

AUSTRALIA: THE ARID LAND

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Introduction

Australia's hostile interior defied European exploration for almost a century, and its aridity explains the population of around 18 million in a country of 7,682,300 square kilometres.

Australia lies in the latitudes between 15 and 35 degrees where most of the world's great deserts are found, and more than 80 per cent of the continent lies in arid or semi-arid climatic zones. With an annual average rainfall of 465 mm, Australia is about one third drier than all other continents except Antarctica. Low interior altitude, with limited mountain systems reduces moisture released by the winds passing inland. Rainfall is variable and costly storage places are needed in a number of areas to regulate or conserve water supplies.

Only Asia, with its enormous extent of dry country in Arabia, Mesopotamia, central Asia and north-west India, has a similar proportion of low-rainfall country as Australia. Even Africa, with the enormous extent of the Sahara and Kalahari Deserts, is proportionately wetter than Australia. Both these continents have a higher proportion of land with a rainfall of more than 1000 mm a year than Australia. The United States, which is about the same size as Australia, has about five times as much land with a rainfall of more than 500 mm. Australia has five times as much land receiving less than 250 mm rainfall than the USA.

About 70 per cent of Australia is unable to support agriculture in any form and much of it can be used only for the grazing of a limited number of sheep or cattle. About one third of this area is classified as desert. The remaining

area is split roughly in half, with a little more than 15 per cent falling in a temperate region between the arid zone and the coastal belt. This is capable of growing a limited range of crops and carrying livestock, supporting about 40 per cent of Australia's total sheep population, 30 per cent of its beef cattle and producing some 90 per cent of the country's wheat crop.

Intensive agriculture is confined to the sub-coastal plain along the eastern fringe of the continent, Tasmania, the southern part of Victoria, the south-east of South Australia, the south-west of Western Australia and a northerly area of the Northern Territory. These areas comprise about 15 per cent of Australia, but a substantial portion is mountain unsuited to agriculture. As a result, less than 10 per cent of the total land area is able to be used for intensive agriculture.

Land use

Grazing beef cattle is the main enterprise in the north while most forms of cropping and livestock production occur elsewhere. These areas support most of the dairy industry, all of the sugar industry, a large part of the fat lamb, horticultural and beef cattle industries and almost all of Australia's commercial forests.

Water supply is a major problem for the development of Australian resources. Eighty five per cent of the total national run-off of almost 400 million megalitres occurs along the north and north-east coasts where population and other resources are limited. As a result, the total water resource capable of diversion for use in developing rural industries is only 25 per cent of total run-off, a

low percentage by world standards.

The 30 per cent of Australia suitable for agriculture also contains most of its usable water resources. The Murray-Darling river system, covering most of inland south-eastern Australia, ranks among the largest river basins in the world and consists of 20 major rivers and hundreds of smaller tributaries which drain 14 per cent of Australia. The Murray Darling Basin (managed by the Murray Darling Basin Commission) is the country's most productive province, containing half of Australia's sheep population and 75 per cent of its irrigation areas. By contrast with the northerly areas, 80 per cent of the available surface water resources in this area are used, mainly for irrigation.

Drought

Land degradation in the form of water and wind erosion is often exacerbated by drought and there is a growing awareness that droughts are a natural occurrence in Australia and that farm management needs to take this into account in its planning rather than relying on government help when drought occurs. A risk management rather than a crisis management approach is now being adopted.

Land degradation

Environmental factors have played a role in limiting development in Australia. However, development has also had an adverse effect on the environment. A national survey in 1978 indicated that just over half the area of land used for agriculture or pasture was in need of treatment for land degradation if its

productivity was to be maintained. Estimates of the costs of land degradation vary between \$600 million (in terms of annual agricultural income foregone) and \$2 billion (in terms of the costs of treating the problem). The cost of land degradation in the Murray Darling Basin alone has been estimated at \$220 million per year.

The 1978 survey results sparked a national movement to control land degradation and improve agricultural productivity by encouraging the use of more sustainable agricultural practices to:

- enhance farm productivity;
- minimise adverse impacts of agriculture on natural resources;
- minimise residue resulting from the use of chemicals;
- maximise net social benefit from agriculture;
- develop flexible farming systems to manage risks associated with fluctuations in climate and markets.

National, state and local strategies have been developed to address the problems of land, water, vegetation and ecosystem decline. More and more farmers are redesigning their properties to provide habitats for native animals, increase vegetation cover, improve stock and land management and generally adopt a more holistic approach to land management.

Decade of Landcare

A Decade of Landcare Plan was announced in 1989 with the combined sup-

port of Federal, state and territory governments and the National Landcare Program (NLP) was established in 1992. The term 'landcare' describes an approach to ecologically sustainable resource management to protect long-term productive and environmental values. Over 2200 groups nation-wide with 28 per cent of farms are represented in a landcare group.

Key elements of the Decade of Landcare Plan are the development of partnerships with the states and territories, industry, local government and the community in pursuit of enhanced natural resource management outcomes.

Major activities funded under the NLP include integrated catchment management, salinity mitigation, land resource management, water assessment and planning, vegetation protection and re-establishment, floodplain management, country towns water management, community landcare, property management planning and biological diversity conservation.

Source: DFAT