, PO-3

2007-08 PERFORMANCE REPORT

Indicator		Previous Periods					Current Period	Comparison
		02/03	03/04	04/05	05/06	06/07	07/08	
PO-1	**Public Salinity Control Pump volume pumped for the year (ML)**							
	Summer Pumping	1375	1956	2043	2290	327	**50**	
	Winter/Spring Pumping	0	0	0	0	0	**0**	
	Summer Pumping Capacity 1	1894	1975	2139	2218	313	**59**	
	Winter/Spring Pumping Capacity	0	0	0	0	0	**0**	
Note 1	*Most pumps not required to operate due to exceptional drought conditions*							
PO-2	**Public Salinity Control Pump salt load exported from the region for year**							
	Actual Amount Exported (kT)	1.22	1.59	1.65	1.83	0.30	**0.03**	
	Salt Export Capacity [2] (kT)	1.40	1.70	1.70	1.90	0.30	**0.03**	
Note 2	*Based on design capacity and nominal salinity and assumed disposal percentages.*							
P0-3a	**Phase A pumps volume pumped for the year (ML)**							
		NA	4076	3688	3864	2027	**641**	
P0-3c	**Girgarre evaporation basin annual pumping (ML)**							 
	T102/3 Summer Pumping	10	225	229	217	0	**0**	
	T102/3 Winter/Spring Pumping	0	0	0	0	0	**0**	
	T102/3 Summer Pumping Capacity	0	192	192	192	0	**0**	
	02/3 Winter/Spring Pumping Capacity	0	0	0	0	0	**0**	
	T101 Pumping	450	368	283	327	492	**323**	
	T101 Pumping Capacity	352	352	352	352	352	**352**	

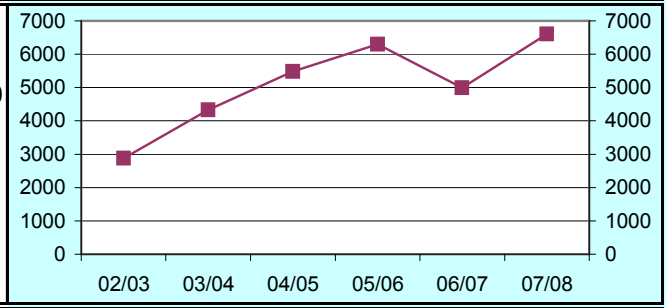
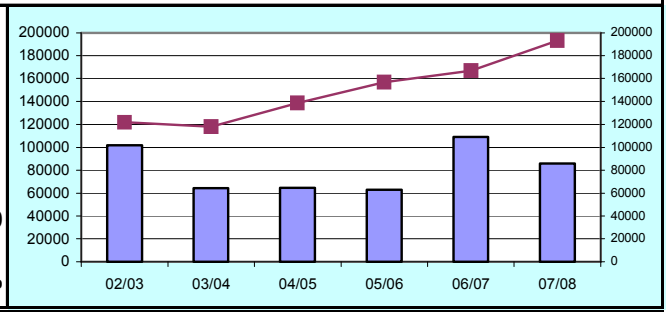
SIRCIS - Sub-Surface Drainage Program

Operations Indicators

Program Outputs - PO-4, PO-5, PO-6

2007-08 PERFORMANCE REPORT

GOULBURN-MURRAY WATER

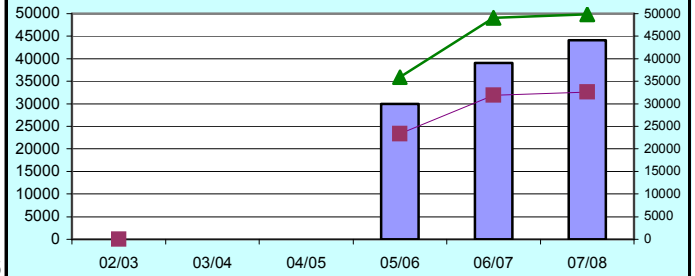
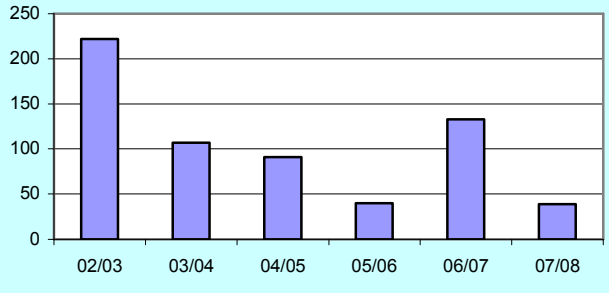
Indicator		Previous Periods					Current Period	Comparison
		02/03	03/04	04/05	05/06	06/07	**07/08**	
PO-4	**Private Irrigation Bores SDA pumping for the year (ML)** [3]							
	Actual Amount Pumped	0	0	0	0	0	**0**	
	Pumping Allocation [4]	2878	4329	5484	6302	4995	**6611**	
PO-5	**Private Irrigation Bores SDA salt exported for year (T)** [3,5]							
		0	0	0	0	0	**0**	
Note 3	*Climatic conditions did not allow salt disposal pumping*							
Note 4	*Potential maximum amount only*							
PO-6	**Metered Private Irrigation Bores volume pumped for the year (ML)** [6, 7]							
	Actual Amount Pumped	101823	64288	64820	62752	109247	**85801**	
	Licenced volume [7]	121757	118132	138669	156984	167084	**193159**	
	Percentage Used	84%	54%	47%	40%	65%	**44%**	
Note 5	*Although private disposal is not required, MDBA still require reporting of SDA.*							
Note 6	*Values are likely to be higher than shown. Data is total volume pumped based on bores where pumping volume can be reliably metered.*							
Note 7	*Licenced volume of pumps where useage can be reliably calculated*							

