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IMPROVING SUSTAINABILITY IN THE ARID RANGELANDS OF AUSTRALIA

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ABSTRACT

A ground-breaking initiative for planning and action across borders of provincial legislature is operating in the arid Lake Eyre Basin of central Australia. The basin, which covers 16% of Australia's land area, was considered for World Heritage listing by the Australian government in the early nineties because of its unique inland river systems and wetlands. Strong opposition to World Heritage listing from pastoralists and other stakeholders catalysed an alternate voluntary and community based initiative aimed at changing to more sustainable use of natural resources, a catchment management framework. Natural resource management and planning based on river catchments takes into consideration all environmental and production values. Activities of the group feature training of group members, initiation of on-ground projects through partnerships, coordination of research and the preparation of common maps and data sets. Sustainability will be achieved by building knowledge, better decision-making, changed management practices and building a sense of community across borders. Key success characteristics include the involvement of all interest groups (stakeholders) from the beginning of the process and initiation of the process by the community as opposed to the government. Other factors were the employment of an effective coordinator, a skills-based coordinating group drawn from all stakeholders, delegation of funding and power to catchment committees, strong support from the private sector, and significant funding from the Australian government.

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BACKGROUND

The Lake Eyre Basin

The Lake Eyre Basin covers approximately 1.17 million km², 16% of Australia's landmass, and includes the most arid and lowest altitude regions in the country. Lake Eyre is the terminal point of the system. It includes significant areas in Queensland, South Australia and the Northern Territory, and a small area in New South Wales (LEBSG 1997). The population is about 57,000 people. Rainfall ranges from 110mm pa in the vicinity of Lake Eyre itself to 700mm pa on the northern margins. The rivers of the basin are ephemeral with highly variable and seasonal stream flow, and include major wetlands listed under the Ramsar Agreement. Some waterholes are permanent and provide important refugia (Andrews 1999). Altitude ranges from 15m below to 1000m above sea level. Much of its area is infertile, although there are areas of productive flood plains in the centre and extensive black soil perennial-grass plains in the northeast of the basin.

Lake Eyre Basin is part of Australia's arid zone and supports a diversity of sometimes unique ecosystems. Land use within the basin is varied and includes pastoralism, mining, oil and gas exploration and production, irrigation, tourism, conservation and indigenous custodianship. The region is culturally significant to Aboriginal people who have been in Australia for at least 40,000 years and to non-Aboriginal people who first settled about one hundred and fifty years ago. Together these factors mean that the region is important economically, environmentally and culturally for people within and outside the Basin.

Management issues

The wide range of land use creates many management issues and in ecosystems within the basin. Extensive flood plains within the system are productive for pastoral cattle breeding and fattening and water infrastructure developments within the catchment may have an environmental or production impact. Tenure varies across jurisdictions but is predominantly pastoral leasehold (the on-going right to graze sheep and cattle by payment of an annual rent), perpetual leasehold and freehold.

Indigenous tenure has been a major management issue since the Aboriginal Land Rights movement started in the Northern Territory a quarter of a century ago. Native Title was recognised under Federal Legislation in 1994 and gives indigenous people limited rights to claim Native Title and to negotiate access and other non-pastoral rights over pastoral leases. In South Australia Aboriginal people have had the right to enter pastoral leases and conduct traditional activities since European settlement, in other states this will now be negotiated on a case by case basis under Native Title. Land tenure is the responsibility of state and territory governments in general, influenced by determinations by the Native Title Tribunal and or any private agreements land managers and mining companies negotiate amongst themselves.

World Heritage

The South Australian portion of the Lake Eyre Basin was identified in 1994 for assessment as a proposed World Heritage area. This was followed by a formal assessment of its natural heritage values (Morton 1995). The proposed World Heritage listing caused considerable robust debate between conservation interests and many land users, in particular pastoralists and oil and gas explorers and producers. People who live in the Lake Eyre Basin initially found it difficult to deal with the World Heritage issue because state-based communications and support systems fragmented the community. After widespread debate and lobbying the World Heritage listing did not proceed, but there was strong support for alternate ways of achieving improved ecological sustainability across the whole basin. Discussion of this issue, along with later proposals to grow irrigated cotton on Cooper Creek became a catalyst for public consultation across the basin. This led to recognition of a shared cross-border identity based on common interests and culminated in the establishment of the Lake Eyre Basin catchment management framework.

Agricultural production

Pastoralism with cattle and sheep is the dominant agricultural land use in the region. Issues of concern to this industry include seeking alternative land uses where present activities are not viable, Native Title claims impacting on management in some states (and the impact of any World Heritage listings within the Basin). Other issues concerning pastoralists include sustainable stocking rates, riparian land use, surface and artesian water management, and management of pest animals and plants (LEBSG 1997).

Sustainability of the pastoral systems in the Lake Eyre Basin has not been specifically established. Over grazing in the past within the arid rangelands as a whole has led to loss of biodiversity, and degradation of land and inland water systems. One effect of past land degradation has been reduced stocking rates and reduced resilience of pasture production due to a loss of preferred perennial species (SoE 1996).

