The Farm Program Review

...Capturing the activities of the Farm Program from 1995 to 2000 & exploring the direction for the future

2000-2005 Vision

The Farm Program strives to improve land management practices on private land within the SIR to protect and enhance the environment to improve economic viability and to help rural communities make informed decisions

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with input from a wide range of people interested in this area
Executive Summary

The Farm Program has been in operation since the early 1990’s and much has been achieved through the work of the Program staff and community, all leading to an improvement in land and water management from farm works. The last five years have continued to build on this success, and to spread the benefits to more landowners in the region.

The success of the Farm Program relies quite heavily on the landowners of the SIR. From the government’s position, the Whole Farm Planning Incentive Scheme is a small funder of farm works. The greatest contribution comes from the physical effort and financial contribution of the landowners themselves.

The Whole Farm Planning Incentive Scheme has been instrumental to improving land and water management, protection and enhancement of the environment and giving landowners a tool to help with their strategic business planning for on-ground works. The whole farm planning process has evolved and developed over the last five years to incorporate much more than just engineering aspects on the plan. The long-term goal is to have all properties within the SIR having a whole farm plan by 2020. With the current rate of 4% per year of the total area being whole farm planned this goal is well on the way to being realised.

Although the primary activity within the Farm Program has undoubtedly been whole farm planning, there have been a number of other significant achievements for the Working Group. There has been substantial activity to achieve the goals developed in 1995, policies developed to address regional issues, important linkages with other projects and Programs and follow on effects as a result of the Farm Program activities.

Another notable achievement of the Farm Program is the way it operates. It has expanded its representation to include a broader range of industries and interest groups that exist across the SIR.

In the last five years strong links have been built with the research groups in the SIR. This has meant more comprehensive interaction so that research is being conducted in relevant areas and is informing the Farm Program Working Group on policies and decisions. Research is now being conducted in the sociological area to understand people and group management issues.

There have been significant changes to the way the Farm Program operates, as a result of external needs and others to improve the processes within the Farm Program. Changes have also been made as a result of the external environment relating to legislation and changes to the planning environment.

The Farm Program is responsive to new opportunities, emerging issues and perceived needs within the SIR. In the past the focus was on salinity management, this has been expanded to include a whole range of natural
resource, social and economic issues. The Program currently operates at world’s Best Practice and is at the cutting edge of research, development and extension and expects to continue at this standard.

The future for the Farm Program is both exciting and challenging. It has designed a very holistic vision to drive the Program into the future with targets that will require critical changes to the way landowners undertake land, water and environmental management issues.
### Index/contents

- **Executive Summary**  
  Pg 2
- **Index**  
  Pg 4
- **Chapter 1: Introduction**  
  Pg 5
- **Chapter 2: Review of Whole Farm Plan Incentive Scheme**  
  Pg 6
- **Chapter 3: Achievements of the Farm Program**  
  Pg 14
- **Chapter 4: Research & Development directions**  
  Pg 28
- **Chapter 5: Changes in the way the Farm Program operates**  
  Pg 39
- **Chapter 6: Changes to the external planning environment**  
  Pg 44
- **Chapter 7: Emerging issues**  
  Pg 47
- **Chapter 8: The vision & goals for the next five years**  
  Pg 54
- **Chapter 9: Conclusion**  
  Pg 58
- **Chapter 10: Action Plan For 2000-2005**  
  Pg 60
- **Acronyms**  
  Pg 70
- **References/Further Reading**  
  Pg 72

### Graphic Contents

- **Photo - Whole Farm Planning**  
  Pg 12
- **Map – Whole Farm Plans in the SIR August 2001**  
  Pg 14
- **Graph 1 – Area Whole Farm Plan in SIR (Ha)**  
  Pg 15
- **Table 1 – Whole Farm Plan Totals in SIR (By Year)**  
  Pg 16
- **Table 2 – Whole Farm Plan Totals in SIR Water Services Committee area**  
  Pg 17
- **Graph 2 – Area of Horticultural Whole Farm Plans in SIR**  
  Pg 18
- **Graph 3 – Area of Broadacre Whole Farm Plans in SIR**  
  Pg 19
- **Photo – Landcare Field day**  
  Pg 27
- **Photo – Groundwater Pumping**  
  Pg 32
- **Pie Chart – Demographic Status at East Shepparton**  
  Pg 38
Chapter 1

Introduction

The Farm Program sits under the Goulburn Broken Catchment Management Authority structure and its role is to help implement the Shepparton Irrigation Land and Water (Salinity) Management Plan (SIRLWMP) and the Regional Catchment Strategy with a specific focus on farm activities.

The Farm Program Working Group was established to oversee and support all aspects of the Farm Program. The Farm Program Working Group reports to the SIR Implementation Committee, which is ultimately responsible for implementing the SIRLWMP and Regional Catchment Strategy.

This document outlines the achievements of the Farm Program over the last five years, changes in the way the Program has operated since the last review and documents the goals and targets for the next five years.

This review was written with help from a number of people including Bruce Cumming, David Lawler, Chris Norman, Ken Sampson, Alex Sislov, Andrea Smith and Bob Wildes who provided information as to the past achievements and changes to the Farm Program’s operation. The final chapter was written after a number of workshops were conducted to design the goals and targets for the next five years.

This document aims to capture the past successes of the Farm Program; describing the linkages and interrelationships with other groups and Programs; document the changes to the internal and external environment. It also aims to explore the future – the issues that are likely to impact on the Program and the direction the Program needs to aim towards.
Chapter 2

Review of Whole Farm Plan Incentive Scheme

The original goal of the Farm Program was to:

"...reduce groundwater accessions, soil salinisation & waterlogging on farms."

The reduction in accessions leads to a decline in the long-term requirements for regional sub-surface drainage.

Whole farm planning is a very important activity conducted as part of the Farm Program in the Shepparton Irrigation Region (SIR). It has a focus on improving water management on land with a range of benefits, ultimately leading to the reduction of groundwater accessions, soil salinisation and waterlogging on farms. Whole Farm Plans are also used to protect and enhance environmental features whilst increasing farm productivity. It is a plan of the farm showing existing features and details of the improvements to be made on the property, including improved irrigation management. It allows these improvements to be done in stages with the knowledge that each stage is complementary to all other stages.

Whole Farm Plans are prepared on a range of properties and enterprises within the SIR, including broadacre properties which represent dairy, cropping and grazing activities, horticultural properties and dryland areas (as a part of an irrigated property or as a separate property).
The development of a whole farm plan should consider:

**Agronomic** - type of crops/pasture to be grown, soil types, bay sizes, slopes, top-soiling.

**Engineering** – irrigation method, channel and drain details, sizes of bay outlets and channel/drain structures, earthworks and construction details.

**Environment** - drainage lines, wetlands, land capabilities, remnant vegetation and revegetation such as planting shelter belts, watertable mitigation, biodiversity, and integrated pest plants and animal management.

**Farm Management** - the type of enterprise, how the farm will be managed in the future, stock and machinery movement, fencing, stock water.

**Financial** - how the development work will be staged, a detailed costing and how the work will be financed.

The preparation of a whole farm plan requires input from the landowner with help and advice from a surveyor/designer, extension officers from Department of Natural Resources and Environment (DNRE), Goulburn-Murray Water (G-MW), laser grading contractors, family, friends and neighbours.
(a) Review of Whole Farm Planning 2000

A review of the whole farm planning process in the SIR was undertaken in June 2000.

The review was conducted to:

- assess the effectiveness of the incentives paid for the preparation of whole farm plans with assistance from the Whole Farm Plan Incentive Scheme,
- identify any improvements for the implementation of the scheme and
- determine the level of works that have been undertaken in implementing the plans prepared.

The survey was conducted using a random sample of 100 landowners within the SIR who had received an incentive for the preparation of a whole farm plan from 1995 to 2000.

**Method:** The landowners were mailed a letter explaining the purpose of the review together with a questionnaire that they were asked to complete and return. The results in the review were based on the responses of 72 landowners that mailed back the completed questionnaire. In addition to the survey questionnaire, 3 in-depth interviews were conducted to explore issues related to the whole farm-planning scheme in more detail.

The responses from the survey showed that 87.5% of those surveyed were satisfied with the amount of the incentive they received for preparing their plan. The level of satisfaction was slightly higher than those reported from 1990 and 1995 surveys where 85% indicated that they were satisfied with the incentive. The result also revealed that the majority of landowners (57%) indicated that they would not prepare a whole farm plan if the incentive were unavailable.

**Satisfaction:** A high proportion (96%) of those surveyed was satisfied with their plan after it was completed. It became clear during the in-depth interview that some families used the plan as a motivational tool. The plan provided landowners with better insight and an understanding of design that improved the efficient management of their property.

When landowners were asked to indicate whether they would prepare a whole farm plan if they purchased another property, the majority (58%) said that it would be one of the first things that they would do and another 30% indicated that they would eventually prepare one. The results again indicate the high level of value landowners see in preparing plans.

When asked whether they would encourage others to prepare whole farm plan, 86% of the respondents said that they would.
The landowners were asked what advice they would give to others who were about to prepare a whole farm plan. A number of issues were raised and their responses have been categorised in 4 groups:

(i) Discussion with Others:

- Ask lots of questions of all people involved.
- Speak to everyone to gain as much information as possible.
- Speak to your designer for advice and tell him your ideas before you start so he can then work out the best design for you.

(ii) Consider all Options:

- Always plan for the future - consider things such as buying the neighbouring land to amalgamate with your property.
- Be prepared to shop around with designer for alternative options.
- Don’t rush into preparing the plan.
- Get to understand your property.
- Employ appropriate people for your enterprise.
- Endeavour to inspect other similar farms where plans have already been developed.
- Make sure the contractor gets the survey levels of the property accurately assessed.
- Generally it cost more than anticipated – get quotes in writing and look at in detail.
- Make sure the end plan is what you want, not necessarily what the designer wants.

(iii) Use as a Planning Tool:

- Before doing any implementation, prepare a plan, ensuring a holistic approach.
- Discuss all earth works with contractors.
- Have a plan before starting any on-ground works.
- Have your own goals clear in your mind.
- Look closely at plan submitted by designer and tell him what you want.
- Important to be aware of the benefits of having areas of the property planted under trees for environmental purposes.
- With a plan in place, it gives you peace of mind that when you are doing earth works, you have a considered end-point that you are ultimately heading towards.
- Spend plenty of time going over the plan and do not be scared to ask questions.

(iv) Use for the Drainage Purpose:

- Prepare a plan, even if it is only for the purpose of improving drainage.
- Plan drainage even though you may not be able to afford to lasergrade the entire farm.
One of the reasons for conducting this review was to determine the amount of works that had been completed in implementing the plans. Landowners were asked whether they have commenced any of the works in implementing their whole farm plan. 75% said that they have carried out some works in their farm. The major works carried out were laser grading (69%); installation of bay outlets (65.3%), constructed or remodeled channels (63.9%), installed channel checks and culverts (59.7%) and constructed lane ways (59.7%).

When asked about how much time they will take to implement the rest of the works indicated in the whole farm plan, the average number of years reported was about 6 years with a range of 0-20 years.

**Incentive Considerations**

Some landowners mentioned that they required more information on some issues including re-use systems and also about any other incentives available. It is important that the contact made with landowners preparing whole farm plans is used by Extension Officers to provide information of all incentives available to landowners in the SIR.

The study showed that 16.7% of the landowners considered the preparation of a whole farm plan was not useful for them in assisting in the application for finance. This figure demonstrates that in addition to the farm management, engineering, environmental and agronomic features, the financial planning for the works that will be carried out need to be highlighted during the contact with landowners.

The study also showed that about 70% of the landowners already have or will have their plan certified by Local Government. The benefits of having a plan certified need to be further reinforced to landowners during the preparation of a whole farm plan along with the potential penalties that could be imposed for doing works without Local Government approval.

Almost all (95.8%) of the landowners responded that the Whole Farm Plan Incentive Scheme should continue. 16.7% said that there needs to be some changes made to the present incentive scheme. This figure is lower than that reported in 1995 where 24% said that there in a need for some changes.

**Some of the changes proposed by the respondents in this survey were:**

- Provide incentives for small size re-use systems.
- When possible, co-ordinate with neighbouring properties.
- Provide names of accredited contractors whose works meet DNRE standard.
- Make it easy for people to know about it.
- More information to be made available about other incentive schemes.
- More incentive for young people.
- Control in the prices – the scheme should promote work so those surveyors should be reasonable.
Since the start of the Whole Farm Plan Incentive Scheme in 1987, there have been three reviews conducted to evaluate the processes used in administering the scheme. These reviews were carried out during 1990, 1995 and 2000 with the purpose of assessing the effectiveness of the incentive scheme and to identify ways of improving the delivery of the scheme.

This comparative summary has captured the findings and identified the changes that have occurred during these three periods.

**Method:** The methodologies used to collect the information during three review periods are identical, using a random sample of 90-100 landowners who had prepared whole farm plans in the five years preceding each of the reviews. In all the three surveys, the landowners sampled were sent a standardised questionnaire.

The first review (1990) was based on 69 returned questionnaires out of 90 that were sent out. The second (1995) was based on the return rate of 80 valid replies out of 100, and the third (2000) was based on the responses of 72 landowners out of 100.

This comparative study has shown that most of the landowners were positive about the incentive scheme and indicated that the scheme should be continued in future. The result also revealed that most landowners indicated that they would not prepare a whole farm plan if the incentive were not available. This indication was stronger during later surveys (1995 & 2000) compared to 1990 survey.

The study showed that most of the landowners became aware of the incentive scheme from various means. Initially in 1990, the main source of information about the Whole Farm Plan Incentive Scheme was from DNRE and G-MW Extension Officers; however, with time “other landowners” has become a major source of information of whole farm plans. It is now evident that most landowners are more likely to hear about the incentives from other landowners first.

Newspaper articles have always been by seen by landowners as an important source of information about the Incentive Scheme. The strategic use of this source could result in more landowners benefiting from the scheme.

**Satisfaction Levels:** In terms of their satisfaction level with their individual plans, there was a significant improvement in the level of satisfaction from 59% in 1990 to 91% in 1995 and 96% in 2000. This clearly indicated the maturity of the program and a greater understanding of the plans and planning processes by the landowners.

In the 1990 review, landowners were concerned about technical errors in their whole farm plans, such as failing to include existing structures and
high earthworks. The high incidence of complaints regarding technical errors and unsatisfactory design options were resolved by better communication during the planning phase in later periods.

