

# AUSTRALIA



## EXECUTIVE SUMMARY

The Australian objective is to develop plans for the integrated management of the nation's natural resources on a catchment basis. In detail, this can be summarised as :

- specify outcomes across water, land, other environmental resources and cultural heritage, consistent with the principles of ecologically sustainable development;
- implement the philosophy of integrated catchment management by specifying the roles of communities and of governments under a 'catchment co-ordinating' structure; and
- provide co-ordination and financial support for measures to improve the sustainability of natural resources management practices, including communication, education, on-ground works and evaluation.

## 1. NATURAL RESOURCE MANAGEMENT STRATEGY

Major priority areas include :

- Riverine Environment Management;
- Irrigation Regions Management;
- Dryland Regions Management; and
- Basin-wide Initiatives.

### 1.1 RIVERINE ENVIRONMENT MANAGEMENT

The aim of Riverine Environment Management is to achieve ecologically sustainable management of the Basin's riverine environment.

### **Improving water quality**

The objective is 'to improve the quality of water resources for environmental, consumptive and recreational uses'.

- *Salinity and Drainage Strategy*

Rising salinity levels and increasing land salinisation in irrigation areas are major issues. Completion of the Strategy marked the first occasion on which state governments had agreed to tackle a specific environmental problem through common effort across their borders.

- *Algal Management Strategy*

The Algal Management Strategy aims to reduce nutrient inputs to the river system, improve streamflow regimes and increase our understanding of the nature of blue-green algae.

### **Balancing flow regimes**

The objective is 'to establish river flow regimes that provide a balanced and fair distribution of water between human and environmental uses'.

- *The Cap*

An audit of water use in the Murray-Darling Basin completed in 1995 indicated that increasing diversions were reducing the security of supply to all users and exacerbating river health problems. Following further studies and an independent review, the Ministerial Council confirmed a Cap on water diversions, limiting them to the volume of water that would have been diverted under 1993-94 levels of development. Procedures have been put in place for monitoring and reporting on compliance with the Cap.

- *Environmental Flows Decision Support Program*

The aim of the Environmental Flows Decision Support Program is to support a strategic long-term approach to rehabilitating the Basin's rivers through the development of science-based products that will help to predict the likely effects of a wide range of actions and policies on riverine environments.

### **Managing for nature conservation**

Its objective is 'to enhance bio-diversity and maintain ecological communities throughout their range within floodplain, wetland, riparian and in-stream ecosystems'.

- *Fish Management Plan*

The prime aim of the Fish Management Plan is to sustain native fish populations in perpetuity.

- *Floodplain Wetlands Management Strategy*

The goal of the Floodplain Wetlands Management Strategy is to maintain and, where possible, enhance floodplain wetland ecosystems for the benefit of present and future generations.

## **1.2 IRRIGATION REGIONS MANAGEMENT**

The aim of Irrigation Regions Management is to achieve ecologically sustainable development of the irrigated regions.

- *Irrigation Management Strategy*

The aim of the Irrigation Management Strategy is to achieve an economically and environmentally sustainable and self-sufficient irrigation industry by the year 2010.

- *Regional Economic Development Policy*

The goal of the policy is to encourage strong, growing and diversified regional economies, based on competitive rural industries and self-reliant communities and ecologically sustainable management of natural resources.

### 1.3 DRYLAND REGIONS MANAGEMENT

Dryland Regions Management fosters community and government partnerships to address serious problems of land, water and vegetation degradation in the dryland farming and grazing regions of the Basin.

#### 1.4 BASIN WIDE INITIATIVES

- *Communication Program*

Central to the community-government partnership is the development of a comprehensive communication program.

#### 1.5 CATCHMENT MANAGEMENT REGIONS

In addition to the programs and strategies indicated above, much work is being undertaken at the regional level. Within the framework of the Natural Resources Management Strategy, a number of catchment-based regions have been established to co-ordinate natural resources management through their *Regional Action Plans and Projects*.

## **2. PRESENT STATUS OF IRRIGATION IN AUSTRALIA AND A VISION FOR THE FUTURE OF IRRIGATION**

### 2.1 INTRODUCTION

Australia irrigates 2 million hectares of land for cotton, rice, fruit crops, grapevines, pastures and vegetables. The annual farm gate value of produce from irrigation farms is about \$12.0 billion Australian, or more than 25% of the total agricultural production of the nation.

