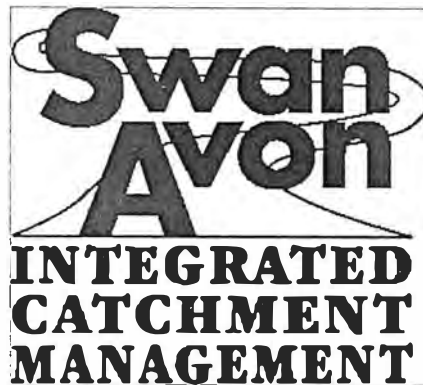


# WORKING TOGETHER



A RECOVERY ACTION PLAN FOR  
THE SWAN-AVON CATCHMENT

1997 ~ 2007

Prepared by the Swan-Avon ICM Coordinating Group  
February 1997

## CHAIRMAN'S FOREWORD

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This plan has been prepared by the Swan-Avon Integrated Catchment Management Coordinating Group (SAICMCG) and the two working groups from the Swan Coastal Plain and Avon River Basin. The plan draws upon information and ideas gathered from the community of the Swan-Avon Catchment.

This is a strategic plan which provides the framework for planning at the catchment, individual farm, business enterprise and householder level. This framework will in turn determine the priorities for works on the ground and act as a basis for securing and allocating resources.

The title of the document is "Working Together". This has been chosen to represent both a goal and an underlying principle on which to base recovery work and management of natural resources in the Swan-Avon Catchment.

In order to achieve our goals we believe that it is necessary for community wisdom, resources and energies to be marshalled and focussed. There are many stakeholders within the Swan-Avon Catchment and many beneficiaries of its providence. In the past these stakeholders and beneficiaries have often failed to work together towards a common end. Consider, for example, the traditional relationships between the following:

- City and rural people
- Federal, State and local governments
- Government agencies and communities
- Farmers and townspeople
- Scientists and managers
- Conservationists and producers
- Community groups and individual landowners.

There are examples which demonstrate the capacity of divergent groups to work together, given common goals and good leadership. The Swan-Avon Integrated Catchment Management (ICM) initiative offers both the opportunity and the mechanism to provide the necessary goals and leadership within the Swan-Avon Catchment to draw people together, to show them the "common good" and to help provide the means for them to work towards it.

This strategic plan sets out the way we would like to see this happen. It presents a blueprint for action over the next ten years, within the framework of a 200-year vision. This document also details a list of projects initiated by the SAICMCG that address priority issues in the Swan-Avon Catchment identified through extensive community consultation. These projects have been developed as partnerships between the community, State and local government and private enterprise. The SAICMCG is seeking funding for these joint projects through the Natural Heritage Trust, to complement the enormous contributions being offered by the Swan and Avon communities, State and local governments and private industry sponsorship.

Noel Robins,  
**Chairman, Swan-Avon Integrated Catchment Management Coordinating Group.**

## Membership and Stakeholder Representatives of the Swan-Avon Program

### Swan-Avon Integrated Catchment Management Coordinating Group

|                                |   |
|--------------------------------|---|
| Mr Noel Robins (Chair)         |   |
| Mr Michael McFarlane (D/Chair) | Community, Avon Catchment                       |
| Ms Patricia Hart (D/Chair)     | Community, Swan Catchment                       |
| Mr Max Hipkins                 | Community, Swan Catchment                       |
| Vacant                         | Community, Swan Catchment                       |
| Mr Graeme Blight               | Community, Avon Catchment                       |
| Ms Darralyn Ebsary             | Community, Avon Catchment                       |
| Ms Veronica Cooke              | Local Government                                |
| Mr Doug Morgan                 | Avon River Management Authority                 |
| Mr Darrel Brewin               | Agriculture Western Australia                   |
| Mr Viv Read                    | Water and Rivers Commission                     |
| Mr Ken Wallace                 | Dept Conservation and Land<br>Management (CALM) |
| Ms Rachael Siewert             | Conservation Council of WA                      |
| Vacant                         | Ministry for Planning                           |

### Swan Working Group

|                          |  |
|--------------------------|--|
| Ms Patricia Hart (Chair) | Community, Canning Catchment<br>Coordinating Group |
| Ms Margaret Fewster      | Community, Ellen Brook Catchment                   |
| Mr Bevan Carter          | Community, Bennett Brook<br>Catchment Group        |
| Mr Pat O'Hara            | Community, Bayswater ICM Group                     |
| Mr Max Hipkins           | Community, Planning Consultant                     |
| Ms Sue Graham-Taylor     | Conservation Council of WA                         |
| Mr Gerry Parlevliet      | Agriculture Western Australia                      |
| Ms Bev Thurlow           | Water and Rivers Commission                        |
| Mr Charlie Nicholson     | Dept. of Environmental Protection                  |

### Avon Working Group

|                              |   |
|------------------------------|---|
| Mr Michael McFarlane (Chair) | Community, Yilgarn Subcatchment           |
| Mr Kennedy Miller            | Community, Yilgarn Subcatchment           |
| Ms Darralyn Ebsary           | Community, Lockhart Subcatchment          |
| Mr Ben Davey                 | Community, Avon Subcatchment              |
| Ms Noela Maitland            | Community, Avon Subcatchment              |
| Mr Graeme Blight             | Community, Avon Subcatchment              |
| Mr Doug Morgan               | Avon River Management Authority           |
| Mr Darrel Brewin             | Agriculture Western Australia             |
| Mr Ken Wallace               | CALM                                      |
| Mr Viv Read                  | Water and Rivers Commission               |
| Prof. Murray McGregor        | Wheatbelt Development Commission<br>Board |

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## EXECUTIVE SUMMARY

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The Swan-Avon Catchment is one of the great geophysical and economic regions of Australia. It encompasses the Perth metropolitan area, the major fresh water catchment areas of the Darling Ranges and a vast and highly productive agricultural and mining region to the east. Seventy-five per cent of Western Australians live within this catchment and it has an annual productive capacity worth \$2,016 million.

All of these areas are linked and inherently integrated by one physical feature: the Swan/Avon River, its major tributaries and the catchment.

The present high quality of life and economic value of this region are under serious threat. This has occurred because existing land use systems are unsustainable and because the community has not been organised well enough to replace them with better systems.

The expressions of the underlying land use problems are becoming increasingly evident and are causing significant community concern. These include: rising saline groundwaters; loss of agricultural land; loss of amenity in country towns; salty, silted and polluted rivers; loss of groundwater resources; deteriorating wetlands; degraded bushland and significant decline in natural biodiversity.

There are two principal difficulties. Firstly, the land use problems in the region are diverse and difficult and the underlying science is not yet fully understood. Secondly, it is necessary both to fix the problems and to maintain current productivity and rural/urban economies. The greatest need therefore is for the adoption of new systems, not technological repairs.

A breakthrough in the region occurred in 1994 with the development of the Swan-Avon ICM initiative, which successfully sought funding from the Commonwealth and WA State Governments. This initiative is managed by the SAICMCG which seeks to marshal and focus the collective resources, wisdom, experience and competencies within the region to address the problems of the Swan-Avon Catchment.

The SAICMCG, supported by two working groups for the Swan Coastal Plain and Avon River Basin, has made considerable progress and has significantly matured during the last three years. It is now in a position to think and act strategically and has developed and expressed its vision, goals and priorities for the region for the future. This Recovery Action Plan is the outcome of this process. It identifies the values of the region, the threats to these values and the opportunities which need to be created or taken up, and sets out a plan of action for the next ten years.

An eight-point action plan is proposed as follows:

- Raising community awareness and changing community attitudes;
- Providing strategic direction for action;
- Developing new land use systems and sustainable land use practices;
- Conserving and recovering natural biodiversity;
- Recovering rivers and wetlands;
- Promoting research and development;
- Monitoring and evaluation; and
- Securing the resources for action.

Priorities for action are established, along with performance indicators and measures. The way in which the plan will be administered and implemented on the ground is detailed.

A set of project proposals for funding in the period 1998-2001 are attached to this Recovery Action Plan. These proposals reflect the goals and the priorities which the plan has established.

The SAICMCG has no statutory powers. The Group sees itself as a mechanism for coordination and for channelling resources in the right direction. The Group aims to achieve its goals through leadership, persuasion, communicating information and know-how and by influencing what happens on the ground by influencing where grants are applied.

The most important role of the SAICMCG is two-way communication. That is:

- i. capturing and expressing the views and concerns of the community;
- ii. providing the networks for efficient information flows out to all members of the community;
- iii. providing direction and leadership for long-term economic prosperity and ecological sustainability of the catchment.

As a demonstration of their commitment to ICM in the Swan-Avon Catchment local groups have committed \$9.3M and State agencies \$8.3M to projects over the next three years.

The SAICMCG, on behalf of the communities they represent, is seeking a further \$14M from NHT to continue supporting the ICM efforts of State agencies and the communities of the Swan Coastal Plain and the Avon River Basin.

# 1. INTRODUCTION

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## 1.1 The setting

The Swan-Avon Catchment in Western Australia is one of the great geophysical regions of Australia (see Map 1). It supports nearly a million and a half people (three-quarters of the State's population) and the bulk of the State's industrial, commercial and agricultural land uses. Specifically:

- The Avon River Basin drains an area almost twice the size of Tasmania, or an area one tenth of the size of the Murray Darling Basin. It encompasses the primary cereal, lupin and wool growing regions of Western Australia. This area has an annual production worth in excess of \$2,016 million.
- The Swan River, into which the Avon and Canning rivers and several other major tributaries flow, is the focal feature of the city of Perth and is enjoyed for its beauty, wildlife and range of recreational opportunities. The Swan Coastal Plain encompasses the urban and business heart of the city and its immediate hinterland of intensive horticulture and small rural holdings. The Coastal Plain is required to cope with the urban growth of Australia's fastest growing capital city.

This area is also one of the oldest and most complex of lands. For millions of years it adapted at its own pace to geological and climatic change. Over the last 150 years it has been subject to massive human-imposed change, with dramatic consequences.

In terms of area, both the Avon River Basin and the Swan Coastal Plain are dominated by private holdings devoted to agricultural and horticultural production and as such are a cornerstone of the State's economy. They also contain urban areas, and bushland of high multiple use values including nature conservation and water and timber production. Within the one catchment there is a great diversity of land uses: State forests, a capital city, rural towns, heavy industry, water catchment areas, intensive horticulture, hobby farms, broadacre farms, pastoral stations, national parks, rivers and wetlands.

Compared with many parts of the world this is a region of prosperity and quality lifestyles. Because of the central importance of the Perth metropolitan area and its agricultural heartland to the well-being of the whole State, all Western Australians are stakeholders in the Swan-Avon Catchment and are its beneficiaries.

However, underlying this harmonious picture are a range of significant and expanding environmental problems. These are a serious threat to the prosperity, productivity and nature conservation values of the catchment. Symptoms of these problems have been apparent for many years and are already reducing the quality of life in the region.

For example:

- there has been widescale degradation of waterways as a result of salinisation, sedimentation, loss of riparian vegetation and organic matter, and nutrient enrichment. This has seriously affected the quality and use of the river system and numerous wetlands.
- there has been a serious loss of productive agricultural soils to salinity and waterlogging and this is reducing wealth creation.
- there has been a massive decline in biodiversity including loss of numerous species of native flora and fauna and of wetland and riverine ecosystems.
- there are pests, weeds and feral predators present in increasing numbers throughout the Swan-Avon Catchment.
- algae blooms occur annually in the Swan and Canning rivers and the latter has become choked by exotic weeds in many places.
- rising saline groundwaters are threatening rural towns, homesteads, surface and groundwater resources, roads and railways.
- soil acidification and soil structure decline are prevalent and significantly reducing agricultural production.
- the bulk of the pools in the Avon River have silted up, or are threatened with siltation.
- there is a serious threat to groundwater resources in the groundwater mounds underlying Perth (which are potentially affected by salinisation, sewage, nutrients and chemical and industrial pollutants); and already there has been a serious deterioration of farm water supplies which are affected by salt.