However, even during later surveys, some landowners mentioned that they needed more information on some issues including re-use dams and other incentives available. It is important that the contact made with landowners preparing whole farm plans is used to provide information of all incentives available.

When landowners were asked to indicate whether they would prepare a whole farm plan if they purchased another property. The majority, during both the years 1995 and 2000, said that it would be one of the first things that they would do.

When asked whether they would encourage others to prepare a plan for their property, 86% of the respondents during 1995 and 2000 said that they would encourage others to prepare whole farm plan.

**Implementation of Plans:** One of the reasons for conducting these reviews was to determine the amount of works that had been undertaken in implementing the whole farm plan. In 1990, 64%, in 1995, 86% and 75% in 2000 responded that they have commenced the development works recommended on their plan. The major works carried out were laser-grading, installation of bay outlets, construction or remodeling of channels, installation of channel checks and culverts, building of re-use systems and construction of lane ways. These results indicate that landowners are starting to implement the works very soon after preparing their plans.

The landowners surveyed were asked how long they expected to take to implement the rest of the works on their whole farm plans. The average number of years reported during 2000 was about 6 years with a range of 0-20 years, 7 years was reported for 1995 and about 10 years during 1990. From these results, it is likely that the majority of whole farm plans will be fully implemented within ten years of preparation. This is a fast rate of change considering the expense and effort required to make the changes and do the works detailed on the whole farm plans.

*Photo: Horticulture Whole Farm Planning involves group discussion and sharing of ideas*
The majority of landowners found that the preparation of a whole farm plan was useful for their farm development works. A large number of landowners both during 1995 and 2000 said that it allowed them to set priorities for their development works and they were able to stage works knowing it would fit together.

The study report in 2000 showed that 16.7% of the landowners considered the preparation of a whole farm plan was not useful for them in assisting in the application for finance. The preparation of a whole farm plan can help landowners to consider how the development work will be staged; it can provide information to conduct a detailed costing of the work and how it will be financed. In addition to farm management, engineering, environmental and agronomic features, the financial features need to be highlighted during the contact with landowners.

The study also showed that the majority of the landowners, 53% in 1995 and 70% in 2000, already have or will have their plan certified by their Shire. The benefits of having a plan certified need to be further reinforced to landowners during the preparation of a whole farm plan.

There were very high responses, 99% in 1990, 100% in 1995 and 96% in 2000 to the question of continuing the Whole Farm Plan Incentive Scheme. In the three surveys, suggestions have been made of some changes for the incentive scheme.

**Some of the changes proposed by the respondents in these surveys were:**

- Increase the incentive to cover a greater proportion of the landowners’ costs.
- Introduce an incentive for small size recycle dams.
- When possible, co-ordinate with neighbouring properties.
- Provide names of accredited contractors whose works meet NRE standard.
- More information to be made available about other incentive schemes.
- More incentives for young people.
- Finance to do work, particularly for younger landowners should be given serious consideration.
- Surveyors cost should be monitored regarding efficiency within industry.

All three reviews showed that there was a high level of satisfaction with the whole farm planning process especially during later reviews (1995 and 2000). It has shown that landowners are generally very happy with the incentive provided, they have a higher regard for the whole farm plans they have prepared and that they are telling other landowners of the benefits from preparing a plan.

**Overall, this comparative study showed a very positive reaction from the landowners about the scheme indicating that the process undertaken to implement the scheme is working well and should be continued in the future.**
Chapter 3

Achievements of the Farm Program

(a) Whole Farm Plans – the plans and implementation: achievements to date

The GIS map highlights the total area within the SIR that has a whole farm plan. This is a cumulative map from 1986 and shows that about half the area has a whole farm plan.
Graph 1 describes the cumulative area within the SIR that has been whole farm planned. There are two broad categories – broadacre and horticulture. The horticultural category only includes whole farm plans undertaken on established perennial orchards. All other farming enterprises fall into the broadacre category. Broadacre whole farm plans represent all dairy farms, grazing or cropping properties, as well as broadacre land that has been converted to new orchards or vineyards and intensive cropping that’s not of a perennial nature such as flower or tomato production.

The first block represents the period from 86/87 through to 89/90 whereas all the other blocks represent a single year of whole farm plans completed.

GRAPH 1: Area Whole Farm Planned in SIR (Ha)
Table 1 describes the number and size of Whole Farm Plans undertaken each year with the corresponding area, grants paid, total cost. The table outlines the figures that were used to develop the cumulative graph (Graph 1) of whole farm plans undertaken each year.

**Table 1 – WHOLE FARM PLAN TOTALS FOR SHEPPARTON IRRIGATION REGION (BY YEAR)**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NUMBER</th>
<th>AREA (ha)</th>
<th>GRANTS PAID ($)</th>
<th>TOTAL COST ($)</th>
<th>FINANCIAL ANALYSIS/ASSESSMENT</th>
<th>PLAN Certification</th>
<th>% IRRIG AREA WFP</th>
</tr>
</thead>
<tbody>
<tr>
<td>86/87</td>
<td>38</td>
<td>4,070</td>
<td>$38,018</td>
<td>$82,030</td>
<td>3</td>
<td>N/A</td>
<td>2%</td>
</tr>
<tr>
<td>87/88</td>
<td>143</td>
<td>9,485</td>
<td>$180,704</td>
<td>$380,069</td>
<td>6</td>
<td>N/A</td>
<td>4%</td>
</tr>
<tr>
<td>88/89</td>
<td>165</td>
<td>11,325</td>
<td>$230,000</td>
<td>$499,295</td>
<td>6</td>
<td>N/A</td>
<td>4%</td>
</tr>
<tr>
<td>89/90</td>
<td>189</td>
<td>11,150</td>
<td>$261,212</td>
<td>$558,452</td>
<td>5</td>
<td>N/A</td>
<td>4%</td>
</tr>
<tr>
<td>90/91</td>
<td>116</td>
<td>8,856</td>
<td>$204,664</td>
<td>$441,761</td>
<td>2</td>
<td>N/A</td>
<td>3%</td>
</tr>
<tr>
<td>91/92</td>
<td>90</td>
<td>6,594</td>
<td>$149,932</td>
<td>$317,957</td>
<td>1</td>
<td>N/A</td>
<td>2%</td>
</tr>
<tr>
<td>92/93</td>
<td>159</td>
<td>10,600</td>
<td>$272,361</td>
<td>$575,215</td>
<td>12</td>
<td>N/A</td>
<td>3%</td>
</tr>
<tr>
<td>93/94</td>
<td>184</td>
<td>9,961</td>
<td>$281,415</td>
<td>$600,330</td>
<td>11</td>
<td>N/A</td>
<td>3%</td>
</tr>
<tr>
<td>94/95</td>
<td>162</td>
<td>10,133</td>
<td>$276,199</td>
<td>$592,889</td>
<td>2</td>
<td>13</td>
<td>3%</td>
</tr>
<tr>
<td>95/96</td>
<td>165</td>
<td>12,284</td>
<td>$323,179</td>
<td>$678,167</td>
<td>3</td>
<td>19</td>
<td>4%</td>
</tr>
<tr>
<td>96/97</td>
<td>178</td>
<td>13,127</td>
<td>$371,193</td>
<td>$773,970</td>
<td>1</td>
<td>34</td>
<td>4%</td>
</tr>
<tr>
<td>97/98</td>
<td>182</td>
<td>11,007</td>
<td>$358,129</td>
<td>$743,747</td>
<td>3</td>
<td>55</td>
<td>4%</td>
</tr>
<tr>
<td>98/99</td>
<td>169</td>
<td>12,750</td>
<td>$382,955</td>
<td>$782,785</td>
<td>2</td>
<td>37</td>
<td>4%</td>
</tr>
<tr>
<td>99/00</td>
<td>140</td>
<td>10,119</td>
<td>$350,312</td>
<td>$710,084</td>
<td>0</td>
<td>32</td>
<td>3%</td>
</tr>
<tr>
<td>00/01</td>
<td>176</td>
<td>13,244</td>
<td>$451,634</td>
<td>$938,878</td>
<td>0</td>
<td>30</td>
<td>4%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2256</td>
<td>154,705</td>
<td>$4,131,907</td>
<td>$8,674,819</td>
<td>57</td>
<td>220</td>
<td>49%</td>
</tr>
</tbody>
</table>
The figures in the table demonstrate that since 1992 between 150 and 200 landowners have undertaken whole farm planning each year representing an average of 4% of the total irrigation area.

These figures represent plans that are prepared with assistance from the Whole Farm Planning Incentive Scheme. There have been a number of plans prepared before 86/87 without the Incentive Scheme’s assistance and for a variety of different reasons there are still plans undertaken in the past few years without assistance.

There have been a number of plans certified without seeking a reimbursement. This was approximately 51 in 00/01 and unknown in other years, which means the total figure of 220 since 1986 is inaccurate.

Table 2 breaks up the whole farm plans undertaken within each Water Services Committee (WSC) area within the greater SIR area. These figures represent the total number of whole farm plans completed since 1986.

**Table 2 - Whole Farm Plan Totals SIR - Water Services Committee Area**

<table>
<thead>
<tr>
<th>AREA</th>
<th>No</th>
<th>AREA (ha)</th>
<th>GRANTS PAID ($)</th>
<th>TOTAL COST ($)</th>
<th>% IRRIG AREA WFP</th>
<th>IRRIG AREA (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV</td>
<td>567</td>
<td>42,751</td>
<td>$1,091,456</td>
<td>$2,239,316</td>
<td>55%</td>
<td>77886</td>
</tr>
<tr>
<td>MV / HORTI</td>
<td>9</td>
<td>413</td>
<td>$12,971</td>
<td>$29,076</td>
<td>12%</td>
<td>3524</td>
</tr>
<tr>
<td>ROCH-SIR-GB</td>
<td>111</td>
<td>9,043</td>
<td>$273,189</td>
<td>$579,729</td>
<td>44%</td>
<td>20570</td>
</tr>
<tr>
<td>ROCH-SIR-NC</td>
<td>389</td>
<td>20,627</td>
<td>$513,396</td>
<td>$1,087,326</td>
<td>50%</td>
<td>41142</td>
</tr>
<tr>
<td>CG</td>
<td>761</td>
<td>51,235</td>
<td>$1,318,680</td>
<td>$2,851,673</td>
<td>45%</td>
<td>115009</td>
</tr>
<tr>
<td>CG HORTI</td>
<td>34</td>
<td>1,804</td>
<td>$122,931</td>
<td>$266,351</td>
<td>39%</td>
<td>4582</td>
</tr>
<tr>
<td>SHEPP</td>
<td>309</td>
<td>18,335</td>
<td>$466,746</td>
<td>$940,184</td>
<td>37%</td>
<td>49146</td>
</tr>
<tr>
<td>SHEPP/HORTI</td>
<td>108</td>
<td>3,072</td>
<td>$146,497</td>
<td>$297,355</td>
<td>62%</td>
<td>4994</td>
</tr>
<tr>
<td>GB CMA Div</td>
<td>68</td>
<td>7,423</td>
<td>$182,837</td>
<td>$383,809</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2356</td>
<td>154,705</td>
<td><strong>$4,128,703</strong></td>
<td><strong>$8,674,819</strong></td>
<td>49%</td>
<td>316853</td>
</tr>
</tbody>
</table>

**Key to Abbreviations:**

MV – Murray Valley area
GB – Goulburn Broken
CG – Central Goulburn
Roch – Rochester
NC – North Central
SHEPP - Shepparton

Horti – represents established perennial orchards only
All other figures relate to broadacre farming – dairy, grazing and cropping.
Included in the broadacre figures (any category/area or regions that doesn’t specifically mention horticulture) are blocks that have been converted from broadacre to vineyards, new orchards or olives and intensive cropping not of a perennial nature such as flowers and tomato production. This represents about 2,500 ha/year over the last 10 years.

Summarising the figures - most whole farm plans have been completed in the Murray Valley and Central Goulburn areas with a corresponding greatest area whole farm planned and most grants paid.

Analysing the cost share arrangements – the government pays an average of 32% of the total cost and the landowner pays the remaining 68%.

Due to the size of broadacre blocks compared to horticulture blocks, Graph 1 describing the cumulative area that has been whole farm planned doesn’t necessarily show the true picture of the percentages of area that have been whole farm planned.

The pie charts (Graph 2 & 3) described below outline that the percentages of area whole farm planned are actually similar.

**Graph 2:**
Introduction

The goals described below were drafted following the previous five year Farm Program Review. What follows is a reflection of the achievements of the Farm Program over the last five years.

Throughout this reflection of achievements there are cross relationships between targets and goals, and the activities which meet a number of targets. For instance some goals have relevant targets and activities under other goals. Targets nominated under goal 1 may also help to achieve goal 2. In addition, some goals and targets benefit other programs and vice versa.

The data and discussion below was derived from a range of sources including: funding; program reporting; GMW census estimates and the evaluation of Whole Farm Planning.

It should be noted that the adoption of best management practices and the carrying out of works by farmers follows on from the Whole Farm Planning process in which staff are engaged. Implementation of on-ground works and finalising Whole Farm Planning take up to ten years.

The regional community investment in works associated with the Regional Catchment Strategy is estimated at $40 million per year, most of this being Farm Program activities.
Goal 1 – to reduce the long-term regional sub-surface drainage requirements by reducing farm accessions

Targets:

- Monitor the impact of SIRLWMP activities on watertables.
- Develop farm water balances for horticulture, dairying and mixed farming in the SIR.
- Design criteria for farm irrigation layout which optimises water use efficiency, plant productivity and farm labour input.
- Reduce area of post irrigation ponding on 9,000 ha (3.6%) of farmland/year.
- Reduce excess farm accessions.

This goal and associated targets has been met using a variety of activities. Monitoring data is collected on an ongoing basis and is compiled, analysed and circulated in an annual cycle. There is detailed trend analysis of watertables, and further targeted collection of data supplements the regularly gathered information. There is a range of community monitoring carried out, notably under the banner of Watertable Watch and by individual landowners and Landcare groups. Detailed analysis of watertable monitoring has helped to focus attention on strategic works.

There has been a range of work done to improve the scientific and technical knowledge of farm water management and planning which is reported in this report in Chapter 4 Research and Development Directions. There has been an on-going and strong relationship between the Irrigation Survey and Design Group (ISDG) and the Farm Program Working Group that has focused in improving the design criteria of whole farm plans.

