

VICTORIAN GOVERNMENT SUPPORT FOR SALINITY MANAGEMENT PLANS

- TRAGOWEL PLAINS AREA
- CAMPASPE WEST AREA
- SHEPPARTON IRRIGATION REGION
- GOULBURN DRYLAND CATCHMENT

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GOVERNMENT OF VICTORIA
6 JUNE 1990

VICTORIAN GOVERNMENT
SUPPORT FOR
SALINITY MANAGEMENT
PLANS

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- **CAMPASPE WEST AREA**
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Government of Victoria

6 June 1990

FOREWORD

Recognising the threat that salinity of land and water poses to the environment and economy of Victoria, the State Government has put in place a long-term strategy to control the problem. Central to that strategy is the preparation of salinity management plans by communities in the regions at greatest risk.

I am pleased that the Government is now able to announce its strong support for a further four plans in northern Victoria, as described in this document.

The plans set the direction for concerted action in the coming decades. They describe targets to be achieved, measures to be put in place and guidelines to follow. They build upon substantial action already taken in these regions by landholders, local governments and the State and Federal governments.


The State Government will join the regional communities in implementing the plans. It will share the costs of long-term technical measures to tackle both the causes and effects of salinity. It will support much of the associated research, education and farm advisory programs.

The Government is grateful to the many members of the regional communities and to the staff of Government agencies who devoted so much time and effort over the last three years to the preparation of these plans. I would particularly like to thank members of the Goulburn-Broken Salinity Pilot Program Advisory Council (SPPAC) and of the Tragowel Plains and Campaspe West Working Groups.

Our fight against salinity now enters a new phase. Guided by regional councils, representing farming, conservation and local government interests, the implementation of the plans will continue to require sustained action across the regions over the next three decades.

In supporting these plans, the Government welcomes the opportunity to join with the regional communities in such an important task - one which will benefit not only the current inhabitants of the regions and of the State, but also the economic and environmental well-being of future generations.

I wish all who will be participating in this endeavour every success.



John Cain
Premier

Salinity Management Plan Support

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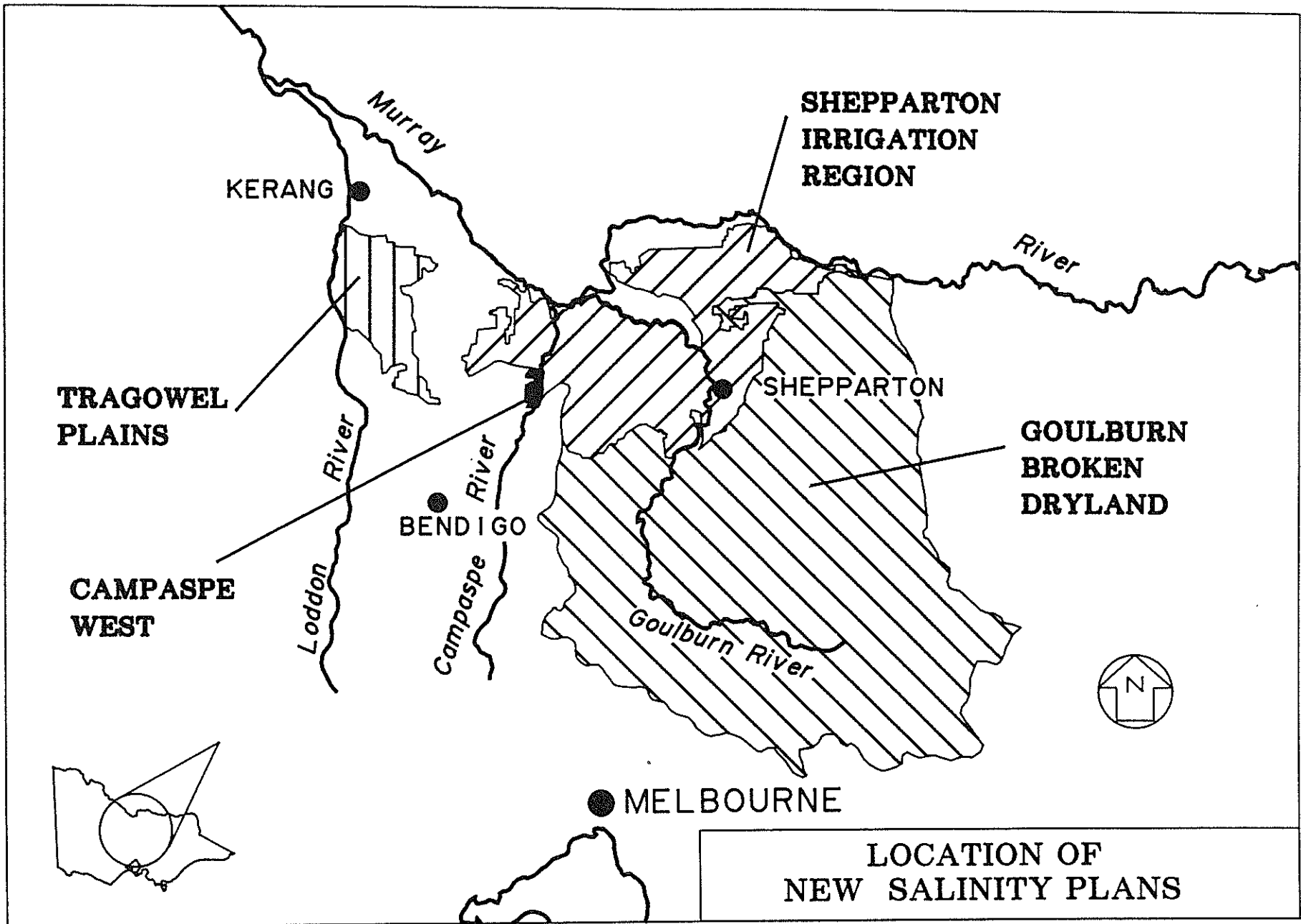
PART 1

OVERVIEW

OVERVIEW

INTRODUCTION

1. In May 1988, the Government released the Victorian Salinity Strategy, *Salt Action - Joint Action*, for tackling the growing salinity problems in the State. This strategy sets out a systematic program for the development of community-led salinity management plans for salt - affected regions.
2. Today the Government announces its strong support for the implementation of four new salinity management plans in northern Victoria. The plans are for the Goulburn Dryland Catchment, Shepparton Irrigation Region, Campaspe West Irrigation Area and Tragowel Plains Irrigation Area (See Map). Together these regions cover 10% of Victoria, and already suffer from 200,000 hectares of salt-prone land costing \$35 million per year, and threatening environmentally valuable vegetation and water bodies. Without further remedial measures, the cost of salinity in these areas could rise to over \$50 million per year in the next few decades.
3. The plans have been prepared by working groups of representatives from the regional communities, with assistance from consultants and specialists from Government agencies. Each plan took over two years to prepare. The draft plans were released for a period of two months for public comment and responses were taken into account in the final recommendations by the working groups to Government.
4. The plans set the direction for future action. They describe targets to be achieved, measures to be put in place and guidelines to be followed. Administrative arrangements for the implementation of the plans have also been proposed. The plans for the two larger areas - the Shepparton Irrigation Region and Goulburn Dryland Catchment together provide a regional strategy and guidelines for a process of identifying preferred works. The plans for the Tragowel Plains and Campaspe West provide a set of specific works proposals.
5. All the plans, of necessity, are long term, requiring up to thirty years for implementation. The Government strongly supports the need for such long-term planning and the importance of putting in place provisions which will ensure the effort is sustained for that period. Uncertainty about the effectiveness of some control measures has meant that some conclusions are tentative. The plans therefore set a direction for the future, using the best knowledge available. They may need to be refined, and possibly redirected as the understanding of the processes improves.
6. The Government will join the regional communities in implementing the plans. It will share the costs of long-term technical measures to tackle both the causes and effect of salinity, including farm planning, revegetation and drainage. It will also support much of the associated research, education and farm extension program.



