

Salinity Inquiry
Submission No. 49.....

LANDCARE AUSTRALIA LIMITED

**Submission to the
House of Representatives Standing Committee
on Science and Innovation**

**Inquiry into
coordination of the science to combat
the nation's salinity problem.**

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Overview of main points

- Landcare is a key vehicle for transfer of knowledge between scientists and land managers.
- 40% of farmers are landcare members and a further 35% are influenced by landcare.
- Members of landcare groups are on average 50% more likely to adopt new, more sustainable agricultural practices.
- Landcare improves access to technology by providing a structure in which groups can work together with scientists and by providing communication channels and networks.
- Strategic networks and 'groups of landcare groups' are becoming more important in delivering regional nrm outcomes and channelling information to farmers.
- However, there is a risk that landcare groups and networks are being marginalised in the new nrm regional planning processes. If this occurs, the potential to achieve high rates of adoption of sustainable farming techniques could be lost and the achievement of regional resource targets will be at risk.

Background

Landcare Australia was established by the Australian government in 1989 as a not for profit public company and part of its administration expenses has been supported by the National Landcare Program on a fee for service basis. LAL was established at arms length from government to undertake two important tasks:

- raising the awareness of landcare and its logo, promoting the ethic and encouraging greater community participation in natural resource management; and
- securing corporate sponsorship for landcare group projects and awareness campaigns.

Overview of landcare

Landcare is the key community mechanism by which natural resource management outcomes are delivered. As such, landcare has a vital role in the way that science and research is transferred to land managers. It must be given consideration in relation to the Commonwealth's role in managing and coordinating salinity programs.

Landcare Australia recently commissioned a report into the future of sustainable agriculture in Australia. In the foreword of *Landcare Farming: securing the future for Australian agriculture*, the authors (Cullen, Williams and Curtis) made the following overview and observations of landcare:

'Australia has a long history of governments working with individual farmers and small farmer groups in soil conservation projects. In the 1970s and 1980s however, Australia's environmental consciousness became more highly developed, and other legacies of the past such as salinity and loss of biodiversity became more noticeable. There was an emerging awareness that new policy and institutional approaches would be required.



Following an alliance between the National Farmers' Federation and the Australian Conservation Foundation in 1989, the Prime Minister declared the 1990s the Decade of Landcare and committed \$320 million in Commonwealth funding. From its early beginnings, Landcare is now a broad movement comprising:

- Over 4,000 Landcare groups Australia-wide, with 40 percent of farmers as members and influencing at least a further 35 percent of farmers;
- Landcare Australia Limited, the national body that builds partnerships between Landcare and the corporate sector, and carries out awareness-raising activities;
- Commonwealth/State grants programs including the National Landcare Program, the National Action Plan for Salinity and Water Quality, and the Natural Heritage Trust;
- The community-based Australian Landcare Council, which includes representatives of major stakeholder groups and advises the Commonwealth Government on resource management issues; and
- The National Landcare Facilitator project, where a rural affairs and extension specialist has a charter to report to government on all Landcare matters, but especially on organisation and support.

We are seeking to reinforce the message that Landcare is one of the most important mechanisms for delivering the natural resource outcomes sought by the broader Australian community. It is imperative that Landcare continues to be nurtured and supported.'

In this report to the House of Representatives Standing Committee on Science and Innovation, Landcare Australia wishes to demonstrate and emphasise this point: that landcare is a vital mechanism for achieving nrm outcomes, including tackling the devastating problem of salinity in Australia.

Landcare's role in salinity management

Landcare influences 75% of farmers

The National Landcare Program's funding of activities and the funding made available through the Natural Heritage Trust to groups, has encouraged an estimated 40% of practicing farmers into the 4,000 landcare groups across Australia.

Three independent surveys – ABARE, Reeves and Curtis – confirm the 40% figure with Curtis indicating that 70% of landcare group members getting their information on sustainable agricultural practices to reverse land degradation from the landcare group network.

Just as importantly, it is estimated that 35% of non landcare group members also get their information on reversing land degradation from the landcare group network.