Reduction in post irrigation ponding of water and on-farm accessions to watertables has been mainly achieved through the works associated with Whole Farm Plans and the accelerated adoption of re-use systems with the assistance of extension and policy changes. Whole Farm Planning adoption has continued at 4-5% of the regions irrigated area per year. Approximately 3.5% of the area is laser graded per year with a total of 113,000 ha (60% of area) completed.

Goals 2 – to reduce the ultimate need for Salt Disposal

Targets:

- To reduce the volume of surface drainage water from irrigation by 5%
- Change land and water management of 500 ha within farms with saline (C&D class soils) over five years.
- Implement farming systems to utilise saline drainage water and/or manage salt on farms where salt disposal is not available or appropriate.
- Adoption of management practices to ensure long-term sustainability of the groundwater pumping/re-use system as a salinity control measure on farms.
• **Plant halophytic and highly salt tolerant plants in salinised areas.**

This goal and associated targets have been met using a variety of activities and links to other programs. Trend analysis on drainage was done as a part of the Water Quality Strategy. It was decided that a focus on C and D class soils within SIR was not a priority at this stage. The implementation of works following the Whole Farm Planning process contributed to a reduction in drainage water leaving farms, particularly the use of re-use systems. A range of research work overseen by the Farm Program and the working group has contributed to achievement of this goal (see Chapter 4 Research and Development Directions.)

There is a site at Mt Scobie where saline water is used for growing trees on private land and a Serial Biological Concentration Program at Undera where water is used to grow trees and the run-off used to farm fish. The two salt disposal sites have meant the start of action to implement farming systems to utilise saline drainage water although at this stage it has not been continued with an additional extension program. This is currently not a high priority area for the Farm Program to focus on in the next five years.

The Groundwater Management Plan is aimed partly at achieving these targets. The use of halophytic and salt tolerant plants is not seen as a priority at this stage.

**Goal 3 – to maintain or enhance natural ecosystems on private land, with consideration to its relationship to surrounding systems**

**Targets:**

- Protect 25 wetlands from salinity mitigation works.
- Protect 100 sites of remnant vegetation from salinity mitigation works.
- Protect 10 sites along rivers and streams from salinity mitigation works.
- Protect 25 habitat sites of rare or threatened species of fauna from salinity mitigation works.
- Protect 25 habitat sites of rare or threatened species of flora from salinity mitigation works.
- Protect prior stream depressions from salinity with 50 km of three row treebelts.
- Enhance environmental features to compensate for those lost during mitigation works being done.
- Over 1.3 million native trees are believed to have been planted in the 5 years to 2000

Please Note: Further details can be found in the Environment Review Report
The targets listed would appropriately be described as native biodiversity assets threatened by high water tables and salinity. These assets are being protected through a range of activities directly and indirectly associated with Farm Program activities and associated targets. A range of targets have been aimed for but not met in all cases. The environment is now taking a higher priority in the whole farm planning process and the development of properties.

There have been significant changes in attitude of landowners towards environmental considerations. There is a “will of the people” to do something. This has been achieved by a range of extension practices and a desire to integrate Natural Resource Management issues into the Whole Farm Planning Process.

Other integrated program activities including environmental assessment recommendations for drainage alignments, sub-surface water project environmental assessment recommendations and the allocation of tree growing and environmental grant incentives and Statutory Planning Referral processes have also had an influence on the change in landholder attitude. Subsequently a change in landholders has been achieved.

It is estimated that there would have been close to 25 wetlands positively affected by salinity mitigation works over the last five years. During this period more than 100 sites of remnant vegetation were protected through farm development works and several associated with rivers and streams.

Through the implementation of the whole farm planning process – building re-use systems, laser grading paddocks, planting trees and applying appropriate drainage, some protection of habitat sites of rare or threatened species of fauna has been provided. Protection was also achieved by fencing off areas from grazing cattle.

Some planting near Community Surface Drains has occurred in the last five years to enhance environmental features to compensate for those lost during mitigation works being done. This is not at a high rate, although activities are starting to accelerate in this area.

The challenge for the future is to further develop the change in attitude to encompass more environmental awareness and achieve more on-ground works.

**Goal 4 – to achieve sustainable irrigated farming in the SIR**

**Targets:**

- All properties within the SIR to have a whole farm plan by 2020.
- All orchards to be irrigated by sprinklers or micro irrigation by 2020.
- Profitable farming systems.
• **Adoption of sustainable and more productive soil management practices.**

The target for Whole Farm Planning for the region is well on track for being achieved by the program, with half of the irrigated area within the SIR now having a whole farm plan. Activity in this area is continuing at a rate of 4% per year at which rate the 2020 target will be achieved. 2500 hectares of micro-irrigation have been installed on horticultural properties according to the GMW census reflecting the uptake of both whole farm planning and better water use efficiency promoted by the Farm Program.

The Program has contributed to boosted productivity in farm businesses that have implemented a whole farm plan and the associated on-ground works. Unfortunately it is hard to measure changes in profitability and to link this specifically with works. However within the horticulture industry there has been a swing to newly planted blocks being managed according to Best Management Practices such as liming, the use of gypsum and nutrient management. Within the dairy industry there has been adoption of a range of farm management and water use efficiency practices.

Regardless of the industry sector, farm businesses are making decisions to carry out planning tasks and on-ground works with the assistance of the Farm Program which will reward them with financial, environmental and social benefits.

**Goal 5 – to minimise nutrient pollution from irrigated farming practices**

**Targets:**
• **Adoption of Best Management Practice to optimise the use of nutrients and wastes on farm and minimise run off in drainage waters.**

Best Management Practices have been developed, policy has been changed and incentives introduced to encourage the achievement of this target. There have been strong links built between the Goulburn Broken Water Quality Group and the Farm Program Working Group. It appears that 80% of dairy farms now have a re-use system which they use effectively. Installation of re-use is often the first works done in the land forming process. In 1996/97 the rate of installation of re-use systems was 6% per year; which may have increased in subsequent dry years. Over 2,500 re-use systems have been constructed bringing the total in the SIR to over 3,400. It is estimated that there capture and re-use over 200,000 ml of farm run off per year. These systems intercept water from approximately 50% of the irrigated area.
Case Study Whole Farm Planning in Shepparton East

Range of Issues: Horticultural businesses are dealing with a different range of issues and investments to broadacre irrigation landowners in order to manage sustainably. The holdings are commonly quite small and intensive by nature. In many cases the business is set up to value add by storage and packing on site, and subsequent wholesale marketing or direct export of the packed product. In many cases horticultural growers are directly competing with each other on the market floor or to supermarkets, which leads to more difficulty in developing cooperative approaches to solving sustainability problems.

Financial and Labour Issues: Orchards often supply employment to an extended family, and casual labour to many others. The businesses have a high financial turnover and often-large debts. The financial and management costs related to upgrading surface drainage and micro-irrigation is very high, although it does come with labour efficiency and farm management benefits. The implementation of these sustainability measures takes a great deal of planning and coordination, particularly in old and well-established orchards.

Implementation: Installation of works is often staged over several years. The cost of implementing the irrigation and surface drainage which follows whole farm planning is $2000 - 3500 per hectare, while the total cost of establishment of a new planting following the planning process is approximately $8000 per hectare. It is estimated that from 1995 to 2000 that the East Shepparton area alone invested well over $100,000 per year in works associated with whole farm planning.

Impact across region: A considerable investment in new horticultural establishment supported by whole farm planning has taken place right across the Shepparton Irrigation Region. This new establishment has occurred in areas, which were previously flood-irrigated pasture, in tree fruit, wine grapes and olive groves. During the period 1995-2000 over 2,500 ha of new horticultural plantings were established, much in blocks of over 100 hectares in size. This has resulted in substantial land use change in the catchment.

Environment Issues: An effective connection with the Environment Management Program has led to a significant uptake of plantings of indigenous trees as shelter belts around orchards, with approximately 10,000 shelterbelts established in East Shepparton alone. While these have a range of environmental benefits, the predominant reason for fruit growers planting these trees (mainly Allocasuarina) is to limit spray drift from orchards on to neighbouring areas. Considerable interest has also been generated within the orchard community in managing and maintaining natural vegetation where it remains as a key part of orchard management. Removal of existing vegetation, including large eucalyptus, as a part of horticultural development is becoming increasingly rare.
(c) Issues the Farm Program Working Group has addressed

(i) Spray irrigation

Conversion from flood to other irrigation systems has been an issue that the Farm Program Working Group has investigated in depth. The Working Group has reached a position where they consider that the conversion from flood to other irrigation systems is not a high priority as a regional issue for the SIR. Research work so far indicates improvements to water use efficiency by the conversion to other systems are not significant on the majority of soil types that are flood irrigated.

Approximately 20% of soils in the SIR could have water use efficiency improvements by converting to spray irrigation, however these soils are fragmented within individual properties, they are often watered by drip irrigation or sprinkler systems on horticulture properties or are areas protected by ground water pumping. It would be therefore difficult to set up a system. There are also native vegetation issues that arise when changing the system such as removal of trees to install centre pivot irrigation systems. The energy and financial costs of sprinkler irrigation need to be closely compared with any potential savings in irrigation efficiency.

Another reason for concern about changing from flood irrigation to pressurised systems is the energy requirements. Calculations have shown that the SIR would need more power stations to drive the pumps, which would have economic, social and environmental ramifications for the whole region. The current gravity system is reasonably energy efficient and any changes would also have significant impact on greenhouse gas emissions.

On the evidence available to the Farm Program Working Group, it decided this is not a high priority as a regional concern. Current activities aimed at improving efficiency of pre-existing flood irrigation systems are a higher priority. The research project currently underway at DNRE Tatura will provide better information to review this decision in the future.

(ii) Re-use policy

The Goulburn Broken Catchment Management Authority’s Implementation Committee recently adopted a policy where re-use systems are required for flood irrigation properties in the SIR (subject to a minimum area) because of the importance for water quality leaving properties and improved water use efficiency.

Previously the building of a re-use system was recommended and strongly encouraged whereas now it is a requirement for flood irrigation. Re-use
systems have been an integral component of the Catchment Strategy since implementation commenced. It has also been encouraged through Local Government planning processes and Transferable Water Entitlements (TWE) guidelines.

(d) Other achievements of the Farm Program

**Focus:** The Farm Program Working Group has changed its primary focus from being solely related to salt and watertable management. Now the working Group has input into a broader range of natural resource issues. These include salinity, nutrient movement, water quality, biodiversity, wetland management, native vegetation, pest plants and animals and sociology. Over time, it has made a significant contribution into developing policies and programs within the Catchment Management Authority, SIR Implementation Committee and Water Services Committees.

**Representation:** The Farm Program Working Group has made a conscious effort to expand its representation of a broad range of industries and interest groups across the SIR. The Working Group acknowledges the contributions of individual members who have provided representation and community input to the Farm Program at some cost to their personal life and businesses. The Working Group feels it’s important to recognise their contribution and the fact that these people provide useful cross linkages with and input from/to other community groups.

Not only has the community been represented on the Working Group, but also staff members have been actively engaged in the process to improve the outcomes of the Farm Program. Staff members engage directly in whole farm planning as a part of their multi-disciplinary roles and have taken part in several planning workshops aimed at improving performance as a team and as individuals. This resulted in a sound understanding by staff of their roles within the Farm Program, and development of the Farm Program’s goals and activities.

**Staff:** The staff are keen to achieve the Farm Program vision by continually improving as a professional team. This was through continually developing and delivering a dynamic Program. Also working as a group by communicating well, being a highly motivated, skilled, and knowledgeable group.
(e) Links with Landcare

The Farm Program has been providing direct and indirect support for Landcare within the SIR since its inception. This work has been coordinated mainly through Community Education projects conducted by Farm Program/DNRE under the umbrella of the Shepparton Irrigation Region Land and Water Management Plan (SIRLWMP).

A major achievement was the development and support of the Goulburn Murray Landcare Network. Other specific work includes the skilling of Landcare group executive members, administrative and professional support, and coordination and facilitation of Landcare group fora. The contact with community groups through Landcare has provided an important gateway for catchment programs and projects. The joint participation of the East Shepparton Landcare Group and the Ethnic Council of Shepparton and District allowed the project in that area to continue combined with the resources provided by the SIRLWMP. The conduct of the sociological research Burnout Project reported in Chapter 4 in conjunction with Charles Sturt University was a major improvement initiative for Landcare.

Photo: Landcare workshops & field days bring together Albanian, Greek, Italian, Punjabi, Macedonian & English communities
Chapter 4
Research & Development directions

This chapter provides a description about the main research themes that relate to private land, which have been dealt with over the last five years. It also represents some of the themes that we’d expect to continue and emerge over the next five years. The R&D themes mentioned have a direct link to the Farm Program and are those that the Working Group is interested in. Over time stronger links have been and are being forged between the research group and the Working Group. This is both exciting and necessary to maintain an integrated approach to research, development and extension.

In the main, the Working Group has a role of overseeing scientific R&D, helping provide direction of work to be done and acting as a sounding board for researchers. It also has the function of providing a communication link from researchers back to community representatives.

Most funding for R&D comes from industry R&D corporations and is carried out by the research arm of DNRE. The sociological research is carried out as part of the Farm Program by DNRE staff, sometimes in partnership with the Universities. External funding comes from specific grants such as National Heritage Trust.

It is the responsibility of the research project managers rather than the Working Group to ensure applicability and relevance of research work to the agricultural community.

Specific research results can be found in other publications.

(a) Scientific Research: Farm Program R&D Directions

The development and implementation of the Farm Program has always incorporated the best available scientific knowledge and technologies. The Program has maintained a commitment to developing and adopting new knowledge and technologies to continuously improve the available suite of management practices to address both the traditional and emerging natural resource management and environmental issues. A high quality R&D effort has always been a significant component of the program with strong links to relevant National and Statewide R&D programs.
Excellent progress has been made in developing farm management practices to achieve the natural resource outcomes of the Program, based on process understanding. There is a continuing requirement however, to assess how well current best practices are delivering on Program goals, and where necessary refine these practices to better meet the requirements of ecologically sustainable development. As well a range of natural resource management issues are emerging for which there is a lack of understanding of the processes at work, and a need to develop appropriate management practices. There needs to be further discussion on the priority of research and development work to be carried out.

