

Press and television pictures of famineafflicted people have become all too familiar. In 1974 it was the turn of the Ethiopians. But just then they were only one of a number of the peoples living close to the fringes of the Sahara desert who were in a similar predicament.

At that time, many of the nations of what's known as the Sahel region of Africa were suffering from that common problem now known as 'desertification', a word dreamed up by the French-speaking world.

The term conjures up images of deserts — the Sahara in particular sweeping from out of their former boundaries like a tide enveloping formerly productive agricultural land. But in fact that's too spectacular a picture. The term really means 'damaging the environment so that it becomes less productive'. Thus, although 'desertification' is usually applied to erosion and to the other symptoms of degradation in arid and semi-arid lands, it can proceed on any land that is misused.

During the last few years concern about the process, especially among the French-speaking nations of the Sahel, has become so great that the United Nations felt compelled to call a conference. The United Nations Conference on Desertification took place at Nairobi, Kenya, during September last year. Australia a country not without its problems of aridity — sent five delegates.

Mr Owen Williams of the CSIRO Division of Land Resources Management was one of them. According to him, delegates from most countries had few illusions about the cause of desertification. (This applied especially to those countries most affected.)

Not 'will of Allah'

That cause is Man's misuse. Uncontrollable natural forces like the climate cannot be blamed. There has been no climatic



change around the edges of the Sahara in recent times — the rainfall has continued, as ever, erratic and unpredictable.

People are the problem. During periods of high rainfall, their numbers have increased on dry marginal land and they have begun cultivating the ground for crops. All has appeared to go well while the period of high rainfall lasted, but with the first drought the land has no longer been able to support the crops, let alone the domestic stock that moves in from even-more-arid regions during such times. Inevitably, calamity has followed.

This pattern of over-optimistic use during years of high rainfall seems all too familiar in our own arid and semi-arid zones. But, Mr Williams points out, the Australian situation is very different in one very important respect from that in northern Africa, or in similarly afflicted areas of India and South America. Very few people live in our arid zone, and if bad management causes too much degradation of the environment farmers leave — the farming enterprise becomes unviable.



Mr Owen Williams.



Major achievement

Mr Williams thinks that the conference's major achievement was undoubtedly its approving of a plan of action to combat desertification. The 'Habitat' conference held in Vancouver 3 years ago conspicuously failed to do this.

Such a plan can be regarded as a guide for those trying to do something about desertification in their own countries. It contains guidelines on how to go about combating the problem, and suggests how international help should be organized.

The final United Nations plan of action for combating desertification contains one omission. The proposal that a special fund should be set up for combating desertification, although passed, was not approved by the world's developed countries (the donor countries). So any money for a fund administered by the United Nations will have to be obtained from other agencies within that institution. This is not to say that individual countries will not continue to finance specific antidesertification projects, but they will do it as a result of private agreements.

A notable feature of the U.N. Conference on Desertification, like so many others, was the volume of publications produced in advance. (Each delegate received a pile more than one-third of a metre high.) Included among these were six case studies of desertification in particular countries, which were funded by UNESCO. In addition a number of countries, including Australia, contributed at their own expense two 'associated' case studies. The Australian offering was very well received.

Gascoyne catchment study

This study covered surveys by the Western Australian government of the condition of the catchment of the Gascoyne River inland from Carnarvon in Western Australia, and steps taken to remedy the situation. The document for the United National conference was put together by Mr Williams, with Mr Henk Suijdendorp and Mr David Wilcox, of the Western Australian Department of Agriculture, using funds provided by the Commonwealth Department of Environment, Housing and Community Development.

Early in 1961, severe flooding by the Gascoyne River of the town of Carnarvon and of nearby vegetable and plantation crops focused attention on the river's arid catchment. The Western Australian government's early studies indicated that 60 years of grazing by sheep had seriously degraded the Gascoyne basin. A government report issued soon after the flooding recommended that steps should be taken to prevent further erosion and loss of vegetation.