ASSESSING THE PLANS

7. The Government has assessed the plans against the objectives, targets and principles stated in the Victorian Salinity Strategy. Each plan contains a systematic analysis of the economic, social and environmental costs of the preferred set of control techniques. The basic test applied by Government to determine whether or not to support the proposal is that the benefits must exceed the costs.
8. On the basis of available knowledge, the plans for the two smaller areas, Tragowel Plains and Campaspe West, can be justified on economic grounds alone with associated environmental and social benefits. For the Shepparton Irrigation Region Plan the net economic benefits of the total plan from a State perspective are marginal, but are substantial from the regional point of view. Without the plan, the economic health of the region would suffer greatly. In addition large areas of land will be degraded and water quality and areas of environmental significance damaged. For the Goulburn Dryland Area the plan is justified on the grounds of long-term sustainability of soil fertility and water quality.

OBJECTIVES

9. The overall goal of the State Salinity Strategy is to manage the salinity of land and water resources throughout Victoria in order to maintain and, where feasible, to improve the social well-being of communities, and the environmental quality and productive capacity of the regions. Specific State-wide salinity control objectives to be achieved within ten years are:
 - to stabilise water tables at harmless levels in irrigation areas with good quality ground water;
 - to significantly retard rising groundwater by control of groundwater recharge, and where necessary to adapt to higher saline conditions in irrigation areas with saline groundwater;
 - to significantly reduce accessions to the groundwater systems and to substantially improve salinity problems associated with localised groundwater systems;
 - to protect, and where appropriate, rehabilitate high value wetlands and other significant environmental features.

The four management plans are consistent with these objectives.

10. For each plan there is a set of implementation targets. These targets will be used for on-going planning purposes, unless explicitly modified by the regional implementation group and agreed by the Government. An immediate review of some of these targets is justified where they may be affected by the allocation of salt disposal entitlements and availability of funds.

PLAN COMPONENTS

Technical Measures

11. As noted in *Salt Action - Joint Action*, the technical measures to control salinity are aimed at reducing recharge of the groundwater system, or controlling water tables by sub-surface drainage, or optimising farm productivity under saline conditions. Each technical measure proposed in the plans falls into one of these categories. Where water tables are within about 1.5 metres of the surface, salinity problems can be expected to develop and agricultural productivity will be reduced. This reduced level of productivity may be sustainable if a favourable salt balance is maintained.
12. On-farm measures to reduce accessions to the watertable through improved use of irrigation water, better drainage and introduction of deeper-rooted plants are supported, as is the use of salt tolerant plants to revegetate salt-damaged land. These measures may also improve agricultural productivity and therefore add to the landholder's ability to introduce further salinity control measures.
13. Trees can have an important role in reducing groundwater accessions and salinity management. Trees are effective users of water because of their extensive and deep root system. In dryland areas the establishment of trees at high densities is strongly supported and additional resources will be provided in priority areas. While the effectiveness of low density trees is not fully assessed they are supported because they will contribute to some degree in reducing groundwater accessions. In irrigation areas, the use of trees to help control channel seepage is justified. In addition, research into the role of agroforestry in recharge control in irrigation areas will be accelerated, and co-ordinated through the Government's Joint Agro-forestry Management Committee.
14. Surface drainage in irrigation areas helps to reduce waterlogging and retard accessions to watertables. It will slow down but not prevent the development of salinity problems. It may also reduce the demand for sub-surface drainage and the associated discharge of salt.
15. The Government is eager to ensure that the most cost effective balance of Rural Water Commission drains and community drains is encouraged. This applies particularly to the measures proposed for the Shepparton Irrigation Region. Accordingly, the guidelines given in Part 2 for this aspect of the Shepparton Irrigation Region Plan should be applied.
16. Sub-surface drainage using groundwater pumps or tile drains is essential in irrigation areas if watertables are to be maintained below critical depths. Its application, however, is constrained by costs of installation and disposal of the saline drainage water.

17. The only practicable means of salt disposal in these regions is by discharge to the River Murray or to evaporation basins. (The recent study by the Murray-Darling Basin Commission has confirmed that a pipeline to the sea is not a feasible option at present). Generally, where groundwater salinities exceed about 10,000 EC, the benefits of subsurface drainage do not justify disposal to the River Murray. The use of sub-surface drainage with discharge to evaporation basins must then be carefully evaluated in the light of the additional costs and limited disposal capacity. As for the Tragowel Plains, there will be parts of the Shepparton Irrigation Region where the best long-term option may be to adapt as advantageously as possible to a more saline environment.

Environmental Protection

18. Salinity caused by high watertables can degrade farmland, wetlands, streams and remnant vegetation alike. However, as emphasised in the State Salinity Strategy, solutions to one environmental problem, salinity, should avoid where possible damage to other parts of the environment. This is particularly the case for drainage works and salt disposal measures. The implementation of the plans will be subject to normal environmental and planning procedures. In some cases, projects may be the subject of environment effects procedures.
19. Extensive environmental guidelines have been proposed, particularly for the Shepparton Irrigation Region plan. These will be finalised by the end of this year after consideration by the community implementation groups in association with the Department of Conservation and Environment and Department of Planning and Urban Growth.

Extension and Education

20. The Government supports the need for farm advisory services and community education programs as an integral part of each plan. Community implementation groups will be encouraged to work with specialists in establishing extension and education programs with well defined targets and schedules.

Research and Monitoring

21. The preparation of the plans has provided an important opportunity for community groups and Government agencies to use the results of the substantial research program already underway in the regions and to define research priorities for the future. There must be a balance between resources devoted to research and to support for remedial measures already known to be effective. In general, the current level of Government resources for research is considered adequate to address priority research topics.
22. The Government recognises that in a number of cases the implementation of some potential control measures is justified even though their effectiveness is not fully understood. Adequate monitoring of these measures will be essential to test their

performance in the field. ~~Implementation of all plans will require systematic monitoring of a range of physical and economic parameters. The Government will provide guidelines during 1991 to assist in the design of the monitoring networks in each area.~~

23. The Government in conjunction with the community implementation groups will ~~review the research~~ and investigation effort to assess its effectiveness and ensure that it meets the needs of the implementation programs.

STATEWIDE PLANNING AND POLICY INITIATIVES

Water Pricing

24. A change in the pricing structure of irrigation water will not alone solve salinity problems. However it could contribute to salinity management by improving the efficiency of water use and increasing productivity. The Rural Water Commission, after a major consultation program with customers and their advisory groups during 1989/90, will shortly propose the direction of tariff structure changes which will assist in water use efficiency, achieve fairer cost sharing, and allow sound administration. These directions will be refined in 1990/91 prior to introduction.

Transferable Water Entitlements

25. The introduction of transferable water entitlements will assist landholders to maximise production in saline environments by enabling water to be used where the benefits are greatest.

Vegetation Retention

26. The State Vegetation Retention Program, initiated late last year, will continue to complement the revegetation program proposed in the plans. Recharge mapping in the Goulburn Dryland Area will help to target vegetation management.

SALT DISPOSAL ENTITLEMENTS

27. Under the Murray-Darling Basin Salinity and Drainage Strategy, Victoria earns the right to discharge salt to the River Murray up to prescribed limits in return for contributing to the funding of downstream salt interception works. The Government is responsible for allocating the entitlements between planning areas in northern Victoria.
28. There are 8.5 units of salt disposal entitlements (SDE's) available to Victoria in the next five years. Taking into account the economic, social and environmental costs and benefits of the three irrigation management plans that have been submitted, and also taking into account the best estimates of the SDE's that will be required to

implement future salinity management plans, the SDE allocations have been made, as shown in Table 1. The indicative 30 year allocation will be refined over time as additional information becomes available. The five year allocation is for planning purposes.