Key contributions made to the implementation of the Farm Program by the associated research and development program include:

- Practices to manage shallow saline water tables and the associated soil salinisation based on providing subsurface drainage through groundwater pumping, and managing the pumped water through its conjunctive use with channel water for irrigation.
- Guidelines have been developed for the safe use of the more saline irrigation water having regard to plant salinity yield functions, the impact of salinity on soil properties and appropriate management practices for the application of the water.
- The basic management principles for groundwater pumping and conjunctive water use have been defined to minimise deterioration in aquifer water quality, which poses a threat to the long-term sustainability of the practice.
- Novel approaches to productively managing highly saline drainage waters have been developed including Serial Biological Concentration using valuable salt tolerant plants and incorporating aquaculture.
- The techniques to reclaim salinised soils have been established and demonstrated.
- The extent to which trees can provide watertable control in irrigated areas with shallow saline watertables has been defined.
- The response of irrigated pastures to waterlogging has been established and the relationship built into the design parameters for surface drainage.
- The development of a suite of best management practices to minimise nutrient runoff from irrigated pastures based on elucidation of the source, amounts of nutrients leaving irrigation farms, processes that generate the nutrients, and practices that minimise their discharge into off farm surface water systems.
- Important progress has been made in developing management practices and change processes to improve water use efficiencies on irrigation farms
  - Benchmarks and best practices have been developed for the dairy, horticulture and cropping industries
- Flood irrigation hydraulics have been modelled, and design and management criteria identified
- Understanding of groundwater recharge under pastures on heavy soils is well advanced, as well as the comparative performance (hydraulic, environmental and economic) of irrigation methods other than flood.
- The drivers impacting on the adoption of practices to improve water use efficiency on dairy farms have been evaluated, and market segments identified for targeting of extension.
- The need to modify the operating environment (eg by market mechanisms, institutional arrangements) has been established as a key requirement to achieve significant further improvement in WUE.

• Economic assessment of program policies and priorities, leading to the optimal allocation of resources at both program and farm scales, and to the identification of appropriate cost share arrangements for works under the Farm Program.

Traditional natural resource management issues such as salinity and nutrient pollution continue to be important for the Program, requiring further sophistication of management practices in response to evermore-rigorous societal goals for sustainable development and environmental management. In addition to the traditional issues a range of high priority issues are emerging which must be addressed, requiring process understanding, new technologies, management practices and evaluation of progress towards desired outcomes.

These issues include biodiversity, greenhouse gas emissions, environmental management systems, integrated decision support capability and ecosystem services. Based on an evaluation of both the traditional and emerging issues, the following R&D directions have been determined to be priority areas for the next five to ten years.

(i) A Formal Decision Framework for Integrated Land and Water Management

Natural resource managers from farm to catchment scale increasingly are required to consider a range of complex interacting factors when making decisions.

• A whole systems approach to tackle these complex natural resource issues (such as Bayesian Networks) will allow issues such as salinity, water quantity and quality, biodiversity and greenhouse gas emission, to be addressed together rather than separately. Such a framework will enable knowledge capture and interpretation and ensure the knowledge underpinning the Program is not lost.

(ii) Increased Efficiency of Water Use in Irrigated Agriculture

*The implementation of national water reform programs, the application of the Murray Darling Basin Cap on water diversions and the consequent*
increased competition for available water resources, particularly from the environment, require much more efficient and productive use of water on farms in the SIR.

Key requirements to support further improvement in the efficiency of water use include:

- Development of tools to evaluate rapidly and accurately the current performance of irrigation systems, and approaches for diagnosing problems contributing to poor irrigation performance.
- Better understanding of the hydraulic properties of irrigated soils as a basis for the irrigation design and management, and for identification of areas of high groundwater recharge.
- Identification of soils with high permeability to water and the development of irrigation systems and management practices for these soils to prevent excessive groundwater recharge.
- Identification of the minimum water requirements for fully productive irrigated production systems to enable rational evaluation of optimum irrigation intensities.
- Development of cost effective tools to monitor environmental water use efficiency at scales ranging from paddock to catchment.

(iii) Management of Nutrients and Nutrient Pollution

Understanding the process of nutrient movement and cycling from paddock to sub catchment scale and understanding the impact of farm management practices on the contribution of the irrigation generated nutrients and end of valley targets. Would include an assessment of how effective irrigation re-use systems are for contribution to on-farm water use efficiency and nutrient management.

The focus to date has been on the management of phosphorus (as the way to achieve reductions in the risk and impact of blue green algal blooms). However, research is now showing that freshwater systems are equally limited by nitrogen. This points to the need to better understand nitrogen sources and management as well as phosphorus.

(iv) Acceleration of Adoption on Farms of Technologies and Management Practices for Improved Natural Resource Management and Environmental Outcomes

Central to achieving the goals of the Farm program is that landowners implement the technologies and management practices arising from the research and development effort that delivers improved natural resource and environmental outcomes. For some key issues and irrigation industries (eg water use efficiency in the Dairy Industry) the rate of adoption of beneficial change on farms is not up to stakeholder expectations.
There is a need to understand the drivers for change amongst irrigators, and to investigate and assess potential change options to accelerate the rate of improvement in the management of natural resources on farms, particularly water use efficiency. Research into this area is currently being conducted at the DNRE Institute at Tatura.

(v) Management of Salinity and Shallow Watertables

Photo: Groundwater pumping provides salinity control as well as a valuable source of additional water.

Sub surface drainage through groundwater pumping will continue to be an essential practice for management of shallow saline watertables and soil salinity. Allied with groundwater pumping is the safe management of the pumped groundwater in an environment of increasingly stringent restrictions on discharging saline waters to surface water systems. Substantial progress has been made in relation to the safe and productive use of groundwater to irrigate pastures, but the following issues still remain:

- Inappropriate groundwater pumping and conjunctive use can result in increasing salt concentrations in the aquifer system (eg Tongala) jeopardising the long term sustainability of the practice as a salinity control measure. Management practices need to be developed to minimise/prevent aquifer salinisation.

- Pressure to internalise salt disposal within the irrigation region continues. There is a need to determine the most cost effective mix of management options for highly saline drainage waters that strikes the appropriate balance between on-farm conjunctive use with salt tolerant/halophytic plants, evaporation basins, aquaculture and off-farm disposal. In this context systems are required that can use highly saline drainage water productively for irrigation.

- While the impacts of sodic groundwater are manageable provided the water is applied according to the guidelines for safe use on perennial pastures, there is evidence of widespread use of groundwater for irrigation of salinity/sodicity in excess of the guidelines. The long-term implication of this practice for soil productivity in the region is uncertain. Furthermore, the potential for significant expansion of horticulture, perennial and annual, poses potential increased impacts of sodicity resulting from the need for mechanical disturbance of the soil.
There is a need for methods to predict the outcomes of irrigating with groundwater, and saline/sodic wastewater's on the long-term productivity of the soil and the flexibility to pursue production systems other than pasture. Adaptation of hydro-salinity models from the USA to local conditions would provide this capability.

(vi) Greenhouse Gas Emission Reduction

Irrigated agriculture in the region is a major contributor to greenhouse gas emissions, particularly nitrous oxide from application of nitrogen fertilisers and water logging associated with irrigation, and methane emissions from grazing ruminants. There is a need to quantify the emissions, understand the processes by which they are generated, and develop farm management practices that will reduce the extent of the emissions. Ultimately we may have some interest in energy efficiency in the context of farm management for instance; the conversion of broadacre flood irrigation to pressurised irrigation and its impact on greenhouse gas emission.

(vii) Biodiversity in Irrigated Landscapes

There has been extensive depletion and fragmentation of many of the ecosystems in the SIR. The remaining areas have significant biodiversity conservation value. In order to maintain, enhance and restore biodiversity it is necessary to better understand the interactions between biodiversity and water management.

In the future, the operation of water markets may provide a driver for removal of irrigation water from parts of the catchment, retiring land from agricultural production. This may present opportunities for biodiversity throughout those areas. There is a need to understand the interaction between intensively irrigated land and adjoining lands managed for biodiversity, including the hydrology of such biodiverse landscapes.

(viii) Soil Health

Soil Health provides important ecosystem services to support the productivity of land use in the region. The inherently low productivity of many of the regional soils, and their degradation as a result of some current agricultural systems, places an upper limit on current regional production systems. There is a need for better practical indicators of soil health, and management options to address the inherent soil constraints to improved productivity.

(ix) Structural Adjustment

Realisation of the Vision – “Twice the production from half the land” as promoted by John Dainton (Chair GBCMA), and the operation of water trading markets will result in structural adjustment in the SIR. There is an opportunity to take into account where land use, land capability and biodiversity value mismatches occur, or can be predicted to occur, based on biophysical and socioeconomic projections. Involves consideration of
farm viability with respect to current land uses, the resource base (including land capability and biodiversity values), farm size etc. Includes development of methods for prioritising structural adjustment opportunities with respect to environmental outcomes. There will also need to be processes developed to work with future land use across irrigated and non-irrigated Land.

(x) End of Valley Targets for Water Quality and Quantity

Strategies are needed to enable catchment end of valley targets to be met, including methods to link the impacts of paddock and farm-scale actions to end of valley targets and catchment outcomes for water quality and quantity.

(b) Sociological & multicultural research

The Farm Program has shown a keen interest in the broad range of scientific research and development projects reported above during the past five years. This link to science has been a strength within the catchment for some time. A recent change has been the trend towards conducting sociological research to help meet the needs of the Farm Program and the catchment strategy. Multicultural research is being encouraged to understand the community within which the Farm Program undertakes its projects.

(i) Group Effectiveness and group burnout

A joint project was run during 1998 with Ian Byron of Charles Sturt University and the Goulburn Broken Landcare Network to investigate effectiveness of Landcare and group members within the SIR. This followed anecdotal information, and data gathered during a project conducted jointly by NRE and the Goulburn Murray Landcare Network.

The aim of the project was to generate high quality information, which will help improve the effectiveness of Landcare within the SIR and be publishable in peer, reviewed journals. There was concern arising from previous research that there was a decreasing understanding in the community of sustainability issues and decreasing participation in Landcare. There was a concern that there was burnout of Landcare volunteers.

Key findings of the study relevant to the Farm Program review include:

- Land and water issues Weeds, soil compaction, pest animals, native vegetation decline, soil acidity, soil fertility, water quality and salinity were seen as significant issues on respondents individual properties. The five most important issues were seen as weeds, salinity, rising groundwater, native vegetation and water quality.
− **Extent of Concern about watertables**: There was relatively greater concern about economic viability issues than social or environmental for the local area, greater concern about long term than short term risk, and greater concern about impacts on the local area compared to their own property.

− **Threats to viability** There was concern expressed regarding the effect on viability of issues including commodity prices, salinity, water security, and high water tables.

− **Time spent on Landcare** Landcare leaders spend an average of 52 hours per quarter and general member’s 32 hours.

− **Reasons for changes in activity** A range of reasons for changes in levels of Landcare activity were reported including change in farm workload, start or end of a project, change in family responsibility and level of group activity.

− **Burnout** is a major part of the project involved an investigation of burnout. Core characteristics of burnout nominated by Byron include that: burnout is a process not an end-point; exhaustion is a component; involves a negative shift in a persons perception; is associated with reduced effectiveness and accomplishment. An American scoring system called the Maslach index was used, and indicated that burnout is an issue which requires attention.

− **Burnout management** Five management strategies were nominated for intervention. These include training/ orientation programs; monitoring and feedback processes; variety of activities; creative supervision/ leadership; and burnout workshops. They should be undertaken on individual, organisational and societal levels.

While this project focussed on Landcare groups and members, the findings and insights are relevant to all community participation, volunteerism and group work within the SIR, for instance participation in Implementation Committee working groups.

(ii) Multicultural Research, Development and Extension

**The Landcare Participation Project** funded by the National Landcare Program investigated the participation of under-represented groups in Landcare with a focus on migrant-based communities and women. This was a national study, which was run from this catchment in recognition of the work done with diverse communities in the Goulburn Broken. While the subject was the Landcare Movement in all its forms, the results are consistent with sustainability projects and programs

- The project covered a range of issues related to participation and representation and published a report *Hogan and Cumming “More Than A Question Of Numbers” (1997)*.

The project nominated five long-term strategy areas requiring attention. They are inter-dependent and integrated, and are best conducted with a philosophy of inclusiveness throughout.
The five inter-dependent strategy areas are:

**Data:** Collection and Analysis. To have a thorough understanding of issues associated with people in a given catchment.

**Recognition:** Economic, Social and Environmental Contribution. To explicitly understand and recognise the existing contribution of people to catchment issues.

**Representation:** In Decision Making. To ensure that the cultural demographics of an area are appropriately recognised on decision-making bodies.

**Accessibility:** Services, Information, Education, Training. To ensure that accessibility issues are built into all communication strategies to ensure the most diverse participation possible.

**Portrayal:** Communities/contributors. To portray the diversity of the population within promotional and advertising materials to help ensure that issues are considered relevant.

The Ethnic Farmers Accessing Landcare Project was a pilot project funded by the Natural Heritage Trust and conducted by DNRE in northern Victoria. The project concentrated its efforts within the Shepparton Irrigation and the North East regions. Both have been recognised as the most ethnically diverse in regional Australia.

The aim of the project was to examine cultural barriers to Landcare involvement, by collection and analysis of local demographic data to understand the diversity of:

1. SIR and NE communities; and
2. To evaluate the existing services, information, education and training opportunities provided and improve their accessibility.

Various methods of data collection, particularly the Population Census, were employed to establish quantitative evidence showing the intensity
and diversity of ethnic landowners within the target regions. Analysis of the data showed that:

- Shepparton East showed the highest incidence of non English speaking background residents, with Italian being the most prevalent group
- There are 48 nationalities present in the region, with a total of 1,465 non English speaking background landowners
- Of the 25 languages identified as being most spoken in Victoria, the Shepparton, Wodonga and Melbourne regions are the only three where all 25 languages occur.
- The incidence of a reply “not stated” in the Population Census increases with the intensity of multicultural populations. There appears to be a mistrust of government within these communities, which makes data collection more difficult.
- 2% of multicultural landowners never attended school. Only 13% completed secondary school to Year 12. A substantial 67% left school by the age of 16. This compares with a national average across all industries of 50% of participants having a tertiary qualification. Research has shown a direct link between levels of education and willingness to adopt change and undertake new learning’s which makes these percentages important.

