The assault on salt

A battle against salinity is being fought across Australia. Winning will need commitment, time and the right science, property owner John Ive has told the House of Representatives Science Committee. Story: Russ Street

More than five and a half million hectares of land in Australia are at risk or already affected by dryland salinity. It's estimated that if the problem continues at its current rate, this could increase to 17 million hectares within 50 years.

Although salt is naturally present in most Australian soils, inappropriate land use practices over the past 200 years have caused the current massive salinity problems, evident in all parts of Australia.

And the problems are formidable. They include declining river quality; the loss of productive land; damage to farm equipment, roads, buildings and other public infrastructure; damage to urban infrastructure; damage to conservation reserves, biodiversity and remnant vegetation; and increased flood risk.

The House of Representatives Science and Innovation Committee is about to deliver its findings from an inquiry into the coordination of the science to combat Australia's growing salinity problem.

Specifically, the inquiry, chaired by Gary Nairn (Member for Eden-Monaro, NSW), is investigating the Commonwealth government's role in managing and coordinating the application of the best science in relation to Australia's salinity programs.

All Australians have a significant stake in the outcome of the inquiry because if the increasing problem of salinity is not controlled, many experts predict that it will not only affect farmers but will have significant effects in non-agricultural regions and urban areas.

John Ive, who made a submission to the inquiry, has run a family owned property *Talaheni* in the Yass Valley of New South Wales for the past 24 years.

He has been involved in agriculture in one form or another all his life and has had to deal with the effects of salinity at first hand from the 1950s.

Mr Ive was raised on a dairy farm in the Kerang district of northern Victoria and later on a sheep and cropping property in the Western District of the state.

He says on both of the properties (irrigation and dryland) he worked with his father in attempts to overcome salinity.

Saline areas near Griffith (NSW). Photos: © CSIRO Land and Water

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"With hindsight this was largely futile as we were attacking the symptoms not the primary cause.

"In the case of the dairy farm it was a matter of land planning irrigation bays in an attempt to more evenly distribute irrigation water and stop water ponding on bays. For the sheep and cropping property it involved draining saline depressions and planting salt tolerant strawberry clover."

Mr Ive says while at university he can recall visiting the Heytesbury development in the early 1960s—a Victorian government initiative involving the clearing of large areas of crown land south of Colac for the establishment of dairy farms mainly for soldier settlers.

He says he was not opposed to clearing, rather the insensitive way it was undertaken and he was left with a feeling that this was not the way to go.

After finishing university, Mr Ive worked on a CSIRO research station in the Northern Territory where he again saw at first hand large scale clearing of Tipperary Station for the planting of sorghum.

"Huge tracts of land were cleared without any idea or concern of the erosion that would result when it rained; small creeks became raging torrents carrying huge loads of soil."

He says 38 years on he is still involved with the CSIRO, working with farmers to develop more sustainable land use practices in the Murray-Darling Basin. He has had the opportunity to work in a number of regions across Australia with landowners and managers.

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Mr Ive says unfortunately Yass has the status of the salinity capital of New South Wales.

"Our property sits in the midst of the worst salinity affected area in the Yass Valley, which we recognised at the time of purchase. As a consequence we called the property *Talaheni*, which is Arabic for 'wait a while', in recognition that while the commitment was there from the start the response would have to 'talaheni' or wait a while."

When purchased in 1980, *Talaheni* suffered severe dryland salinity, with declining pasture and extensive erosion.

To address the problem, Mr Ive developed a farm plan that involved an integrated, multi-pronged approach to dryland salinity. Pastures were re-fenced to assist with grazing management. Graded and contour banks were constructed to protect vulnerable areas. Soil acidity was rectified. Native trees were planted in areas with low production potential. Monitoring equipment was installed to check the depth to and salinity levels of groundwater. Grazing was managed to encourage regeneration of cleared hilltops. Dam salinity levels were measured to help identify areas at risk. Pastures were fertilised and managed to increase pasture bulk and vigour and assist in retaining rainfall. Mixed-species vegetation was planted along corridors to help intercept groundwater and provide wind shelter.

As a result of the measures he has introduced to combat salinity, John Ive (above) is now able to use this dam to provide water to his stock. But the battle still goes on and includes regularly monitoring the level of the water table (right). Photos: AUSPIC

The results speak for themselves. There has been a major reduction in the salinity levels of groundwater. Pastures have become reinvigorated. The carrying capacity and quality of stock and commercial product have increased.

And these are not the only rewards. Mr Ive was a founding member of the Yass River Valley Revegetation Project, which was awarded the Greening Australia National Tree Care Award in 1988. Other awards include the Climate Variability in Agriculture Program—Masters of the Climate Competition in 1999, the Land & Water Australia Community Fellowship in 2002, the Landcare Research Award in 2003, and selection as a current finalist for the United Nations World Environment Awards.

Mr Ive says while he is acutely aware of the problems of salinity and how to combat it, that is not always the case with many other sections of the Australian community.

"Salinity is akin to death by a thousand slices and therefore is easily pushed off the mind's 'top ten' by the issues of the moment. For example, for farmers it is current seasonal conditions or commodity prices. For scientists it is securing the next three years funding opportunity, for politicians it's Iraq, the controversy over the Australian Broadcasting Tribunal etc and for the public it is issues like interest rates, house prices, and child minding facilities.

