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Standing Committee on Science and Innovation
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INQUIRY INTO THE COORDINATION OF THE SCIENCE
TO COMBAT THE NATION'S SALINITY PROBLEM

"Dryland salinity is undoubtedly the greatest and most intractable threat to the health and utility of Australia's rivers, soil and vegetation."

Is the above statement valid ? This is the first question that should be addressed in such an inquiry. There is much scientific evidence to say that it is not. If it is accepted as the basis for such an inquiry, then little may be achieved, and could lead to a grave misallocation of the nation's resources.

Generally, there are two opposing views, or models, of dryland salinity, as it occurs in south-eastern Australia. The first, a more long held view is that salinisation is localised, restricted to particular soils and landforms, restricted in its spread, episodic in its development, and responsive to mitigation measures within its own local catchment or recharge area. The more recent view, as accepted by your inquiry, is that the problem is one of regional dimension, driven by rising regional groundwater systems, progressive in its spread, and having the potential to degrade large areas with serious off-site consequences, principally as a result of increasing stream salinity. Under the model, 25 percent of the salt load to the Murray-Darling system would ultimately come from upland dryland catchment sources.

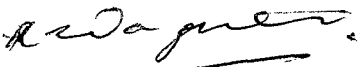
Much past and current research supports the former localised model, with most dryland salinity outbreaks shown to have no connection with a rising deep groundwater system, and no indications of a progressive spread of salinity across the landscape. My involvement with dryland salinity studies for over 50 years, and my recently completed research at CRES, ANU, CANBERRA, confirms the episodic and localised nature of dryland salinity development. Very recent groundwater studies (Cresswell *et al* 2003). questions the validity of the rising regional groundwater extrapolations made; the basis of the projected massive increases in the spread of dryland salinity under the rising regional groundwater model. No scientific or field evidence has been produced to show that the progressive spread of dryland salinity projected under the model, is actually occurring.

The spread of dryland salinity in the South-eastern Australia, and particularly in the upland areas of the Murray-Darling Basin, is unlikely to reach the projections made based on the regional groundwater model. It is a manageable problem, but should not be treated in isolation from other land degradation problems. The reduction of the dryland salinity hazard does not depend on a singular approach, but the development and wider adoption, of more productive and sustainable farming and resource management systems, which are also complementary to overcoming associated land degradation problems. These include not so much *new* farming systems, but *improved* farming systems. Technology is being developed that could provide the basis for such systems. Means should be found to foster their wider adoption. With water so much a limiting factor in Australian agriculture, in conjunction with achieving an improved hydrological balance, it is also imperative to optimise water use for agricultural production, as opposed to simply maximising its use (trees) with the single objective of reducing recharge to deeper groundwater systems.

For your information, enclosed is an extract from a referee's report on my original MSc thesis (2000) on this subject, and a summary of other relevant past and current research material.

I have prepared a power-point presentation reassessing the dryland salinity situation in South-eastern Australia which I could present to the Committee, if this were possible. Because some of the material requires additional explanation, it would be necessary for me to present it personally. Screening would take approximately 40 minutes.

Yours faithfully


Rex Wagner

Encl.