The Government has notified the Murray-Darling Basin Commission of its intention to allocate salt disposal entitlements to the three plans in this manner.

29. There are insufficient Entitlements available to meet total salt disposal requirements. It is therefore critical that great care is taken to ensure that Entitlements are used within each region for those works and measures which provide the greatest benefits.

TABLE 1. Allocation of Salt Disposal Entitlements

Plan	Next Five Years	Indicative 30 Years
Shepparton	3.4	10
Campaspe West	0.5	1*
Tragowel	1.5	2

* Campaspe assigned 0.5 EC in short term but will be considered in the context of the Shepparton region in allocating the additional 0.5 EC for the long term.

30. The effects of changes in River Murray salinity on productivity in the Sunraysia is to be investigated by the Sunraysia Salinity Planning Group and will be considered in future cost sharing arrangements.

RESOURCING THE PLANS

Total Funding

31. The total cost of the plans will be about \$800 million. The annual funding required for the implementation of the plans depends on the duration of each plan. The Government accepts that the thirty-year time frame is appropriate given the magnitude of the task but recognises the importance of not only mitigating current problems but also seeking to avoid future spread of salinity. The full cost of each

Salinity Management Plan Support

plan can be only indicative at this stage. However, specific funding projections will be made on a rolling five year basis for use by all parties contributing to each plan.

Government Funding

32. The indicative budgets for Government expenditure on the four plans are summarised in Table 2. The Victorian Government, with assistance from the Federal Government, will provide \$12.27 million for the first year. This represents an increase of \$2.36 million in annual support for salinity control in the regions covered by the plans. Indicative expenditure by Government over the initial five years of \$73 million will depend upon the uptake of measures by the regional communities and consideration of funding requirements for future plans in other areas.

TABLE 2. Government Funding : State and Federal (\$ Million)

	Current 89/90	90/91	Indicative 5 Year Total	Total Plan - 30 Years
Shepparton	6.91	8.09	49.6	295
Campaspe West	0.58	0.63	3.4	8.8
Tragowel Plains	1.14	1.87	11.6	18.2
Goulburn Dryland	1.28	1.68	8.4	17
TOTAL	9.91	12.27	73	339

33. Agreement by Government to the expenditure on capital works associated with each plan will be on a project-by-project basis. The Government requires that works with the highest benefits be implemented before works with lower benefits. This will take into account the advice of the community implementation groups.
34. The Government welcomes the initiative taken by local governments to contribute to the cost of salinity control. In particular it notes the willingness expressed by the municipalities in the Shepparton Irrigation Region to contribute to the operating cost of the drainage program and part of the cost of salt disposal to the River Murray and thereby offset the cost to the irrigation farmer. The mechanism by which this is to occur needs to be proposed by the implementation working group in consultation with municipalities as a matter of urgency.

Sharing the Costs

35. The basic principles applied by Government to determine cost shares were stated in *Cost Sharing Guidelines for Salinity Management Plans in Irrigation Areas* (January 1989) and include:
- Contributions by communities or groups representing communities should reflect both the extent to which these communities derive benefits from salinity control (the beneficiary pays principle), and the relative inputs of local farming, water management and disposal systems to the worsening of the salinity problem (the polluter pays principle).
 - Primary beneficiaries are expected to meet their full share of costs. Regional and local communities, as secondary beneficiaries, may contribute to the cost of salinity control measures on a voluntary basis.
 - The Government may contribute on the basis of representing broader environmental and social interests.
 - Government will not assist works and measures which are not cost effective and are dependent on continued subsidy.
36. These principles have been applied by Government in agreeing to the cost sharing arrangements outlined in Part 2.

Accountability

37. The success of each plan depends upon the effective and sustained participation of landholders, the regional community, State Government agencies, and the Federal Government. All these parties must be openly accountable for their contribution to the plan.
38. The Government is preparing procedures for the public reporting of all information of relevance to the implementation of the plans. These include the contribution of funds from all participants, the use of the funds, the implementation of control measures, and changes to the extent and severity of salinity and other environmental parameters.

IMPLEMENTING THE PLANS

39. The State Salinity Strategy encourages community "ownership" of the salinity problem and of salinity control programs. The plans have been developed by the community and now need to be implemented by the community. Each community planning group has proposed arrangements for the involvement of the community in overseeing implementation of its plan.

40. The Government strongly supports the general approach proposed in the plans. In the case of the Goulburn Salinity Region, the establishment of a Salinity Program Advisory Council (SPAC) to replace the Salinity Pilot Program Advisory Council is endorsed. The new council will form separate sub-committees to overview and help co-ordinate the implementation plans for the Shepparton Irrigation Region and Goulburn Dryland Region. The functions and membership of the new Advisory Council are summarised in Table 3.
41. For the Tragowel Plains and Campaspe West, and for corresponding priority areas within the Shepparton Irrigation Region and Goulburn Dryland Region, the formation of Salinity Plan Implementation Groups (SPIGs) is supported. These are necessary to facilitate community participation in the further planning, design and implementation of salinity control measures at the more localised level. The functions and membership of these bodies are also summarised in Table 3.
42. In the case of the Campaspe West Area, the Government encourages further development and implementation of the plan as part of the development of the Shepparton Irrigation Region Plan. Consideration should be given to including the Campaspe West Area within the boundaries of the Shepparton Irrigation Region Plan.
43. An important part of the role of each of these groups will be to advise the Government, through the Rural Affairs Committee of Cabinet, on priorities and resource allocation, taking into account Government guidelines. For the Goulburn Catchment, the SPAC will be the primary Government advisory body. For the Tragowel Plains the SPIG will have that role.
44. Because these groups are advisory bodies to the Government, the Rural Affairs Committee of Cabinet, on behalf of the Government, must endorse their membership. Membership will initially be for up to two years.
45. Further devolution of responsibility to the regional community is to be considered within the next two years. Options requiring further assessment include the creation of regionally-based statutory organisations to take responsibility for the long-term implementation of the management plans, and provide the benefits of regional autonomy and accountability in the management of salinity.

Co-ordination of Government Agencies

46. A regional co-ordinating agency for each plan has been appointed, with the functions listed in Table 4. The primary role of the co-ordinating agency will be to ensure that Government resources are used as effectively and efficiently as possible in implementing the plan and to provide the administrative support necessary for the community implementation committees. The co-ordinating agency for the Shepparton Irrigation Region, Campaspe West and Tragowel Plains plans will be the Department of Agriculture and Rural Affairs and, for the Goulburn Dryland plan, the Department of Conservation and Environment.

TABLE 3. Functions and Membership of Plan Implementation Groups

Community-based implementation committees will be established under the following conditions:

a. Relationship to Government

Guidelines, established by the State Government, will guide the implementation of the plans. The committees will recommend priorities and resource allocations within these guidelines. Guidelines may include cost-sharing and environment protection.

b. Functions of the Goulburn Salinity Program Advisory Council, SPAC (Covering Shepparton Irrigation Region, and the Goulburn Dryland Region)

- i. Maintain a policy and strategic overview of both irrigation and dryland salinity control activities within the regions.
- ii. Recommend further developments and refinements of the Goulburn Dryland and Shepparton Irrigation Plans. This refers to matters of Region-wide significance, and matters where there needs to be consistency between sub-regions.
- iii. Recommend priorities for establishing sub-regional salinity planning implementation groups.
- iv. Review budget proposals and priorities for all salinity-funded activities in the region, and, as part of the budgeting process, recommend regional priorities for salinity activities, including Priority Project Areas.
- v. Provide recommendations to Government on the allocation of salt disposal entitlements within the region.
- vi. Report on progress in implementing the salinity management plans. This will include preparing a public annual report detailing expenditure on salinity projects within the region and achievement of plan targets.
- vii. Undertake periodic reviews of project and program performance.
- viii. Develop a community education and public awareness program.
- ix. Provide a forum for seeking resolution of issues and disputes.

