

# Can We Myth-Proof Australia?

John Williams says that plans to "drought-proof" Australia are like bashing the continent into submission instead of accepting its nature and learning to live within it.

**T**he bitter irony of the current drought is that it has again called forth the same myths and false beliefs that got us into trouble in the first place.

Mingled with a genuine desire to help farmers and rural people caught in a spreading tragedy are the age-old calls to "drought-proof" the continent, to turn the rivers inland, to harvest all their water lest it run to waste in the sea.

We now know – as Australians did not know 100 years ago – that these are not solutions but recipes for disaster that fight against the nature of the continent instead of working with it. Yet they still dominate the populist rhetoric of the public debate. Simplistic solutions that will destroy Australia.

**"It isn't the drought that is the problem. It is our delusions."**

It isn't the drought that is the problem. It is our delusions. Like the lotus-eaters, we inhabit a dream world where water is plentiful and the landscape resembles the soft, green hills of Europe. It is time to awake and accept where we live.

The Australian psyche is dominated by dreams of water. Early settlers found the landscape harsh and arid, lacking the verdancy and park-like qualities of Europe. The rivers were untamed: within weeks the vast floods that spread across the plains became a

chain of muddy pools.

Eight generations on, we still have the greatest difficulty in grasping the role of water in our landscape and responding to it in an Australian rather than a European or an Asian way.

A year I ago wrote in *The Age* of the three great myths that still haunt our thinking:

- water allowed to run to the sea is wasted;
- we must make the desert bloom; and
- we must drought-proof Australia.

I cautioned that these persistent ideas hold great danger, both for our landscape and for our sustainable future within it. We need to rid ourselves of them if we are to live like true Australians in harmony with our land.

Yet like spectres from the dying landscape, the old myths have arisen again with the present drought. The media is full of such calls, advocating that we should try to bash Australia into submission instead of accepting its nature and learning to live within it.

On 22 October, a sudden dust storm lifted seven million tonnes of precious topsoil from the eastern landscape and dumped most of it in the ocean. It was a fresh warning that the damage inflicted by the combination of drought, poor management and policies is cumu-



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lative and irreversible. Each successive event takes another bite out of our resources – soil is lost, remnant vegetation declines, rivers dry out, ecosystems wither, and species are lost.

Dealing with the three myths in turn, the natural flow of water down a river to the sea is part of a healthy system. It is when we prevent this by damming, building weirs and, especially, by taking out too much of the flow for other uses that the river's health is placed at risk. If the river cannot flush itself, it has no way to remove the salt, nutrients and pollution that build up in it.

The Australian landscape, its plants and animals have evolved to cope with episodic flooding. By removing the water and preventing floods, we need to be aware that we are also destroying that landscape and the rivers that give life to it.

The key lies in striking a better balance between the needs of the natural environment, agriculture and our cities. It also lies in being a lot smarter in how we use our water. For example, almost all of our urban stormwater and most of our sewage effluent now runs to waste, while the least efficient irrigation farmer uses



A stressed river system: the Lachlan River at Cowl Cowl Station, Hillston, NSW. Photo: CSIRO Land and Water

5–10,000 tonnes more water per hectare to produce the same amount of food as the most efficient irrigation farmer.

The second myth – of making the desert bloom by turning coastal rivers to run inland – is as much in vogue today as it was 100 years ago. The drought has prompted calls to revive the Bradfield Scheme, a 1930s plan to turn the Tully and Herbert rivers back across the Great Divide into Central Queensland. Two centuries of development in Australia seem to have taught us little about the hazards of salinity, soil and water degradation, loss of habitat and species.

The third myth of “drought-proofing” our drier areas is equally fraught with risk because it invites us to grow things in areas where the nature of Australia makes it inadvisable to do so. It involves bringing water to places where it is normally only an episodic event, and can cause unforeseen problems.

From a national perspective it is also unnecessary. Australia has a huge

“fertile crescent” of reliable high-rainfall country and fertile soils around our coastline, on which we could develop sustainable agriculture and horticulture.

But instead of growing food, we have chosen to use these lands for urban sprawl, tourism and hobby farms – and so squandered our most precious resource in an arid, infertile continent. What other country would put its best farmland under concrete and race-horses?

We now have the tools to predict risk in farming. We can say, with high confidence, how many crops you can expect to get in a given area over a decade, and what sort of cashflows they will yield. There is no need to grow things in places where failure is likely. There is no need to risk landscape destruction.

Learning to farm Australia sustainably is about having a good grasp of these risks. All that stand in the way are the mirages and myths with which we surround ourselves.