This is evidence that the landcare group network has a significant diffusion effect with many farmers who are not members of a landcare group being influenced by the landcare movement generally.

Landcare has a major influence on adoption of sustainable agriculture

In 2000 ABARE (Alexander et al 2000) found that adoption of landcare farming practices is much higher if the landholder is a landcare group member. Landcare group members (compared to non landcare group members) are:

- 88% more likely to exclude stock from agricultural areas affected by land degradation;
- 77% more likely to undertake formal monitoring of pasture/vegetation conditions;
- 30% more likely to protect or enhance areas of conservation value;
- 20% more likely to maintain vegetation along drainage lines; and
- 46% more likely to undertake other preventative/control practices.

The characteristics of landcare group members have also been extensively studied. ABARE's 1992-93 survey found that landcare group members were generally more likely than non landcare group members to:

- have a younger farm operator;
- possess a farm plan;
- have a perceived land degradation problem on their property;
- have made expenditure eligible to be claimed as a tax deduction;
- be participating in a community based National Landcare Program project; and
- be larger.

Overall, landcare members recorded higher levels of farm cash income, farm debt and capital invested in their property, plus a higher rate of return to farm business capital. They operated larger farms, with less intensive cropping and more livestock compared with non landcare members.

The 1995-96 ABARE survey found that:

- More landcare members had a farm plan; they more frequently participated in training activities, used a wider range of farm management information sources; and had adopted a larger proportion of 'best farm management' practices.

From the above it is clear that the landcare group network provides a powerful network to achieve significant change toward more sustainable agricultural practices.

Landcare improves access to technology

According to the 2000 publication *Landcare in Australia: founded on local action* (Marriott, Nabben, Polkinghorne and Youl), landcare has had a major technical influence. As a result of landcare, the authors consider that the pressing need for soil conservation and salinity amelioration in Australia is being looked at in a new light. They give a number of examples of how the landcare network puts farmers in touch with researchers – and in fact, how the farmers often become the research participants themselves. The following extract is from the booklet:

‘In the past, southern Australian soil conservationists put much of their efforts into engineering - direct physical action, especially contour banks, watercourse structures and ‘riparian hardening’ to combat sheet, gully and streambank erosion respectively, extending in the seventies to minimum-tillage cropping in arable zones prone to wind erosion.

Today, besides being schooled in making more holistic appraisals of problems, they recognise far better the great role of deep-rooted perennial vegetation, especially native ecosystems, in protecting soil, lowering watertables to reduce salinity, producing alternative crops, combating weed invasions, providing wildlife habitat, improving the landscape and reducing water pollution.

Farmer groups directly initiate numerous research projects and collect and analyse data, and it is not uncommon for farmers to appear at conferences as joint authors of publications.

Sometimes the community identifies a problem, starts a trial, develops a proposal, then seeks formal technical support, as in south eastern South Australia with the use of gypsum to combat waterlogging (C. Norman, pers. comm.)...

...At Tragowel, Victoria, landowners, assisted by a small departmental team, have mapped regional soil salinity using EM 38 technology. They helped prove the system, establish standards and organise training, then did the sampling on a 30 x 60 m grid over some 110 000 ha. This project is reckoned a great success as it increased landowner awareness of salinity -- they regarded it as their own operation. It was also economical and kept money in the regional economy. Norman and Stevens reported this project in 1995.

Some Western Australian landcare group members own GIS systems to facilitate regional planning and project management, and provide services under contract.

Besides a community role in planning, landcare emphasises monitoring. Community monitoring programs, such as Saltwatch, Watertable Watch and Waterwatch, feed into official databases, and allow observations and readings made by ordinary citizens to be used for scientific mapping and analysis.’



Case study for access to technology - Landcare Greenhouse Challenge

The Landcare Greenhouse Challenge project, a joint venture between Landcare Australia and the Greenhouse Challenge Office, is an excellent example of how the landcare network can be used to spread new technology.