SPAC is expected to establish sub-committees responsible for the dryland and irrigation plans.

TABLE 3. Functions and Membership of Plan Implementation Groups (contd.)

- c. Functions of Salinity Plan Implementation Groups in the Goulburn Region
- i. Within the framework of the management plans, develop the individual sub-regional salinity control strategies in conjunction with State agencies.
 - ii. Present to SPAC the case for the particular sub-region's share of the Salt Disposal Entitlement available to the Shepparton Plan area.
 - iii. Sponsor the formation of Priority Project Areas.
 - iv. Endorse, to SPAC, Action Plans for Priority Project Areas.
 - v. Recommend to SPAC (as part of the annual budgeting process) priorities for all salinity activities in the sub-region.
 - vi. Advise SPAC annually on the implementation of salinity projects including rate of expenditure and achievement of targets.
- d. Functions of the Salinity Plan Implementation Group in the Tragowel Plains
- i. Maintain a policy and strategic overview of salinity control activities within the sub-region.
 - ii. Oversee the implementation and further development of the sub-regional plan in conjunction with agencies.
 - iii. Recommend to Government (as part of the annual budgeting process) priorities for all salinity activities in the sub-region.
 - iv. Present to the Government the case for the sub-region's future share of Salt Disposal Entitlements.
 - v. Report on progress in implementing the salinity management plan. This will include preparing a public annual report detailing expenditure on salinity projects within the region and achievement of plan targets.
- e. Membership
- i. The precise membership of sub-regional and regional implementation committees will need to vary to accommodate regional differences. However, the following membership features will be common to all groups:
 - the maximum number of voting members will be twelve.

TABLE 3. Functions and Membership of Plan Implementation Groups (contd.)

- there will be one member from DARA, and two members from DCE (with one representing the RWC). State Government members will not have voting rights.
 - the chairperson will be a non-Government member.
 - additional non-voting members may be co-opted to work with the group.
 - non-Government members will be paid appropriate remuneration.
- ii. For SPAC the following additional features will apply:
- Local Government, VFF and either the ACF or the CCV will each have a representative nominated by the State executive of the relevant organisation.
 - Each sub-regional SPIG will be represented.
 - The Salinity Bureau (DPC) and OWR will have membership.
- iii. For Salinity Plan Implementation Groups the following additional features will apply:
- community representatives are to be drawn from landholder groups within the plan area. Landholder groups would include Water Users groups and LandCare groups. In selecting community representatives consideration should be given to ensuring that there is adequate geographic representation from within the sub-region.
 - each municipality within the SPIG area will provide a representative.
 - VFF and either the ACF or the CCV will each have a representative nominated by the State executive of the relevant organisation.
- f. Appointment
- i. Because these groups are advisory committees to the Government, the Rural Affairs Committee of Cabinet must endorse the membership and chairperson.
 - ii. Membership of all groups will be initially for up to two years. At the end of that period further refinement of implementation arrangements may occur.

TABLE 4 : Role of Regional Co-ordinating Agencies

Regional Co-ordinating Agencies are responsible for:

- a. collating and forwarding funding proposals from all State agencies for projects necessary to implement the management plan.
 - b. appointment of a plan co-ordinator responsible for the day to day co-ordination of departmental and community salinity control activities.
 - c. provision of executive support to the community based implementation committee.
 - d. assisting the community implementation committee prepare an annual report of the implementation on the management plan to be presented by the co-ordination agency's Minister to the Cabinet Committee.
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PART 2

SALINITY MANAGEMENT PLANS

TRAGOWEL PLAINS SALINITY MANAGEMENT PLAN

BACKGROUND

The Tragowel Plains is one of the most salt-affected regions in Victoria. High watertables developed quickly after irrigation began late last century and now a high, varying saline, watertable underlies the irrigation district. In most places the watertable is within one metre of the surface.

Soil salinity levels in the northern parts of the area are very high and soil salinity in the south is increasing, causing serious loss of agricultural production and low farm incomes.

A large percentage of farms are too small (at existing productivity levels) to be viable without off farm income.

Irrigation intensity is low and spread over both low and high salinity soils. Some properties do not have enough water to irrigate all low salinity soils while others do not have enough low salinity soils on which to use their water allocation.

OBJECTIVE

The Government agrees with the plan's objectives to manage the salinity of the land and water resources in the Tragowel Plains to provide for a self-supporting community based on agriculture.

OUTLOOK

High pressures in the regional groundwater system will mean that shallow saline watertables will continue to underly the area. However, effective implementation of the Plan will affect the area as follows:

- Salinity increases in the area will be minimised
- Irrigated agriculture will concentrate on the low salinity soils with a corresponding increase in productivity
- There will be fewer, but more profitable farms with improved regional wealth resulting from farm amalgamation.

COMPONENTS OF AGREED PLAN

To meet the above objective the community has proposed on-farm management initiatives to move irrigation from unproductive high salinity soils to more productive low salinity soil, together with improved surface drainage for the low salinity soils. The Government supports this approach.

The major components of the thirty-year plan agreed by Government are:

Soil Salinity Surveys - Government to contribute 90% to cost of soil salinity surveys. All farms are to be surveyed by 1997. Soil salinity maps for the Plan area are to be maintained by DARA. Over the next five years, 75,000 hectares of land will be surveyed for soil salinity.

Whole-farm Topographic Survey and Design of Irrigation and Drainage Layout - On completion of soil salinity surveys Government will contribute 85% of the cost of the topographic survey and design necessary to concentrate irrigation on Class A and B soils. One hundred and thirty whole farm plans will be prepared over the next five years.

Landforming - Landholders to meet the cost of landforming on A and B soils with a further 3,000 hectares of land to be landformed over the next five years.

Revegetation of Class C and D Soils - Landholders to establish highly salt tolerant plant species on the C and D soils in previously irrigated areas at a rate of 1,400 hectares per year for the next five years. Government assistance of \$50 per hectare will be provided towards establishment costs and \$1,500 per kilometre for fencing costs.

Regional Drainage - Bullock Creek Improvement Trust works to continue subject to the availability of salt disposal entitlements and works being undertaken in an environmentally sensitive way as agreed by DCE. Over the next five years the initial works to improve the flow characteristics of regional drainage lines will be completed.

Community Surface Drainage - Existing incentives under the DARA Community Surface Drainage Grants Scheme will be available to provide surface drainage to A and B Class soils in Zones 4 & 5 and an area south of Mologa in the Bullock Creek Catchment subject to the availability of salt disposal entitlements and adequate monitoring of salt loads leaving the area. The target is construction of a further 350 kilometres of communal drains over the next five years by which time 80% of the sub-region will be serviced by community drains.

On-farm Drainage - A 50% Government subsidy will be available for the cost of installing on-farm drains to service Class A and B soils identified in approved Whole Farm Plans. Availability of grants is contingent on the completion of soil salinity surveys and

approved Whole Farm Plans. The target is to provide farm drainage for 10,000 hectares of irrigated land over the next five years.

Structural Adjustment - The Government strongly supports measures in the Plan to concentrate irrigation water on low salinity soils and to facilitate farm amalgamation. The Government will provide funding to offset stamp duty and interest rates for property amalgamation in the sub-region.