SIRCIS - Sub-Surface Drainage Program

Operations Indicators

Program Outputs -PO-7, MI-1

2007-08 PERFORMANCE REPORT

Indicator		Previous Periods					Current Period	Comparison
		02/03	03/04	04/05	05/06	06/07	07/08	
PO-7	**Metered Private Irrigation Bores assisted by the SSDP volume pumped for the year (ML)** [7]							
	Actual Amount Pumped	NA	NA	NA	29996	39091	**44101**	
	65% of Safe Use Volume [8]	NA	NA	NA	23355	31913	**32640**	
	100% of Safe Use Volume	NA	NA	NA	35930	49097	**49886**	
MI-1	**Number of Metered Irrigators using more than licence entitlement volume**							
		222	107	91	40	133	**39**	

Note 7 *Values likely higher: total volume pumped based on bores where pumping volume can be reliably metered.*

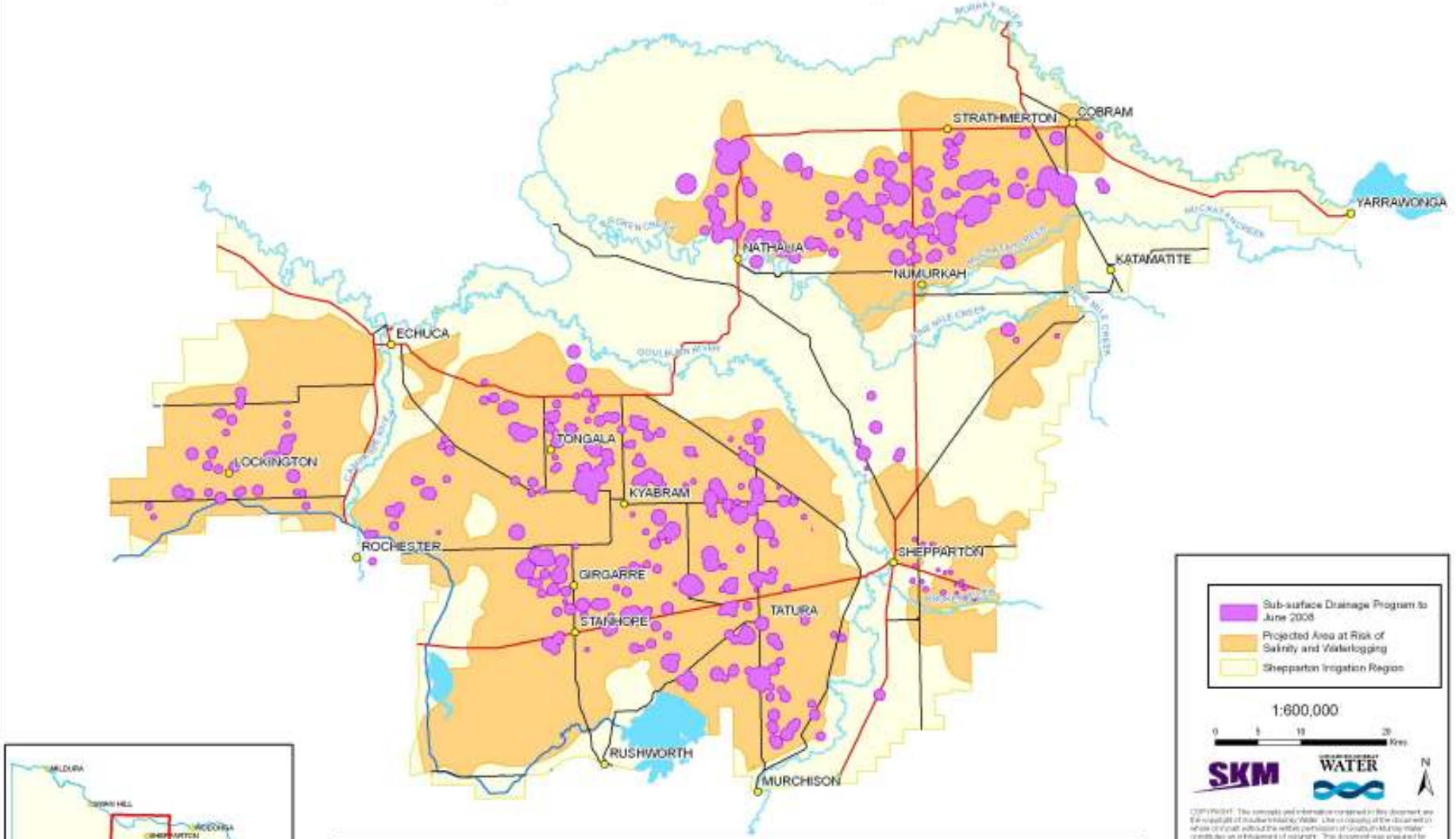
Note 8 *Safe Use Volume for Assisted Bores that pumped.*