Various service organisations were surveyed to ascertain how importantly they perceived the non-English speaking background community as clients, and how well they felt the needs of the multicultural community were being met. None felt that they met multicultural needs well enough, although they did not have specific data or detailed understanding of needs.

A tool was developed to measure the accessibility of written materials, for instance brochures, by looking at a range of parameters including readability, layout, relevance, language, jargon, size and complexity. This analysis indicated that multicultural groups are not able to readily access Landcare, sustainable agriculture and natural resource management programs through written materials.

The East Shepparton Salinity Project is jointly run by DNRE, the Ethnic Council of Shepparton and District Inc., and the East Shepparton Landcare Group with funding assistance from National Heritage Trust and SPC. It monitors land management patterns as a part of its core work. In 1999 maps and graphs showing multicultural demographics within the East Shepparton Area were produced with assistance from the GIS group at DNRE Tatura.

Project Aims and Principles
The project uses a Philosophy of Inclusion so that all landowners are targeted regardless of ethnicity, age, gender, nationality, literacy, culture etc. The project aims to facilitate the empowerment of the ethnically based horticultural area at Shepparton. It targets all landowners, not only those who “come-forward” or who are “early adopters”.
**Project Success/Findings**
80% of landowners at East Shepparton are of ethnic minority origin (seven main groups). A comprehensive survey of the area was the first step and identified series of needs and issues of the various ethnic communities. Nine action groups were set up under the umbrella of the Landcare Group. Multilingual resources were developed including a video, brochures etc.
During the project there has been adoption of sustainable farming techniques by broad cross section of landowners/cultural groups. There has also been participation of all ethnic groups in LandCare activities.

**Reasons for Success**
The project avoids a "service provider - client relationship" but uses joint participation and the facilitation of empowerment of the community. The project pro-actively targets 100% of landowners in the target area and does not rely on a reactive response to enquiries. It also recognises diversity. There is a limited reliance on the written word (English or translations)
Key community contacts and representatives of each cultural group involved and a Steering Committee made up of all cultural/geographical groups oversees the project. There has been an improvement of communication with government/agencies and successful working with schools, women’s groups, community groups and the local ethnic communities.

**Demographic Status at East Shepparton (1999)**

![Demographic Status Chart](image-url)
Chapter 5

Changes in the way the Farm Program operates

Since the last review significant changes have been made to the way the Farm Program operates, some of those changes have been as a result of external needs and others to improve the processes within the Farm Program. The change to the way the Farm Program operates acknowledges that we are dealing with a broader range of land and water management issues. These changes are described in the points below.

- **Earthwork Planning Controls:** Local Government Earthwork Planning Controls have been introduced. This is a process where landowners seek approval from Local Government for their whole farm plans to ensure that the proposed earthworks are acceptable. The Whole Farm Plan Incentive Scheme provides a grant to cover 50% of the costs incurred in this process. There is also support from Local Government for landowners to the equivalent of 50% of the remaining costs for the certification process.

- **Natural drainage systems:** Control of works and activities in natural drainage systems has been introduced. This is to ensure that the natural drainage lines are retained. All new drains in the SIR are designed to use the natural drainage lines as part of the drain. It is important that these natural drainage lines are retained for the effective operation of the constructed drains. As part of the whole farm planning process, the natural drainage lines need to be identified and appropriate works only to occur in the drainage lines.

- **Environmental features:** There has been an increased emphasis of environmental features in whole farm planning. This has included workshops with Extension Officers, Local Government, and irrigation surveyors/designers.

- **Linkages:** The linkages between the Farm Program and Environmental Program have been strengthened in the Farm Program Working Group, by increasing representation from the Environment team and community environmental groups.

- **Water Quality:** As a result of the adoption of the Goulburn Broken Water Quality Strategy there has been a focus on nutrient management and including dairy effluent management to minimise nutrient run off from irrigated properties. This has included training with staff, designers and earthmoving contractors and making dairy effluent systems a requirement for whole farm plans on dairy farms.
• **A rice industry** has been established in northern Victoria. A process has been developed, with Farm Program Working Group input, to ensure that rice is grown on properties where it can be demonstrated that the SIR Catchment Strategy goals and objectives can be met.

• **New Information:** Soils information, location of remnant vegetation and natural drainage lines are all now required information as part of whole farm plans and the soils and drainage line information is now readily available in map sets.

• **Reviews:** There have been three reviews of the Whole Farm Plan Incentive Scheme conducted 1990, 1995, 2000 and the results used in making changes to the program.

• **Whole Farm Plan Prerequisite:** A whole farm plan is required as prerequisite for incentives for:
  - Private groundwater pumping,
  - Tree growing,
  - Wetland incentives,
  - Drainage nutrient removal systems, and
  - Individual property outfall to natural waterways
  - Re-use systems
  - Automatic irrigation

• **Environmental and Waterways Incentives** give a higher incentive rebate if a whole farm plan has been prepared, but are not a prerequisite for the incentive.

• **Outfall to natural waterways:** A standard for individual property outfall to natural waterways has been developed and is being implemented. An approved outfall to natural waterways is required in order to minimise any adverse effects from the water entering the stream. The general principals in this standard are that the number of outfalls are minimised, are regulated, and are built with stable structures. They should not create pollution and are located to minimise any environment or aesthetic impact and ensure that access is maintained. The outfall consists of a drainage re-use system to collect water to minimise continuous outfalls, together with an appropriate structure for the water to enter the stream. An incentive is available for these outfalls and requires a whole farm plan approved by Local Government.

• **Compatibility with Shepparton Irrigation Region:** Irrigation developments on properties that do not have an irrigation water right, pumping right, or groundwater diversion, now have to provide evidence that the proposed irrigation development is compatible with the SIR Catchment Strategy goals and objectives. This evidence is required before G-MW will approve transfer of irrigation water to the property. A process has been developed to assist developers work through the issues and a DNRE Officer assists in this process. Grants for the preparation of whole farm plans in this process are available for
these landowners. This includes landowners outside the SIR, but within the Goulburn Broken Catchment.

- **GIS Monitoring:** A system has been developed using GIS to map the location of the whole farm plans prepared within the SIR. When a grant is paid for the preparation of a whole farm plan, the location of the property is provided and entered into the GIS.

- **Dryland Whole Farm Plans:** A process to prepare whole farm plans for dryland areas has been developed and is being implemented as the un-irrigated areas have some significance for current and future native vegetation and biodiversity activities. The dryland planning process takes into account any changes that could impact on water movement across the property. Then topographical survey and design of the proposed works will be undertaken as the development of the whole farm plan. Earthworks might include constructing drains, re-use systems, channels, lanes, laser grading, and removing levee banks.

**Information:** In all cases, existing information such as soil types, flood flows, drainage lines, would also be used in the development of the whole farm plan. It is expected that aerial photos will be used and particularly in the whole farm plans that do not require topographic survey, the aerial photo will usually form the base of the plan. Other information that may be included; drainage, existing trees/wetlands, saline areas, property boundaries, existing fences, current/proposed land-use, water taken-off/sold, watertable, rivers and creeks, adjacent properties land use, existing plans -local area, recharge/discharge sites.

- **Automatic Irrigation:** An automatic irrigation project has been introduced to encourage the uptake of automation to improve water use efficiency. This project is aimed at increasing awareness of the equipment available to automate flood irrigation systems. Financial Incentives have been introduced to further encourage this activity. The incentives are available for automation on the landowners property and the G-MW outlets onto the property. A whole farm plan, approved by Local Government is a requirement for this assistance. A cost share matrix has been developed for this activity to determine the grant available for this incentive.

- **Drainage Re-Use:** Incentives for drainage re-use systems have been introduced to improve water use efficiency and to minimise nutrient losses. These incentives are in three parts; earthworks, pump/motors and connection to electricity. A whole farm plan that has been approved by Local Government, and appropriate site investigations are requirements for this assistance. A cost share matrix has been developed for this activity to determine the grant available for this incentive.

- **Cost Share Matrix:** A cost share matrix has been developed which is a scoring system to determine the cost share between the landowner and the government. This matrix helps the Extension Officers talk
through all the Catchment Strategy issues and the landowners are rewarded for undertaking activities to address the issue. It is being implement for the environmental, waterways, re-use and automatic irrigation incentives.

Instead of focusing on one issue from the Catchment Strategy it encourages participation across all aspect of the Strategy. The cost share matrix provides a clear link to the interdependence of the various components of the SIR Catchment Strategy.

- **Best Management Practices:** A series of Best Management Practices for the design and operation of drainage re-use systems has been developed and is being implemented.

- **Drainage Nutrient Removal:** An incentive has been developed for the construction of Drainage Nutrient Removal Systems. These systems are located on properties that have a High Flow Drainage Diversion Agreement with G-MW. These agreements allow landowners to divert water from primary drains under conditions of high flow. The water is stored and then used for irrigation when required and the purpose of these storages is to remove nutrients and water from the primary drainage system so that the water and nutrients can be used productively.

  These systems consist of a large above ground storage, at least 50 ML or more, together with a pumping and delivery system. Requirements for the incentive are a whole farm plan approved by Local Government together with appropriate site investigations and a High Flow Diversion Agreement with G-MW.

- **Payment for Whole Farm Plans:** With the introduction of the Catchment Management Authorities in July 1997, payment of the whole farm plan grants was performed by the CMA.

- **GST Implications:** In July 2000, the whole farm plan grant processes were modified to take into account changes in the taxation system and the requirement to add GST to the grants as the preparation of the whole farm plan is regarded as a service to the community.

- **Grants outside SIR:** We now provide grants for whole farm plans on irrigation properties outside the SIR and within the Goulburn Broken Catchment Management Authority area.

- **Broader issues/themes:** There is a greater understanding by staff of the broader issues/themes to discuss and address during the development of a whole farm plan that don’t just focus on the hydrology and engineering aspects on the whole farm plan. These issues explore strategic planning including - farm development, environmental management, social issues and how they all fit into the one system. This strategic approach is highly evident in the horticultural program/activities compared to other industries.
• **Strategic Planning:** Changes to the way the Farm Program is delivered means there has been significant adjustment by landowners. There is a greater emphasis on strategic planning rather than the engineering, including land use planning, particularly when landowners are expanding onto new ground or developing new businesses such as aquaculture, olives, viticulture, vineyards, flowers or hydroponics. These changes in approach for expansions and new developments have been incorporated into staff training programs.
Chapter 6

Changes to the External Planning Environment

Since the last review in 1995 a number of changes to legislation and planning environment affecting the Farm Program activities have occurred. They include the introduction of the Victoria Planning Provisions, Transferable Water Entitlement Rules, New Irrigation Development Guidelines and the Environment Protection and Biodiversity Conservation Act. This has meant the Farm Program has had to take on board the changes and incorporate them into the Farm Program’s processes and activities.

(a) Victoria Planning Provisions

The three municipalities (Moira, Campaspe, City of Greater Shepparton) across which the Farm Program operates all introduced their new Format Planning Schemes in the last three years. The new schemes are performance and strategy based rather than being a regulatory document and contain a number of changes which relate to the Farm Program. The Schemes require planning approval for earthworks - either via whole farm plan certification (as introduced in 1994 before the new schemes) or a planning permit. Currently, amendments to the schemes are being proposed to clarify the situations where a Planning Permit is necessary. The likely result will be that a planning permit will be required for all earthworks and that a whole farm plan will be the easiest and most cost-effective way to achieve this.

The three municipalities provide a 50% reduction in the planning permit application fee for landowners certifying a whole farm plan and the Farm Program provides another 50% incentive for certification of the plan. This is done to encourage landowners to develop and certify whole farm plans, and results in landowners only paying a quarter of the usual planning permit application fee.

The requirement for earthworks to have planning approval was developed by the Land and Water Management Plan (including the Farm Program) and the municipalities. This was to ensure that the increased use of techniques such as laser grading for salinity control did not cause local flooding problems and to ensure that farm works are compatible with
things such as proposed regional drainage.

The schemes introduced a requirement for a planning permit for the production of rice. The Farm Program was concerned to ensure that the production of rice occurred on suitable soils to limit its potential for groundwater recharge. Before the need for a planning permit was introduced, the agencies involved in the Farm Program and the Farm Program Working Group worked together to develop guidelines for rice production to limit the potential for negative environmental consequences. An updated version of these guidelines is currently used to assess planning permit applications and to assess compliance with planning permits.

The new schemes also introduced overlays. Overlays relate to an issue that a particular area might have, such as high bushfire risk or flooding risk. Overlays create additional controls to those applying through the zoning. For example the Environmental Significance Overlay has tighter controls over native vegetation clearance than exist under the Rural Zone. Therefore it is important that landowners not only check the zoning of their land when they wish to develop but also what overlays apply.

The planning schemes also create the need for a planning permit for dams above a capacity specified in the Scheme. Currently the capacity is different in each of the municipalities but standardisation is being attempted. The outcome of the current Farm Dams (Irrigation) Review will impact on this.

The Department of Infrastructure is conducting a review of the Rural Zone and it is likely that this will impact on the Farm Program.

**(b) Transferable Water Entitlements – Salinity Guidelines**

With the advent of water trading, rules for the trading of water became necessary to prevent salinity problems and to ensure that traded water could actually be transferred through the delivery system. The salinity guidelines apply to the permanent transfer of water entitlement, amalgamation of properties and temporary transfers to the same property. The maximum water entitlement will be determined so as to allow the maximum water use limit from all sources of suitable land for irrigation.

**Suitable land for irrigation is defined as:**
- land which has an approved standard of on-farm surface drainage
- land which is of low salinity
- excludes areas such as wetlands or other land that cannot be irrigated.
- G-MW also checks to ensure that the water can be delivered.

The change in legislation has been incorporated into the whole farm strategic planning process so that landowners discuss the movement of
water use from less appropriate to more appropriate and economic areas within the farm boundaries.

(c) New Irrigation Development Guidelines

These guidelines introduced standards, which have to be met for a new irrigation development to obtain the supply of water from G-MW. The Farm Program Working Group was instrumental in the development of these guidelines.

Irrigation developments on properties that do not have an irrigation water right, pumping right, or groundwater diversion, now have to provide evidence that the proposed irrigation development is compatible with the SIR Catchment Strategy goals and objectives. This evidence is required before G-MW will approve transfer of irrigation water to the property. A process has been developed to assist developers work through the issues and a DNRE Officer assists in this process.