The major irrigation areas are in inland Australia, especially in the Murray-Darling Basin (South Australia, New South Wales, Queensland and Victoria). Water required for irrigation is stored in reservoirs in the upper reaches of the main streams and rivers and is released on demand to downstream irrigators. Legal agreements between the States determine the relative share of water resources. Groundwater resources are utilised in some regions.

In New South Wales, 500,000 ha of pastures, and 200,000 ha of rice and cotton are flood irrigated. Extensive earth and concrete-lined channel supply systems divert waters from storages and waterways to irrigation districts. Many of these systems have been in use for 50-80 years.

In Victoria, 500,000 ha of pastures are flood irrigated. Major channel systems divert water from the river systems to the irrigation districts.

In South Australia, Victoria and New South Wales, over 100,000 ha of high value horticultural crops (citrus, grapes, stonefruit, almonds, vegetables) are sprinkler or drip irrigated. In horticultural irrigation districts water is often distributed in low pressure pipelines, which have often replaced the older channel systems. South Australia also irrigated 60,000 ha of pastures.

In other states, a similar range of crops are produced. Queensland also irrigates 140,000 ha of sugarcane. Many inland areas of Australia have been developed only through the irrigation industry.

Access to irrigation water is controlled by the government with the amount available to any irrigator, or the area that may be irrigated, regulated. Significant private irrigators do exist but most regional water supply infrastructure is owned, constructed, maintained and operated by government agencies. Some policy changes over recent years will result in increasing privatisation or corporatisation of the ownership and operation of infrastructure. Historically, supply of water was subsidised to encourage development but there is now increasing cost recovery, at least for operating and maintenance costs. Governments are also developing policies to allow greater trade in water to permit more transfer within and between districts to provide water for new industries.

In most States, local area management is controlled by elected management boards who make decisions on all aspects of irrigation management for all farmers in the district.

About 20% of land irrigated is supplied from underground sources. This is generally managed by the States.

### **In Summary**

- The value of Australia's irrigated agriculture is \$12 billion per year.
- Greater than 25% of total agricultural production comes from irrigation.
- 70% of agricultural product is further processed. Activities outside the farm gate multiply the return perhaps four-fold, generating jobs and investment.
- Irrigation uses 73% of the nation's water resources.
- Production of most fruit, vegetables, dairy products, wine, cotton and rice depends on irrigation.

### **The end result is that irrigation**

- has improved farm productivity;
- has enhanced the quality of agricultural products and helped to ensure that quality standards required by consumers can be consistently achieved;
- has allowed agriculture to develop new crops suitable for international market niches;
- has provided the basis for a large food processing industry in regional Australia;
- is the foundation of many associated industries and, in particular, tourism and related services; and
- provides agriculture with the reliability that is the key to accessing many South East Asian markets.

## **2.2 VISION FOR IRRIGATION**

Australian irrigated agriculture has a bright and ecologically sustainable future.

Such an expectation can be arrived at by looking at the irrigation industry from a number of perspectives.

## **Irrigated Food Exports**

- *A stable supplier of high value fresh food exports*

A key to the revitalisation of irrigated agriculture will be the rapidly expanding demand in South East Asia for reliable supplies of high quality horticultural crops and other food products.

These markets demand stability of supply and irrigation guarantees stability of production.

- *Exports of traditional products enhanced by GATT negotiations*

Other products of irrigated agriculture will gradually benefit from the realignments of international trade that have been established through GATT negotiations.

- *Value adding and service opportunities*

There is a great potential for value adding (processing and packaging) of irrigated agricultural products which means that the Australian economy will receive a major long term boost.

Major beneficial flow-on effects will be experienced through all the sectors of the economy that service irrigated agriculture.

- *A strong and viable irrigation equipment industry*

Australia has a strong and innovative irrigation equipment manufacturing industry. This part of the industry is a major exporter of irrigation technology in its own right and also services the expanding non-farm and urban irrigation requirements.

## **The Management of Irrigation**

- *On farm management*

A key change at the farm level will be that farmers will have the money to invest in new irrigation technologies. Instead of bearing the cost of tariff protection provided to other parts of the economy, farmers will have the capital to invest in their own properties.

Farmers will use new irrigation technologies. This will include matching the supply of water to that actually needed by the crops, using water stress to manipulate the growth, yield and quality of plants and the innovative use of waste water. This will result in the more efficient use of less water and will maximise the use of rainfall and reduce drainage - both surface and sub-surface. More efficient irrigation practices will be adopted and sprinkler and drip irrigation techniques will be further refined.