Appendix B

GIS Maps of Area Served by Subsurface Drainage to June 2008

Area Protection - KPI Indicators AP-1, AP-2, AP-3, AP-4 and AP-5

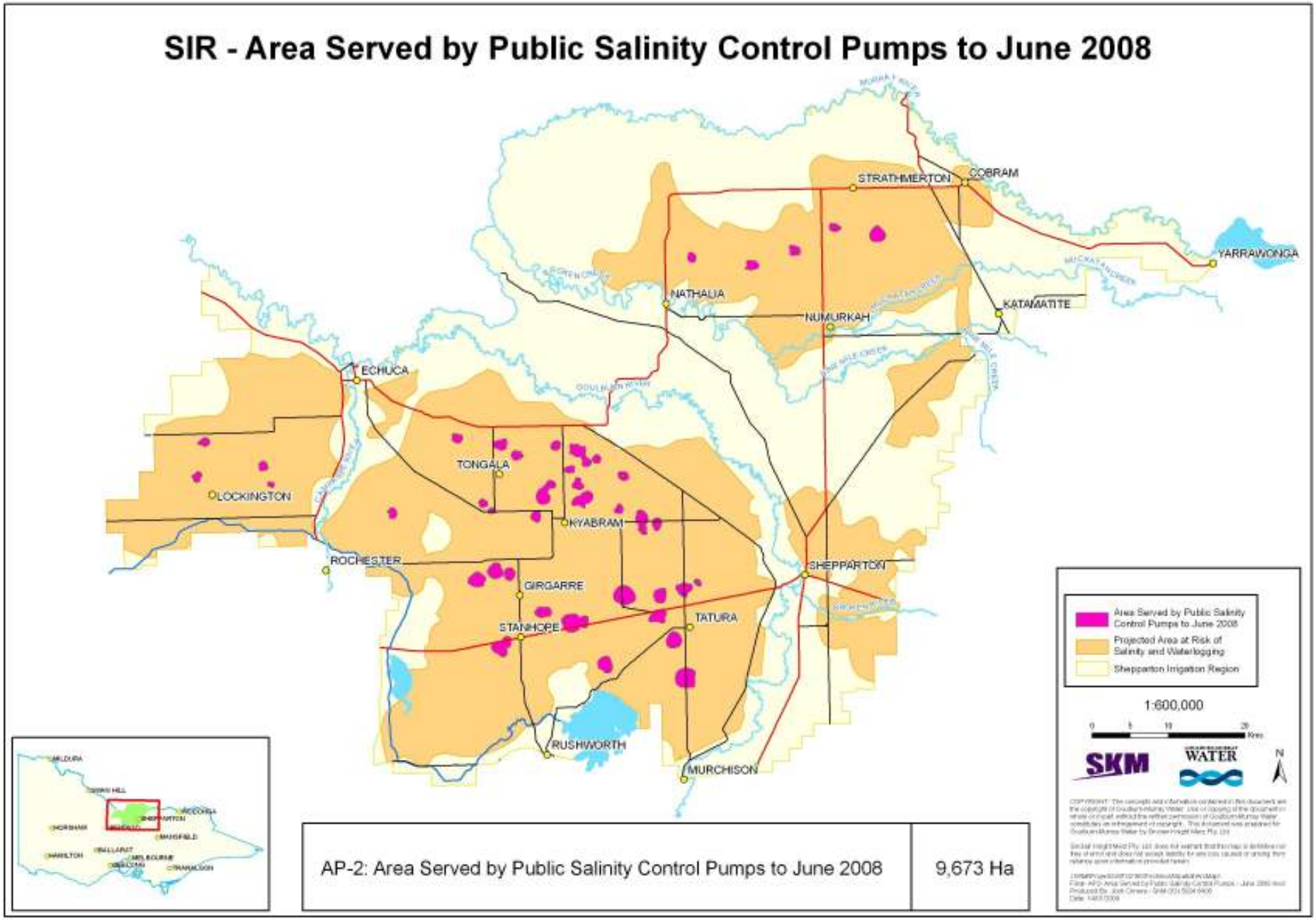
SIR - Area Served by Sub-Surface Drainage Program to June 2008