These problems are often referred to as “environmental” but in fact they threaten the whole socio-economic fabric of the Swan-Avon Catchment. Linked to them are the critical social pressures associated with declining rural population and increasing urban population.

Furthermore, all of these problems are growing. It is now estimated that if left unmanaged, up to 40% of the productive agricultural land in the Avon River Basin will become degraded by salinity. The bulk of the conservation reserves in the lower-lying parts of the topography will become saline and waterlogged; soil will continue to erode from paddocks at an average rate of 5 mm per decade; over 35% of agricultural soils will have unacceptably high acidification or be rendered less productive as a result of soil structure decline; the Swan Estuary will suffer widespread eutrophication as a result of increased loads of organic matter and nutrients; urban groundwaters and wetlands will become increasingly polluted from runoff from roads, fertilisers and industrial effluent; and many rural towns and attractive landscapes will be destroyed by rising saline groundwaters.



## 1.2 The formation of the Swan-Avon ICM initiative

Recognition of the problems, and extrapolation of their impacts on the future productivity and prosperity of Western Australia, have led the community to look for the underlying causes and to try to devise effective means of tackling these causes.

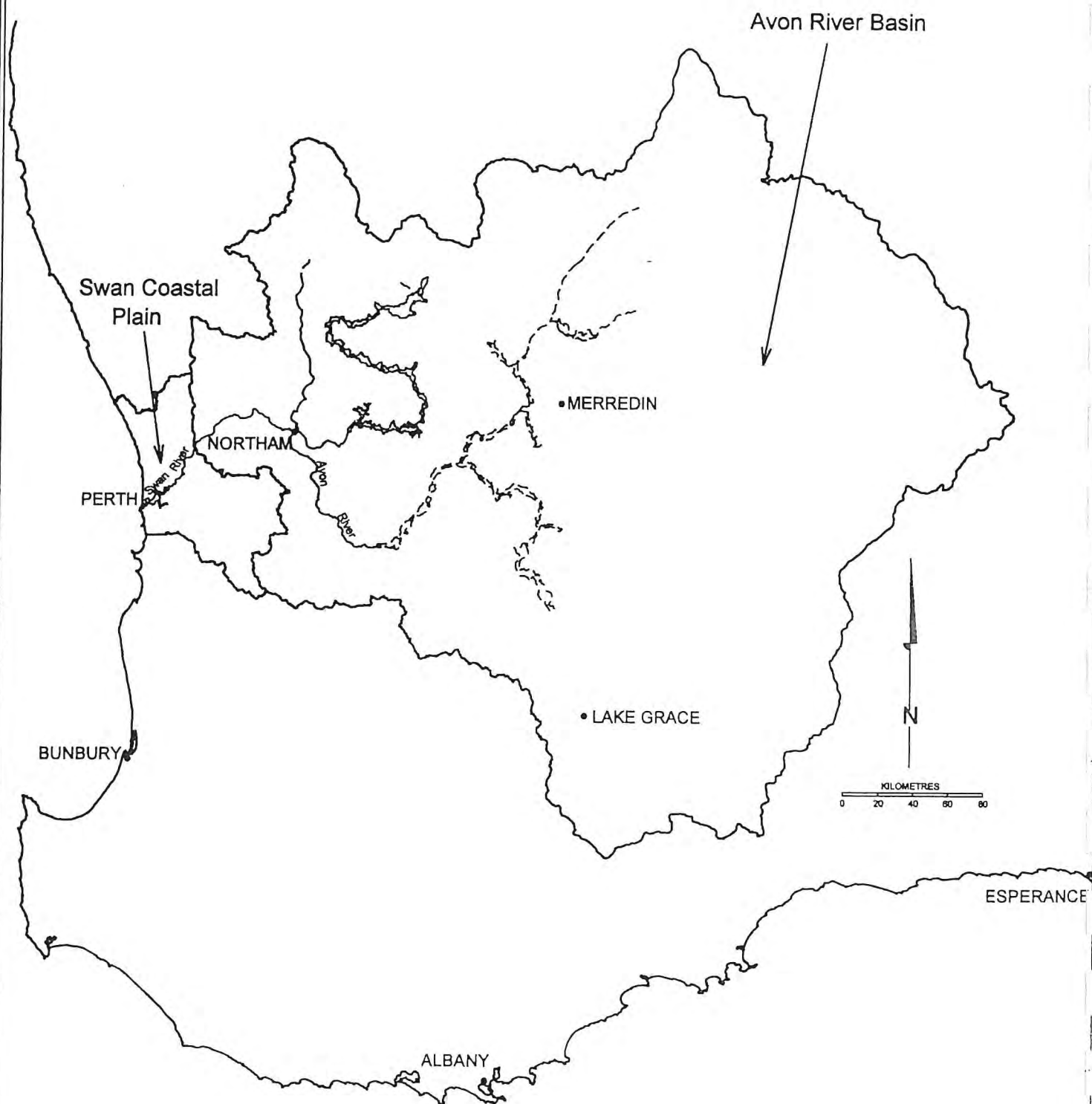
Two things are now widely accepted. Firstly, the central problem is that the system of land use developed in the early days of settlement is fundamentally unsustainable. Secondly, the problem is not simply owned by farmers or by industry or government - the whole community has benefited from the land use systems adopted in the past, the whole community is potentially threatened by its impacts, and therefore the whole community must work together on the solutions.

In the Avon River Basin alone there are some 726 subcatchments on which ICM programs need to be devised and implemented. No single agency could hope to tackle a task of this dimension. The community must be mobilised and empowered to act.

Since the late 1980s a number of initiatives under the general banner of "*landcare*" have been adopted by individual farmers, by landowners working together cooperatively in small groups, and by industry, urban community groups, local government authorities and Western Australian government agencies and authorities. This work has been substantially supported by the Federal Government through funding schemes such as the National Landcare Program. However, it is generally felt that the adoption of change is too slow and that the extent of the problems, especially salinity whose effects impact on so many other aspects of life, is continuing to outpace the positive work which is being done.

A breakthrough came in 1994 with the inception of the Swan-Avon ICM Program and the formation of the SAICMCG with its associated working groups. For the first time a mechanism existed which ensured community and agency input and cooperation. Focussed on the "big picture", the regional initiative had the capacity to attract and manage significant resources and provide for regional delivery with community participation.

Fig 1 : Swan Avon Catchment Locality Map



### 1.3 Guiding principles of the Swan-Avon ICM Program

The Swan-Avon ICM regional initiative is significant because it is based on three key principles:

- The *principle of integration* which recognises the need to consider linkages and interdependencies within the systems as well as the need to marshal and focus resources across geographic areas and agencies;
- The *principle of innovation* which recognises the need to find new ways of looking at the problem and new approaches to its solution and the need to bring new players into the arena;
- The *principle of involvement* which recognises the need to develop effective partnerships between the full range of stakeholders and to give the community an important voice and a recognition of the key role it plays in the job to be done.

These three principles are in turn welded to the overriding principle governing land use and land management in Australia: the *principle of ecologically sustainable development* which seeks to ensure that development which improves the quality of life occurs only in a way that maintains biological diversity and the ecological processes on which life depends.

## **1.4 Priority concerns**

The SAICMCG has identified the following five priority areas (not ranked in order of priority):

### **1. River, estuarine and wetland environmental management:**

- reducing siltation and eutrophication;
- improving water quality in waterways, lakes and wetlands;
- fencing and revegetating waterways and drainage lines;
- recognising and maintaining the value of natural landscapes in flood mitigation programs;
- improving the environmental performance of drains in urban areas;
- improving public amenity and the value of land adjacent to waterways.
- maintaining stream and river flows that are adequate for environmental purposes;
- minimising sewage inflow to waterways and groundwater resources.

### **2. Conserving and enhancing natural biodiversity:**

- raising awareness of the value of nature conservation;
- managing and protecting remnant natural vegetation;
- protecting native flora and fauna;
- revegetating to protect nature conservation values;
- demonstrating to land managers/owners that conserving natural biodiversity is an essential component of sustainable, profitable agricultural systems;
- developing effective and economic pest, weed and feral animal control systems.

### **3. Water and salinity management:**

- increasing water use throughout the agricultural landscape;
- controlling and reversing rising water-tables;
- maximising the use or storage of water where it falls;
- installing modern ecological drains in urban areas;
- developing and implementing an environmentally effective drainage policy for rural, industrial and urban lands; and guidelines for surface and deep drainage and pumping of agricultural land;
- developing commercial uses for salt-affected land;
- salinity management;
- mitigating floods and managing stormwater;
- developing high water-use cropping systems;
- protecting urban groundwater resources and wetlands.

### **4. Soil conservation:**

- improving soil structure and fertility on agricultural land;
- improving agricultural production without degrading soils;
- identifying best and most sustainable practices for each land use;
- developing new, profitable and sustainable farming systems for farmlands.

## **5. New attitudes and cultural change:**

- encouraging and demonstrating how the community can work towards quality of life at the same time as improving economic prosperity;
- enhancing cultural change, resulting in communities working together with the land;
- demonstrating new and successful systems.

Through the process of strategic planning and community consultation, each of these issues will be addressed by being refined into specific objectives and projects, as part of an integrated Recovery Action Plan for the catchment.



## **1.5 Performance/benefits of the Swan-Avon ICM Program to date**

Since its inception, the Swan-Avon ICM Program has developed dramatically and is now regarded by stakeholders as a legitimate community process and a powerful force for inter-agency cooperation at the regional level and integration of agencies and community groups at the local level.

Details of current work under the initiative are set out in Section 3.7 of this plan, but the key developments have included:

1. The establishment of a community-based structure to oversee the program. This comprises the SAICMCG and two working groups, one each focussing on the Swan Coastal Plain and the Avon River Basin. Membership of the groups is drawn from the communities represented, local government and relevant agencies.
2. An active program of two-way community consultation involving regional meetings, public workshops, delegations to shire councils, surveys to determine community views on issues and priorities and the distribution of newsletters and press releases providing opportunities for community input.
3. Regional support staff have been put in place and a wide range of projects have been initiated on the ground. The primary impetus for this development was the injection of federal and matched State funds which occurred through the Swan-Avon ICM regional initiative in 1994.
4. A community information and communication program has been developed and is in place. This encompasses the provision of two community catchment centres, whose primary role is to create awareness, disseminate information, support ICM and environmental groups and develop networks to facilitate improved and better integrated land management in the Swan-Avon Catchment. The Swan and Avon ICM information networks are growing steadily.

The ICM program in the Swan-Avon Catchment has now matured to the extent that those involved are ready to provide strategic leadership for action over the next ten years through this Recovery Action Plan, to seek a further commitment of support from the Federal and State Governments, and to streamline the structures and partnerships which will ensure the plan is implemented in an efficient and coordinated manner.

## **1.6 Expectations of this Recovery Action Plan**

It is expected that this Recovery Action Plan for the Swan-Avon Catchment will look ahead many years and will have the following outcomes:

1. The plan will provide an overview of the action necessary to recover and enhance the environmental, productive and social values of the Swan-Avon Catchment.
2. The plan will have a long-term vision but will identify immediate priorities for action.
3. The need for the plan and for its implementation will be widely understood and supported within the whole community.
4. Action will focus on the causes of our problems and on our understanding of them, rather than on symptoms.
5. The plan will avoid the two great traps of land management: (i) planning for the sake of planning with no outcomes on the ground; and (ii) unplanned ground works leading to lack of coordination, waste of precious resources, low success rates, disenchantment and failure to tackle priority issues.
6. Progress towards objectives (including socio-economic as well as environmental) will be objectively monitored, evaluated and widely publicised.
7. The plan will be supported by the stakeholders and the beneficiaries of the Swan-Avon Catchment to the extent that solid commitments are made to the action proposed.
8. The plan will be dynamic and capable of responsive change during its lifetime as the results of research and practical experience come in and as community attitudes and priorities evolve.