Tree Planting - The Government will provide funding to purchase trees suited to the local environment to be planted at the cost of landholders. The target is to plant 100,000 trees over the next five years.

Research and Monitoring - The Government will continue to fund:

- monitoring of salt loads, stream flows and groundwater levels in the sub-region
- research into salinisation processes, agronomic systems suited to the local environment and environmentally sensitive measures for managing drainage lines.

GOVERNMENT BUDGET

The Government budget for 1990/91 is \$1.87 million. The indicative five-year budget is \$11.6 million. Annual Government budget allocations will depend on the level of community support for the Plan, the economics of the works proposed and the total demands on the Government budget in each year.

SALT DISPOSAL

The Government has allocated 1.5 EC salt disposal entitlement for next 5 years and an indicative long term allocation of 2 EC.

IMPLEMENTATION ARRANGEMENTS

Implementation arrangements are outlined in Part 1.

CAMPASPE WEST SALINITY MANAGEMENT PLAN

BACKGROUND

The Campaspe West sub-region is one of the most productive dairying areas in Victoria. It covers an area of 5700 ha of which 3400 ha are irrigated. There are 76 farms in the sub-region.

Over 60% of the sub-region has watertables within 2 metres of the soil surface. The effects of salinity are visible in 13% of the area and an additional 23% is producing below its potential because of high watertables.

The production of the sub-region is being significantly decreased by salinity. In 1988 production was only 85% of its potential without salinity and the Working Group estimates that this will drop to 75% by 1993 and to 65% within 20 years.

The high conservation values of the Campaspe River and the wetlands of Murphy's Swamp and Richardson's Lagoon are under threat from salinity.

OBJECTIVES AND TARGETS

The Government supports the objectives of the Campaspe Working Group to:

achieve a sustainable salt and water balance for the sub-region and to reverse the decline in agricultural productivity caused by rising saline watertables by adopting the following principles:

- reduce accessions on farm to minimise requirements for groundwater pumping
- sub-surface drainage for safe discharge in the winter, to minimise downstream effects
- sub-surface drainage with maximum safe reuse within the sub-region in summer to minimise external drainage
- minimise discharge into the Campaspe River

OUTLOOK

Effective implementation of the plan will enable sustainable, high intensity irrigated agriculture to continue in the sub-region.

COMPONENTS OF AGREED PLAN

The major components of the ten year plan agreed by Government are:

Measures to Reduce Groundwater Accession on Farms

- Whole-farm Topographic Survey and Design of Irrigation and Drainage Layout - The Government will contribute 50% of the cost of topographic survey and design to a maximum of \$29.70 per hectare. A further 60 whole-farm plans will be completed over the next 3 years.
- Landforming - Target is 60 hectares per year for 10 years. Landholders to meet the cost of landforming.
- Trees Along Channels - The Government will meet 50% of the establishment cost of trees on private land and 100% of the cost on Rural Water Commission land. Trees to be planted along 21 kilometres of Rural Water Commission channels in the next 10 years.
- On-farm Drainage and Farm Channel Lining - Government strongly supports these activities given the good economic returns and contribution to accessions control. However the Government considers that the total cost should be met by landholders because of the substantial benefits to landholders who undertake these works. Twelve kilometres of farm channels will be lined over the next five years and drainage approved on 75% of all farms.
- Dryland Lucerne - The target is to plant lucerne pasture on 425 hectares of unirrigated land over the next five years. Landholders are to meet the cost of planting lucerne.
- Extension Support - The Government will provide extension assistance to landholders to implement the farm measures in the plan and to improve general irrigation management.

Regional Drainage

Final sections of drainage to be completed with a combination of RWC drains (cost share 75% government 25% landholder) and community drains. Existing incentives under the DARA Community Surface Drainage Grants Scheme will be available to provide surface

drainage. The target is to extend surface drainage over the next two years to the remaining 900 hectare of the sub-region currently not serviced by surface drainage.

Sub-surface Drainage

In response to concerns raised by members of the local community about the proposals in the draft salinity management plan the Government proposes a staged approach to sub-surface drainage in the CID.

Stage one involves installation of groundwater pumps in the northern half of the CID over the next 5 years with:

- maximum winter pumping and disposal to the Bamawm drains
- summer disposal for pumps west of Campaspe No 1 Channel to Bamawm drains,
- summer disposal for pumps east of Campaspe No 1 Channel to Campaspe No 1 Channel via a pipeline.

Stage 2 involves installation of groundwater pumps in southern half of CID as required with:

- maximum winter pumping with disposal to Bamawm drains
- Summer pumping collected into Campaspe No 1 Channel for reuse

The Government will continue to record and monitor the effectiveness of groundwater pumping in the CID.

GOVERNMENT BUDGET

The Government budget for 1990/91 is \$0.63 million. The indicative 5-year budget is \$3.4 million.

Annual Government budget allocations will depend on the level of community support for the Plan, the economics of the works proposed and the total demands on the Government budget in each year.

SALT DISPOSAL

A Murray-Darling Basin Salt Disposal Credit of 1 EC is required to implement the plan. The Government has allocated 0.5 EC salt disposal entitlement for next 5 years. In the longer term the Campaspe West Irrigation area will be considered in the context of the total Shepparton region in allocating the additional 0.5 EC necessary to implement Stage 2.

IMPLEMENTATION ARRANGEMENTS

Implementation arrangements are outlined in Part 1. Implementation of the management plan will be overseen by a community-based Salinity Plan Implementation Group (SPIG). The Government encourages consideration of the inclusion of the area within the Shepparton Irrigation Region Plan, and further resolution of the Campaspe West Plan in the context of the Shepparton Irrigation Region Plan.

The Campaspe West Working Group has proposed that community representative on the SPIG be appointed from the Western CID, Bamawm diverters and Campaspe River diverters.

DARA will co-ordinate the implementation of the Plan and provide necessary extension support for the community. DARA will also convene the technical support group of senior departmental staff for advice and support.

SHEPPARTON IRRIGATION REGION LAND and WATER SALINITY MANAGEMENT PLAN

BACKGROUND

The Shepparton Irrigation Region is a highly productive irrigation development over 500 000 ha of the northern Victorian Riverine Plains. It has 7300 irrigated dairy, mixed and horticultural farms and supports a rural and urban population of 100 000 people.

A high watertable currently underlies 32% of the Region. This is predicted to expand to 55% of the Region by the year 2020 in the absence of effective intervention.

The gross economic value of farm output in the "no salinity" case would be \$211 m per year. However, the gross economic value of farm production lost to salinisation is already \$20 m per year, and is expected to become \$37 m per year in 2020 if nothing further is done. Accompanying the loss of farm output would be a substantial "wind-down" of the regional economy on both the input and output side of farm production.

The Region is endowed with a large number of wetlands associated with present and past river systems, many of high conservation value. Much of this is at risk in a no-intervention scenario. Remnant vegetation from original open forests is already suffering from high watertables.

OUTLOOK

The thirty-year Plan will give local communities across the entire 500 000 ha of the Region an opportunity to address their waterlogging, salinity and productivity problems. The State and Federal Governments between them will contribute half of the total cost of the Plan.

Whole Farm Plans will be prepared for all properties in the Region. Government will contribute 50% of the cost of these. It is anticipated that landholders will undertake landforming and relayout so that by the Year 2020 three-quarters of the Region's perennial pasture and half of its annual pasture will have been given this treatment. This will be undertaken at a cost of \$138 million.