Another study, carried out in 1969 and 1970 by Mr Wilcox, and Mr Ed McKinnon of the Western Australian Department of Lands and Survey, described the catchment in detail in terms of its range types and their susceptibility to erosion. They[®]did this for every property.

Their report stated that about 15% of the catchment was so badly eroded that it could become irreversibly damaged if it wasn't protected from grazing. A further 52% of the 64 000-sq-km catchment was drastically degraded and would need careful management if it wasn't to go further downhill. Only 33% remained in an acceptable condition.

Mr Wilcox and Mr McKinnon found that much of the land still in an acceptable condition was hill country or short-grass country with poor natural productivity. Land capable of supporting the most sheep had suffered the most devastation.

They recommended that stock numbers on the Gascoyne catchment should be reduced to nearly half their level-a suggestion that was not well received by the local graziers. Nevertheless, the State government accepted the report, and negotiated agreements with every property-owner on how the stock reductions should take place over a 10-year period. The agreements also specified the degraded areas from which stock should be either partly or wholly excluded. As well as trying to regulate stock numbers, the State government put in monitoring sites to check on the recovery of the vegetation once grazing had ceased.

Mr Williams doubts that the situation in the Gascoyne catchment differs much from that elsewhere in the Australian arid zone. Certainly the long-term trend towards all properties carrying less stock





corresponds to trends throughout the zone.

Drought reserve gone

Both in the Gascoyne basin and elsewhere, stock numbers and their breeding performance have fluctuated greatly over short periods and have seemed closely related to the rainfall. This suggests that the pastoral industry in arid areas now depends on short-lived plants. In other words, desirable long-lived forage plants (some of which may live for more than 100 years, and provide the backstop during long droughts) are well on the way to being eaten out.

Evidence from the Gascoyne basin and other parts of the Australian arid zone suggests that the desirable long-lived species will germinate and grow if they are protected from grazing during the early stages. They will continue to grow after that if they are not too heavily grazed. So it should be possible to strike a balance so that grazing may continue at a reasonable level indefinitely (see *Ecos* 8).

The snag is, as Mr Williams points out, that in much of the arid zone individual properties receive only very low financial returns, and there's little that their owners can do. They can't afford to spend much money on stopping desertification. Even putting in adequate fencing to keep sheep or cattle off segments of country while it regenerates would often cost too much. (And of course it would be essential to keep rabbits off too.)

In the Gascoyne basin, as elsewhere, the only feasible course of action has been to try to force station-owners to drastically reduce stock numbers—a financially painful solution for the graziers concerned and not one that is necessarily acceptable to the companies that service their debts.

Can Australia help?

What has the experience of the Gascoyne and other parts of the Australian arid zone to do with the hard-pressed semi-arid parts of Africa, India, and elsewhere?

At most only a few hundred people are affected in the Gascoyne basin, and it has not proved possible to greatly reduce stock numbers there by government regulation.

In many of the less-developed countries removal of domestic stock is no longer even a theoretical option. There, people have already moved into the arid areas in very large numbers, and often they have cultural reasons for wanting to keep their herds as large as possible (more cattle represent more wealth for example). There's nowhere for these people and their stock to go. So reducing stock numbers can hardly seem appropriate to the administrators of such countries, and putting in fences to control grazing animals may be far beyond the means of the nation, as well as being socially unacceptable.

Here in Australia we don't have the problems of population pressure in our drier areas, so we have been able to experiment with regenerating parts of our degraded arid lands. Perhaps, Mr Williams thinks, some of this knowledge may find an application in other parts of the world.

More about the topic

- 'Gascoyne Basin: a Case Study on Desertification; Presented by the Government of Australia to the United Nations Conference on Desertification.' O.B. Williams, H. Suijdendorp, and D.G. Wilcox. (Department of Environment, Housing and Community Development: Canberra 1977.)
- ^cA Report on the Condition of the Gascoyne Catchment.³ D.G. Wilcox and E.A. McKinnon. (Department of Agriculture and Department of Lands, Western Australia: Perth 1972.)