## **1.7 Linkage to the State's Salinity Action Plan and to other organisations**

In November 1996 the WA Government adopted a Salinity Action Plan. This plan recognises that salinity in Western Australia is one of the State's most serious environmental problems and is a significant threat to agricultural industry. The Salinity Action Plan proposes a series of measures which will ameliorate the problem, and mechanisms for their adoption and implementation.

Because salinity is the major problem of the Avon River Basin, there is a substantial overlap in interests, aims and proposed actions between this Recovery Action Plan and the State's Salinity Action Plan. The Salinity Action Plan addresses salinity-related social, productive and environmental problems within the Swan-Avon Catchment and demonstrates strong support for our vision and objectives. The Salinity Action Plan directs resources to salinity management both within and outside the Swan-Avon Catchment and thus may assist the SAICMCG to develop landcare systems with State-wide applicability. Our aim is to integrate the two action plans to maximise the opportunity within the Swan-Avon Catchment.

A range of other organisations are concerned with aspects of land management and conservation in the Swan-Avon Catchment. These include:

- approximately 50 Land Conservation District Committees (LCDCs);
- corporate sponsors of landcare such as Alcoa of Australia Ltd., or community based educational and funding bodies with an emphasis on revegetation such as Greening Western Australia;
- many local community neighbourhood catchment groups;
- numerous community conservation, rivercare or land management groups, examples of which are the Canning Catchment Coordinating Group, the Ellenbrook Catchment Group and the Yenyenning Lakes Management Group;
- over 50 local government authorities;
- professional bodies such as the Land and Water Resources Institute, Institute of Agricultural Science and the Institute of Foresters;
- schools and other educational institutions;
- scientific institutions such as CSIRO;
- sporting groups and event organisers that use the rivers;
- State Government agencies including;
  - Aboriginal Affairs Department
  - Agriculture Western Australia
  - Department of Conservation and Land Management
  - Department of Environmental Protection
  - Department of Transport
  - Environmental Protection Authority
  - Main Roads WA
  - Ministry for Planning
  - Water and Rivers Commission
  - Wheatbelt Development Commission;
- the Avon River Management Authority;
- the Swan River Trust.

Strategic plans covering parts of the catchment have been or are being developed by the Ministry for Planning, local government authorities, the Wheatbelt Development Commission, the Avon River Management Authority, the Upper Canning Catchment Coordinating Group, CALM (for the Wheatbelt Region), the Yenyenning Lakes Management Group and numerous local landowner groups.

A major aim of the Swan-Avon ICM Program is to identify all of these resources and interest groups, to involve them effectively in the recovery and good management of our catchments and to ensure that planning at all levels and by all stakeholders dovetails together into a truly representative regional plan. This is seen as highly achievable because of the high level of cross-membership between bodies and institutions in both the Swan Coastal Plain and the Avon River Basin.

## 2. VISION FOR THE SWAN-AVON CATCHMENT

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### 2.1 The long-term vision

A 200-year vision for the Swan-Avon Catchment has been adopted. This envisages prosperous rural and urban communities living on the Swan Coastal Plain and the Avon River Basin which:

- have taken responsibility for the management of the landscape so as to ensure the protection of biological diversity and the maintenance of ecological processes; and
- are working together cooperatively to enhance the social, economic and environmental well-being of present and future generations.

Implicit in the above is a more focussed vision of the future Swan-Avon Catchment and its management. This envisages:

- healthy, unpolluted rivers and lakes surrounded by thriving natural ecosystems;
- sustainable and profitable land use systems which ensure prosperity without degrading the soil or waterways;
- clean production processes or redirection of industrial, agricultural and urban effluent from rivers and wetlands; and
- local communities clear about their goals and empowered to act on them.

### 2.2 Immediate goals

Underlying and supporting the long-term vision are a number of immediate goals for the Swan-Avon Catchment. These are:

- To raise community awareness of the need for sustainable land use in the Swan-Avon Catchment and of the steps and the resources needed to bring this about;
- To change community attitudes and practices to embody sustainability as the fundamental principle guiding all land use and land use planning;
- To improve the ability of the community (including all existing organisations) to work together in effective partnerships, marshalling their resources and focussing them on the priority issues. In particular, to improve the linkages between city and country communities and between urban and rural people;
- To develop site-matched best practices and new agricultural systems aimed at the recovery of degraded waterways, wetlands, soils, water resources and natural ecosystems, to ensure protection of these resources in the future and to ensure that best practices are implemented as soon as practicable;
- To give land managers the confidence to invest in and adopt sustainable land use practices;
- To put in place a monitoring and evaluation system which establishes a baseline and enables progress towards the objective measurement of goals; and
- To secure resources to enable all of the above to be achieved.



### 3. REGIONAL PROFILE

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#### 3.1 The socio-economic picture

Of the Swan-Avon Catchment's population of 1.45 million, approximately 1.4 million reside on the Swan Coastal Plain and 54,000 live in the Avon River Basin.

The Swan-Avon Catchment comprises four subregions based on the catchment systems of the Swan and Avon rivers. These are:

- the Swan Coastal Plain, encompassing the Swan-Canning Estuary (see Map 2);
- the Avon River Basin, encompassing the Avon, Mortlock and Dale River Catchments); the Lockhart subcatchment and the Yilgarn subcatchment (see Map 3).

The Lockhart and Yilgarn subcatchments encompass vast areas of self-draining lake systems or ill-defined drainage areas through which occasional floodwaters will drain into the Swan Estuary via the Avon River. Geographic statistics for the Avon River Basin are set out in Table 3.1.

**Table 3.1: Geographic statistics of the Avon River Basin**

| Catchment    | Catchment area<br>(million ha) | Number of<br>farms | Total farmed<br>area<br>(million ha) |
|--------------|--------------------------------|--------------------|--------------------------------------|
| Avon         | 2.84                           | 1918               | 2.57                                 |
| Lockhart     | 3.76                           | 1247               | 2.79                                 |
| Yilgarn      | 5.57                           | 833                | 2.85                                 |
| <b>Total</b> | <b>12.17</b>                   | <b>3998</b>        | <b>8.21</b>                          |

Although linked by the rivers which flow through them, the Swan Coastal Plain and the Avon River Basin have quite different land and social systems and consequently different land management problems and priorities. However, the fundamental issue of well planned and well executed land management is the same for, and is equally attributable, to both areas.

The population of both areas is expanding.

In addition to the city of Perth and its adjoining semi-urban areas, there are another 36 rural townships scattered through the catchment. In the Avon River Basin many smaller towns are declining as business and other infrastructure are concentrated in larger regional centres.

The major industries in the Avon River Basin are agriculture (64% of GDP), mining (15%) and retail trade (11%). The agricultural sector employs 39% of the population in the Avon River Basin, where there are approximately 4000 farms.

Employment in the Swan Coastal Plain is more variable encompassing the gamut of social, professional and commercial activities.

Per capita income in the Avon River Basin is approximately \$15,700, compared with the metropolitan area's of \$17,600, and the State average of \$17,700.

Jointly, the Swan-Avon Catchment generates approximately 70% of the GDP for Western Australia while the Avon River Basin generates approximately 35% of the State's agricultural wealth.

Fig 2 : Swan Coastal Plain

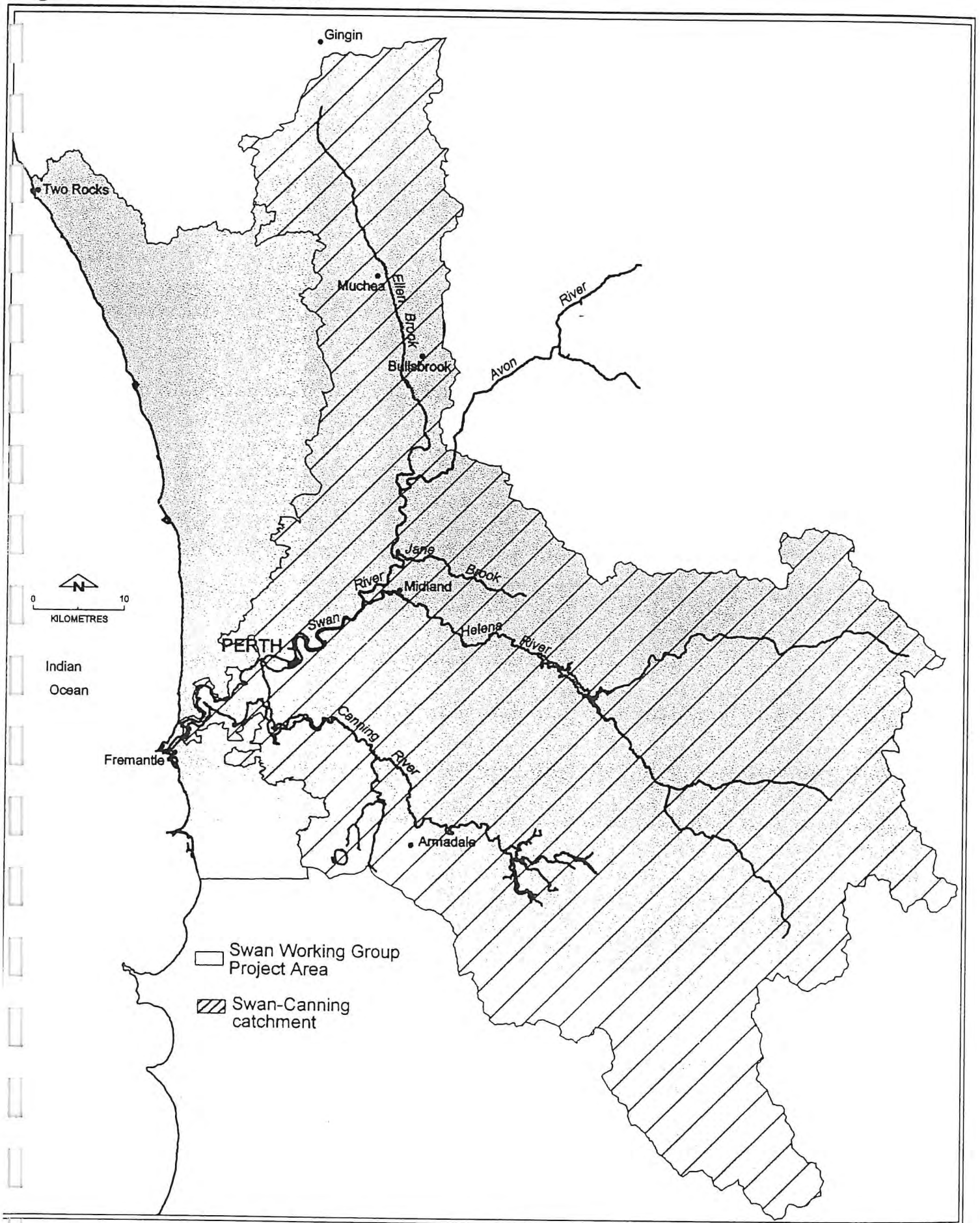
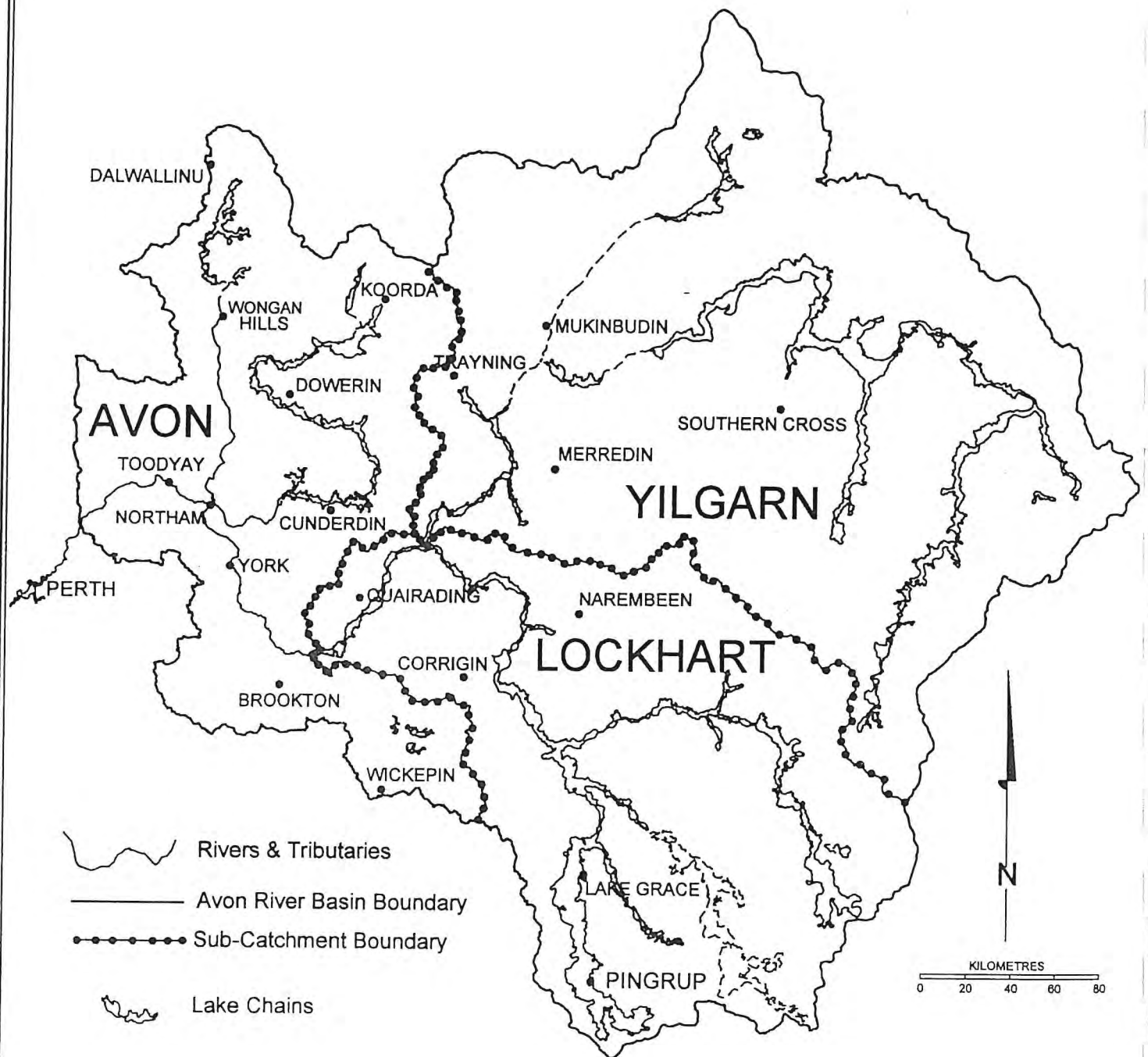