The two organisations joined together to run the pilot project of the Landcare Greenhouse Challenge. Under the pilot, 110 farmers from 40 landcare groups participated in greenhouse workshops and then had the opportunity to assess their greenhouse emission status and develop action plans to adopt more sustainable agricultural practices that are both profitable and reduce greenhouse emissions. A 'how to do it' manual has been developed to further promote the concept.

The farmers who participated started with very little knowledge about greenhouse in agriculture. Most now have strategies in place that will reduce emissions and increase their long term sustainability. One of the most interesting outcomes was the realisation that sustainable farming approaches tend to go hand-in-hand with effective greenhouse gas reduction strategies.

The Landcare Greenhouse Challenge project found that over one quarter of participating farms were already soaking up more carbon than they were emitting (net greenhouse gas sinks), because of their existing sustainable land management approaches. This highlights again the important role landcare is already playing in bringing about changes on the ground and in behaviour for land managers.

Without the ready-made network of landcare, in which farmers are aware of degradation issues and motivated to adopt sustainable management practices, it would have been much harder to begin promoting a project that took leading edge scientific understanding to farmer groups for practical application.

Landcare groups have formed strategic networks that are ideal for knowledge transfer

Strategic networks and groups of landcare groups have been developing for a number of years now, usually on a catchment basis, and they are playing a vital role in tackling issues at a broader level and delivering more strategic NRM outcomes.

There are now over 100 Landcare networks in New South Wales and 75 Landcare networks in Victoria. These networks are one of the most important mechanisms for delivering natural resource targets identified in regional plans.

At the regional level, Landcare networks can generate significant catchment scale outcomes. For example, In its first five years to 1996, the Woody Yaloak Catchment Project in Victoria saw a sustained increase in the amount of pasture sowing, tree planting and vermin control. More than 4,000 ha of pastures were sown, 135 ha of trees established, 200,000 rabbits killed and 40 ha of erosion stabilised. Between 1990 and 2000, the area of the catchment under trees increased from 0.8 percent of private land to 2.4 percent, an average of 97 ha of perennial pasture had been resown



on each farm, there was a significant reduction in the rabbit population, and more than 60 ha of erosion had been treated through earthworks and fenced to exclude livestock.

Autonomous Landcare networks such as Woody Yaloak attract corporate and private sector investment, play an effective intermediary role in balancing regional issues with local issues, are attracting more 'mainstream' farmers, and are maintaining sub-regional scale enthusiasm for natural resource management within a regional context. Ongoing support for these networks is essential if regional and catchment health natural resource targets are to be realistic and achievable.

The risk of landcare being marginalised

Some regional planning processes have the potential to disempower landcare group networks and if this situation is not addressed, landcare networks could wither. The potential to achieve high rates of adoption of sustainable agriculture practices will be reduced. Regional natural resource targets may not be achieved. Regional planning processes must revive and enhance landcare networks and engage them as equal partners in prioritising issues and in target setting.

Conclusion

If the Commonwealth is to successfully manage salinity and coordinate the application of Australia's best science to this devastating problem, then it is essential that it continues to work closely with the community landcare movement.

. It is essential that governments do not forget the power of the landcare 'brand' and the passion of those involved in this movement.

Landcare is not another funding program that will come and go as policies and programs change. It is owned, fiercely and passionately, by the community. The landcare 'brand' has built up tremendous recognition and support within urban and rural Australia. This is something that must be cherished and nurtured in future, if it is to deliver the benefits of continued and significant change in sustainable agricultural practices and public support for efforts to achieve that change.

References

Marriott S., Nabben T., Polkinghorne L., Youl R., (2000), *Landcare in Australia: Founded on Local Action*. (Agriculture, Fisheries and Forestry Australia).

Cullen, P., Williams J., Curtis A., (2003) *Landcare Farming: Securing the future for Australian Agriculture* (Landcare Australia Ltd).

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Case study – Landcare tackling salinity at a regional level (from *Landcare in Australia: Founded on local action*)

Western Australian wheat belt

Ironically the Western Australian wheatbelt, one of Australia's youngest farming regions, and most important sources of export income, is also one of its most degraded. However it is an epicentre of landcare resolve and success.