AP1: Total Area Served by Sub-Surface Drainage Program to June 2008

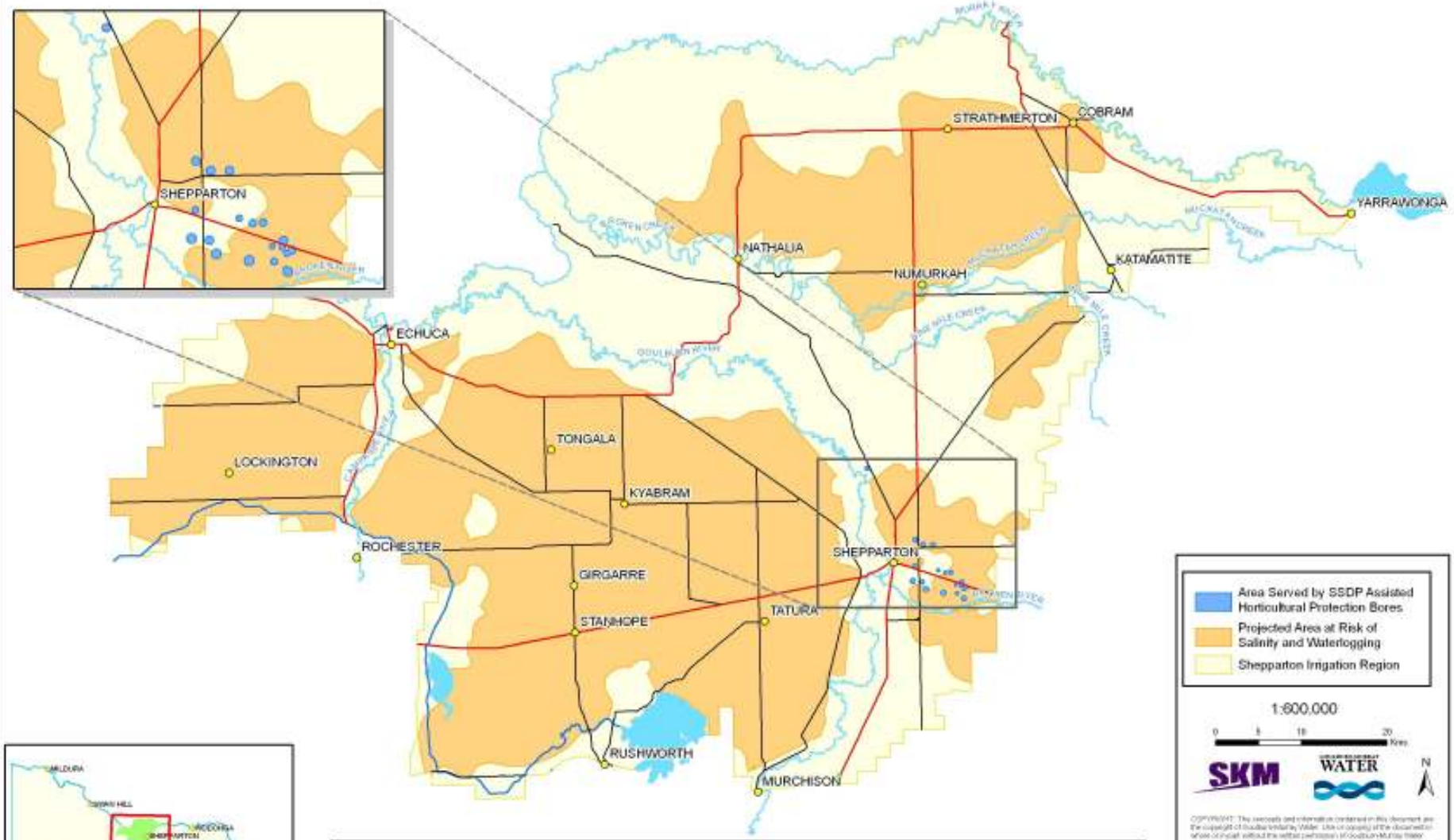
46,830 Ha

SIR - Area Served by Public Salinity Control Pumps to June 2008



AP-2: Area Served by Public Salinity Control Pumps to June 2008	9,673 Ha

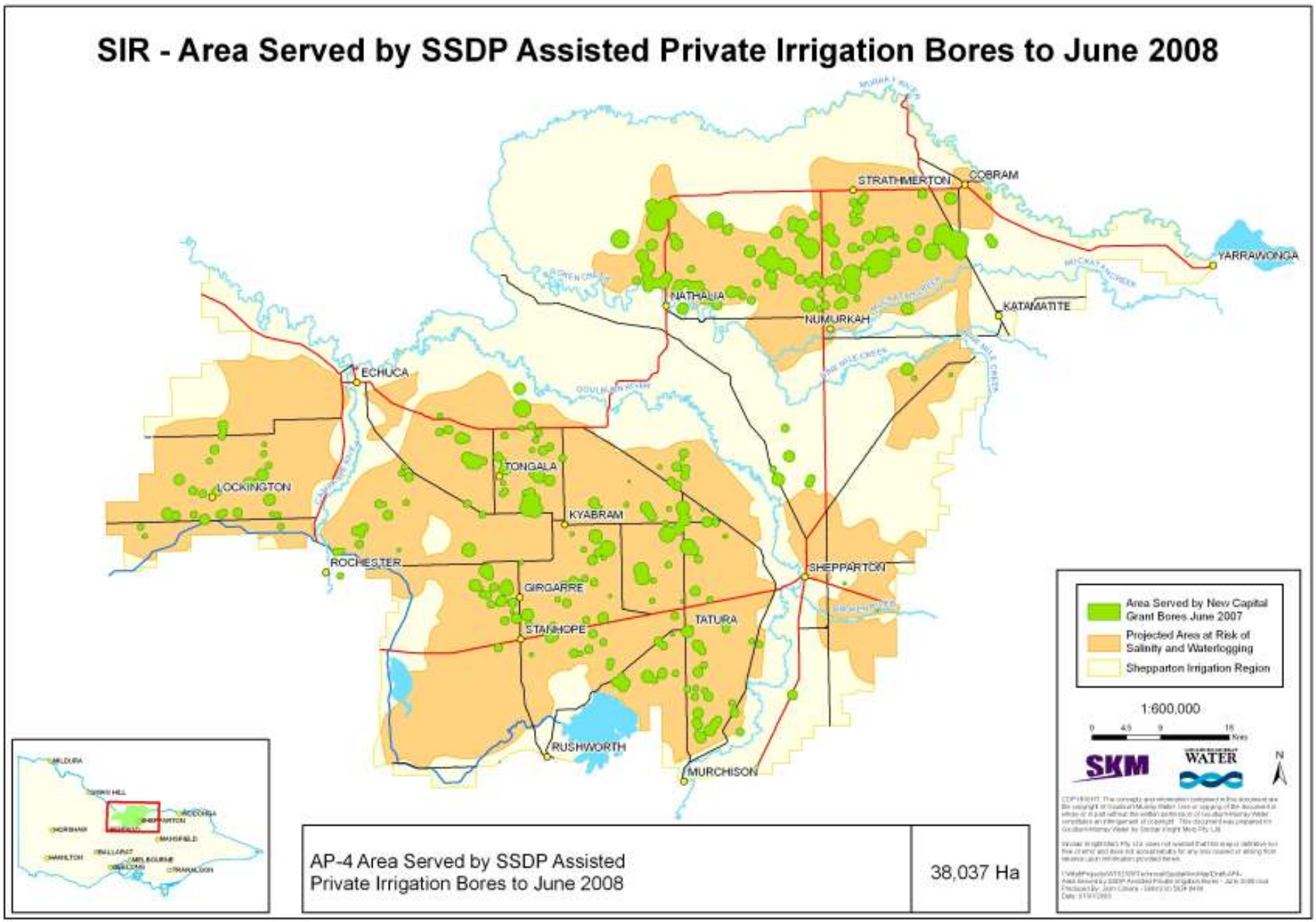
SIR - Area Served by SSDP Assisted Horticultural Protection Bores to June 2008