Fig 3 : Towns, Tributaries & Subcatchments of the Avon River Basin



### 3.2 Priority ecological systems and biodiversity

The Swan-Avon Catchment is vast and once encompassed almost the full range of temperate ecosystems found in the South West region of Western Australia, including high forest, woodland sandplain, scrubland and wetlands, rivers and lake ecosystems. Since European settlement most of the catchment has been cleared and is now used for agriculture and urban and industrial uses. Those areas which have not been cleared, especially within the agricultural and urban landscape, are at severe risk of degradation. Degradation of natural ecosystems has resulted from rising saline groundwater, infestation with exotic and pest plants and animals, grazing, exposure, erosion, sedimentation and in some cases excessively frequent fire.

Significant areas of native bushland in good condition remain in:

- the State forest and conservation reserves within the Helena and Canning catchments. These areas comprise mainly jarrah and wandoo forest which has been modified by bauxite mining and timber cutting, and pockets of horticultural and semi-urban development. In spite of this they are still in generally healthy condition and are being actively managed for long-term sustained yield of fresh water, timber, wildlife and recreation and for short-term mineral production followed by rehabilitation.
- the large nature reserves in the north-eastern and south-eastern sections of the catchment.

The priority ecological systems for protection and management are;

- the natural vegetation remnants of the Central Wheatbelt which are generally small in area, isolated from each other and often degraded by weeds, grazing, fire or herbicide drift and are privately owned. They are rarely subject to adequate management.
- the riparian and lowland ecosystems threatened by waterlogging and salinity as a result of rising saline groundwaters. The bulk of these ecotypes are found on private land fringing watercourses or wetlands, or within Crown land reserves.
- the banksia bushland and fringing wetlands of the Swan Coastal Plain. These areas are threatened by urbanisation, eutrophication, sedimentation and weed infestation and are mainly privately owned or are Crown lands set aside for future development.
- fresh water wetlands, of which almost none are left.
- the Avon River, its pools and major tributaries which are themselves important natural ecosystems as well as forming the natural drainage system of the catchment.

In addition to threatened ecosystems and communities, the Swan-Avon Catchment contains a significant array of threatened species of flora and fauna. For example, of the 43 species of native mammals recorded in the Avon River Basin prior to agricultural development, only 12 are still moderately abundant; the remainder are extinct, locally extinct or are listed as rare and threatened. In the Wheatbelt 91 taxa of plant are listed as threatened and 10 are considered to be extinct, with a further 353 being poorly known and 65 listed as rare but not threatened.



Biodiversity is threatened by:

- fragmentation of bushland and the related plethora of threats;
- changed ecosystem processes, especially those leading to rising saline groundwater;
- weed invasion;
- feral predators such as foxes and feral cats;
- pest species such as rabbits, feral goats and feral pigs;
- introduced diseases, such as dieback caused by *Phytophthora cinnamomi*;
- lack of resources for management of conservation reserves, remnant bush or important species on private land.

Some native species have also become problem species. The most obvious is the Port Lincoln Ringneck Parrot which has expanded in number to plague proportions in some areas and is causing serious problems to some native plant species such as *Xanthorrhoea*.

### **3.3 Key catchment land use issues identified by community consultation**

Since the inception of the Swan-Avon ICM regional initiative, a substantial program of community consultation has been undertaken. This has involved a series of community workshops, special meetings with community groups and local government authorities, a mail-questionnaire survey of stakeholders and the employment of a consultant to identify stakeholder groups and elicit their views.

In addition the SAICMCG, the Swan and Avon Working Groups, the Swan River Trust and the Avon River Management Authority (which are themselves all representative of community interests) have conducted strategic planning workshops in which the key catchment and river management issues were identified and ranked. A range of other community groups are continuing to put their views forward including the LCDCs, conservation groups and community development groups.

These processes reveal the key land use issues in the area as seen “from the ground” by local communities and community groups. They are:

- Increasing salinity
- Degradation of waters and rivers due to nutrient enrichment and exotic weeds
- Loss of soil and declining soil productivity
- Slow development of new sustainable agricultural/horticultural systems
- Degradation of water resources
- Loss of biodiversity, including fresh water ecosystems
- Threats to towns, homesteads, roads and other infrastructure from rising saline groundwater
- Insufficient resources for management and for action on the ground
- Lack of information, or conflicting information, about what to do and who benefits
- Uncertainty about drainage on farmland
- Lack of coordination of effort and cooperation between interest groups
- Inadequate funding and inequitable or poorly defined cost-sharing arrangements
- Declining rural populations and loss of the capital and financial base to family businesses
- Planning policies which do not consider sustainability of land uses.

### **3.4 Perceived impediments to achieving the vision**

Community consultation has also identified the major impediments to realising the vision for the Swan-Avon Catchment. These impediments are perceived to be:

#### ***Economic impediments***

The community overall believes that it lacks the level of funds which can be injected as new money into the region to prepare plans, carry out surveys and research, distribute information, prepare, test and demonstrate new farming systems, undertake necessary land management programs on the ground, monitor and evaluate work and ensure there is a system of continuous improvement being applied to all aspects of the task.

Many farmers believe that the funds which are being made available are not filtering down to work on the ground in sufficient quantity and that a better system of linking taxation (eg. tax credits, farm management bonds) to landcare is needed.

Insufficient numbers of farmers are confident enough in the farming systems being suggested to them to invest money in these new systems. Farm surpluses are more frequently invested in new machinery or off-farm.

A key issue is that money must be provided or allocated both to fix problems and to maintain the new systems which are put on the ground. For example, riparian areas and floodplains can be fenced and revegetated, but additional money is then required to maintain and manage the fences and the revegetated areas. There may also be a direct loss of income to landowners from the inability to graze these areas or use them for sheltering stock.

Finally, there has been a lack of funding directed at developing new agricultural systems which incorporate woody perennials into profitable farming practices.

#### ***Institutional impediments***

The community does not see itself as being sufficiently well organised yet to tackle the problems it faces in an efficient manner. In particular, improved coordination is seen to be essential between Commonwealth, State and local government, between government agencies and between agencies and local communities.

Lack of institutional coordination and cooperation is believed to result in wasted resources and lack of focus on priorities. This in turn impedes the development of community-based, self-sufficient on-going natural resource management systems aimed at sustainable economic development.

Finally, there is believed to be a wealth of information and knowledge held by agencies and landholders which is not accessible to landowners and land managers.

### *Technical impediments*

There is a belief that even if people had the resources they still would not know what to do. There are two main difficulties. Firstly, land-use problems are diverse and difficult and the underlying science is not always yet fully understood (for example, subsurface hydrogeology and its relation to salinity). Secondly, it is necessary to simultaneously fix the problems and at least maintain agricultural/industrial productivity and rural/urban economies. Both these difficulties imply the need for new systems, rather than for one-off technical fixes.

In the Avon River Basin, there are many individual landowners and some neighbourhood catchment groups who are steadily adopting new farming practices aimed at combating salinity and soil and waterways decline. However, the farming community as a whole is tending to wait until new systems can be demonstrated which take into account their cost and impact on farm income, as well as their effectiveness in countering land and waterway degradation and loss of biodiversity.

A further important technical impediment in the Avon River Basin is uncertainty about how to handle drainage in areas with rising groundwater. Some landowners favour systems of deep drains connected to waterways. Others believe that water should be retained and/or used where it falls. This issue needs to be resolved at both the technical and policy level as it applies at the local, catchment and regional level.

On the Swan Coastal Plain the key issues are most closely associated with urban and industrial development and the containment of off-site effects. This requires solid technical know-how in design of waste and stormwater management systems which do not deliver nutrients and chemical pollutants to the surface or groundwater. In the longer term, technology is needed for industrial and urban land uses which ensures effluent is not generated at all.

There is a significant need for research and development into the restoration of degraded waterways and ecosystems. However, what is needed is not more process research but studies aimed at developing, testing and demonstrating solutions to the problems. The results of this research need to be communicated rapidly to land managers and implemented without delay. In the meantime, best practices must be implemented. This necessitates overcoming the tendency of some agencies and some landowners to postpone action while awaiting the results of long-term research.

### *Social impediments*

In general, there is a low level of awareness about the full extent of the problems looming in the Swan-Avon Catchment and about the solutions which are already available. There is a tendency to regard "landcare" issues as being of lower priority to annual cash flow on the farm,

and a key attitude in the community is to regard economic well-being as solely representative of quality of life. In this respect, the attitudes of business and financial institutions to long-term sustainability of land use, as opposed to short-term returns, is crucial. The private sector needs to be presented with opportunities to enlarge their business and improve their profitability as a consequence of their supporting sustainable land use practices.

There has been almost no debate within the Swan-Avon community about cost and benefit sharing, the common good versus the individual good. Coupled to this is a poor level of understanding of the principle of sustainability as it applies to all land uses and to land use planning. Some people in the Swan-Avon Catchment believe that planning policies are deficient or conflicting, for example, planning of urban and industrial development on the one hand and protection of rivers and foreshores on the other. Rural drainage is rapidly becoming a seriously divisive issue.