"These will wax and wane over a relatively short period as all are responsive to actions in a relatively short period, at least compared with salinity actions.

"In the meantime, salinity continues its incessant and often out of sight journey and remains an issue that on a low news day still attracts a series of usually gloom and doom articles until something of more immediacy arises.

"Salinity like a number of natural resource issues usually involves a long period of time between actions and response—not only are actions and response separated in time but usually in space. Therefore there is reluctance by individuals to take action as they may not be the main benefactors or even a benefactor at all. In addition actions require substantial and persistent commitment up front and the marginal consequence of not doing anything is relatively small in any one year.

"For politicians, actions taken now are unlikely to deliver within the election cycle and therefore unlikely to have a high priority."

In his submission, Mr Ive said a major problem in addressing salinity is a traditional one.

"Our science is undertaken by scientists in single theme oriented groups or agencies where the agency's or group's name usually casts a bounding perimeter around the activities of its member scientists—a perimeter that forms a silo to the exchange of ideas between disciplines and recognition of the implications beyond the theme.

"As a consequence, recommendations flowing from science usually address a single

theme with the risk that today's solution becomes tomorrow's problem—the cane toad or carp syndrome."

Scientific knowledge in combating Australia's salinity problem was also a major plank in a submission to the inquiry from the West Australian based Grains Research and Development Corporation, a significant investor in salinity and water management through its own programs and the National Dryland Salinity Program.

It claimed the level of scientific knowledge is not adequate to address the salinity problem.

"A continued emphasis on R&D, especially in relation to profitable solutions to dryland salinity is required.

"Greater scientific and technical support is required, especially in Western Australia, where salinity is having the greatest impact. A national approach to training and development is needed to build the capacity required.

"The particular skills required are an understanding of airborne and land based methods of identifying water and salt movement in soil and water and the ability to model potential impacts of land use change to these fluxes. Currently, there are simply not enough skilled people to assist identifying where land use change can take place in a catchment for maximum benefit."

The submission by the Australian Conservation Foundation has called for a political solution, claiming that while Australian governments are investing in world-class science for better salinity management, they are often inconsistent about following up that science with concerted and timely action.

"It is disappointing to note, for example, that the development of salinity hazard maps in Queensland has not yet been backed up by adequate policy and funds to control the clearing of native bushland—the primary cause of secondary salinisation. It is easier to prevent dryland salinity than it is to treat it."

John Ive told the House Science Committee there is a major lack of support in providing an environment where today's land managers and the community as a whole can integrate all the issues and values important to them and establish the collective mix of actions that is best both privately and publicly.

"In metaphorical terms, science has concentrated on the main effects at the expense of the all-important interactions between the main effects. Particularly in the field of natural resource management, there is a pressing need for science to take a more holistic approach, to concentrate on the gaps between the prominent main themes—science of the chasms."

However Mr Ive is also concerned at the way society seeks to attribute blame and responsibility for problems such as salinity and the narrow base around which response and actions are formulated.

"The moment anyone suggests an integrated solution the reaction is one of ridicule rather than analysis—which usually reflects the shortcomings of the respondent rather than the inadequacy of the proponent.

"We as a society have to recognise that many of the natural resource issues we deal with are complex and successful intervention must also be complex.

"It's a big challenge and we need to develop a society that focuses upon supporting the responsible rather than penalising the laggards and encouraging outcomes for the greater public good for the future rather than reinforcing entrenched vested interests."

The Grains Research and Development Corporation in its submission to the inquiry sees one definite way forward.

"Perhaps the simplest action the Commonwealth could take to encourage landholders to apply scientifically proven salinity management options would be to pay landholders directly or via the tax system, rather than relying mainly on their goodwill. For instance, achieving native vegetation target thresholds for salinity and water management through revegetation currently depends heavily on the goodwill of landholders because the grants and tax concessions for revegetation and fencing do not cover the opportunity lost of taking land out of production."

Inquiry Chairman, Gary Nairn, says a lot of detailed information has come out of the 81 submissions received.

"I was most impressed by the standard of contributions from all of the groups and individuals who took the time to make a submission.

"It is essential that the best scientific knowledge and expertise are used to address the challenges presented by the nation's increasing salinity problem.

"As a committee we are determined that structures are in place to guarantee that happens out on the ground."

Mr Nairn says two major issues came out of the inquiry.

"There were differing views about the technology available to determine salinity problems and the best way of getting the information on salinity through to farmers."

The committee's report is due to be handed to parliament in the near future.

As for the future, John Ive takes an optimistic outlook.

"Obviously I remain optimistic; otherwise we would not knowingly have taken on a degraded property in the state's salinity capital.

"Having said that, the task is not easy and will require more commitment from all parties than what has been demonstrated to date.

"Winning this battle will depend upon achieving this commitment." ■

For more information on the House of Representatives Science and Innovation Committee's inquiry into the coordination of the science to combat the nation's salinity problem, visit www.aph.gov.au/house/committee/scin/salinity or email scin.reps@aph.gov.au or phone (02) 6277 4150.

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