AP-3: Area Served by SSDP Assisted Horticultural Protection Bores to June 2008

389 Ha

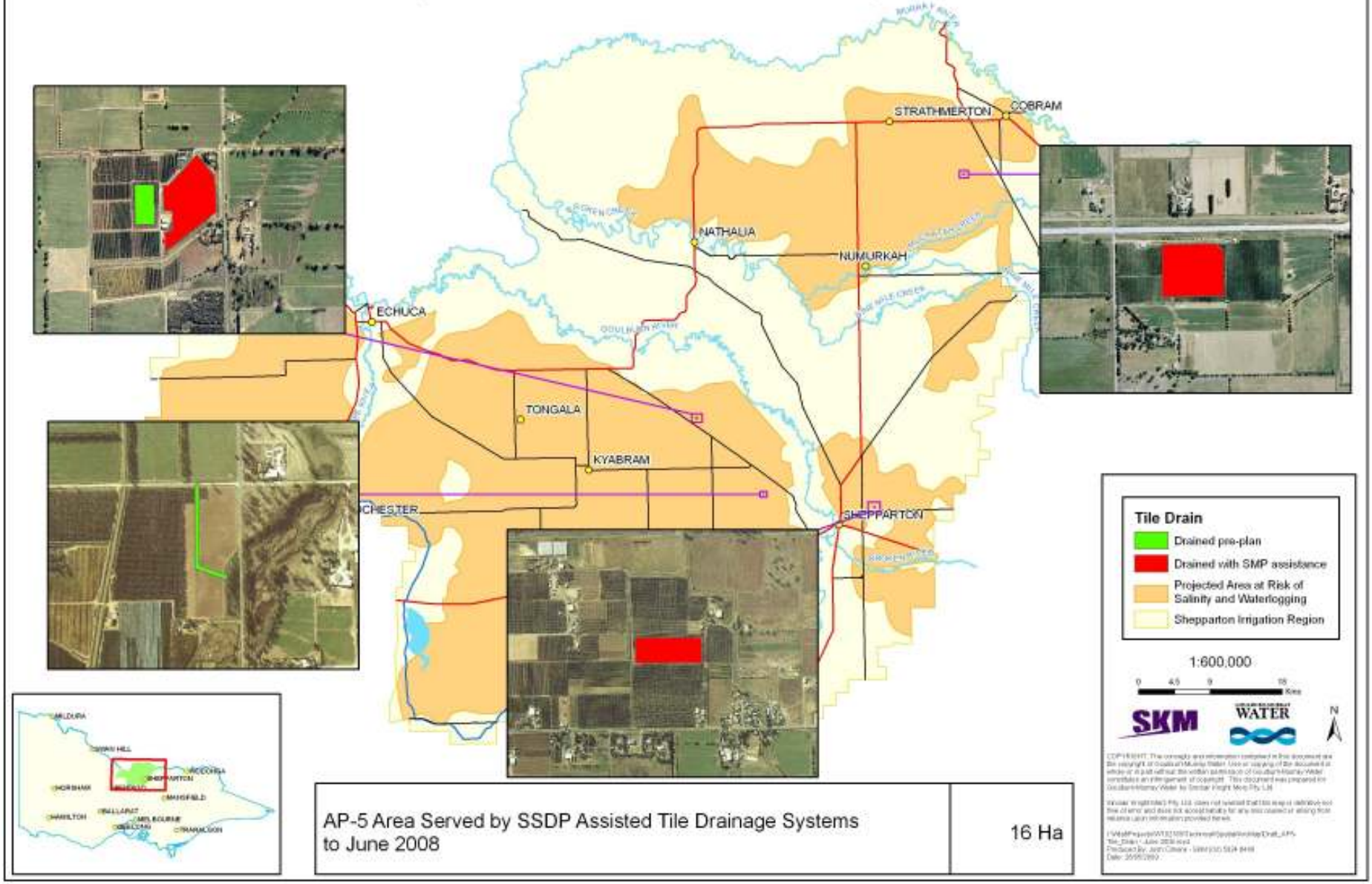
SIR - Area Served by SSDP Assisted Private Irrigation Bores to June 2008