Farmers will be better trained and ready to adopt new farm management practices as productivity and viability improves, the spread between average performance and best management practice will be significantly reduced.

Irrigators will fully participate in national research and development programs.

- *Supply agencies*

The driving force of the new era of sustainable irrigation techniques will come from farmers, whose returns have increased, working closely with the irrigation service providers. Governments will, however, have an important role in the management and allocation of water resources. This has been highlighted in the Council of Australian Governments' Water Resources Policy. Some of these changes include :

- Privatisation or corporatisation of the ownership and operation of irrigation infrastructure.
- The management of irrigation systems by regional bodies.
- Greater trade in water and transfer of water within and between districts. This will provide water for new industries.
- Governments will promote and support industry or regional restructuring to help the move towards higher valued use of water and more effective irrigation practices.

Irrigators will form strong customer groups to deal directly with the agencies and companies involved in the storage and delivery of water. In some cases the irrigators, through their customer groups, will operate and maintain parts of the system.

### **Tariffs and the Price of Water**

In order to minimise price rises, irrigators will be looking for cost savings in the delivery of water and maintenance and renovation of assets. These will be achieved by new management arrangements and innovative practices developed through research. Irrigators will be looking for international best practice in the delivery of water.

The industry will avoid the distortions that can be created as a consequence of artificially low or subsidised water prices. The distortions can include damage to the environment, creation of artificial values and the encouragement of inefficient practices.

In the short term, supply agencies will proceed with proposals to set water prices at levels which will provide for the operation, maintenance and replacement of the irrigation system.

The sophistication of water pricing will increase. Water prices will eventually consist of several components related to factors such as volumes and timing. The components will be manipulated to influence the utilisation of water and ensure that costs are kept to a minimum.

Importantly, the savings generated by farmers adopting more efficient irrigation techniques will provide extra capital for these farmers to invest.

### **Supporting Industries**

Industries supporting the revitalised irrigation industry will improve their operations to facilitate and benefit from exports of irrigated agriculture.

The international marketing of irrigated agricultural products will be enhanced progressively through the initiatives of private industry and marketing groups.

### **Environmental Issues**

The rivers which carry the water for irrigation must be healthy in their own right. For some rivers, flows throughout the system will be better managed to guarantee this health.

Irrigators, communities along river, and the managers of water storages will understand and care for the needs of the environment. Environmental water flows will be provided to maintain key elements of the ecology of streams, and will recognise the need for periodic floods of specified dimension and timing. Streams and wetlands will be managed with knowledge of the needs of native wildlife such as water birds and fish.

Farmers, being in the long term business of primary production, will work to ensure that the irrigation system is environmentally sustainable.

Irrigation service providers, in conjunction with farmers, are developing better management practices for nutrient control both on farm and within irrigation drainage networks.

The new era of revitalised irrigated agriculture and transferable water rights may result in land that is badly affected by rising watertables and salinity being withdrawn from irrigation. This will be achieved through the market place. The environment can purchase this water in the market place.

In the past, conservation groups have highlighted the worst examples of salinity to raise public awareness about the problems and to gain support for costly remedial action. Since then the farming community, the Government, the irrigation service providers and conservation groups have been working together to determine the most appropriate strategy for the future.

### 2.3 STRATEGIC GOALS/MAJOR OUTCOMES

Should relate to matters such as :

- Financial Framework with Governments.
- Water Resource Management.
- Environmental Management.

### 3. FUTURE CHALLENGES AND AIMS FOR NATURAL RESOURCE MANAGEMENT

Australia has identified the need to take an integrated catchment management approach to natural resource management to ensure future long term sustainability of irrigation, dryland farming and the environment.

The major aims of the Natural Resources Management Strategy are :

- prevent further resource degradation;
- restore degraded resources;
- promote sustainable user practices;
- ensure appropriate resource use planning and management;
- ensure a viable long-term economic future for Basin dependents;
- minimise adverse effects of resource use;
- ensure community and government co-operation;
- ensure self-maintaining populations of native species;
- preserve cultural heritage;
- conserve recreation values.

Future Water for Agriculture Initiatives should involve :

- maximising private sector investment opportunities;
- identifying land that can be sustainably irrigated without compromising salinity, water quality, and other environmental goals;
- improving efficiency of the irrigation industry to get the most out of our treasured water resources;
- ensuring water markets operate effectively to move water from low to higher value use.