House of Representatives Standing Committee on Science and Innovation

Inquiry into the coordination of the science to combat the nations salinity problem

Submission from the Eyre Peninsula Catchment Water Management Board

Overview of the Eyre Peninsula Region:

Located within the State of South Australia, the Eyre Peninsula occupies an area of approximately 55,000 square kilometres and is roughly the size and shape of Tasmania. It is bordered by Spencer Gulf in the east and stretches nearly 1000 kilometres in a westerly direction to the Western Australian border. Port Lincoln represents the southern point of the triangle. The Gawler Ranges make up the northern border.

The area is a vast and thriving region combining a progressive population of just under 33,000 and a rugged, fertile coastal landmass. Investment opportunities abound in such enterprises as aquaculture, tourism, processing, agriculture, horticulture and the service industry. The region's only city – Port Lincoln serves as the hub of industry and commerce and has experienced significant growth in recent years.

Eyre Peninsula has a temperate climate characterised by hot, dry summers (December-February) and cool, wet winters (June-August) with two transitional seasons; spring (September-November) and autumn (March-May).

Winter rainfall dominates the region, with annual means ranging from less than 250mm in the north-west to more than 600mm in the south. The average rainfall for the region is 350-400mm.

Eyre Peninsula is characterised by gently undulating plains with widespread sand-ridges broken by significant areas of uplands.

Surface water on Eyre Peninsula is scarce, with only a few brackish or saline ephemeral streams in the lower and eastern districts. The Tod River on lower Eyre Peninsula is the only surface stream with a viable reservoir used for reticulated water supplies. Due to rising salinity levels, however, this water resource is now rarely used and when it is it must be blended with higher quality underground water before use.

Small, well-defined catchments also occur in the Koppio and Cleve hills around the eastern and lower eastern districts.

Groundwater is the major source of water for the region. However, most of the groundwater supply is saline or brackish with potable water restricted to approximately 17 localised areas. The Southern Basins Prescribed Wells Area and Musgrave Wells Area provide 97% of the region's reticulated water supply.

Land use

Dryland Agriculture - Traditionally Eyre Peninsula's main industry is dryland agriculture – chiefly winter cropping of wheat and barley, wool and livestock. The canola industry has also enjoyed good growth over the past decade. Dryland Agriculture accounts for almost all the land use except for the areas of remnant native vegetation, mining, townships and horticulture.

Mining – Limited mining is currently carried out on Eyre Peninsula however enormous potential exists for mining of a wide range of ores, coal oil and gas, metals, stone (such as the highly prized red granites in the central northern region) and gemstones. The mining industry is experiencing very real growth on Eyre Peninsula and significant optimism exists for the future.

Horticulture – Viticulture has been identified as an industry with enormous potential on lower Eyre Peninsula. Small existing vineyards have yielded outstanding quality with good growth of vines. Olive groves are also increasing and have some potential for further development.

Conservation – Approximately 43% (2,187,560ha) of the region contains remnant vegetation. Of this figure 33% is contained in national conservation parks and reserves, 11% under heritage agreements and the remainder (56%) under private ownership.

Other land use includes Fishing and Aquaculture (very high value industries second only to dryland agriculture and currently experiencing rapid growth), Tourism (generating around $60 million a year and employing around 1,500 people) and Alternative Energy and the 'Green Industry' (Initiatives in power generation through wind and biomass energy, water harvesting, desalinisation etc. are all increasing and further opportunities exist to see this sector grow)

Management issues of soil, water and vegetation

Soil:

Historically, farming methods on Eyre Peninsula have had detrimental impacts on soils. Wind erosion is one of the most prevalent forms of degradation on Eyre Peninsula with land in all districts or sub-regions either already affected or having potential to be affected. 8% of the region has high to extreme wind erosion potential and 33% at moderate to high risk. Conservation farming techniques (no – till, minimum

till) have greatly reduced the risk in more recent years, however adverse weather conditions can still see significant soil loss.

Water erosion is also a real issue in the lower Eyre Peninsula region. Water erosion contributes to siltation of creeks and waterways reducing flows and in some areas such as the Cummins Wanilla Basin district, significantly heightening the risk of salinisation.

Water:

One of Eyre Peninsulas' greatest threats is a decline in potable water quality. Despite the existence of a number of fresh groundwater supplies in the region (from which the majority of the regions piped water is supplied), extraction rates are often at their maximum sustainable levels, placing the regions already short supply of water at critical levels. There are many anecdotal reports from around the region of once fresh bores and wells and underground lenses declining significantly in quality. Similarly, the quality of the regions limited surface water has suffered from salinisation from surrounding catchment degradation and reduced recharge and flow. The natural environment also incurs significant effects from the decline in water supply and quality.