AP-4 Area Served by SSDP Assisted Private Irrigation Bores to June 2008

38,037 Ha

SIR - Area Served by SSDP Assisted Tile Drainage Systems to June 2008



AP-5 Area Served by SSDP Assisted Tile Drainage Systems to June 2008

16 Ha

Appendix C

Management and Cost Effectiveness Indicators

Budget, Revenue and Expenditure - KPI Indicators BE-1 to BE-2

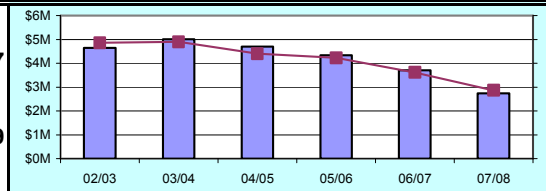
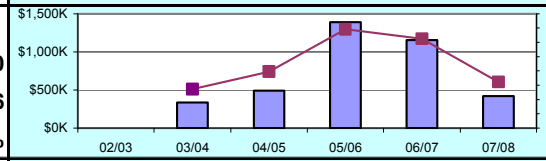
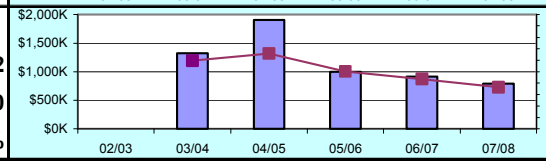
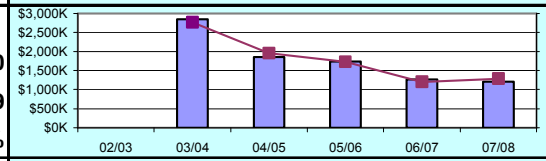
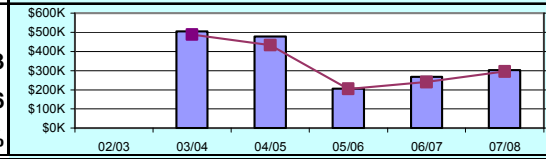
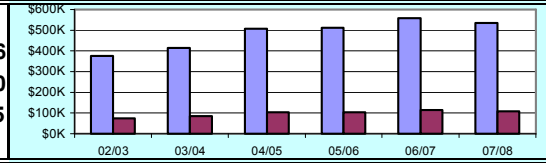
Budget, Revenue and Expenditure – CG-1, FE-1

SIRCIS - Sub-Surface Drainage Program

Management Indicators

BE-1, BE2

2007-08 PERFORMANCE REPORT

	Indicator [1]	Previous Periods					Current Period	Comparison
		02/03	03/04	04/05	05/06	06/07	07/08	
BE-1	**Total Annual SSDP expenditure compared with budget ($millions)**							
	Expenditure	$4.6	$5.0	$4.7	$4.3	$3.7	**$2.7**	
	Budget	$4.8	$4.9	$4.4	$4.2	$3.6	**$2.9**	
	Development[1] Program Expenditure and Budget Breakdown ($1000)							
	Expenditure	Data not available	$334	$492	$1,389	$1,156	**$420**	
	Budget		$446	$689	$1,282	$1,150	**$546**	
	Budget (% of Total)		9%	16%	30%	32%	**19%**	
	Support Program Expenditure and Budget Breakdown ($1000)							
	Expenditure	Data not available	$1,321	$1,901	$1,001	$914	**$792**	
	Budget		$1,194	$1,318	$1,005	$872	**$730**	
	Budget (% of Total)		24%	30%	24%	24%	**26%**	
	Implementation Program Expenditure and Budget Breakdown ($1000)							
	Expenditure	Data not available	$2,848	$1,853	$1,734	$1,262	**$1,210**	
	Budget		$2,762	$1,955	$1,730	$1,200	**$1,289**	
	Budget (% of Total)		57%	44%	41%	33%	**45%**	
	Monitoring & Reporting Program Expenditure and Budget Breakdown ($1000)							
	Expenditure	Data not available	$506	$479	$206	$268	**$303**	
	Budget		$489	$434	$205	$241	**$296**	
	Budget (% of Total)		10%	10%	5%	7%	**10%**	
BE-2	**Revenue from operation of public salinity control works ($1000)**							
	Landholder Contribution	$376	$414	$507	$511	$558	**$536**	
	Local Government Contribution	$75	$85	$104	$105	$114	**$110**	
	Total	$451	$499	$611	$616	$672	**$645**	

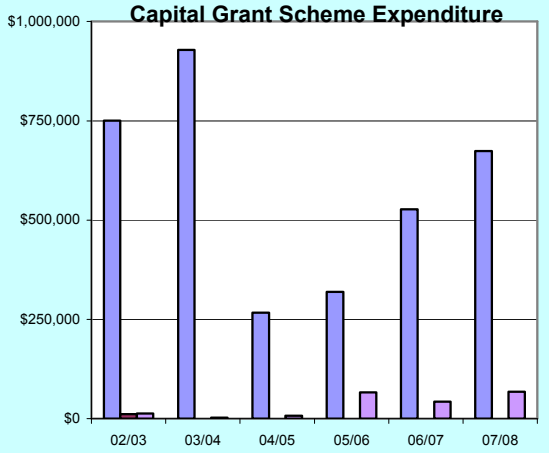
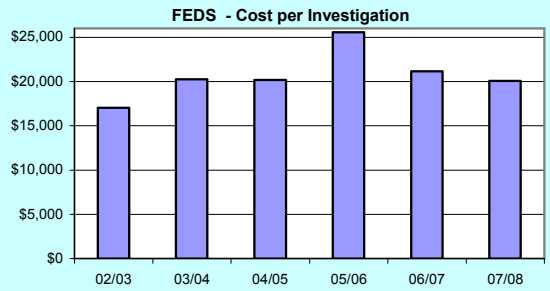
Note 1 For a full description of each component please refer to the glossary