Planning and regulatory agencies (including local government authorities) badly need uniform guidelines on which land use decisions can be made, and which are firmly based on the principle of ecological sustainable development. At this stage there are no fully integrated statutory planning principles which can be applied to development in the catchment.

An additional socio-political impediment is the lack of firm regulation governing farming practices. This is a complex social and political issue.

Finally, a significant distinction needs to be drawn between the Swan Coastal Plain and Avon River Basin. In the Avon River Basin most landowners earn their living from their land so there is a direct motivation to protect it. In the Swan most landowners simply reside on their land and earn their living elsewhere. Thus the difficulty of motivating people to be concerned about appropriate land management where there is no direct economic tie presents an additional impediment.

### **3.5 Options for addressing the impediments**

A “do-nothing” option is regarded as irresponsible and is not considered further in this plan. This leaves three other broad options for addressing impediments to the vision for the Swan-Avon Catchment. These are:

1. Assign responsibility to government agencies to sort it all out.
2. Leave it up to local governments, local communities and individuals to fix their own problems.
3. Identify the full range of stakeholders and beneficiaries and develop ways of getting them to work together cooperatively on agreed priority issues.

Although all three approaches are to some extent needed (for example, there are some things only government can sort out), the third option is preferred and is the fundamental approach on which this Recovery Action Plan is based. That is, the setting up of a community-based structure which can develop a strategic approach to the communities’ problems, and focus the communities’ resources on applying appropriate solutions.



### 3.6 Limitations of knowledge

In developing this Recovery Action Plan the SAICMCG is well aware that there are many aspects of many of the problems faced which are still not fully understood and that in the light of future research results and field experience, refinements to strategies will need to be made.

However, lack of complete information is not regarded as an excuse for inaction. We believe in the words of Hippocrates who advised his medical students: *"Help, or at least do no harm"*. Proposed actions in this plan are based on the principle of sustainability, and have been developed using the best available information.

### 3.7 Existing programs aimed at achieving the vision

Seventeen projects were funded in the initial phase of the Swan-Avon ICM initiative for the 1995-97 period. These were:

- Landcare education, planning and monitoring in the Avon Catchment;
- Sustainable farming systems (SFSs) in the Eastern Wheatbelt: Yilgarn component;
- SFSs in the Eastern Wheatbelt: Lockhart component;
- SFSs in the Eastern Wheatbelt: Hydrologist, Yilgarn and Lockhart;
- Support for the management of the Ellen Brook and Southern River catchments;
- Catchment Coordinating Officer for the Bayswater ICM (BICM);
- Ecological description of the catchments within the Avon River Basin;
- Technical support for water quality and catchment monitoring;
- Upper Canning River Catchment Management Program;
- Systematic survey of the Avon River Channel;
- Land suitability analysis for ICM in the Avon River Basin;
- ICM resource centres for Swan and Avon community groups;
- Swan-Avon river education program;
- Practitioners manual for urban stormwater quality management;
- Networking program for ICM coordinators;
- Community cost-sharing project: funding for on-ground works in the Avon River Basin;
- Information exchange - visit to the Eastern States by members of the Avon River Management Authority.

In addition there are a wide range of "landcare", waterways management and other programs aimed at sustainable land management being undertaken within the catchment. These are funded by the State and Federal Governments through a number of programs, corporate sponsors such as Alcoa of Australia, State Government agencies, Greening Western Australia, local government, community groups and individual landowners.



### **3.8 Current status of programs within the Swan-Avon ICM initiative**

#### ***(i) Landcare education, planning and monitoring in the Avon Catchment***

Five landcare development officers and a community education officer were appointed in March 1995. Consultants have been employed to undertake marketing and promotion of the Alcoa-sponsored demonstration catchments and development of a monitoring evaluation strategy for the Avon River Basin.

Staff have established working relations with 14 LCDCs and 40 neighbourhood catchment groups and are helping to support new land management plans and the implementation of these plans. Promotion and demonstration of the Alcoa-sponsored landcare projects have been expanded.

Following a detailed stakeholder analysis and a review of past work, workshops were held in regional centres to identify priorities for monitoring and evaluation and a detailed strategy has been developed.

#### ***(ii) SFSs in the Eastern Wheatbelt: Yilgarn component***

A series of field days on a wide range of topics has been held in the Yilgarn sub catchment which were uniformly well attended. Two new landcare centres have been established at Nungarin and Narembeen. Demonstration field trials have been put in place at a number of sites, covering the establishment of perennial productive vegetation (including Acacia seed for human consumption), alley farming, salmon gum regeneration, and the role of lucerne and canola in sustainable farming systems.

#### ***(iii) SFSs in the Eastern Wheatbelt: Lockhart component***

Technical and resource support has been provided, with the following outcomes: a new LCDC has been gazetted in the Shire of Lake Grace, completing the coverage for this shire; two new catchment groups have been formed; no-till demonstration sites have been established and monitored and the results distributed to farmers; workshops have been conducted for landowners on hydrology, soil conservation and farm planning; windbreak trials and a gypsum application demonstration site have been established; survey benchmarks have been established in a number of sites against which future progress can be measured.

#### ***(iv) SFSs in the Eastern Wheatbelt: Hydrologist, Yilgarn and Lockhart***

A hydrologist has been appointed to work in the area and significant progress in hydrological research and extension has already taken place. This has included establishment of a database of all current groundwater monitoring systems on farms in the Yilgarn and the Lockhart subcatchments, development of a catchment water balance model for farmers and of a landform/watertable association as an indicator of initial watertable estimates. A major program of consultation with local government authorities, LCDCs and farmers has been conducted and a study into the hydrological effects of a large-scale alley farming trial has commenced.

**(v) *Support for the management of the Ellen Brook and Southern River catchments***

Guidelines for sustainable horticultural land use in the catchment have been prepared and an implementation group has been set up to oversee their implementation. A major new approach to planning has been developed, involving community consultation, which aims to minimise land degradation and off-site effects of land uses. This has been presented for consideration by the WA Planning Commission and local government authorities.

**(vi) *Catchment Coordinating Officer BICM***

Technical and resource support has been provided to raise community awareness and to change land management in the Bayswater Main Drain Catchment. Seven projects that address the identified priorities within the catchment have been developed by BICM and the group is now developing an implementation plan to enact these projects. The City of Bayswater, State agencies, community groups and schools are cooperating on priority projects to limit nutrients and industrial pollutants entering the groundwater and the Swan River through the Bayswater Main Drain. BICM's persistent efforts at stimulating cooperative action have prompted both the City of Bayswater and the Water Corporation to install nutrient stripping basins and to remodel trial sections of drain to mimic streamlines, thereby enhancing the drain's nutrient stripping capability and encouraging wildlife to inhabit the drain.

**(vii) *Technical support for water quality and catchment monitoring***

A Senior Environmental Officer has been appointed. A low-cost, low-technology methodology for water quality analysis for small catchments has been devised and six model catchments have been selected. Site installation, chemical data analysis and data management options are currently being investigated. Data collection (streamflow, nutrient load, salinity and sediment) will commence in April 1997 and feedback of data to catchment groups will start next spring.

**(viii) *Upper Canning River catchment management program***

A Catchment Coordinating Officer was appointed in March 1995 and the following work undertaken: the catchment has been defined; baseline data on catchment parameters have been collected and compiled into a database; a major promotion program has been initiated; the Canning Catchment Group has been set up and links are being forged between stakeholders; a series of workshops have been held on issues such as weed control in the river; and a weed control program is being developed for implementation on private land adjoining the river. A catchment plan is now being compiled.

**(ix) *Systematic survey of the Avon River Channel***

The project has been completed according to the original plan. There is now a complete database on 190 km of the main river channel. This information is available to enable detailed recovery planning of individual sections of the river.

**(x) *Land suitability analysis for ICM in the Avon River Basin***

A Senior Environmental Officer was appointed in November 1995 to develop a land use planning decision model, based on analysis of land suitability. The project is being directed by a Technical Steering Committee drawn from local government councillors and agency staff.

The output of this work will be integrated with the Avon ICM Information Network and utilise information from the Avon Natural Resource Database.

**(xi) *ICM community resource centre for Swan community groups***

The Swan Catchment Centre has been established in Perth and is jointly supported by the Water and Rivers Commission and the Department of Environmental Protection. The Centre provides ICM and environmentally focussed community groups with information on a diverse range of land management topics, with access to communications technology. The Centre also

has staff who assist established groups with ICM and project planning; encourage the formation of and help establish new ICM groups; provide information and advice to ICM and landcare groups; and promote ICM and environmental awareness to the wider urban community. The Centre also plays a pivotal role in training and supporting ICM coordinators and in linking agencies, community groups, corporate sponsors, local authorities and State Government agencies to help them to address catchment management issues.

**(xii) *ICM resource centres for Avon community groups***

The Avon ICM Information Network has been established. The base is located in Northam and consists of office facilities and the information technology support for an information network reaching out right across the Avon River Basin. Eight "Local Link" centres have been established in association with landcare groups. It is planned that this process will be expanded. An Avon ICM Information Network Coordinator and an administrative assistant have been appointed. The latter position also provides administrative support to the Avon ICM Working Group.

**(xiii) *Swan-Avon river education program***

This project has been interrupted by reorganisation of the government agencies responsible, but has now advanced to the point where new teaching materials have been developed and are under review before being implemented in schools.

**(xiv) *Practitioners manual for urban stormwater quality management***

A Water Resources Management Plan for the Middle Canning Catchment has been prepared and released. The principles of water-sensitive urban design that it promotes are being adopted by the local government authorities involved in the study. A Stormwater Management Strategy is complete and will be tested in the Byford-Mundijong area. A review has been undertaken of the Water Corporation's Urban Drainage Manual so as to incorporate water-sensitive design. The resulting practitioners manual will be marketed in late 1997 to local government authorities, consultants, landscape designers and engineers by way of workshops and broadscale, targeted promotions.

(xv) *Community cost sharing: funding for on-ground works in the Avon River Basin*

This is regarded as a significant means by which outcomes on the ground can be influenced and Swan-Avon ICM goals can be achieved. The first year of this project has been completed, with \$50,000 applied for, approved and allocated to works on the ground. There has been excellent feedback from groups and a number of success stories have been publicised extensively in the media.

(xvi) *Ecological description of catchments within the Avon River Basin*

This project was completed in April 1996 and resulted in the development of "Avon Basin Info", a regionally located and accessible geographic information system. The Avon River Basin was subdivided into its 726 subcatchments according to physical parameters, and natural resource information for each compiled. This information will be a cornerstone of the Avon Region network database. A report has been prepared and will be published.

Now that the above projects are either completed or well advanced, it is necessary to look at the next phase of work in the region.



## 4. RATIONALE FOR THE RECOVERY ACTION PLAN

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Before the detailed Recovery Action Plan is presented, it is necessary to review the values at risk and the strengths, weaknesses and threats within the Swan-Avon Catchment. These provide the rationale for the action which will be proposed.

### 4.1 The values threatened

This plan is being developed in response to perceived threats to the following social, economic and environmental values:

#### *The Swan Coastal Plain*

Approximately 75% of the population of Western Australia live and work on the Swan Coastal Plain within the catchments of the Swan and Canning rivers. The future of these people will be determined by the capacity to supply them with good water, and their quality of life will be greatly affected by the quality of the rivers and waterways which are at the heart of the region and the natural bushland which provides remnants of natural ecosystems. Collectively, these waterways and bushlands represent a huge educational and recreational resource to the people of Perth and the outer metropolitan area.

The bulk of the State's secondary industry is located within the Swan Coastal Plain and most international and interstate tourists visit Perth and its environs. The future of secondary industry in the area is dependent upon industry's being able to operate without causing unacceptable pollution, including pollution of waterways and groundwater resources. It is also largely dependent on having quality water resources available. Tourism will suffer greatly if the Swan and Canning rivers degrade.