Vegetation:

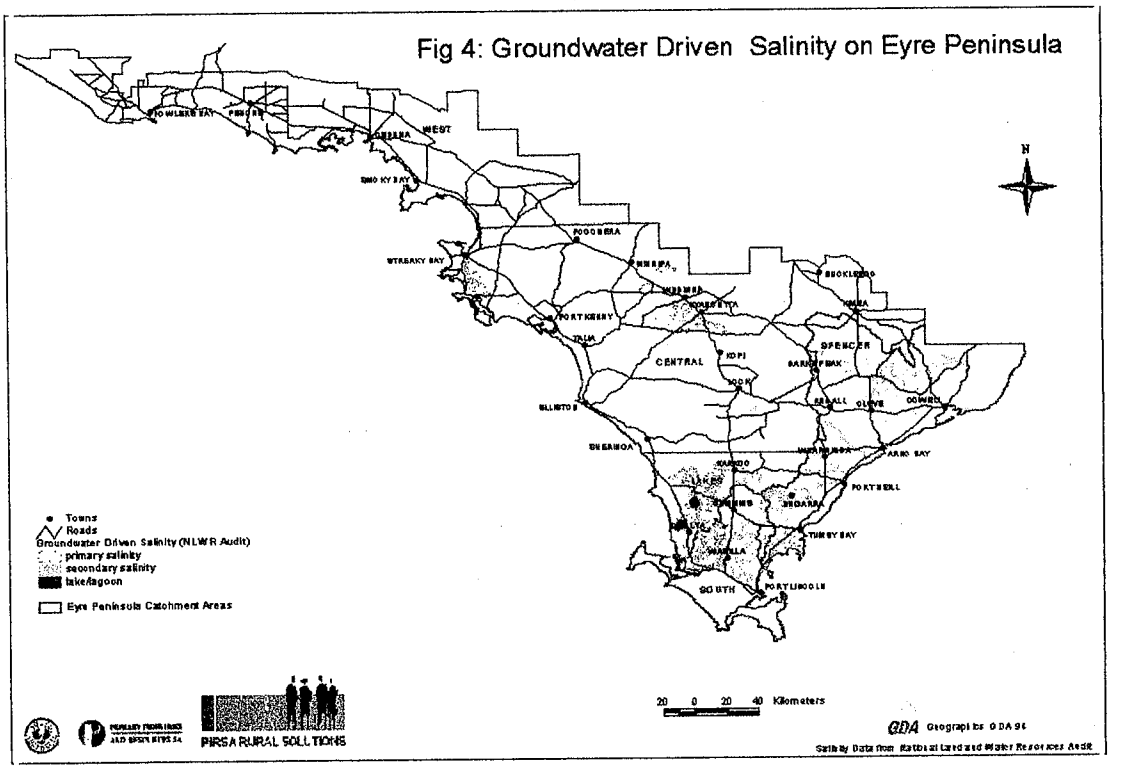
Eyre Peninsula still has around 43% of the region covered with remnant vegetation, however a very large percentage of this has been significantly degraded through grazing, weed invasion, fragmentation, changed fire regimes etc. Management of such areas ranges considerably with some native vegetation associations well conserved and others very poorly. Coastal vegetation in particular is being more and more impacted through recreational activities, urban development, and aquaculture activities. Degradation of such areas reduces biodiversity values and can impact on recharge increasing the risk of salinisation in prone areas.

Crop and pasture management across Eyre Peninsula has changed significantly over the last decade whereby far less cultivation of the soil is carried out prior to sowing. Herbicide use and conservation farming techniques have increased the sustainability of dryland farming techniques, however numbers of significant soil degradation issues still exist that need ongoing input and management.

Eyre Peninsula Salinity

Dryland Salinity (induced by rising watertables) is currently around 20,400ha; this is expected to increase to around 27,000ha by 2050 if nothing is done to address the problem. Some areas have effectively reached equilibrium and increases in salinity are unlikely however other areas clearly will increase in the coming years. Land salinised is often high value being in the valley floor areas.

Map showing areas of groundwater driven salinity on Eyre Peninsula



(Please note Fig 4 as described here relates to Figure 4 from the EP Salinity Strategy)

Dryland salinity induced by high watertables and dry-salinised land present a very real threat to the on-going productivity of many farming areas on Eyre Peninsula. Considerable amounts of land have already fallen out of production and the trend is continuing. In addition continued threats to bio-diversity are evident with saline encroachment resulting in the degradation and diminishment of a wide range of fauna and flora species.

Action to date

Considerable effort has gone into the management of natural resources on Eyre Peninsula particularly over the last decade where an increased emphasis has been placed on conservation and sustainability. The establishment of landcare and increased funding through the Natural Heritage Trust has seen a wide range of activities carried out on Eyre Peninsula. Increasingly through the introduction of NRM Regional Management Groups (the Eyre Peninsula NRM Group here on Eyre Peninsula) issues of land management for sustainability and conservation are becoming more integrated and targeted. Prior to this change much of the landcare work carried out on Eyre Peninsula has been largely 'piecemeal' and uncoordinated.

Regarding actions to reduce the impacts of dryland salinity the following projects and activities have been undertaken:

- Recharge reduction – Has been carried out through the fencing and re-invigorating of remnant vegetation, the introduction of perennial pastures (particularly lucerne), improved crop production, and revegetation using native trees and shrubs.
- Engineering – Surface water and deep drainage has been carried out in most districts suffering from dryland salinity. Surface water drains have been extensively used in the Cummins Wanilla basin area whilst deep drainage has been successfully employed in many of the catchments in the eastern region.
- Living with salt – Considerable discharge areas have been improved and made productive through the use of salt tolerant pastures such as tall wheat grass and puccinellia and fodder species – principally saltbush. Many discharge areas have been fenced to keep out stock and in numbers of cases tree planting around the margins has been carried out.