Clearing the native woodland from this gently rolling region, bigger than England and Scotland, has mostly occurred since the Second World War. It ended just two decades ago, leaving few substantial remnants, although webs of native vegetation remained along roads, railways and the rather ill-defined streams, as well as around wetlands and the few townships and in the corners of paddocks.

Campbell (1994) lists the major threats to agriculture: subsoil compaction over more than half the region; water-repelling soils developing on one-third of the area; **salinity affecting 17 percent – rising to 40 percent if management practices don't change significantly**; widespread decline of soil structure; waterlogging on one-tenth of the cleared land; as well as erosion and acidification. In 1988-89, these problems meant lost production and a cost to the community equal to almost one-fifth of the gross value of regional agricultural production that year.

In particular, salinity is widespread in the lower parts of the landscape. There were many natural salt lakes beforehand, but a regional equilibrium existed due to the deep-rooted native vegetation. Clearing the woodlands increased accessions to the regional watertable, which rose accordingly. The basement rocks have a high salt content, so the rising watertable was also saline. Where it surfaced anew, evaporation soon left salted patches or even saltpans, and every stream was affected.

The advent of the LCDCs in the early 1980s, and the promotion of farm planning, helped landowners recognise these massive and daunting problems. One body, Kalannie-Goodlands LCDC, of 100 farmers covering 300 000 hectares, after doing its planning, introduced a conservation rating scheme (10.3 cents per hectare per year) to raise Aus\$100 000 to help implement those plans. Meanwhile a member purchased a GIS system, creating a useful business, now in great demand.

By the late 1990s, through research, cooperation, practical experience and good planning, solutions had emerged for land restoration across the wheatbelt: basing decision-making on the results of geophysical and hydrological surveys; introducing higher water-use farming systems (such as plantations of the deep-rooted tagasaste to lower watertables and provide summer fodder for sheep, and perennial pastures where possible); massive fenced plantations of native trees along streams (to lower watertables and reduce erosion and eutrophication); fencing to protect natural vegetation; control of environmental weeds and feral animals where necessary; surface water control to alleviate waterlogging; and encouraging innovations such as 'alley farming,' the local term for major in-paddock shelterbelt systems, between which crops can be grown and harvested, and stock grazed.

However, just as moving is the situation elsewhere: throughout the wheatbelt, farmers have embraced a vision of redesigning and restabilising the landscape. These men and women have a new confidence, thanks to their own remarkable efforts. The campaign is by no means over, but there have been palpable social, economic and environmental gains.

Wheatbelt statistics – a snapshot of two catchment groups From 1996 brochures by Bessen and Chatfield, Landcare Vision.

Since 1990, Gabby Quoi Quoi Catchment Group (formed in 1989; 24 family farms covering 20 700 hectares) has:

- planted 312 600 trees
- planted 89 500 saltbush seedlings
- planted 18 700 tagasaste seedlings
- planted 3950 Acacia saligna seedlings (for fodder)
- sown 80 kilograms of saltbush seed
- sown 40 kilograms of tagasaste seed
- sown 642 kilograms of pasture seed
- established a three hectare seed orchard
- erected 150 kilometres of fencing
- constructed 25 kilometres of surface drainage
- constructed 34 kilometres of deep earthworks
- spread 172 tonnes of gypsum
- spread 2660 tonnes of lime
- installed 155 piezometers
- worked on 104 sites in the catchment

Since 1990, South Yoting Catchment Group (formed in 1989; 19 family farms covering 29 700 hectares) has:

- planted 378 200 trees
- planted 22 450 saltbush seedlings
- developed 35 kilometres of shelterbelts
- sown 158 kilograms of tagasaste seed
- sown 22 kilograms of serradella seed
- erected 356 kilometres of fencing
- constructed 33 kilometres of deep earthworks
- constructed five dams
- spread 120 tonnes of gypsum
- spread 3530 tonnes of lime
- applied 45 tonnes of Ecomin
- installed 91 piezometers