Both surface and underground water resources are vital components of the region. Urban dwellers and industry are totally dependent on having a plentiful ongoing resource of fresh water.

The nature conservation values of the Swan Coastal Plain are closely related to ecosystems remaining in remnant native bushland. Because so much of the region has been cleared for urban, industrial and agricultural use, the small areas of remnant bushland have extraordinarily high value.

#### *The Avon River Basin*

The population of the Avon River Basin is approximately 54,000 and is relatively stable, although internally there have been recent shifts of population from small rural towns to larger centres and there has also been a decline in numbers of farmers. This is being offset by development of the large towns along the Avon River (especially York and Toodyay) and a major expansion of hobby farming.

To a very large degree, the urban-type problems being faced in the Swan Coastal Plain are also being faced in the more heavily populated parts of the Avon River Basin and are

predicted to expand in the future.

The principal industry of the region continues to be agriculture. The Avon River Basin is synonymous with “the Wheatbelt”, the State’s primary grain growing area. This area is responsible for over one-third of Western Australian agricultural production

The Avon River Basin is almost devoid of natural fresh water resources, with practically all towns dependent on water piped from catchments in the Swan region. Increasingly, local underground water resources are becoming saline and there are no known untapped underground sources that can be linked into the system. The quality of life in the Avon River Basin is therefore almost completely dependent on the capacity of the forested catchments bordering the Swan Coastal Plain to continue to generate fresh water.

Salinity and rising groundwater also threaten rural and urban infrastructure assets, in particular towns located in water-gaining sites (which is most of them), roads, homesteads and railway lines.

Recreation and landscape values are also threatened. The degradation of these values threatens in turn the capacity of the region to attract people to work there.

Nature conservation values in the region are high. Although large areas have been cleared, there are still many significant areas of remnant bushland and numbers of important species of native flora and fauna.

## **4.2 The threats**

The principal threats to the above values, and therefore the issues which need to be specifically addressed in this plan, are listed below. They fall into two categories: biophysical factors and human factors, which are intimately linked.

### ***Biophysical issues***

- Rising saline groundwaters
- Nutrient and sediment rich effluent directed into waterways
- Farming practices which result in soil acidification, soil structure decline and soil loss
- Clearing of remnant bushland
- Wind and water erosion of farmland
- Weeds and pest or feral animals
- Sedimentation
- Industrial pollutants

### ***Human issues***

- Cultural attitudes “the challenge of change”
- Lack of information or conflicting information about what action to take
- Availability and application of resources for remedial work and ongoing management
- Developing effective cooperative arrangements
- Lack of planning guidelines to ensure new development is sustainable
- Lack of long-term thinking on approaches to be taken
- Lack of effective legislation



- Lack of empathy between city and rural people

### **4.3 Weaknesses which need to be recognised**

There are three important weaknesses in the Swan-Avon Catchment which need to be recognised in preparing this regional plan:

1. The SAICMCG is a community group with supporting agencies but is not a statutory authority. It therefore lacks the power of legislation. To accomplish its aims in the Swan-Avon ICM initiative the Group must quickly find other ways of getting people and governments to adopt new thinking and land use patterns. These other ways will include positive leadership, integrated planning, information collection and dissemination and selective funding of on-ground works.
2. The area is vast and land ownership is diverse and multitudinous. No single authority, agency, ICM program or groupings thereof could ever hope to reach the number of people involved for purposes of information, influence or regulation. The answer to this problem is that ways must be found to make communities and catchment groups self-sufficient and self-regulatory. Peer pressure and the power of self and mutual interests must be mobilised.

The vast area and sparse population in the Avon River Basin also emphasise the need for good communication networks.

3. It is very hard to attract and to retain professional specialists in the Avon River Basin. Increasingly, young professionals wish to live in the city and near the coast. This makes it very difficult to put programs in place which require specialist training and which benefit from having specialist advisers with experience and continuity in a particular area.

### **4.4 The strengths of the catchment**

The Swan-Avon Catchment is fortunate in that it has some inherent strengths. Some progress has already been made to strengthen the forces in the region which can be directed at dissecting the problems and putting practical solutions in place on the ground.

Existing strengths include the presence in the catchment region of a well-developed landcare movement and a groundswell of community interest in the way in which the region is being used and managed. In addition there are a range of agencies at work in the catchment, with duties which include multi-disciplinary planning and research. Federal funding has led to the appointment of 19 full time community-based landcare coordinators in the region at the moment.

The catchment contains the majority of the State's population and industry and is also the gateway to Western Australia for interstate and international tourists.

The SAICMCG is itself a major strength. This is because:

- It is a lead organisation looking for ways to promote and implement sustainable land management in the catchment;
- It brings together many disparate groups and organisations from the community and government and has representatives of all the major stakeholders in the region; and
- It has a demonstrated capacity to attract resources and to allocate and manage funds on priority projects within the region, thereby delivering outcomes of the ICM program.

Finally, it is a significant strength that progress has already been made in the establishment of information networks within the region and in the development of information technology opportunities.

## **4.5 Opportunities in the region**

There are significant opportunities within the Swan-Avon Catchment. These arise as a consequence of the size of the problems faced, but also because there are latent resources and energies which have not yet been marshalled, coordinated and focussed.

The principal opportunities are:

- To achieve community understanding of, and agreement on, a positive vision for the Swan-Avon Catchment and dissatisfaction with the gap between the vision and today's realities;
- To achieve efficiency and real coordination of resources, wisdom and energies to get people working together;
- To develop site-tailored sustainable management practices and to have them widely adopted;
- To recover degraded rivers, ecosystems and species and to protect those in good order at present;
- To ensure the resources are there to do the job; and
- To see continuing growth in the economy. That is, a long-term sustainable increase in per capita income throughout the catchment.

Over riding all the above is the opportunity to extend and facilitate two-way communication between government, agencies, community groups and landowners. The task is both to ensure the channels of communication are wide and free-flowing and to ensure that modern technology is put in place to ensure communication is quick, cheap and easy to use.

Clearly, these opportunities are simply another way of expressing the objectives of this Recovery Action Plan, the means to achieving which are set out in the next section.

## 5. THE RECOVERY ACTION PLAN

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The strategic approach adopted as the underpinning for this Recovery Action Plan is:

- to identify the values at risk in the Swan-Avon Catchment, the nature of the threats to these values and the action needed to protect and/or recover the values;
- to rank actions according to their priority;
- to ensure those responsible assume responsibility for action;
- to promote the necessary managerial and funding arrangements to ensure action is carried out effectively and efficiently; and
- to monitor, evaluate and learn from the success and failure of actions.

In addition to dealing with the action needed on the ground, the plan will therefore also specify performance indicators, set out the management and administrative structures needed for plan implementation, outline the proposed monitoring and evaluation program and specify a plan review schedule.

An eight point plan is proposed to achieve the vision for the Swan-Avon ICM Program and to address the impediments to action discussed earlier. The eight points are presented below under the following topics:

- Raising community awareness and changing community attitudes and practices;
- Providing the strategic direction, coupled to good legislative support, which will ensure community resources are marshalled, coordinated and focussed on the priorities;
- Developing sustainable practices for landowners and generating landowner confidence to invest in the adoption of these practices on the ground;
- Protecting and recovering biodiversity;
- Recovering rivers and wetlands;
- Promoting research and development into sustainable land management systems;
- Developing and implementing a monitoring and evaluation system;
- Securing resources for action.

In presenting this Recovery Action Plan it is necessary to emphasise that neither the SAICMCG nor its working groups have statutory powers. The Group was established by ministerial decision, and has no direct connection to empowering legislation. However, we are not powerless, because of our “downwards” linkages to local communities and our “upward” linkages to government and political systems and because we provide a forum and a mechanism for coordination of the agencies who do have statutory powers.

Therefore, to achieve our goals, the Swan-Avon ICM Program needs to:

- show leadership to all stakeholders;
- be persuasive;
- communicate information and know-how; and
- influence what happens on the ground by influencing where grants are applied.

These are the approaches which underlie the following action plan.

## 5.1 Raising community awareness and changing cultural attitudes

The objectives are to raise the awareness of the Swan-Avon community of the need for sustainable land use, and of the steps and the resources needed to bring this about; and at the same time to change community attitudes and practices to the point where sustainability is the fundamental principle guiding land use and land use planning.

The actions proposed to meet this objective are:

1. A Communications Plan for the region has been prepared and now needs to be implemented. This plan identifies the messages which need to be communicated, the target audiences which need to be contacted and the most effective means of communication for each audience.
2. The current level of community awareness and the over riding cultural attitudes which are held will be surveyed progressively as the Communications Plan is implemented. This will ensure that the effectiveness of the plan is monitored and the plan is reviewed and modified as required.
3. Key aspects to be emphasised in the Communications Plan will be:
  - The vision for the Swan-Avon Catchment
  - The threats to quality of life, productivity and biodiversity in the region
  - The nature of the underlying causes of the threats
  - The response which is being developed
  - The responsibilities and where they lie
  - The sources of funds and the use to which they are being put
  - Progress towards vision and objectives
  - The role of the SAICMCG and the working groups.
4. The Swan and the Avon community catchment centres will continue to be developed into fully operational education and networking centres at the hub of the Swan Coastal Plain and Avon River Basin. Information technology will be developed to facilitate two-way communication between stakeholders.
5. Communications technology and networks will be developed to help bring landowners and communities in remote areas into contact with information, training and advice and with other people facing the same problems.
6. The Swan and Avon Working Groups will continue to develop and implement information-gathering systems, to ensure that the views and needs of the communities in the catchment are captured and that a consensus for action will be achieved.
7. Action will be supported which consolidates and improves access to databases in the region, which are currently within agencies and are inaccessible or incompatible.
8. Every opportunity will be taken to educate legislators and the private sector, in particular to demonstrate the value to them of supporting sustainable land management.

## **5.2 Providing strategic direction and legislative support**

The objective is to improve the ability of the community, including all existing organisations, to work together in effective partnerships, marshalling their resources and focussing them on the priority issues - in particular to improve the linkages between city and country communities.

The following action is proposed:

1. The SAICMCG will continue to be developed as a mechanism for integrating ideas and stimulating priority setting and action, based on community input and resource coordination. A strategic plan for the Swan-Avon Catchment is being developed and needs to be implemented, appraised and regularly reviewed.
2. Strategic ICM planning for the catchment will be fully coordinated with other plans to maximise integration, and to ensure attention to the social and environmental, as well as the economic and productive needs, of the region.
3. A planning approach will be encouraged within the catchment, with downwards and upwards integration of regional, catchment, reserve, farm and waterways management plans.
4. Uniform planning guidelines will be prepared for adoption by the WA Planning Commission. The aim will be to guide government agencies, local government authorities and bodies such as the Water Corporation on the requirements for sustainable land use and protection of waterways and to develop a mechanism for implementing these guidelines.
5. Opportunities will be created through the planning process for the establishment of new reserves which protect special values such as waterways, wetlands and granite rock outcrops.
6. Legislation protecting remnant bushland catchments and waterways will be encouraged and supported.
7. The principles of water-sensitive urban design will be promoted and their incorporation into land use planning and regulation will be sought.
8. Incentives and disincentives will be devised aimed at making developers and land managers self-regulatory in the achievement of sustainability.



### 5.3 Developing and implementing sustainable management systems

The objective is to develop, test and implement a range of site-matched land and waterways management systems which ensure use and economic development of the catchment can be sustained. The aim is to recover degraded waterways, soils, water resources, native species and natural ecosystems and to ensure protection of these resources in the future and that best practices are implemented as soon as practicable.