Way forward

The Eyre Peninsula Salinity Strategy (CD enclosed) is the major document outlining the way forward for salinity management on Eyre Peninsula. It outlines in detail the approach required to address the issue of dryland salinity.

Despite the identification of salinity issues, action to date and a Salinity Strategy the ability to resource, coordinate and manage a regional response to ensure a successful way forward is maintained will be limited.

The following key strategies are included in this document and identify what are the key strategies for the Eyre Peninsula's response to Salinity.

Education

Strategy – Ensure the community is provided with adequate, targeted and relevant technical support information to implement on-ground works

Technical input and on-ground implementation

Strategy – Increase the provision of technical expertise across all levels of project implementation to ensure that 'best fit' solutions are employed

Capacity Building

Strategy – Ensure the community is equipped to instigate onground implementation works and where appropriate, broad scale farming systems change to address dryland salinity. Develop and implement a local clearing house of relevant information.

Monitoring and Evaluation

Strategy – Ensure on-ground works implemented are evaluated and monitored in a targeted manner. To rationalise monitoring and evaluation to derive maximum benefit from monitoring work carried out

Research

Strategy – Ensure relevant research is carried out at a local level. Ensure research is outcome focused with adequate extension services provided to assist in the rapid adoption of relevant research information generated

Promotion of profitable and sustainable farming systems

Strategy – Ensure up to date economic data is made available to the farming community with respect to farming systems changes. Show clearly where these changes (to address salinity) can be made profitable

Further audits

Strategy – Ensure further audits of assets affected by salinity are carried out to provide the information for targeted works

Future investment

Strategy – Ensure cost sharing is determined appropriately based upon accurate information. Ensure future funding sources are recognised and that submissions are targeted well, based upon sound technical information

Planning

Strategy – Ensure planning continues to be community based. Ensure planning sets achievable goals and is based on up to date technical information. Where technical information is lacking planning should design projects to address this lack

Barriers

Background research in the writing and compilation of the Eyre Peninsula Salinity Strategy has clearly shown that the ability to implement the above strategies will depend on a range of internal and external factors. Specific barriers or incentives required include; the need for profit drivers to bring about land management change, the current lack of community capacity building support, the need for a clear strategy and greater level of coordination, the need for greater monitoring and evaluation to monitor the changes taking place and their effectiveness, the need for ongoing facilitation services, the lack of extension services, the need for strong political will, the levels of funding coming into the region - these have immediate effect on project/extension work able to be carried out, the need for on-going education at all levels of the community.

Non-NAP Region

The Eyre Peninsula is one of three non-NAP regions in South Australia. The other non-NAP regions in South Australia are the Rangelands and North West Aboriginal Lands.

Large geographical area

The Eyre Peninsula covers some 55,000 kms, issues of travel (time/money) are very real and tend to act as a barrier in many ways. As previously mentioned the Eyre Peninsula has a population of just under

33 000. Approximately 13 000 people reside in the major regional centre of Port Lincoln and 4 000 in Ceduna. In terms of developing and maintaining a critical mass of staff and expertise is difficult in all professional areas. The South Australian Government support a range of initiatives in terms of Primary Production and Water, Land and Biodiversity projects and programs. However the combination of large geographical area, low population, diverse landscape and distance from Adelaide and subsequently advanced technical input results in the need for projects and programs on the Eyre Peninsula to be highly coordinated and integrated.

Access to funding

As previously identified, the Eyre peninsula is deemed a non NAP region and this discounts the region from some funding opportunities. In addition there are many competing demands for funding given the diversity of the region. For example the Eyre Peninsula has over 1600 kms of coast line that involves coastal and marine environments that are critical to the regions economic, environmental and social function.

The development of the Eyre Peninsula Natural Resource Management Plan and Investment strategy has prioritised 12 areas. Of these 12 areas salinity is rated 12th as it has been attributed to having the lowest benefit and highest risk in terms of investment outcomes when compared with the other 11 areas .

As highlighted the Eyre Peninsula has a diverse range of Natural Resource assets and addressing salinity issues requires competition with a wide range of has to compete with for limited funding.

As funding that is available comes from a range of sources coordination of projects and programs including monitoring and evaluation requires a high degree of coordination and collaboration between landholders, agencies, community groups and researchers.

Summary

The brief outline provided gives an account of the issues of salinity with regard to Eyre Peninsula.

It has been attempted to provide an overview of the catchment, salinity, actions to date, the way forward and barriers.

As can be appreciated the Eyre Peninsula has a number of challenges to overcome to ensure that a coordinated approach to Salinity and related issues is addressed.

Maintaining the ability to provide effective on ground action, involve the whole community and access relevant and appropriate technical support and advice is crucial to minimising the impact of salinity for the Eyre Peninsula.