SIRCIS - Sub-Surface Drainage Program

Management Indicators

CG-1, FE-1

2007-08 PERFORMANCE REPORT

Indicator		Previous Periods					Current Period	Comparison
		02/03	03/04	04/05	05/06	06/07	07/08	
CG-1	**Capital Grant Scheme (CGS)**							
	New pasture CGS systems costs							
	Landholder	$379,967	$451,650	$115,262	$170,525	$258,891	**$262,191**	
	Capital Grant	$370,083	$476,510	$151,612	$148,913	$267,750	**$411,414**	
	Total	$750,050	$928,160	$266,874	$319,437	$526,641	**$673,606**	
	New horticulture sytems costs							
	Landholder	$5,300	$0	$0	$0	$0	**$0**	
	Capital Grant	$5,940	$0	$0	$0	$0	**$0**	
	Total	$11,240	$0	$0	$0	$0	**$0**	
	CGS system upgrades							
	Landholder	$5,597	$1,043	$3,542	$47,809	$15,489	**$47,719**	
	Capital Grant	$7,710	$1,937	$3,892	$18,839	$27,385	**$20,581**	
	Total	$13,307	$2,980	$7,434	$66,648	$42,874	**$68,300**	
	Total Administration Costs	$210,000	$257,259	$202,474	$167,770	$321,751	**$241,753**	
	Average cost to manage grants process per site	$8,750	$17,151	$22,497	$15,252	$20,109	**$12,088**	
FE-1	**Farm Exploratory Drilling Service (FEDS)**							
	Total cost of annual FEDS investigations for the SSDP	$1,091,140	$1,357,673	$1,009,143	$1,046,929	$995,335	**$902,284**	
	Number of FEDS investigations[1]	64	67	50	41	47	**45**	
	Average cost per FEDS investigation	$17,049	$20,264	$20,183	$25,535	$21,177	**$20,051**	

Note 1 Includes pasture FEDS and Horti FEDS

Appendix D

Environmental Indicators

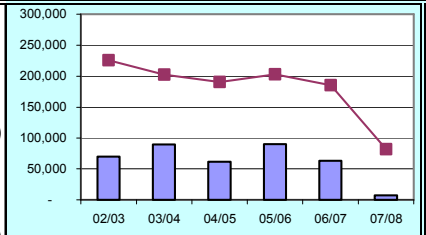
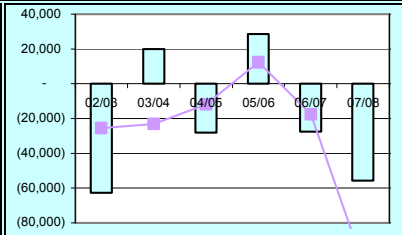
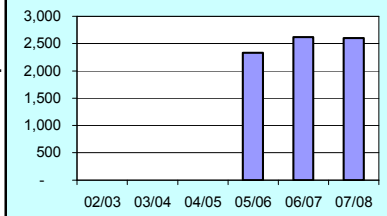
Benefits and Impacts - KPI Indicators EV-1 and EV-2