Surface drainage will be available to 80% or more of the total Region, up from the present coverage of 35%. The capital cost of this will be in the order of \$150 million. The State and Federal Government's share of the total program cost will be two thirds. Where external surface drainage is not feasible Government will contribute 30% towards the capital cost of on-farm re-use systems, which in the irrigation season, will provide a substitute for external drainage.

A combined public and private groundwater pump sub-surface drainage system will control soil salinities to acceptable levels in Priority Project Areas. In addition, Government will support groundwater pumping by individual landholders outside Priority Areas. State and Federal Government will bear 36% of the overall cost of the sub-surface program. It is estimated that approximately 100 000 ha could be substantially protected from soil salinisation with this approach. In economic terms, \$15 - \$20 million/year of the projected Year 2020 loss of gross output could be recovered.

A vigorous program of research will be undertaken. One key focus will be means of sustaining productive agriculture in situations where economic or disposal constraints limit the use of sub-surface drainage. Government, through pilot trials, will also assist the community investigate small scale groundwater pumping and evaporative disposal options, for use by individuals. The use of tile drainage as an element of "within farm" restructuring will also be trialled.

High Conservation Value wetlands through the Region will be largely protected from the effects of salinity, and salinity control works will incorporate measures to ensure their compatibility with natural environmental features.

GUIDING PRINCIPLES

The Community's plan contained four specific objectives.

The Government generally agrees with the Environmental Objective of the Plan. On balance, salinity control activities are to maintain and where possible, enhance existing ecological processes. Government recognises that it may not be possible to fully achieve this objective in all respects at all sites.

The Government strongly agrees with the Social Objective of providing the community with equal access to decision making resources. However, the community will need to make decisions on the use of economic resources which may not necessarily result in those resources being equally applied.

The Economic Objective of ensuring that the measurable and non-measurable benefits of salinity mitigation works exceeds the costs is supported by the Government.

The Government agrees also with the Financial Objective that the Plan be equitable and affordable at all levels of involvement, now and in the future, where the meaning of "equitable" is that beneficiaries pay in proportion to the benefits received.

COMPONENTS OF AGREED PLAN

The community proposed a comprehensive plan of farm activities, surface and sub-surface drainage, environmental works and measures, supported by research and investigations, and extension and advisory programs. The Government supports this wide ranging approach, and in general the types of measure proposed.

Whole Farm Plans

Government supports the target of all properties in the Region having a Whole Farm Plan, and will contribute 50% of the cost. Five year target: 25% of properties to have a Whole Farm Plan.

Landforming

The Government supports landforming as part of the Plan because of its role in increasing productivity and improving water use, and its potential contribution overall to salinity control. However, because the benefits are primarily in the form of productivity gains accruing to the individual, the cost of landforming will be borne by landholders and taken into account as a community contribution to the overall funding of the Plan. Five year target: an extra 55,000 ha of annual and perennial pasture landformed.

On-farm Drainage

The Government strongly supports the provision of on-farm (internal) drainage to capture the full benefits of provision of off-farm (external) drainage. The cost of on-farm drainage will be borne by the landholder. Government will assess the reasons for an apparent slower-than-expected implementation rate, and seek the community's view on how this might be addressed in future. Five year target: An extra 10 000 ha provided with internal farm drainage.

On-farm Re-use of Runoff

The Government agrees that on-farm re-use of runoff is a technically satisfactory measure which will provide drainage disposal for part of the year, and conserve water. Government will make available 30% grants towards the construction of such schemes, in areas where surface drainage is not available under the Plan developed by the community. Five year target: To be developed by the community.

Sub-surface Drainage

The proposal for sub-surface drainage by private and RWC groundwater pumps, with disposal by re-use and outfall is strongly endorsed. These activities have the highest Government priority for funding. For RWC groundwater pumps, Government will provide the initial capital as a grant. The community is requested to pay operation, maintenance, and current cost depreciation charges.

Government agrees with the Priority Project Area approach, and with the 80% grant for private pump construction in Priority Areas. It agrees with the 20% grant in the Continuing Program of private pumps outside of Priority Areas.

Government has noted the proposals for evaporative disposal, and also for use of tile drainage. Government has also noted the downwards revision of the economic benefits during the draft Plan review phase, and requests that:

- Public scale evaporation basins be justified in Priority Project Area submissions.
- Tile drainage and private scale evaporation basins be limited to a pilot trial of each in the next five years.

The Farm Exploratory Drilling Service, and the Groundwater Pumping Incentives Scheme will be continued, as requested by the Community. The present cost sharing arrangements will remain in place.

Government has noted the community's recent request for extensions of these schemes into dryland areas fringing the Irrigation Region. It requests that consideration be given to the definition of a boundary between those sections to be administered as part of the Shepparton Irrigation Region, and the Goulburn-Broken Dryland Plan.

Five year target: This will need to be redeveloped because of probable changes in the "mix" of groundwater pump types in recognition of the limitations of disposing saline groundwater to the Murray River.

Trees for Groundwater Control

The community plan proposed shelter belts and agroforestry covering 5% of the Region. As a salinity control measure this is not yet supported at the scale proposed because quantification of the benefits is not available. Accelerated research to quantify the benefits will be carried out at the Kyabram Research Station and in conjunction with the NSCP agroforestry demonstration project in the Shepparton Irrigation Region. The Joint Agroforestry Management Committee is to report by February 1991 on the desirability of incentives.

Rural Water Commission Drains and Community Drains

The Government agrees with the provision of surface drainage as part of the Plan. Government also notes the substantial advances made by the community and supporting technical staff in developing surface drainage strategies for the Region, and the six options that were developed (seven, counting one developed during the review phase). Government requests the community to build upon the very substantial base now available to refine further the surface drainage package, having regard to the following:

- Government will provide the capital for initial construction of RWC drains. That is, the 4% on capital is not required to be paid by the local community. However, the community is requested to pay operation, maintenance and current cost depreciation charges.
- For community drains, Government will provide grants for 90% of the cost of survey and design, and 50% of construction costs.
- Government supports RWC drains included in packages with community drains.
- Longer community drains than those contained in the draft community Plan should be considered.
- Economic evaluation should be carried out on a catchment-by-catchment basis, and consider all drains in each catchment as a package.
- All other things being equal, the Government will give preference to the surface drainage packages with the best economic returns.
- Community drains should bear a proportion of the operation, maintenance and depreciation costs of RWC drains in the same catchment. The proportion should be set such that the higher unit costs of RWC drains is "signalled" to landholders, and also that it does not indicate that surface drainage packages are more attractive than sub-surface drainage. Each catchment will have its own individually calculated RWC drainage tariffs.

It is suggested that the community recommend to Government a refined 5-year program based on the above guidelines which takes into account the need to provide a viable on-going program. The baseline budget for RWC drains over the next three years, in 1990/91 dollars, should not be less than \$1.385 m, \$1.25 m and \$1.1 m respectively to ensure an orderly redeployment of staff, if the RWC component is to diminish. For subsequent years the overall surface drainage budget should take into account the desirability of maintaining RWC expertise.

Government will provide technical support during the community's consideration of the drainage program. It will also seek to resolve the question of upgrading of existing outfall drains which have additional drainage works connected.

Government is also strongly of the view that to maximise the amount of drainage able to be provided per dollar spent, the standards of service, design and operation of RWC drains should be reviewed.

As requested by the community, Government will review the methodology of assessing farm benefits resulting from the provision of surface drainage. It will refine the estimates for the other types of surface drainage benefits.

Five year target for surface drainage: This depends on community's refinement of the package, but 30000 ha could be indicative.

Wetlands Along Drainage Lines

Government is generally supportive of the community's proposals for bypass drains around wetlands, and creation of wetlands in Prior Stream loops as compensation for wetlands drained elsewhere along the route. These proposals require further development. The cost of these measures is regarded as part of the cost of the drainage works, with the same cost sharing arrangements.