The following action is proposed to achieve this objective:

1. Encourage research into and testing of new systems, in liaison with scientists, catchment groups, landowners, land and river managers and urban communities.
2. Encourage the appointment of landcare officers, ICM coordinators or teams (comprising coordinators or consultants) to assist catchment groups to develop and implement improved land management systems.
3. Encourage training programs for landcare officers, catchment groups and landowners and ensure advice being given is uniform, up-to-date and well coordinated.
4. Seek to have demonstration areas established throughout the catchment, showing the value of sustainable systems.
5. Support the integration of existing land uses and new commercial opportunities within the catchment, especially those which can help to fix problems such as farm forestry, but including those which make use of natural attributes such as salt water aquaculture.
6. Identify gaps in the database which limit the ability of landowners/managers to implement new systems, and seek ways to fill these gaps. A good example is the absence of 5 m contour information for most of the Wheatbelt. This information is critical for planning drainage and revegetation programs.
7. Monitor costs and benefits of programs, publicise successes and review/study failures.



## **5.4 Protecting and recovering biodiversity**

The objectives are to conserve indigenous plants, animals and ecological processes in natural and modified habitats throughout the Swan-Avon Catchment.

The following actions are proposed:

1. Support will be given for a survey and research program to be undertaken to describe the status and management requirements of the natural biota occurring in the region.
2. CALM will be requested to review and report on the adequacy of conservation reserves in the region, measures to extend reserves and to implement conservation programs for flora, fauna or ecological communities which are not represented in reserves.
3. Revegetation programs will be promoted, with a view to linking and protecting remnant native bushland and to providing well-vegetated riparian zones along all watercourses and around wetlands. Research into landscape and biological planning will be supported.
4. Projects to write and implement management plans for conservation areas will be supported according to a priority list of the most significant areas.
5. The further development of Recovery Plans for rare or threatened species or communities will be promoted and supported.
6. Improving public appreciation for the value of nature conservation will be included as part of the Swan-Avon ICM Communication Plan. In particular, the value of nature conservation as an input to quality of life to people living in the region will be emphasised.
7. Programs to control environmental weeds and pest species will be promoted and supported.

## 5.5 Recovering rivers and wetlands

The objective is to restore the natural functions and ecological condition of the rivers and wetlands of the region. This will involve identification of priorities, preparation of plans and both remedial and preventative action. All plans and actions will be developed and implemented cooperatively between stakeholders.

Proposed action:

1. Surveys will be undertaken or completed to identify the baseline condition of waterways and wetlands in the region.
2. The “desirable condition” (the measurable standards which should be met) of waterways and wetlands in the region will be established for all key parameters such as water quality, sediment accumulation and movement, salinity, nutrient enrichment, aquatic ecosystems and riparian vegetation.
3. Support will be given to river management authorities to identify point sources of pollution and to develop action plans to eliminate them.
4. Support will be given to the development and implementation of recovery plans for river pools, river sections, major tributaries and key wetlands.
5. Land use planning guidelines/regulations will be developed with the aim of ensuring that only developments or land uses which are benign in terms of effects on rivers and wetlands occur. The SAICMCG will actively seek to have these guidelines adopted by local government, WA Planning Commission and government agencies.
6. New drainage policies will be developed for both urban and rural land based on sustainable economic development and aimed at recovery and protection of waterways and wetlands.
7. The development of new road management policies will be aimed at protection of waterways and wetlands in the region for adoption by local government and other road managers.
8. Planning guidelines or legislation that prevent development on riverine floodplains will be encouraged and supported.
9. The SAICMCG will support the creation of foreshore reserves or foreshore management agreements with landowners, the fencing of waterways and wetlands and the regeneration and protective management of riparian areas.
10. Communication programs will continue to promote the multiple values of waterways and wetlands, encouraging the community to appreciate them for their nature conservation, recreational, aesthetic and protective values, as well as for their role in natural drainage.
11. Integrated planning and management of whole catchments will be promoted and

supported.

## **5.6 Research and development**

The objective is to develop practical remedial and management systems which can be tested, demonstrated and applied in the field. This will involve identifying the physical causes of degradation of land, waterways and biota in the Swan-Avon Catchment, ranking the problems which need to be tackled and developing a sound scientific understanding of them.

The following actions are proposed:

1. The Swan and Avon Working Groups will consult with agencies, landowners, land managers and scientists on the priorities for, and progress of, research in the catchment.
2. A Research and Development Plan for the Swan-Avon Catchment will be developed as a guide for funding applications and encouragement of priority research.
3. Research priorities supported by the Swan and Avon Working Groups will include: developing sustainable farming systems; developing deep-rooted perennial crops with economic value; improving understanding of catchment and ecological processes; riverine ecology and the restoration of river pools and wetlands; sediment remediation methods in waterways and catchments; regeneration of riparian vegetation and enhancement of remnant bushland; clean production systems for industry and agriculture; nutrient stripping of wastewater and management of effluent from towns, industry and intensive agriculture; evaluating alternative drainage and pumping systems; algal bloom, exotic weed and pest prevention and control measures; stormwater and flood management; and alternative measures for increasing the rate of adoption of new systems and practices.
4. Demonstration trials will be promoted for the benefit of land managers/owners.
5. Innovation, lateral thinking and radical new ideas will be encouraged.
6. A database of research findings will be created and updated, and access will be provided to the community.
7. The SAICMCG will liaise with the other major ICM groups in Western Australia (eg. for the Blackwood River and the South Coast) to identify research needs which cross regional boundaries and to which a consolidated effort should be addressed. Good examples include research into the identification and testing of commercial woody perennial crops for growing and marketing in areas receiving less than 500 mm of rainfall and research into commercial uses of salt water and salt harvesting.

## 5.7 Developing and implementing a monitoring and evaluation system

The objective is to put in place a monitoring and evaluation system which enables progress towards the vision, goals and objectives to be measured.

The following actions are proposed to achieve this objective:

1. A situation analysis for the Swan-Avon Catchment will be carried out to determine the baseline from which future progress can be measured. The situation analysis will provide hard data on the current biophysical, social and economic position in the region.
2. A multi-disciplinary monitoring and evaluation team will be put together within the Swan-Avon ICM Program. The role of this team will be to develop a Monitoring and Evaluation Plan, setting out the issues to be studied, the methodology to be adopted, community input, reporting arrangements and timeframes for action.
3. The following key aspects of the region will be monitored and evaluated:

### *Biophysical factors*

- Groundwater and salinity
  - areas of productive land and remnant vegetation affected by rising saline groundwaters,
  - urban groundwater quality,
  - vegetative cover,
  - protection of remnant vegetation,
  - depths to watertables,
  - water use efficiency,
  - salt and waterlogging damage to infrastructure;
- Biodiversity
  - species abundance and composition,
  - extent and health of remnant vegetation,
  - threats to species and ecological communities;
- Rivers and wetlands
  - their health and condition;
- Soil
  - structure,
  - salinity,
  - acidity,
  - waterlogging,
  - wind erosion.

### *Social factors*

- Changes in demography and employment;
- Attitudes to sustainable development;
- Delivery of relevant information through education;
- Landowner participation in landcare groups;
- Business and corporate input to landcare;
- Access to information and information technology;

- Development of necessary policies and their implementation.

*Economic factors*

- Sectoral economic activity;
- International commodity market fluctuations;
- Terms of trade for farmers;
- Outcome of cost/benefit studies on ICM program implementation;
- Agricultural productivity;
- Outcome of studies into capacity of landowners, land managers and business to pay for landcare.

*Institutional factors*

- Agreed goals for sustainable economic development and land use;
- Agreed policies uniformly applied;
- Solution-directed cooperative research;
- Accessibility of research findings and advice.

4. A comprehensive set of performance indicators and measures by which the success of the implementation of this plan will be developed.

## 5.8 Securing resources to implement the Recovery Action Plan

The objective is to achieve a secure ongoing source of funds to enable the above priorities to be achieved. The following actions are proposed to achieve this objective:

1. The SAICMCG will prepare a three-year rolling forward budget to cover the realistic financial requirements for the implementation of this Recovery Action Plan. The budget will reflect the priorities set out in this plan, and will be reviewed and updated annually.
2. All existing and potential sources of funds will be identified. These will include Federal, State and local government programs; industry, businesses and corporations, landowners and public funding bodies.
3. A cost sharing study for the Swan-Avon Catchment will be initiated. The purpose will be to determine the most appropriate cost sharing arrangements for specific programs within the region. The following principles will be considered:
  - The Polluter Pays principle - for application where the problem is clearly defined point source pollution.
  - The User Pays principle - for application where landowners are the sole beneficiary of works.
  - The Beneficiary Compensates principle - for application where the community at large benefits from protection of environmental and social and recreational assets.

The SAICMCG will promote the use of economic analysis to determine the cost sharing arrangements to be applied in different circumstances.

4. Armed with a proposed three year budget and an analysis of appropriate cost sharing arrangements, the SAICMCG will seek to put a funding program in place for the catchment which reflects the priorities set out in this plan. This will be approached initially by application to funding sources to secure the funds to implement its programs, and by the communication/information program to landowners, land managers and industry to ensure they make their commitments.
5. The Communications Plan will be used to build support from Federal, State and local government politicians and agencies, the corporate world and community groups and landowners.
6. Program funding will be moved swiftly to the workforce rather than being tied up in administration.
7. Reports on progress and on the benefits of funding programs will be relayed efficiently to the funder and other bodies which can benefit from our experiences.
8. Opportunities to earn money for ICM work in the Swan-Avon Catchment will be examined. For example, levies on developers, property transactions and urban ratepayers, profit sharing with businesses and all those who benefit from the biophysical features of the region. These investigations will be carried out in an open forum.



9. Opportunities for taxation relief or application of tax credits for landcare work within the catchment will be studied and promoted with government.

## **6. PRIORITIES FOR FUNDING**

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The following are the priorities for ICM in the Swan-Avon Catchment as determined through consultation with community and government stakeholders.

### **6.1 Priorities applying across the Swan-Avon Catchment**

1. Establishing effective two-way communication links between the SAICMCG and all the various agencies, community groups, local government authorities and individuals who benefit or are concerned about the health and prosperity of the Swan Coastal Plain and Avon River Basin.
2. Improving community understanding of ICM issues and providing leadership to ensure community attitudes and behaviour changes, so that long-term sustainability becomes the principle underpinning all land use.
3. Putting in place planning guidelines and systems which promote sustainable land use.
4. Securing the resources to implement the strategic plan for the Swan-Avon Catchment.
5. Maximising the coordination of stakeholders, especially government agencies, to ensure available resources are marshalled and focussed onto the key problems.
6. Instituting an effective monitoring and evaluation system so that progress with ICM can be measured and reported upon.
7. Improving economic prosperity within the Swan-Avon Catchment so that overall quality of life is improved.
8. Having in place an effective research and development program focussed on the priority biophysical, economic and social problems in the region.
9. Involving the people of Perth in the care and management of the Swan-Avon Catchment.
10. Raising stakeholder and community awareness of the issues.
11. Minimising sewage inflows to waterways and groundwater resources.
12. Maintaining stream and river flows that are adequate for environmental purposes.

## **6.2 Priorities for the Swan Coastal Plain**

1. Halting the continuing loss of habitat and biodiversity.
2. Eliminating the inflow of pollutants to waterways, wetlands and groundwaters.
3. Instituting policies for drainage and water-sensitive urban design.
4. Protection and enhancement of urban bushland and riparian vegetation.
5. Providing advice and access to environmental information, particularly in a catchment management context, to ICM, landcare and community groups and the wider population.
6. Encouraging urban development on a subcatchment basis.

## **6.3 Priorities for the Avon River Basin**

1. Developing and implementing the Avon ICM network to link far-flung communities and landowners.
2. Developing and demonstrating new farming systems which are profitable and sustainable in the long-term and protect natural diversity.
3. Combating salinity.
4. Instituting a planning approach so that linked management plans are developed for catchments and properties.
5. Putting in place recovery and management plans for threatened species and ecosystems and degraded wetlands and waterways.
6. Developing and implementing policies for drainage and the protection of rural infrastructure.
7. Establishing a stronger communication link between towns and the surrounding hinterland.
8. Attracting technical expertise and professional employees to rural and remote areas.
9. Encouraging and enhancing rural community development.