SIRCIS - Sub-Surface Drainage Program

Environmental Indicators

EV1, EV2

2007-08 PERFORMANCE REPORT

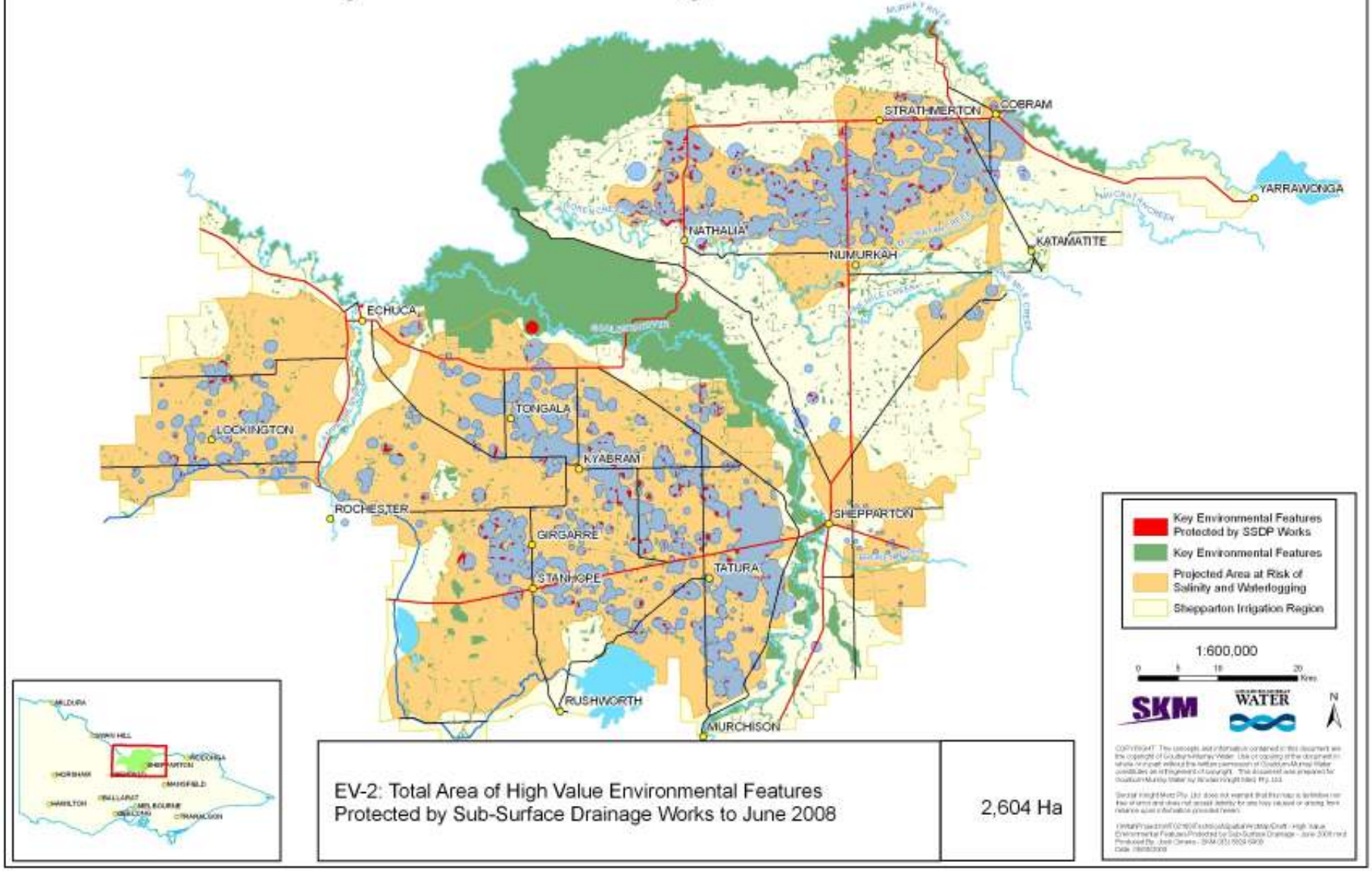
Indicator			Previous Periods					Current Period	Comparison	
			02/03	03/04	04/05	05/06	06/07	07/08	Total Area	Annual Change
EV-1	**Groundwater levels - Area threatened by shallow watertables (ha)** [1]									
	< 2 m	Total Area	69,544	89,704	61,647	90,306	62,799	**7,087**		
		Annual Change	(62,574)	20,160	(28,057)	28,659	(27,507)	**(55,712)**		
	< 3 m	Total Area	225,550	202,479	190,634	203,051	185,395	**81,783**		
		Annual Change	(25,425)	(23,071)	(11,845)	12,417	(17,656)	**(103,612)**		
Note1	*Based on August groundwater levels - eg for 2005/6 August 2005 groundwater levels used.*									
EV-2	**Area of Environmental Features Protected by SSDP Program Works (ha)**									
			NA	NA	NA	2335	2619	**2604**		

Appendix E

Environmental Indicators

GIS Maps of Environmental Features Protected by Subsurface Drainage Works to June 2008

EV-2: SIR - Environmental Features Protected by Sub-Surface Drainage Works to June 2008



EV-2: Total Area of High Value Environmental Features Protected by Sub-Surface Drainage Works to June 2008	2,604 Ha

Appendix F

Glossary of Terms

Glossary of Terms

Term	Description
Area Served	An area within the influence of a groundwater pump, tile drain or other subsurface drainage system
CGS	Capital Grant Scheme
DPI	Department of Primary Industries
DSE	Department of Sustainability and Environment
FEDS	Farm Exploratory Drilling Scheme
GBCMA	Goulburn-Broken Catchment Management Authority
G-MW	Goulburn-Murray Rural Water Authority
KPI	Key Performance Indicator
MDBC	Murray-Darling Basin Commission
NAP	National Action Plan
NHT	Natural Heritage Trust
Private Bore	Private Irrigation Bore, also known as Private Groundwater Pump.
Program Development	Component of the SSDP related to development. Includes research and investigation.
Program Implementation	Component of the SSDP related to implementation. Includes all on-ground works (including the CGS, FEDS and Public Pump Program).
Program Monitoring and Reporting	Component of the SSDP related to monitoring and reporting. Includes biophysical and program (KPI) reporting.
Program Support	Component of the SSDP related to support. Includes committee meetings, coordination, program management, extension and capacity building.
Public Salinity Control Pump (PSCP)	A Public Pump design to manage salinity levels in the root zone.
Public Watertable Control Pump	A public pump designed to manage high watertables.
SIRCIS	Shepparton Irrigation Region Catchment Implementation Strategy (formerly known as the Shepparton Irrigation Region Land and Water Salinity Management Plan or SIRLWSMP).
SIRGMP	Shepparton Irrigation Region Groundwater Management Plan
SIRCIC	Shepparton Irrigation Region Catchment Implementation Committee
SPB	Salinity Plan Bore
SSDP	Sub-surface Drainage Program
‘zero drawdown’	The theoretical limit of impact on the groundwater levels from public salinity control pumps

Document Status – Final

Rev No.	Author	Reviewer	Approved for Issue	
		Name	Name	Date
1	Stephen Feiss	James Burkitt		
		Terry Hunter		
		Peter Dickinson		