Water Harvesting as a Drainage Measure

Government will support this as a drainage measure. Guidelines are;

- Government will provide a 30% grant for construction where such schemes are economic; and drainage is not available under the Plan.
- The full consequences of injection to RWC channels are considered.

Environmental Measures

The community plan proposed the protection of river banks from slumping, and trees to protect streams from saline intrusions. These measures should be the subject of further research, and if appropriate, pilot trials. Government will provide virtually the full cost of appropriate research. If measures of this kind are implemented on a "production" basis, a local contribution would be appropriate, in accordance with current arrangements from stream management activities.

Protection of Isolated High Conservation Value Wetlands

Government supports the approach presented in the community Plan, of measures to prevent saline groundwater intrusions or saline runoff to individual "High

Conservation Value" Wetlands. The Department of Conservation and Environment will advise Government on a case-by-case basis whether a local contribution in cash or kind is appropriate.

Environmental Research and Investigations

The draft plan proposed research into various environmental issues, including the possible effects of surface drainage on Barmah Forest, and monitoring to detect degradation of wetlands. Government endorses the inclusion of this type of activity in the Plan.

Agronomic, Groundwater and Disposal Research and Investigations

Government agrees with the research and investigation proposals contained in the draft plan, within the guidelines on the balance between resources for research and remedial measures as outlined in Part 1. The community may need to reassess some research priorities, in the light of the reduction in the scale of groundwater pumping and disposal brought about by the limit on Salt Disposal Entitlements.

Extension, Advisory and Support Services

Government supports the inclusion of extension services in the plan, and will initially provide 100% of the funding required for an agreed level of extension activity. Eventually, a local financial contribution would be appropriate. The community will need to consider the priorities for creation of sub-regional implementation groups and provision of specific support staff.

The Government recognises the high level of community awareness generated by SPPAC in the Plan development and review phase and is providing funds for continuation of the activities and publications necessary to further develop the awareness.

Government will also contribute funding for the proposed Salinity Mediation Project and the local government Salinity Liaison Officer.

GOVERNMENT BUDGET AND COST SHARING

The Government budget for 1990/91 is \$8.09 million. Government notes with approval the agreement of local government to bear 17% of the operation and maintenance costs of public works included in the Plan. The community may need to consider the role of local government in meeting depreciation charges also.

Overall, 53% of the total cost of the Plan for the 30 year planning period will be borne by the landholders and the Regional community, and 47% by State and Federal Governments. The State is supporting a proposal to the Murray Darling Basin Ministerial Council that there be a joint State/Federal Murray Darling Basin

Drainage Program, with additional Federal Funding to accelerate the drainage components of the northern Victorian Plans.

An indicative 5-year budget for the total State and Federal contribution to the Plan is \$49.6 million. Annual Government budget allocations will depend on the level of community support for the Plan, including preparedness to bear the proposed operation, maintenance and depreciation charges, the economics of the works proposed, and the total demands on the Government budget in each year.

Government notes that the community in its draft Plan had begun to develop concepts of differential rating tariffs for public sub-surface drainage works. Government endorses the general concept, and requests the community to work further with the Rural Water Commission to develop a tiered tariff proposal that sees the direct beneficiaries, i.e. those in Priority Project Areas, paying a higher tariff.

SALT DISPOSAL

Government has allocated 3.4 EC maximum Salt Disposal Entitlement over the next five years to the Shepparton Regional Plan. The indicative long term allocation is 10.5 EC including 0.5 EC for a possible Campaspe West second stage. Government will bear the initial capital cost of these Salt Disposal Entitlements. The community will meet the ongoing costs of the Entitlements, as recommended in its draft Plan.

ENVIRONMENTAL PROCEDURES

Government notes the considerable attention devoted in the proposed Plan to environmental guidelines for on- and off-farm activities. Government will assist the development of a set of specific guidelines for dealing with the interaction between works and measures in the Plan, and environmental features, as noted in Part 1. The development of proposals for specific works and measures will be subject to normal environmental and planning assessment procedures.

The Community Surface Drainage Co-ordinating Committee convened by DARA will assist in this process of developing guidelines for Community Drains.

IMPLEMENTATION ARRANGEMENTS

See Part 1 covering all four Plans.

THE FIRST YEAR

Key activities in 1990/91 will include;

- Formation of the new Salinity Program Advisory Council, and two Salinity Program Implementation Groups.
- An acceleration of Community Surface Drainage.
- A commencement of the 20% and 80% grants scheme for private groundwater pump construction.
- The development of Priority Project Areas for sub-surface drainage in four localities.
- The extension of the Farm Exploratory Drilling Service and the Groundwater Pumping Incentives Scheme to dryland areas affected by the Irrigation Region groundwater mound.
- Accelerated research into the role of trees in groundwater control.

GOULBURN DRYLAND SALINITY MANAGEMENT PLAN

BACKGROUND

The Goulburn Broken Dryland catchment covers some 2.3 million hectares or about 10 percent of the occupied area of Victoria. Gross value of production from the 4000 farms is estimated to be \$190 million per year.

Already 3500 hectares are obviously salted and unproductive. A further 3500 hectares are showing early signs of becoming salted.

Each year 196000 tonnes of salt flow down the Goulburn River adding to salinity problems in the River Murray, Shepparton Irrigation Region and the Mallee.

Salinity in the catchment is the trigger for other serious forms of land degradation. The denuded salted soils erode readily leading to downstream siltation and flooding. Saline flows and rising saline groundwater have an impact on terrestrial and aquatic native plants and animal communities.

Salinity is already causing losses in agricultural production in excess of \$500,000 per year and has caused a loss in value of productive land in excess of \$3,000,000.

If nothing is done to control salinity it has been predicted that in 50 years time the area of obvious salted land could increase to 38,000 hectares with a further 38,000 hectares showing early sign of salinity. In the long term the total salt load leaving the area could double. Over three hundred wetlands are threatened by saline groundwater or increased stream salinity. The environmental value of over sixteen hundred kilometres of streams is at risk from increasing levels of salinity.

The dryland salinity in the catchment has been caused by the clearing of trees for agriculture and firewood and the subsequent establishment of crops and pastures, mostly shallow rooted and annual species. This has resulted in less of the rainfall being used by plants, increased infiltration and a rise in level of saline groundwater throughout the catchment. Land salinity occurs where this saline groundwater is close to the surface of the land. Stream salinity is caused by salt being washed off these areas and by saline groundwater discharging directly into streams.

OBJECTIVES

The primary objective of the plan is to reduce rainfall accessions to the groundwater system by planting areas of high or moderate infiltration potential (recharge areas) with high water using trees, pastures and crops.

A secondary objective is establish vegetative cover on denuded salt land and to control erosion from these areas.

Meeting these objectives will:

- reduce the potential long term economic losses
- reduce the compounding environmental and land degradation effects of expanding salinity
- reduce the increased salt loads to the Shepparton Irrigation area and into the River Murray
- reduce the likelihood of a significant social impact on landholders and regional communities.

COMPONENTS OF AGREED PLAN

The community plan identifies thirteen land management units based on geological features. Each unit has consistent salinity characteristics with common causes, effects and downstream consequences.

The plan proposes a comprehensive range of on-farm works to reduce rainfall accessions and to treat salt-affected land. The plan also includes research and environmental investigations together with extension and advisory service programs. The Government supports this range of activities.

The State Government is currently providing \$1.1 million to help farmers and LandCare Groups to treat the causes and effects of salinity in these land management units.

In addition to maintaining the existing level of funding throughout the catchment extra resources will be provided for land management units 6 and 7a.