Concern about the persistence of these myths drove the Wentworth group of concerned landscape scientists to make its widely publicised statement about our need to come to terms with the nature of our continent, its rivers and landscape. The group saw the need to focus on those issues where there is broad agreement, instead of on the differences. We don’t claim to have all the answers – but we do assert that the ability exists to lay a foundation for sustainably managing Australia.

We believe Australia needs to:

- clarify water property rights and the obligations associated with those rights to give farmers some certainty and to enable water to be recovered for the environment;
- restore environmental flows to stressed rivers such as the Murray River and its tributaries;
- immediately end broadscale land-clearing of remnant native vegetation and assist rural communities with adjustment. This provides fundamental benefits to water quality,

prevention of salinity and soil loss, and conservation of biodiversity;

- pay farmers for environmental services such as clean water, fresh air and healthy soils. Where we expect farmers to maintain land in a certain way that is above their duty of care, we should pay them to provide those services on behalf of the rest of Australia; and
- incorporate into the cost of food, fibre and water the hidden subsidies currently borne by the environment to assist farmers to farm sustainably and profitably in this country.

It is within the power of governments to make the first three changes immediately. The willpower is a different matter.

We also see a need to cut the bureaucratic red tape that is strangling sustainability in Australia so our farmers and resource managers can go for it. We think there should be a National Water Plan to restore river health. And we want governments to agree to a 20-year, \$20 billion reinvestment plan so that regional communities can be certain that the nation is backing them.

By giving power back to our communities, valuing the ecosystem services provided by native vegetation, recognising the importance of environmental flows in our rivers and rewarding people for environmental stewardship, our generation can leave a legacy of living rivers and healthy landscapes, not drains and dustbowls.

Our continent is falling apart and it is not due to drought – it is caused by poor policies and poor management. And these are driven by populist myths.

The critical need is not to drought-proof the inland, for that is impossible. It is to myth-proof Australians.

It is to help ourselves to attain a more realistic and pragmatic appreciation of the character of our continent instead of one superimposed by our alien cultural origins.

If we are to become real Australians, not merely transplants, we need to rethink our fundamental values of water and landscape and our relationship to them.

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## CAN CLOUD SEEDING BRING DROUGHT RELIEF?

With rainfall levels well below average over vast areas of the continent, farmers and water managers are asking what science can do about the problem. Brian Ryan evaluates the research.

Cloud seeding began in Australia in 1947, when an RAAF bomber dropped 90 kilograms of dry ice pellets into a huge cumulus cloud above the Blue Mountains to the west of Sydney. It rained soon after, but to this day we don't know whether it was the cloud seeding that was responsible for the rain.

Since those early experiments we have learned that we can change clouds by seeding them, but it's another thing entirely to prove that the seeding has enhanced regional rainfall. For this reason cloud seeding, both in Australia and overseas, has often been dogged by controversy.

CSIRO has shown that in Australia cloud seeding is only effective in a limited number of weather conditions. Cloud seeding will never break droughts. For a start, cloudless skies will never produce rain. In fact, many types of clouds cannot be successfully seeded.

Cloud seeding is most likely to be effective when used on cumulus clouds in air forced up over mountains.

CSIRO has considerable expertise in this field of research. During the late 1980s, CSIRO Atmospheric Research acted as scientific advisors to Melbourne Water in a cloud seeding assessment conducted over the Baw Baw plateau to the east of Melbourne.

Since the 1980s, the Hydro-Electricity Commission of Tasmania has run very successful cloud seeding projects in mountainous parts of the State. Seeding there routinely adds up to 20% to runoff into water catchments. Conversely, the Melbourne Water experiment and many other Australian cloud seeding experiments generated no statistical increase in rainfall over catchments.

Experience tells us that seeding is unlikely to be effective during winter and spring over the inland plains of

southern and eastern Australia. It is also likely to fail in summer over Australia's eastern and north-eastern plains and immediately to the north of Perth.

In the tropics, the high rainfall variability makes proof of increased rainfall from cloud seeding extremely difficult.

Based on more than 50 years experience with cloud seeding, CSIRO has established procedures for undertaking a cloud seeding experiment. These rigorous guidelines ensure that at the conclusion of seeding operations there will be a clear-cut answer to whether or not the activity was successful. In other words, has the seeding netted a statistically significant increase in rain over the catchment? If the answer is no, there is no point in persevering.

It may be worth attempting rainfall enhancement experiments again in areas where past efforts have failed, but proper planning needs to be done first, along with rigorous independent evaluations. Otherwise, we are simply pouring our money down the drain.

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