(d) Environment Protection and Biodiversity Conservation Act (1999)

Under the Act, actions that are likely to have a significant impact on matters of national environmental significance need approval from the Commonwealth Government in addition to any approval which might be required by the State Government or Council. An action includes a project, development, undertaking, activity, or series of activities undertaken by a person, a company, and a local council, a Catchment Management Authority, State or Federal Government.

There are a number of matters of national environmental significance in the EPBC Act relevant to the Farm Program:

- World heritage sites
- Ramsar wetlands of international significance (for example Barmah Forest)
- Nationally threatened species and ecological communities
- Migratory species

The Farm Program’s responsibility is to understand and be aware of the general issue especially when giving advice, to make sure it’s compatible with this Act. However, as the DNRE is not the organisation involved in this decision making, it is incumbent on the proponent of the activity to contact Environment Australia if there is any uncertainty about this.
Chapter 7

Emerging Issues

The Farm Program is constantly evolving and one of the strengths of SIR Catchment Strategy is its mechanism in identifying issues then developing and implementing relevant and effective activities. The Program currently operates at a high level of effectiveness and is at the cutting edge of research, development and extension, and in the opinion of the consultant it is expected that it will continue at this standard. One of the areas is to continue with Local Area Planning, using targeting as a concept, and linking with relevant programs and plans at a local level and within the national policy and direction.

The Farm Program is responsive to new opportunities and perceived needs within the SIR. In the past the focus was on salinity management, this has been expanded to include a whole range of natural resource, social and economic issues.

(a) Local Area Planning

Local Area Planning is a process of the local community developing ownership of SIR Catchment Strategy. Procedures are used to identify the issues that have the most impact within their local area. Key community people and staff then have the opportunity to contribute to the development and implementation of the Catchment Strategy within that particular local area.

What is a Local Area Plan?
It is a plan to establish a sustainable sound environment by identifying and overcoming land management and social problems through communal action. Local Area Plans help ensure the accelerated implementation of existing natural resource programs.

A Local Area Planning process was adapted in 1998 from the dryland sector of the Goulburn Broken Catchment for the SIR.

At that time the proposal for the SIR was to
- Initiate discussion to progress the development of Local Area Plans (LAP) in the SIR (ie. Goulburn-Broken Irrigation Catchment).
- Assist the Goulburn Murray Landcare Network in developing a National Heritage Trust bid to initiate the implementation of LAP with eight local sub-catchment and local Landcare Groups.
- Review the progress of the LAP with these eight subcatchment and local pilot Landcare Groups, as well as the Koonoomoo Landcare Group, once they have been developed and implemented.

The use of Local Area Planning is expected to be an effective way of dealing with priority issues in the catchment, and for focusing efforts and resources. It is also expected to encourage the integration of stakeholders’ inputs (landowners, Agencies, Local Government, Water Authorities, CMA and corporate sponsors). While in the past we had communicated priorities on works to groups, this process is an expansion of this approach. It also allowed some targeting into priority areas in the SIR catchment and engendered greater community empowerment.

**Local Area Planning:**
- Identifies natural resource issues relevant to the area of the plan in the communities’ eyes.
- Involves a range of stakeholders, with the community in the driving seat.
- Prioritises issues according to community and government needs
- Is action orientated
- Develops prioritised recommendations for on-ground actions within the planning area.

**The Project**
Local Area Planning in the SIR is funded by the Natural Heritage Trust. The project aims to develop four local area plans on a sub-catchment basis, over three years.

The project is supported through a partnership approach between:
- Goulburn Murray Landcare Network
- DNRE
- Goulburn Broken Catchment Management Authority

**The Approach**
The success of local area planning depends on community ownership of local plans of “action”. Utilising a ‘bottom-up’ rather than a ‘top-down’ approach ensures that each local area plan is created and owned by the people.

**The Process**
The Local Area Planning process is initiated through Landcare groups, and includes the following steps:
- Recruitment of a community member to promote local area planning
- Running public meetings to enlist community support and identify issues
- Establishment of a community planning group to develop solutions for issues
• Input of technical knowledge to consolidate solutions
• Development of cost sharing arrangements and timelines for implementation of solutions, in partnership with other stakeholders
• Estimation of overall budget to implement the plan

Progress so far
There are four local area plans at various stages of development in the SIR, which involve the Cornella, Wyuna, Invergordon and Naneella communities. These plans address a diverse range of issues across varied landscapes, industries and communities.

Local Area Plan’s are living, breathing documents
Community ownership and involvement is essential to ensure the long-term life of local area plans. This includes implementation, monitoring and reviewing phases. Each local area plan is a living document that can be modified to reflect changing community needs.

Future approaches
The Local Area Planning process is being enhanced by the funding of new positions which will provide direct support for implementation of Local Area Planning in those areas with plans developed. This will allow specific targeting into those Local Area Plan catchments, which are ready for implementation of works and can benefit from Regional Catchment Strategy programs and assistance. An evaluation strategy is being developed for this project to ensure program success.

(b) Targeting & Multicultural issues

With significant change to the agricultural community with the SIR, the Farm Program Working Group (FPWG) and other groups need to explore alternative methods and processes to attract the attention and action of the different landowner groups.

Targeting specific groups and understanding multicultural issues will help develop these processes and ultimately help to achieve on ground works within the region.

The Continuous Improvement Process, which was conducted across the SIR by DNRE during the late 1990’s provided many improvement opportunities for the Farm Program. The process used the criteria developed by the Australian Quality Council and is known as the Australian Business Excellence Framework (ABEF).

As a part of the Continuous Improvement Process projects were carried out to address customer needs, and to measure the performance of DNRE programs and projects. These two areas were connected to develop an understanding of the needs of the various customer and stakeholder groups, and to develop responses to those needs and to measure performance using Key Performance Indicators.
Three major customer groups emerged from this work including:

- External funder customers (e.g. Murray Darling Basin Commission, National Heritage Trust)
- Internal funder customers (e.g. Catchment and Water Division of DNRE)
- End-user customers (e.g. landowners, land managers)

Processes and indicators were developed for measuring performance of both the external and internal customer groupings that were of value to DNRE specifically. These were also useful for work conducted for the Regional Catchment Strategy including the Farm Program. Customer questionnaires were modified and are now used annually for those groupings.

Some progress was made to developing the much more complex measurement of success for end-user customers, before the CIP process stalled in 1999 due to departmental structural changes. Since that time some further work has been done to advance the standard of performance measurement of salinity extension work by DNRE.

One outcome of the work was a better understanding of the range of issues of interest to landowners and a defining of their needs. The use of targeting of different segments of the farming community in different ways according to their varying needs may be appropriate.

Targeting has been a strong component of the Farm Program to date. In the past we have targeted those that are implementing works. They have been encouraged in a range of ways.

NB. Detail on the Multicultural Communication approaches used within the catchment has been included in the sociological research area in Chapter 3. In order to avoid repetition they do not appear in this chapter.

(c) National Action Plan

The Prime Minister, Mr. John Howard, launched the National Action Plan (NAP) for Salinity and Water Quality early October 2000. Council of Australian Government on November 3, 2000 endorsed the Action Plan. $700 million will be provided from Federal and matching State funds over 7 years to tackle salinity and water quality in 21 priority catchments throughout Australia. This will convert to something like $43Million/yr for Victoria. The Goulburn-Broken is one of the 20 priority catchments and thus could expect to receive something in excess of $8.5Million/yr for the next 7 years.

The NAP challenges us to look for new and innovative ways to address land degradation. John Dainton (Chairman, GBCMA), in providing a vision of ‘twice the production off half the land’ also challenges us that the issue for the future is not resources, but a lack of new/fresh ideas. The impact of this vision will be significant land use change in the region and how we
maximise natural resource management benefits from this change will be critical.

**All new project ideas and directions will need to be developed in line with the following principles and emerging drivers of change:**

- Cost-sharing to be now based on greenhouse benefits, as well as salinity, biodiversity and water quality benefits (ie. increased cost-share where methane/NO\(_2\) benefits can also be demonstrated).
- Review and refine development of current programs in line with Greenhouse directions.
- The traditional delivery mechanisms and structures may require significant adjustment to optimise the impact of this investment.
- Identify and target efforts on areas of high risk (eg. average Water Tables <2m).
- Prioritised according to impacts on environmental flow regimes and achieving the end of valley targets for water quality and salinity.
- Outcomes/changes in cost-share need to be focussed on maximising impact on targeted areas.
- Recognition that works/improvements undertaken in the SIR will offset dryland problems as the irrigation catchment will be directly impacted upon by rising watertables in the adjacent dryland areas.
- Need to promote and protect high value agricultural/horticulture areas (via tile drains, groundwater pumps, evaporation basins).
- EC credits will continue to be difficult to obtain and every attempt should be made to maximise safe reuse of saline groundwater within the region (ie. increased establishment of evaporation basins will assist this internal salt balance).
- All new directions and the ongoing refinement of existing strategies should be underpinned by a strong science base.

**(d) Risk Management**

Risk management is emerging as a strategic approach to assisting in the effective management of projects and programs. Risk management involves identifying possible scenarios and problems. An assessment can be carried out to assess the degree of risk based on relationships between probability of occurrence and potential impact. Risk factors may include a wide range of issues for instance safety, climate, natural disaster, global economics or funding security.

The Goulburn Broken Catchment Management Authority (GBCMA) has developed a risk management strategy intended to enable us to maximise our ability to achieve our National Heritage Trust One Regional Bid objectives while ensuring appropriate management of risks. The result will be an inclusive and effective project management structure resulting in higher standards of service delivery to the community.

The GBCMA established a consistent approach (in conjunction with the DNRE and its other partners) to assessing and managing risk that is based
on an Australian Standard. The GBCMA’s risk management approach for the One Regional Bid has three key features:

- identifying objectives – these objectives are related to projects, activities and programs;
- pinpointing the risks to achieving these objectives;
- implementing ‘controls’ and a risk management treatment plan to deal with these risks in order to achieve the desired objectives.

(e) Other emerging issues

There have been a number of workshops conducted over the past few years to identify and understand the emerging issues that may impact on landowners and the direction of the Farm Program in the future.

The dot points below briefly capture some of these emerging issues.

- **Greenhouse gas emission** (refer to comments made in Chapter 4)

- **Land use changes** – the Farm Program Working Group needs to have a policy to provide direction as to land use practices and changes they will support. In the future it will be critical to match land use with land capability

- **Environmental Management Systems** – there is a trend towards the use of Environmental Management Systems and assisting industries to align Quality Assurance and Environmental Management Systems. The Farm Program Working Group needs to ensure that industry efforts pick up on Best Management Practices (BMP’s) and water use efficiencies – the challenge is to align them so that farm businesses work on one, comprehensive system.

- **Pest Plants and Animals including Agricultural weeds** – there are a number of declared noxious weeds and priority pest animal species within SIR that significantly impact on the agricultural, economic and social aspect of the SIR. The targets are to have 100% compliance in weed management within high priority areas (involving 14 Landcare Groups across the SIR) and to educate all agency staff to be able to identify priority weeds and animals of the SIR.

- **Non-declared weed species of major concern** in SIR are Mullumbimby Couch and Parramatta grass. No funding is currently allocated for extension programs for these non-declared species although their potential to impact on agricultural productivity is extremely high in irrigated areas. A research project has been conducted into Mullumbimby couch control techniques and a region-wide mapping project is currently underway to assess the spread of Parramatta grass in the Northern Irrigation Region. Further research is
required to develop appropriate management strategies for these species.

- **Aquatic weeds** and specifically arrowhead is the most important one have the potential to greatly affect farm channels and drains, as well as substantially impacting on riverine environments.

- **Optimum distribution of water** between all stakeholders – the Farm Program Working Group needs information to be able to state their desired level/s of ‘optimum distribution’ between stakeholders.

- **Rural Water Reform** – the availability of water for our region will decline and competition is not only between environment and commercial use but between the producers as well. The Farm Program Working Group needs a better understanding of the scarcity and competition for water and needs of the natural environment and to have a position on the balance of water – permanent property rights with sustainability.

- **Dairy deregulation** – The deregulation of the dairy industry that came into effect on July 2000 has had an impact and will continue to have an impact on the SIR over the coming years. The Dairy Industry Adjustment package paid to applicants has created increased capital investment on farm infrastructure and layout. Although it is hard to quantify, the number of Whole Farm Plan’s being taken up has increased in the short-term as part of this. Another effect of deregulation is the amalgamation and expansion of some dairy farms, as other landowners leave the industry.
Chapter 8

The vision and goals for the next five years

A number of workshops were facilitated to explore the future direction of the Farm Program in the next five years. The workshops were conducted with the Farm Program Working Group, other people interested in the future of the Farm Program, and the many staff who individually contribute to the success of the Farm Program.

It was critical to clarify the vision for the Farm Program so that everyone working on the Program activities is stimulated and motivated towards the one end point. As part of the process we reviewed the goals from the previous five-year plan, modified those goal areas that were still relevant, deleted those not critical to the success of the Farm Program and added new goals.

Targets were developed to provide some concrete achievements to strive towards. These targets are associated with a number of the sub goals and some were directly documented from other Program’s targets to reduce duplication of activities.

(a) Goal

The mission of the SIR Catchment Strategy is to

"... secure the productive capacity, future prosperity and environmental quality of the region through effectively managing the salinity of land and water resources and the quality of the water in the SIR."

This is built on to develop goals and objectives of the Plan that incorporate a focus on the environment, social well being of the community and productive capacity of the region. The Farm Program’s future goal fits comfortably within the Shepparton Irrigation Region Land and Water Management Plan.

Farm Program Goal

“To improve land management practices on private land within the SIR
• to protect & enhance the environment
• to improve economic viability, &
• to help rural communities make informed decisions”
(b) Sub goals

The sub goals developed represent significantly integrated components of the Farm Program’s goal. These sub goals are interdependent and link together as part of an integrated Program that achieves sustainable agriculture.

From the discussions about the past and exploring the future, these seven sub goals further describe the intricacies of the overall Farm Program goal.

To have:

- sustainable irrigated farming in the SIR
- sustainable management of non-irrigated land within the SIR
- reduced down stream impact of nutrients on water quality from irrigated farming and non irrigated practices
- enhanced natural ecosystems on private land and associated public land, with consideration to their relationship to surrounding systems
- reduced ground water accessions, soil salinisation and waterlogging on farm
- reduced need for regional salt disposal
- well supported and build viable farming communities

(c) Targets

As a Working Group we decided that having targets for each sub goal would be a more productive way of building the measurability component into the goal, rather than trying to reword the sub goals to be more specific. The targets relate to the sub goals in general – there are no specific targets for different sub goals.

