AUSTRALIAN SCIENTISTS AT WORK ON THE INTERNATIONAL STAGE

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Australian experts hold key roles in the Ramsar Convention on Wetlands, assessing how they can be better managed to mitigate the effects of climate change and the importance of wetlands for human health.

Four Australians are currently members of the Scientific and Technical Review Panel, a subsidiary body of the convention made up of 17 appointed members and 24 invited observer organisations. Panel members include six regional experts and eight thematic experts, who each lead priority work areas as identified at the convention's triennial conference.

The four Australians are: wetland ecologist professor Max Finlayson, director of NSW's Charles Sturt University's Institute for Land, Water and Society, working on Wetlands and Climate Change; Dr Pierre Horwitz, an aquatic ecologist from Western Australia's Edith Cowan University, working on Wetlands and Human Health; George Lukacs, an ecologist with Queensland's James Cook University, working on Wetlands and Agriculture; and Christine Prietto, manager of the education program at NSW's Hunter Wetlands Centre Australia, working on Communication, Education, Participation and Awareness.

The Wetlands and Climate Change theme is looking at adaptation mechanisms for how to cope with change in wetlands for biodiversity outcomes and whether or not wetlands can be used to help mitigate the effects of climate change by storing carbon. Dr Nick Davidson, Deputy Secretary General of the Ramsar Convention and one of the scientists working on this theme, says "the climate change community has so far focused almost exclusively on forests as a means of storing carbon".

"However, it is becoming very clear from the work of our scientific panel that a number of different types of wetlands [peatlands, mangroves and salt marshes] store a significant amount of carbon," Dr Davidson says. "While it is difficult to find out how much of the carbon is stored underground in the soils, we are looking at a number of initiatives to encourage exploring the importance of maintaining existing wetlands."

Professor Finlayson, the panel's longest serving member, is looking at linking the work being done on this theme in Australia with the water resources and biodiversity network of Griffith University's National Climate Change Adaptation Research Facility. A research project on land use and climate change impacts on Australian peat wetlands is also starting at Charles Sturt University in 2010.

The Wetlands and Human Health theme analyses the interactions between human health and wetlands, looking at both the positives and the negatives. This will be followed by the preparation of guidelines, with the assistance of the World Health Organisation, for wetland managers worldwide on managing wetland issues for human health.

Wetlands provide food, fibre, fresh water, help regulate floods and can buffer storms helping to protect lives. But they can also carry water-borne diseases and harbour mosquitoes, which can carry life-threatening diseases such as malaria. Professor Finlayson says the team is looking at "what is a healthy wetland ecosystem and what health benefits will it bring people". The theme's second focus familiarises health authorities with the benefits of wetlands and wetland management issues. Many projects are underway in Australia that explicitly address the relationship between wetland ecosystem services and human health.

For example, wetlands on the Swan Coastal Plain in Western Australia are drying and exposed sediments are producing acidic and metal-rich groundwater plumes. If these catch alight they produce toxic smoke for months. In both instances people in neighbouring residential communities can be exposed. Preventing the wetlands from drying and maintaining the ecosystem services provided by saturated sediments becomes a human health agenda. The framework being developed by the Ramsar Scientific and Technical Review Panel will help identify pathways for action.

The Wetlands and Agriculture theme assesses the extent of agriculture in wetlands on a global basis using case studies from different countries. The purpose is to look at the trade-offs between using wetlands for food and the eco-system services they provide. Professor Finlayson estimates that 80 per cent of wetlands, globally, have some sort of agricultural activity. While the figures for Australia aren't yet available, it is expected to be 60-80 per cent.

Other activities include a review of the biodiversity value of rice fields including those in Australia. This will build on work already completed by the Institute for Land, Water and Society looking at how birds and frogs utilise rice fields. A project is currently investigating the biodiversity value of rice fields in southern and northern Australia.

"Even though they are artificial, rice fields are an important wetland type but in many places people are not fully aware of their biodiversity value," Professor Finlayson says.

The technical findings of all scientists on the Scientific and Technical Review Panel need to be translated into every-day language so that they can be understood by policy makers and the general public. The Communication, Education, Participation and Awareness theme cuts across all panel activities both in Australia and overseas.