These two land management units, which are in the south west corner of the catchment, have been given a high priority by Government for targeted action due to the impact that these areas have on the salt load in the Goulburn and Murray Rivers and their impact on regional groundwater bodies and hence downstream salinity problems.

The Government has made the following decisions about the activities proposed in the plan.

High Density Tree Establishment

Government supports the establishment of high density trees (approximately 200 trees per hectare) in areas of high recharge and low agricultural productivity. The area of high density tree establishment proposed in the plan is 3,700 hectares.

Analysis of the number of trees being established in recharge areas from 1985/86 to 1988/89 indicates that sufficient trees are being established to achieve the target of 3,700 hectares if trees were being planted only in the designated high recharge areas. At present some farmers with areas of high recharge land are not establishing trees.

In order to further encourage farmers in the high priority land management units 6 and 7a to establish high density trees, the Government has increased the maximum level of incentives in these land management units from 50% to 70%. These incentives will be reviewed in twelve months in light of further information on the main factors affecting landholder adoption of tree establishment and ongoing findings from research work on the evaluation of the impact of trees on recharge control.

Concerns were expressed during the period that the draft plans were released for public comment that more than 200 trees for hectare might be required to control recharge and salinity. As the existing data is inconclusive and the required number of trees is likely to be different in each land management unit, funds will be provided in 1990/91 for a research project to determine tree densities in each land management unit.

Low Density Tree Establishment

The community plan proposes low density trees (20 trees per hectare) be established on 24,000 hectares of productive grazing land. (These high recharge areas cannot be sown to high water using pasture.) This practice has not been widely adopted in the past. Between 1985/86 and 1987/88 only \$800 were provided as "off-schedule" incentives for the establishment of low density trees in these areas.

As with high density trees, the data on the effectiveness of low density trees in conjunction with pastures to control recharge and salinity is inconclusive.

On the basis that the practice will reduce groundwater accessions and salinity, the Government will provide incentives of up to 50% of the cost of establishing low density trees in the Goulburn Broken Catchment. Investigations will be carried out to refine the required tree density in each land management unit. Initial priority will be in land management units 6 and 7a.

Perennial Pasture Establishment

The community plan proposes the establishment of 29,500 hectares of perennial pasture in areas with moderate and high recharge rates.

Analysis of the uptake of incentives for establishment of perennial pasture in the catchment over the last four years indicates that the current level of establishment is below the targets set in the plan.

To increase the establishment of perennial pastures in moderate and high recharge areas Government has increased the level of incentives from 25 percent to 50 percent in land

management units 6 and 7a.

Rehabilitation of Discharge Areas

The community plan proposes the rehabilitation of 3,400 hectares of existing saline discharge areas with salt tolerant perennial pastures. It anticipates that a further 2,700 hectares will require rehabilitation in future.

Government supports the proposed actions to rehabilitate these areas because the salt-affected areas trigger other forms of land degradation. Government supports the continuation of the existing incentives as proposed in the community plan.

Concerns were expressed during the period of public comment that the plan should include planting of salt tolerant trees in discharge areas. Existing data on the effectiveness and economics of tree planting in discharge areas is inconclusive. Government will support investigations into the effectiveness and economics of tree planting in and around discharge areas where there is concurrent action to control groundwater accessions in recharge areas.

Environment Protection and Improvement

The community plan outlines the impact that existing and future salinity levels have on plant and animal communities in streams and wetlands throughout the catchment.

Government will support inventory and investigation projects to develop management prescriptions for the protection of areas of high conservation value that are at risk from salinity.

Education and Extension

Extension support will be focussed on the priority LMU's 6 and 7a to provide the support required to increase the uptake of land use measures by landholders for recharge control in those areas.

This will be done through LandCare groups and other forums for landholder support for advice on identifying the priority recharge areas on individual farms, preparing a whole farm plan, the use of tree and/or perennial pasture (including economic advice), and the details for species selection, establishment and management.

The community education program will continue with schools (through such activities as "Salt Watch"), land protection groups, local government, service clubs, environment groups, other community organisations and the media.

Research and Investigation

The plan proposed by the community outlines a comprehensive list of agronomic and tree

research plus hydrogeological and stream salinity investigations which are required to further develop and refine the on-farm works programs proposed in the plan.

In addition to completing existing research and investigation projects Government will support additional projects to:-

- refine required tree densities in recharge areas
- determine pasture management practices to control accessions in recharge areas
- identify recharge areas and develop appropriate land management practices for the Riverine Plain Land Management Unit.

Monitoring and Review

Government supports proposals in the plan for monitoring and reporting both the implementation and effectiveness of the works to control salinity. This will provide the basis of reviewing and setting priorities for future action.

GOVERNMENT BUDGET

The Government budget for 1990/91 is approximately \$1.68 million, including \$250,000 from the Commonwealth Government through the Murray-Darling Basin Natural Resources Management Strategy and the Federal Water Resources Assistance Program. It is anticipated that additional funding will be provided through the National Soil Conservation Program. The indicative 5 year budget is \$8.4 million.

LOCAL GOVERNMENT

Government notes and supports proposals in the plan to work with local government to develop appropriate salinity planning material for their Planning Schemes. Land capability studies will provide a good base for establishing planning guidelines and setting priorities.

LAND USE INSTRUMENTS

Tree Preservation

Government notes and supports proposals to encourage landholders to manage their existing tree cover. Since 1985/86 more than \$25,000 has been provided each year under the Land Protection Incentives Scheme for on-farm regeneration projects in the Goulburn Broken Catchment. Government will continue to support regeneration.

Conservation Covenants

Government notes and supports proposals that conservation Covenants could be used to protect revegetation works for future generations.

IMPLEMENTATION ARRANGEMENTS

As outlined in Part 1, the implementation of the Management Plan will be overseen by the Goulburn-Broken Region Salinity Program Advisory Council (SPAC).

SPAC will have a separate sub-committee responsible for the Goulburn Dryland Salinity Management Plan.

SPAC will consider the formation of Salinity Program Implementation Groups (SPIG) required to implement the Plan. Initial emphasis will need to be given to the priority land management units 6 and 7a.

The Department of Conservation and Environment (DCE) will appoint the Plan Coordinator who will be responsible for the day-to-day planning and programming of the Plan. DCE will also convene the Goulburn Broken Dryland Technical Working Group.

THE FIRST YEAR

- The Goulburn-Broken Salinity Advisory Council will establish a Dryland Sub-Committee for the Goulburn Dryland Salinity Management Plan.
- The Department of Conservation and Environment will appoint a Plan Coordinator.
- Salinity Plan Implementation Groups (SPIGs) will be established in priority areas and a program of on-farm works commenced for tree and perennial pasture establishment.
- Incentives for high density tree establishment in the high priority Land Management Units 6 and 7a will be increased to 70%.
- Incentives of 50% for pasture establishment and fencing will be applied in the high priority LMU's 6 and 7a.
- A study of the impact of salinity on environmental values will be initiated.
- Research will be undertaken on tree density, particularly to address the role of low density tree establishment as a means of recharge control.
- Research will be undertaken to improve the effectiveness of perennial pasture for recharge control.
- The stream monitoring program will be continued to measure salt loads and the effects downstream on Shepparton and the Murray River.

ABBREVIATIONS

ha	hectare
ACF	Australian Conservation Foundation
CCV	Conservation Council of Victoria
DARA	Department of Agriculture and Rural Affairs
DCE	Department of Conservation and Environment
DPC	Department of the Premier and Cabinet
OWR	Office of Water Resources
RWC	Rural Water Commission
SPAC	Salinity Program Advisory Council
SPIG	Salinity Plan Implementation Group
SDE	Salt Disposal Entitlement
VFF	Victorian Farmers Federation