The FPWG recognised that landowners in the SIR have made significant investment to undertake works at significant personal expense and have progressed significantly to achieve the original targets of the SIRLSMP, now the SIR Catchment Strategy. With that in mind some of the targets are continuations from the previous program and some are enhanced or acceleration of past targets. Others are completely new targets for the next five years.
The targets are divided up into strategic level targets, links to other programs and operational issues which are the responsibility of managers within the catchment strategy to incorporate into programs and projects:

• **Whole Farm Plans: 140 Whole Farm Plans will be prepared per year for the next five years totalling 700.** This will contribute to the long-term aim of preparation of a whole farm plan for every farm in the region. The process includes exploring opportunities of restructuring individual farm infrastructure to concentrate water on better land to optimise productivity.

• **Irrigated Farm Management:** 9,000 hectares per year will be landformed and managed according to best available management practices. This will improve irrigation and drainage by landforming and draining irrigated land appropriately as implementation of works following the Whole farm Planning process.

• **Irrigation Re-use Systems:** Re-use systems or equivalent will be installed as a part of implementation of all 140 Whole Farm Plans per year. As a result all planned irrigated land will drain to a re-use system or equivalent. This will include excavated sumps for flood irrigation, and buffer strips and sediment traps for other irrigation systems.

• **Native Vegetation on all Whole Farm Plans:** All existing native vegetation on all whole farm plans will be identified, and works to protect and enhance it will be detailed during the whole farm planning process. See definitions below.

• **Revegetation following Whole Farm Planning:** All 140 whole farm plans per year will include a component of revegetation. This will contribute to ensuring that 50,000 ha (equivalent to 10% of SIR) is planted to trees cumulated over the life of the plan.

• **A Process for Strategic Planning Developed:** Development of process to incorporate Strategic Planning into whole farm planning process, including the promotion of the financial analysis assistance, and development of an extension program incorporating strategic planning.

• **Native vegetation on 250 sites will be protected and enhanced on LAPS:** Native vegetation on 250 sites will be protected and enhanced within the next five years through the implementation of Local Area Plans and other community activities, and on going development of cost sharing principles/concept. See definitions below.

• **Improving Water Use Efficiency in all 140 Whole Farm Plans per year:** Improving Water Use Efficiency through the practices of whole farm planning, adopting Best Management Practices, re-use systems, most appropriate irrigation systems for the soils, crops and farm management systems and other appropriate market mechanisms.
LINKS TO OTHER PROJECTS AND PROGRAMS:

- **Sub Surface Program:** Need to recognise and link with the targets of the Sub Surface Program. Eg. Incorporate sustainable use and management of groundwater in whole farm planning and extension Programs.

- **Certification of whole farm plans:** Need to investigate the possibility of increasing submission for certification by local government of whole farm plans by landowners.

- **Environment Program:** Need to recognise and link with the targets of the Environment Program

- **Farm Forestry:** Farm Forestry is incorporated within the Farm Program and reports to the Farm Program Working Group (FPWG).

- **Water Quality Strategy:** Managing nutrients and water quality – the Water Quality Strategy set targets in terms of works, or activities, and the outcome of implementation of these works/achievement of the works targets is predicted to be a reduction of nutrients leaving the irrigation region by 65%.

- **Pest plants and Animals:** Agricultural, economic and social impacts of pest plants and animals will be reduced by having 100% compliance in weed management within high priority areas and a more coordinated approach to pest management in the community.

- **LAP, Landcare, Farmbis:** Enhance viable farming communities in the SIR through Local Area Planning, links to FarmBis, Landcare groups and networks and other capacity building initiatives.

- **Multicultural Diversity:** Multicultural diversity work is incorporated within the Farm Program, and reports to the Farm Program Working Group (FPWG).

OPERATIONAL AND MANAGEMENT ISSUES:

- **Continuous Improvement of Program:** Since inception of the SIRWMP there has been an ongoing process of improvement, refinement and change of the Farm Program. This improvement process will continue for the next five years. Change should occur when there is an opportunity or when new issues emerge. The change process will be carried out using the existing policy development and decision making processes of the Farm Program, PISC Implementation Committee and the CMA, and will be followed by appropriate communication of the changes.
• **Maintain and enhance knowledge of staff:** Create and maintain strong links with Farm Program Working Group (FPWG), staff and R & D direction on a range of topics including – soil structure, Water Use Efficiency, alternative irrigation methods etc.

• **End of valley requirements:** Manage the salt balance to be compatible with the “end of valley” requirements.

**DEFINITIONS:**
- Protection - may include fencing to exclude stock and keep excess irrigation water and rising watertables away from sensitive areas through earthwork. There may be the occasional need to undertake pulse-grazing activities to control weeds.
- Enhancement - is to undertake revegetation (planting with understorey or shrubs, grasses and ground covers)
Chapter 9

Conclusion

This comprehensive review strongly highlights the positive impacts of the Farm Program. The success of whole farm planning as a mechanism to achieve change on farm should be celebrated.

The Farm Program Working Group needs to reflect on the positive way it has continued to undertake its role. It has taken control and changed the way it does business to institute better representation of the industries and community groups within the Shepparton Irrigation Region (SIR). The Farm Program has expanded its focus from being solely related to salt management to now having input into a broader range of natural resource issues and sociology. Over time, it has made a significant contribution into developing policies and programs within the Catchment Management Authority, SIR Implementation Committee and Water Services Committees.

The future for the Farm Program will not be a simple case of carrying on in a “business as usual” manner. There will be constant changes to legislation and the planning environment, working with people who may not want to change their land management practices and there will be greater threats from the allocation of resources to other areas outside SIR. There are other challenging issues where there is lots of debate and livelihoods are at stake. The Farm Program working Group (FPWG) needs to have a considered and well-researched position to provide input into the discussion.

The vision for the future is exciting because people, who feel strongly about land, water and environmental management on farms, have been instrumental in designing it. This commitment is not just associated with the Working Group, but with the staff as well. This drive needs to be harnessed and used to motivate and fuel those encouraging the change to continue to strive for the goal of having

“improved land management practices on private land within the SIR to protect and enhance the environment to improve economic viability and to help rural communities make informed decisions”
Chapter 10

Action Plan For 2000-2005

The purpose of the Farm Program Review has been to look back and assess what has been achieved to date, but also to look forward to the next five years and see what needs to be done. This will ensure the program is relevant, integrated and addressing current needs.

Input for the future action plan has been received from a number of sources including a staff workshop, a community workshop, technical advice from the Plan Implementation Support Committee (PISC) and further community inputs from Farm Program Working Group (FPWG), Shepparton Irrigation Region Implementation Committee (SIRIC). A survey of landholders in the Whole Farm Plan Incentive Scheme was conducted, feedback from the Irrigation Survey and Designers Group and liaison with the Shepparton Ethnic Council, Goulburn Murray Landcare Network, Landcare Groups and extension officers’ regular contact with landholders and community groups, have all provided direct and indirect inputs to the action plan for the next five years.

The following table contains our considered advice on the way forward to meet the needs of the Farm Program and other programs within the region.
<table>
<thead>
<tr>
<th>ITEMS</th>
<th>OBJECTIVES</th>
<th>ACTIVITIES</th>
<th>5 Year Targets</th>
<th>WHO</th>
</tr>
</thead>
</table>
| Whole Farm Planning           | Continue the high rate of WFP uptake               | • COMMUNICATION and extension processes refined as part of the SIR-IC communication strategy, and IMPLEMENT them.  
• REVIEW effectiveness and efficiency of Whole Farm Planning project by regular tracking of progress and evaluating of customer satisfaction.  
• IMPROVE communication, extension and content of WFPs  
• Increased use of matrix approach to new and existing incentives | Complete 700 WFP (140 per year). This will cover 10,000 ha/yr and equates to 3%/yr of the irrigated area. | SIALM Staff  
• Coordinator WFP  
• Farm Program |
| Improved Irrigation Management| Encourage implementation of WFP works and adoption of irrigation Best Management Practices | • Whole Farm Planning processes will be used to improve irrigation and drainage by appropriately landforming and draining irrigated land as works are implemented with input from staff and designers.  
• On going training of irrigation designers/earthmoving contractors/Local Government/Government agency staff to ensure consistent understanding of whole farm planning practices,  
• Develop/maintain links to Target 10, Grapecheque, milk factory field staff and other service providers.  
• Integration of programs to be more obvious to customers.  
• Integration with water use efficiency and dairy extension programs aimed at improving irrigation practices | 45,000 ha of irrigated land redeveloped incorporating irrigation Best Management Practices. | SIALM Staff  
• Landholders  
• Designers  
• Dairy Extension Officers |
| Drainage Re-use Systems       | All planned irrigated land to drain to a drainage reuse system. | • With input from staff and designers all planned irrigated land will drain to a re-use system or equivalent. This will include excavated sumps for flood irrigation, and buffer strips and sediment traps for other irrigation systems.  
• Ensure management of drainage reuse systems is included in the Water for Growth irrigation training program. | All 700 WFP’s to include a drainage reuse system. 50 reuse systems/yr will run 5,500 Ml/yr off 4,250 Ha/yr through these reuses.  
250 drainage reuse systems constructed. | SIALM Staff  
• Landholders  
• Designers  
• Dairy Extension Officers |
### Incorporating Remnant Vegetation on Whole Farm Plans

<table>
<thead>
<tr>
<th>Link WFP and the Goulburn Broken Native Vegetation Plan, Goals 1 &amp; 2.</th>
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</thead>
</table>
| • Goal 1, Maintain or increase the extent of all native vegetation types, using 1999 extent as the base, in keeping with the goal of Net Gain listed in Victoria’s Biodiversity Strategy, 1997.  
• Goal 2, Enhance the quality of existing native vegetation by managing 90% of native vegetation cover according to BMP by 2010.  
• All natural features including remnant vegetation, remnant Northern Plains Grassland species and wetlands are to be identified on WFP. This will require differentiating between native and exotic species.  
• Develop policies and recommended practices to achieve remnant protection during farm development. Recommended practices may include mounding, drainage, fencing and should be displayed on the WFP.  
• Refer landholders to the EMP for incentives. |

All 700 WFP to identify and take measures to protect remnants and other natural features.

- SIALM staff
- Landholders
- Designers

### Incorporating Revegetation with Whole Farm Planning

<table>
<thead>
<tr>
<th>Link WFP and the Goulburn Broken Native Vegetation Plan, Goal 3.</th>
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</thead>
</table>
| • Goal 3, Increase the cover of all Endangered and applicable Vulnerable Ecological Vegetation Classes (EVC’s) to at least 15% of their pre-European vegetation cover by 2030.  
• Development of WFP’s will include discussions on revegetation and all WFP’s will be encouraged to include a component of revegetation.  
• Landholders to be referred to the EMP re advice on species selection, site preparation  
Wherever possible revegetation should include Plains Grassy Woodland (PGW) or Riverine Grassy Woodland (RGW) species. |

2,500 ha (500 ha/yr X 5) of Plains Grassy Woodland and Riverine Grassy Woodland to be planted as a direct result of the Farm Program. (See note in Appendix re this target).

- SIALM staff
- Landholders
- Designers

### Incorporating Threatened Species with Whole Farm

<table>
<thead>
<tr>
<th>Link WFP and the Goulburn Broken Native Vegetation</th>
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</table>
| • Goal 4, Increase the viability of threatened species and the extent and quality of threatened ecological communities.  
• All WFP to assess if any VROTS (Victorian Rare or Threatened Species) are present on the property, eg flora, fauna, grassland species. EMP staff and Flora and Fauna Branch will assist here. |

All 700 WFP’s to assess if any VROTS (Victorian Rare or Threatened Species) are present and

- SIALM Staff
- Designers
- Landholders
| Planning | Plan, Goal 4. | • If VROTS found, advice from Flora and Fauna should be sought on Best Management Practices.  
• WFP implementation activities should not damage or destroy any VROTS.  
• Need to raise awareness of Threatened species during the WFP process.  
• Provide training to SIALM staff on VROTS identification/management.  
• Flora and Fauna Program to provide wider access to Threatened Species overlays on GIS. | incorporate measures to protect and enhance their viability, if present. |
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<tbody>
<tr>
<td>Dryland Whole Farm Planning</td>
<td>Accelerate the number of Dryland WFP.</td>
<td>• Approx. 85% of the SIR is private land with 150,000 ha unirrigated. Much of the viable stands of remnant vegetation occur on private, unirrigated land. Consequently the Farm Program needs to promote the Dryland WFP scheme and increase the rate of dryland WFP adoption.</td>
<td>10% of all WFP will be on unirrigated properties and/or include unirrigated areas of irrigated properties.</td>
</tr>
<tr>
<td>Incorporating Strategic Planning with Whole Farm Planning</td>
<td>Development of process to incorporate Strategic Planning into Whole Farm Planning</td>
<td>• Staff will be encouraged to incorporate strategic planning in the Whole Farm Planning process. This will include Farmsmart type planning and promotion of existing financial analysis assistance, and development of an extension program incorporating strategic planning.</td>
<td>Develop and implement increased use of strategic planning</td>
</tr>
</tbody>
</table>
| Use LAPs to enhance native vegetation protection and enhancement | Use the LAP process to accelerate implementation of the GB Native Vegetation Plan. | • The implementation of Local Area Development and implementation of Local Area Plans and other community activities will all include the protection of native vegetation.  
• Cost sharing principles and processes will be developed.  
• Awareness processes developed and implemented. | Native vegetation on 250 sites will be protected and enhanced over next five years. (See note in Appendix). |
### Water Use Efficiency and Whole Farm Plans
**To improve Water Use Efficiency through the WFP process.**
- Designers will be encouraged to use improved design processes such as AIM in the preparation of WFPs.
- WFP staff will attend training days on BMP for water use efficiency to enable the incorporation into discussions with farmers.
- FPWG will include one WUE research report at each meeting to ensure up to date knowledge and ability to review WFP procedures.
- Encourage WUE improvements through automatic irrigation.

Improving Water Use Efficiency in all 700 WFP 2,500 ha of irrigated area automated.