## **7. MANAGEMENT AND ADMINISTRATION OF THE RECOVERY ACTION PLAN**

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### **7.1 The SAICMCG**

This Recovery Action Plan will be guided by the SAICMCG and its two working groups, the Swan and Avon Working Groups.

Membership of the SAICMCG is by appointment by the Western Australian Minister for Primary Industry. It comprises representation of the local community and of key government agencies and has an independent Chairperson.

The SAICMCG has defined its role as:

- Developing this integrated Recovery Action Plan for the Swan-Avon Catchment and overseeing its implementation;
- Monitoring and evaluating the condition of the catchment and measuring and reporting on progress being made towards goals and objectives;
- Helping to build cooperative arrangements between all the agencies, departments and authorities having jurisdictions within the Swan-Avon Catchment, therefore maximising the synergies between groups and activities and ensuring agreed priorities are attacked;
- Capturing the views of the community, building consensus about what needs to be done and reporting back to the community on progress and achievements;
- Lobbying for resources, setting priorities for resource allocation and providing advice on priorities to funding bodies;
- Identifying the responsibilities for action and ensuring they are implemented.

### **7.2 The Swan and Avon Working Groups**

The Swan and Avon Working Groups exist to help the SAICMCG get closer to problems and needs on the ground. Their role is providing technical support to community and catchment groups, encouraging landcare and sustainable land management, influencing the priorities for resource allocation and providing opportunities for community participation in the ICM program at a more local level.

### **7.3 Independent assessment of funding applications**

Regional and State Assessment Panels will act as independent bodies to assess funding applications, thereby removing possible conflicts of interest.

### **7.4 Criteria for supporting applications for grants**

The Swan-Avon ICM Program will support funding applications under the following criteria:

- Grants will preferentially be made to organisations or groups, but may be made to individuals proposing significant projects;
- Cost sharing arrangements must be identified and applied;
- Works funded must fit within the priorities set out in this Recovery Action Plan;
- Regional assessment processes must apply;
- Grants may be small (to catchment or community groups) or large (for the purposes of project development or demonstration). Large grants may include cooperative programs with other catchments.

### **7.5 Management of programs on the ground**

Individual projects or programs which form part of the overall Recovery Action Plan will be managed by either:

- A community group such as a conservation group or a neighbourhood catchment group;
- A government agency; or
- A committee set up to jointly represent agencies and community interests.

Each project will have a nominated Project Manager who will be responsible for ensuring that a working plan and budget for the project is developed, outcomes are met, and results are properly reported back to the SAICMCG and to funding bodies where appropriate.

The role of the SAICMCG will be to oversee and manage the overall program, not individual projects.

## **7.6 Establishment of performance indicators and measures**

A key role of the SAICMCG and its working groups is to establish a set of performance indicators, standards and measures to enable the success of the program to be determined.

Performance indicators are guides to the extent that objectives are being met. Each indicator will be expressed in terms of a standard, or a performance measure, of which there may be several, each imperfect by itself but collectively providing feedback on the indicators.

Indicators, standards and measures have been identified by the Avon ICM Monitoring and Evaluation Team. Many of the indicators are directly applicable to the Swan Coastal Plain. A defined set of indicators and accompanying description can be found in the Team's report to the Avon Working Group.

## **7.7 Review of the Recovery Action Plan**

This plan will be reviewed every three years, or as necessary if circumstances dictate.



## 8. IMPLEMENTING THE RECOVERY ACTION PLAN

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### 8.1 On-ground Action: 1997 - 2000

Since the birth of the Swan-Avon ICM Program in 1994, much activity has occurred in communities and government agencies within the Swan-Avon Catchment. The Swan-Avon ICM Program has stimulated cooperative efforts within and between communities, local government and State government agencies, resulting in a significant acceleration in the adoption of ESD principles and practices across the catchment. There has been a corresponding increase in the number of on-ground works, natural resource surveys, education programs and research projects in the catchment. New, active, motivated community groups wishing to address a broadening range of environmental issues, are being born across the catchment at an ever increasing rate.

In 1994, the SAICMCG submitted its' first regional initiative for funding under the National Landcare Program and was successful in obtaining funding for 17 projects. These projects, described under 3.7, have been highly successful in meeting their individual objectives and collectively; in raising community and government interest in the Swan-Avon ICM Program; its mission; the positive approach being taken to achieve its objectives and; the marked, beneficial effects that are being achieved on the ground and in the community.

To begin to implement the Recovery Action Plan requires further funding to assist community groups interested in addressing issues of public good; and to assist farmers to implement new, often costly or unproven techniques to ameliorate or prevent land degradation.

On-going funding is of paramount importance in continuing on-ground works, particularly where issues of common good are being addressed. For example, many community groups are concerned with and managing waterways or areas of bushland with conservation value, that are publicly owned. These concerned, motivated, active community groups can provide time and human resources, but are generally unable to contribute significant private funds to the management of public lands. External funding is essential to continue these important works and provides a vital impetus in the involvement of others, such as regional bodies, local government authorities and State government agencies.

Sections 8.2 and 8.6 summarise priority projects proposed for the Swan Coastal Plain and the Avon River Basin respectively. The importance of these projects has been recognised by an extensive community consultation process and the projects then initiated by community groups, local government authorities and State government agencies. They address problems and opportunities of regional importance and have been developed to be complimentary in their objectives and activities. They have been developed jointly over many months (and in many cases, over years) by the community and local and State governments working in partnership and each represents collaborative, on-ground action to address a regional problem or problems. Each project has a strong commitment from all contributing parties and collectively, represent the first stage of implementation of the Recovery Action Plan.

The development of each of the following projects has been assisted and in some cases instigated by the Swan and Avon Working Groups, either directly or through agency staff working in the Swan-Avon ICM Program. Each project has been reviewed by the Swan and Avon Working Groups to ensure that;

- each project addresses an issue or issues of regional significance;
- the methodology proposed is technically correct;
- the outcomes and objectives are clear and reasonable;
- contributions to the project are real and are firmly committed;
- the project is based on collaborative action by all stakeholders;
- the outcomes are able to and will be, monitored and evaluated;
- the reporting requirements to NHT and the Swan-Avon ICM Program will be satisfied;
- the budget proposed is reasonable for the actions indicated;
- and where coordinators or consultants are proposed to be employed within a project, that satisfactory arrangements have been made to house, train, support and supervise these resource people.

Each of the following projects is fully endorsed by the SAICMCG.

## **8.2 Issues of Regional Significance for the Swan Coastal Plain**

The Swan Working Group in September 1996, implemented an extensive community consultation process to determine the issues recognised by the community and local and State government as being of regional significance.

A consultant was employed to develop and conduct the survey. ICM groups, community environmental groups, catchment and regional coordinating groups, local government authorities and State government agencies were all surveyed to elicit their beliefs. Each was asked to list the environmental issues they considered most important on the Swan Coastal Plain (including the outer metropolitan area of the Darling Scarp). **Table 8.2** is a summary of the issues raised through this consultation process.

The projects that follow are presented for consideration for Natural Heritage Trust funding.

**Table 8.2: Issues of regional significance for the Swan Coastal Plain**

|           |   |
|-----------|---|
| <b>1.</b> | <b>Halting the continuing loss of habitat and biodiversity, including;</b> <ul style="list-style-type: none"> <li>- protection of remnant native vegetation</li> <li>- revegetation &amp; protection of degraded bushland and foreshores</li> <li>- feral animals &amp; pest control (eg. dieback)</li> <li>- weed eradication or control</li> <li>- fire management</li> <li>- development and protection of wildlife corridors</li> </ul>   |
| <b>2.</b> | <b>Eliminating the inflow of pollutants to waterways, wetlands and groundwaters, including;</b> <ul style="list-style-type: none"> <li>- reducing nutrient loads &amp; eutrophication</li> <li>- reducing industrial and other pollutants (eg. hydrocarbons, heavy metals and pesticides)</li> <li>- sedimentation</li> <li>- sewage disposal &amp; management/replacement of septic tanks</li> <li>- environmental flows for preservation of aquatic and riparian habitats</li> <li>- managing extraction from streams, rivers and groundwaters</li> </ul> |
| <b>3.</b> | <b>Instituting policies for drainage and water sensitive urban design;</b> <ul style="list-style-type: none"> <li>- management of quantity and quality of surface drainage entering rivers and groundwaters</li> </ul>  |
| <b>4.</b> | <b>Protection and enhancement of urban bushland and riparian vegetation, including;</b> <ul style="list-style-type: none"> <li>- foreshore management &amp; bank protection</li> <li>- protection and revegetation of the riparian zone</li> <li>- revegetation &amp; protection of degraded bushland and foreshores</li> </ul>   |
| <b>5.</b> | <b>Providing advice and access to environmental information, particularly in a catchment management context to ICM, landcare and community groups and the wider population.</b> <ul style="list-style-type: none"> <li>- preparation &amp; implementation of catchment management plans.</li> <li>- provision of coordinators or contractors with specific skills.</li> </ul>   |
| <b>6.</b> | <b>Encouraging urban development on a subcatchment basis.</b>   |
| <b>7.</b> | <b>Education and awareness in the community and schools.</b>  |

## 8.5 Issues of Regional Significance for the Avon River Basin

The Avon Working Group, during the period September 1996 to November 1996, conducted an extensive community consultation process. This involved formally meeting with over 50 groups including LGA's, LCDC's and catchment groups. Discussions took place on 3 major topics

- Overview of the Swan-Avon ICM Program and the achievements to date,
- Issues of regional significance, and
- The wants and needs of the community to implement a new phase of the ICM program.

The outcomes of all discussions were noted and communities were invited to return a submission to further discuss their points of view. An information sheet was prepared and given wide circulation to catchment groups, environmental groups, other interest groups and agropolitical organisations. The information sheet included an invitation to provide a submission. Approximately 30 submissions were received.

The information obtained through this process has been incorporated into Section 1.4, Priority Concerns, the Recovery Action Plan described in Section 5 and Priorities for Funding described in Section 6 in this document. **Table 8.5.1** broadly lists the issues raised.

**Table 8.5.1: Issues of Regional Significance for the Avon River Basin**

|   |
|---|
| <b>1. Salinity</b>  |
| <b>2. Landscape water management;</b>   |
| <b>3. Land degradation hazards, including;</b> <ul style="list-style-type: none"><li>- Wind and water erosion;</li><li>- Waterlogging;</li><li>- Soil acidification;</li><li>- Soil structural decline;</li><li>- Water repellency.</li></ul>   |
| <b>4. Degradation of rivers and waterways;</b>  |
| <b>5. Biodiversity decline;</b>   |
| <b>6. Limited resources for land managers, including;</b> <ul style="list-style-type: none"><li>- Limited access to skills and knowledge in specialist areas;</li><li>- Limited funds available to land managers to implement works of wide community benefit.</li></ul>                              |
| <b>7. Limited options and proven techniques for land management, including;</b> <ul style="list-style-type: none"><li>- Limited opportunities to options of a commercial nature</li><li>- Limited opportunities for diversification</li><li>- Low levels of confidence in current solutions</li></ul> |

Also arising from the community consultation process was identification of requirements for the implementation of an ICM program, this information has also been incorporated into the Recovery Action Plan. **Table 8.5.2** broadly lists these requirements.

**Table 8.5.2: Community requirements for ICM implementation as determined through community consultation in the Avon River Basin, in priority order;**

1. Funding for grants, incentives, demonstrations, on-ground works and implementation.
2. Appointment of specialist skills and knowledge, particularly hydrogeology and revegetation.
3. Appointment of, and ongoing funding for local area Community Landcare Coordinators
4. Improved access to information through improved information packaging and dissemination methods
5. Greater levels of regional monitoring, in particular groundwater and salinity.
6. Funding for research and development, in particular commercial options and new solutions.
7. Continued community awareness and education programs