

# Science visionary at the heart of water reform

He was a pioneer in warning us about the impacts of salinity and has helped shape the future of farming. Rosslyn Beeby talks to Dr John Williams about the long process of healing the Australian landscape.

*This article first appeared in the Canberra Times Wednesday 22/10/2003 Supplements Page 7  
Written by Rosslyn Beeby*

**FROM THE** window of his Black Mountain office, Dr John Williams can look across the Canberra landscape to a distant view of the southern tablelands where he was born.

As a kid growing up on Wollcara Station, a grazing property where his father worked as station manager, the Young John Williams knew he wanted to follow a career in agricultural science.

"My father taught me to respect the bush and the natural systems of the land, but there was always a tension between his obvious love of the Land and the things he felt he had to do to make it productive," says the man who is now Chief of CSIRO Land and Water and one of Australia's most respected and visionary scientists.

"I saw hillsides near our woolshed move with hundreds of rabbits and I heard my father talking about farming practices that weren't a goer. I wanted to be an agricultural scientist and learn how to use this land and to heal some of the things that had gone wrong."

At the University of Sydney, he graduated with a first class honors degree in agricultural science and a doctorate in soil physics and hydrology. After further research on soil physics in Canada and California, he went to Fiji to establish an agricultural science faculty at the University of the South Pacific. His approach was to build a science course that would draw together natural systems - oceanography, meteorology and hydrology - to explore the physics of the biosphere and the role of agriculture in the natural ecosystem.

"It was the beginning of my thinking on the need for Land management that was productive and sustainable, the idea of farming without harming," he says.

He joined CSIRO thirty years ago, working on land management problems in the Burdekin catchment in Queensland and developing new theories on the hydrology of tropical landscapes. He also observed the disastrous environmental impact of legume crops and rapidly increasing herds of drought-resistant cattle.

"You could see the land being eroded and damaged and the countryside being denuded by the horrendous increase in stocking rates. At the same time, we were seeing the first signs of dryland salinity in landscapes where it was thought that the evaporation rates were so high that there was no way there would ever be a problem with excess water and waterlogged soils."

Dr Williams was an influential voice in salinity research, arguing that Australia's geological history had created an ancient continent that had accumulated enormous amounts of salt in its soils, lakes and groundwater. In a widely-quoted paper, *Farming Without Hamming In An Old, Flat, Salty Landscape*, he wrote that most of Australia's rivers and groundwater systems were sluggish, with only a small capacity to move salt from the continent - "thus, our farming systems must be able to work in a landscape that is old, flat and salty."

The extent of the problem wasn't appreciated and it took years to shift stubborn views before salinity was tackled as an urgent environmental priority. He is aware that as a member of the Wentworth Group of Concerned Scientists he faces a similar challenge in overhauling Australia's use and management of water as a natural resource.

The Wentworth Group, a loose affiliation of eleven of Australia's most influential environmental scientists and economists, met a year ago to develop a science blueprint for environmental reform. In July, they delivered a blueprint for water reform to the Council of Australian Governments, which was largely adopted as national model.

"I'm proud of what we achieved, we brought forward the debate on land and water management and developed a plan for water reform that is based on the best possible scientific principles," he says.

His involvement with the Wentworth Group has been criticised by some sectors of the conservation movement and farm commodity groups as politicising CSIRO.

"We are not a politically driven or motivated group, we simply set down solutions and components for landscape reforms," he says.

"CSIRO has a responsibility to contribute to the national debate on issues of significance and to provide informed and objective scientific opinion - it's there in the parliamentary act which governs the organisation.

"The Wentworth Group came together because we all wanted a water debate driven by science, not by mythologies like turning rivers inland and making deserts bloom. Why an earth do we need to do that? It's not a good way to use water."

Next February, on his sixty-first birthday, Dr Williams plans to retire from CSIRO but thankfully, he will not be retiring from the Field of agricultural science. He plans to write and to continue to contribute to the debate on natural resource management.

"Australian farming systems were built by drastically changing the nature and seasonal patterns of water, nutrients and soil fertility established over 60 million years by the native landscape, its plants and animals," says Dr Williams.

"We imposed European systems that had worked well in other landscapes for thousands of years but we are now finally realizing how ill-suited they are to Australian conditions."