- SIALM
- Designers
- Landholders

### High Recharge Areas
**Reduce recharge in high recharge areas such as on light soil types (Group 1&2 soils)**
- Keep informed of the progress of the Recharge Under Irrigated Pasture project and the best location of amelioration works, eg break of slope and any other similar projects.
- Encourage more revegetation in high recharge areas or adjacent areas.
- Target groundwater pumps in most effective areas.
- Encourage drip and sprinkler irrigation in light soil types and/or well managed flood irrigation.
- Develop BMP’s for irrigation of light soil types.
- Encourage perennial crops in light soil types.
- Raise awareness of light soil type management.

Raise awareness of light soil type management and develop a strategy for targeting catchment programs to high recharge areas.

- SIALM staff
- Designers
- Landholders

### GBCMA Vision of Twice the Production off Half the Land.
**To lead the development of policies and activities that influence this change**
- Monitor the change in land use.
- Encourage and investigate viable uses for any retired land, eg flood mitigation, revegetation, agroforestry, evaporation basins, to ensure retired land does not degrade.
- Be aware of industry issues that may influence the vision eg, Progress of implementation of the Murray Dairy report, Restructure, Renewal and Risk, Managing Structural Adjustment in Small Dairy Farms in the Murray Dairy Region of Northern Victoria and the impact of the Farm Dams Review.

Raise awareness of the vision and land use change. Monitor this change and develop strategies as appropriate.

- GBCMA
- SIALM staff
- Murray Dairy Landholders
| **Sub Surface Drainage Program** | Maintain and further develop the strong links and consistencies with the targets of the Sub Surface Program. | • A sub committee of FWG and the SSWG will meet to ensure consistencies in the targets of each program and identify opportunities for value adding. These opportunities will be developed into an action plan for endorsement and implementation, and communicated to staff.  
• Information on sustainable use and management of groundwater will be included in advice provided with a whole farm plan. | Develop and implement the Action Plan. | • SIALM staff |
| **Certification of whole farm plans** | Ensure that the number of plans certified by local government is maximised. | • A situation analysis will be conducted to investigate adoption rates of WFP certification, and an action plan developed for implementation as appropriate. | Develop and implement the Action Plan. | • Municipal Catchment Co-ordinator |
| **Environment Program** | There are strong links and consistencies with the targets of the Environment Program. | • A sub committee will meet to ensure consistencies in the targets of each program and identify opportunities for value adding.  
• These opportunities will be developed into an action plan for endorsement and implementation. | Develop and implement the Action Plan. | • SIALM staff |
| **Farm Forestry** | Maintain and further develop the strong links and consistencies between programs | • Farm Forestry is incorporated within the Farm Program and reports to the Farm Program Working Group (FPWG)  
• Opportunities are maximised to crosslink programs and projects to maximise outputs and outcomes. | Incorporate opportunities for Farm Forestry onto WFP | • SIALM staff |
|-------------------|----------------------------------|-----------------------------------------------------------------|-------------------------------------------------|------------------|
| **Water Quality Strategy** | The farm program to contribute to the catchment target of a 65% reduction in nutrients leaving the irrigation region | • This will be achieved through the inclusion of drainage reuse systems in all WFPs, WUE improvements and adoption of irrigation BMP’s, in all WFPs.  
• The Farm Program will contribute to the targets set by the GB Water Quality strategy.  
• The Farm Program will implement recommendations from the Goulburn Broken Dairy Cattle Feedpad Guidelines where appropriate. | With assistance from the Water Quality Strategy, establish methods for assessing the Farm Program’s contribution to nutrient reduction. | • SIALM staff |
| **Pest plants and Animals** | Agricultural, economic and social impacts of pest plants and animals will be reduced | • PPA program will report to FPWG regularly on progress and emerging issues, and this will be communicated to staff and management as appropriate.  
• FPWG be used as a forum to help implement the Goulburn Broken Weed Action Plan, particularly with regard to information about new and emerging weeds and existing weed problems.  
• The Farm Program will contribute to the targets set by the GB Pest Plants and Animal Strategy | FPWG keep regularly informed about weed issues and implementation of the GB Weed Action Plan | • FPWG  
• SIALM staff  
• PPA staff |
| **LAP, Landcare, Farmbis** | Enhance viable farming communities in the SIR | • Local Area Planning, links to FarmBis, Landcare groups and networks and other capacity building initiatives are well understood and able to be taken advantage of by staff to improve work.  
• The Farm Program administers and acts as a key contact for Catchment Incentives for sustainable | Increase the uptake of Incentives and the implementation of associated | • FPWG  
• SIALM staff |
<table>
<thead>
<tr>
<th><strong>Multicultural Diversity</strong></th>
<th>Ensure that farmers of NESB are proportionally represented in the implementation of the Farm program</th>
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<tbody>
<tr>
<td></td>
<td>Multicultural diversity work is incorporated within the Farm Program, and reports to the Farm Program Working Group (FPWG).</td>
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<tr>
<td></td>
<td>Increase the involvement of NESB landholders in the Farm Program</td>
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<tr>
<td></td>
<td>Multicultural Facilitator</td>
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<td>SIALM staff</td>
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<tr>
<th><strong>EMS (Environmental Management System)</strong></th>
<th>Form linkages with dairy and horticultural EMS</th>
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<tr>
<td></td>
<td>Dairy and horticultural EMS information to report back to Farm Program Working Group.</td>
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<tr>
<td></td>
<td>Working relationships development with EMS Projects.</td>
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<td></td>
<td>Apply EMS principles where appropriate to the Farm Program</td>
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<td></td>
<td>FPWG</td>
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<td></td>
<td>SIALM staff</td>
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<tr>
<th><strong>Community Surface Water Management Program</strong></th>
<th>Farm Program to link with CSWMP</th>
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<tbody>
<tr>
<td></td>
<td>All staff involved to integrate CSWMP and Farm Program activities with landowners so that the maximum benefits from the activities can be achieved.</td>
</tr>
<tr>
<td></td>
<td>All SIALM staff to integrate activities of all programs.</td>
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<td></td>
<td>SIALM staff</td>
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<tr>
<th><strong>Waterways Program</strong></th>
<th>Farm Program to link with Waterways program</th>
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<tr>
<td></td>
<td>Waterways program to report back to Farm Program Working Group, eg. As part of EMP report.</td>
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<tr>
<td></td>
<td>Waterways and SIALM staff to integrate activities of all programs with landowners.</td>
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<td></td>
<td>Waterways</td>
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<td></td>
<td>SIALM staff</td>
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<p>| <strong>OPERATIONAL AND MANAGEMENT ISSUES</strong> |</p>
<table>
<thead>
<tr>
<th>Continuous Improvement of Program</th>
<th>Farm Program to continue implementing the Continuous Improvement Program to ensure that new and emerging issues are incorporated into programs as appropriate.</th>
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<tbody>
<tr>
<td></td>
<td>• The Australian Quality Council’s ADRI improvement cycle will be the model used to ensure continuous improvement.</td>
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<td>• Leaders, staff and community will identify opportunities for improvement.</td>
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<td></td>
<td>• As new issues emerge operational responses will be developed, policy development and decision making processes of the Farm Program, PISC, Implementation Committee and the CMA and will be followed to institute changes</td>
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<td></td>
<td>• Appropriate involvement of operational staff and communication of the changes will take place</td>
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<td></td>
<td>• On going reviews and evaluation of progress will take place in an annual cycle.</td>
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<td></td>
<td>Demonstrate implementation of continuous improvement and follow appropriate procedure when implementing changes.</td>
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<tr>
<td></td>
<td>• SIALM Staff</td>
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<td></td>
<td>• FPWG</td>
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<tr>
<td>Skilled and knowledgable staff</td>
<td>Develop and maintain a high level of skills and knowledge with Farm Program staff.</td>
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<td></td>
<td>• Create and maintain strong links with Farm Program Working Group (FPWG), staff and R &amp; D program direction on a range of topics including – adoption techniques, soil structure, Water Use Efficiency, alternative irrigation methods etc through relationship development, attendance at seminars, joint projects, reporting to FPWG and discussions.</td>
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<tr>
<td></td>
<td>• Staff need to be technical leaders.</td>
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<td></td>
<td>• Ongoing formal training of staff in technical skills in addition to the induction process.</td>
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<td></td>
<td>Enhanced skills and expertise of all SIALM staff</td>
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<td></td>
<td>• SIALM Leaders</td>
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<td></td>
<td>• SIALM staff</td>
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<td></td>
<td>• FPWG representatives</td>
</tr>
<tr>
<td>Evaluation, measurement of success and reporting</td>
<td>To develop a method of evaluating and measuring the success of the Farm Program and to include reporting of</td>
</tr>
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<td></td>
<td>• Develop an evaluation process that includes customer satisfaction, Water Use Efficiency gains, water quality and biodiversity targets, adoption rates of Best Management Practices.</td>
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<td>• Add these issues to the regular reporting on number of Whole Farm Plans done, dollars spent and hectares covered. NB- some of this information may already exist in other programs, eg EMP reports.</td>
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<td></td>
<td>Have a comprehensive evaluation and reporting system operating by 2005.</td>
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<td></td>
<td>• SIALM staff</td>
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<td></td>
<td>• FPWG</td>
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some of the more recent activities, eg Water Quality and Biodiversity.

| End of valley requirement | Manage salt balance to be compatible with the “end of valley” requirements. | Focus on reducing uncontrolled salt export from individual farms.  
• An implementation and communication process will be developed for staff and community to assist the Farm Program contribution to end of valley targets as appropriate. | Ensure salt balance management at farm level with an emphasis on reducing uncontrolled salt loads coming off farms. | SIALM staff |

Appendix
Incorporating Revegetation with Whole Farm Planning

NB-Aspirational targets for the GB Native Vegetation Plan require nearly 75,000 ha of Plains Grassy Woodland to be replanted by 2030 (ie 2,500 ha/yr). Programs and activities that will contribute to this include:-
• Farm Program (including revegetation along CSD's)
• Landholders independent of the Farm Program,
• Environmental Program,
• Landcare groups,
• Waterways program.

The Farm Program may need to be responsible for approx. one fifth of these targets resulting in 500 ha/yr. The Farm Program, via the Tree Growing Incentive, currently delivers 60-80 ha/yr.

Use LAPs to enhance native vegetation protection and enhancement.

NB-not all of these sites will be documented as apart of WFP process.
### Acronyms in Common Use

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AIM</td>
<td>Analytical Irrigation Model</td>
</tr>
<tr>
<td>AAV</td>
<td>Aboriginal Affairs Victoria</td>
</tr>
<tr>
<td>ANCID</td>
<td>Australian National Committee of Irrigation and Drainage</td>
</tr>
<tr>
<td>ATCV</td>
<td>Australian Trust for Conservation Volunteers</td>
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<tr>
<td>BMP</td>
<td>Best Practices Management</td>
</tr>
<tr>
<td>CAMS</td>
<td>Catchment Activity Managements System</td>
</tr>
<tr>
<td>CAP</td>
<td>Catchment Action Plan</td>
</tr>
<tr>
<td>CAS</td>
<td>Catchment and Agricultural Services</td>
</tr>
<tr>
<td>CaLP</td>
<td>Catchment and Land Protection</td>
</tr>
<tr>
<td>CMA</td>
<td>Catchment Management Authority</td>
</tr>
<tr>
<td>CMSA</td>
<td>Catchment Management and Sustainable Agriculture</td>
</tr>
<tr>
<td>COAG</td>
<td>Coalition of Australian Government</td>
</tr>
<tr>
<td>CRC</td>
<td>Cooperative Research Centre</td>
</tr>
<tr>
<td>CSD</td>
<td>Community Surface Drainage</td>
</tr>
<tr>
<td>CSIRO</td>
<td>Commonwealth Scientific Industry Research Organisation</td>
</tr>
<tr>
<td>DDP</td>
<td>Drain Diversion Plan</td>
</tr>
<tr>
<td>DNRE</td>
<td>Department of Natural Resources and Environment</td>
</tr>
<tr>
<td>DRDC</td>
<td>Dairy Research and Development Corporation</td>
</tr>
<tr>
<td>EM</td>
<td>Electromagnetic</td>
</tr>
<tr>
<td>EMS</td>
<td>Environmental Management System</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
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<tr>
<td>EPBCA</td>
<td>Environmental Proctective Biodiversity Conservation Act</td>
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<tr>
<td>Eth</td>
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MDBSDS  Murray Darling Basin Salinity and Drainage Strategy
MIL  Murray Irrigation Limited
NATA  National Association of Testing Authorities
NHT  National Heritage Trust
NLP  National Landcare Program
NOX  Oxidised Nitrogen
NRMS  Natural Resource Management Strategy
O&M  Operations and Maintenance
PDZ  Primary Development Zone
PGW  Plains Grassy Woodland
PISC  Planning Implementation Section Committee
PIWG  Planning Implementation Working Group
PPA  Pests Plants and Animals
QA  Quality Assurance
RCS  Regional Catchment Strategy
REALM  Resource Allocation Model
RER  Research Entitlement Reform
RFA  Regional Farm Assessment
RGW  Riverine Grassy Woodland
RWC  Rural Water Corporation
SBC  Serial Biological Council
SDA  Salt Disposal Allocation
SIR  Shepparton Irrigation Region
SIRAP  Shepparton Irrigation Region Action Plan
SIRIC  Shepparton Irrigation Region Implementation Committee
SIRLAWSMP  Shepparton Irrigation Region Land and Water Salinity Management Program
SKM  Sinklair Knight & Mertz Consultants
SPAC  Salinity Program Advisory Committee
SPC  Shepparton Preserving Company
SPPAC  Salinity Pilot Program Advisory Council
TKN  Total Kjeldahl Nitrogen
TP  Total Phosphorus
TWE  Trading Water Entitlement
UDC  United Dairy Cooperation
UDV  United Dairy Farmers of Victoria
VFF  Victorian Farmers Federation
VICC  Victorian Irrigation Cropping Council
VPP  Victorian Planning Provisions
VROTS  Victorian Rare or Threatened Species
WFP  Whole Farm Plan
WOWO  Water on Water off
WSC  Water Services Committee
WUE  Water Use Efficiency
References


Department of Natural Resources and Environment (2000), Victoria’s Salinity Management Framework – Restoring our Catchments August 2000.


Draft: Five Year Review of Surface Drainage Program 2001

Draft: Five Year Review of Sub-Surface Drainage Program 2001

Draft: Five Year Review of Environment Program 2001