BUILDING COMMUNITY

The Lake Eyre Basin community has been working toward ways of managing these complex resource management issues through an integrated catchment management framework. This involves bringing together the different interests in the basin with the goal of ecologically sustainable management of natural resources and the maintenance of biodiversity. A Steering Group was formed in 1995 at a large public meeting in Birdsville. This had the purpose of preparing an issues paper on the present resources and management of the Basin and consulting with the regional community and other interested groups to prepare a discussion paper on future options for management (LEBSG 1997). Funding was obtained from the Australian government through a grant from its Natural Heritage Trust. A basin coordinator was appointed in 1996 to carry out these agreed functions.

Extensive consultation and the production of an issues paper and management options paper culminated in a final public meeting held at Birdsville in late 1997. The meeting agreed to establish a series of catchment committees and a basin-wide coordinating group. This framework was the choice of the meeting working from options generated through consultation. It was not an imposed solution. It was decided that the coordinating group would comprise an independent part time chairperson, a majority of nominated members from catchment groups and other selected individuals to fill required skills and knowledge gaps. Each government involved would provide one observer.

The growth in community capacity has been remarkable. As people from different geographic regions and interest groups come together in structured ways the basin communities are learning to communicate and develop strategic plans and priorities. Growth is supported by the common focus on sustainable development, widespread use of objective knowledge, transparent processes, training and skilled facilitation. Travel costs and attendance fees are paid to independent committee members to recognise their expertise and the large distances traveled.

Community management

The management framework comprises an independent, cross-border and community based organisation using a series of expert catchment committees. These advise the coordinating group on strategy, action and research priorities, and identify knowledge gaps inhibiting good decision making. They also identify resource management issues such as proposed irrigation developments requiring coordinated government and private sector analysis and action to maintain ecological integrity and the sustainability of production systems (LEBSG 1997).

Terms of reference for the catchment committees include:

- identifying and prioritising issues and resource allocations within the catchment;
- operating across the whole catchment on appropriate issues and ensuring all views are represented; and
- otherwise as for the Coordinating Group.

Terms of reference for the Coordinating Group are;

- promoting ecological and economic sustainability in the Basin;
- developing and communicating a shared strategic vision across the Basin;
- providing a forum for Basin-wide issues;
- providing a communication channel with governments;
- integrating priorities for action plans and funding;
- facilitating knowledge flow and development for the Basin;
- providing information to support catchment groups and individuals;
- applying social justice principles so that diverse views are respected and considered;
- liaising with other statutory groups with related responsibilities; and

- building the capacity of the Basin community to undertake community based strategic planning.

Some key social values identified included effectiveness in operation, inclusiveness, accountability, a national and cross-border perspective, respect for differing views, and cooperation rather than coercion. These values will be heeded in all activities and committees.

Funding has been obtained from the Australian Natural Heritage Trust and the Queensland and South Australian governments, in conjunction with significant private sector and community support. This has necessitated the incorporation of the Group to ensure effective management and accountability. The funding base has enabled the appointment of two catchment coordinators and an information officer, and the training of over forty committee members from two catchments in strategic planning and group skills. Consultations have been conducted in the three remaining catchments, with the aim of involving them by the end of 1999. The establishment of an inter-governmental Ministerial Council or Forum is essential for effective cross border strategic management. Long-term support of the community and a shift to sustainable resource management will also ensure the catchment process is not operating in a political vacuum. A Ministerial Forum will enable the community to have access to government and the decision making process. The Commonwealth Minister responsible and his counterparts from Queensland and South Australia signed a Heads of Agreement on the cross-border management of the Lake Eyre Basin in 1997. Implementation is planned for later this year. Once this body is established it is expected the remaining two governments will quickly become involved.

Integrated catchment management

Under the Australian constitution the states and territories control all land tenure and land management issues including water flows and usage. Regional land use planning issues such as development applications may be delegated to local government where it exists, which often has limited resources to deal with complex issues. The Australian Commonwealth government has some limited powers over environmental issues that include areas of international and national interest such as World Heritage, Ramsar wetlands, endangered species and communities, migratory species and the marine and coastal environment. In general resource management issues are driven by a range of agencies within each state or territory, and are therefore not coordinated over the basin or the catchments within the basin.

The term 'integrated catchment management' is used to highlight that all natural resources in a catchment are linked and the management of each affects another. These connections mean that one person's consumption is another person's loss, and one person's waste disposal is another's pollution. Catchment management is a tool to better manage major issues within the area in a coordinated and long-term manner based on biophysical rather than political boundaries. It recognises that catchments may cross state and territory boundaries but environmental and production issues don't stop at these artificial borders.

Planning

Planning is a major tool in integrated catchment management. Current planning at catchment level features the preparation of catchment strategies and action plans. The coordinating group is preparing an overall strategic plan that will link with catchment plans. This includes the results of a recent foresighting study that gathered broad-ranging expert judgement about possible futures for the Lake Eyre Basin, and allows for regular updates as other catchments prepare their action plans. Several major and wide-ranging issues have been identified in earlier consultations (LEBSG 1997). These include weeds and pest animals, surface water management and secure land tenure: the first two are amenable to planning, while the third issue may be assisted by the Lake Eyre Basin framework providing expert and impartial knowledge and a forum for communication.

Success characteristics

The Lake Eyre Basin initiative has been successful for a number of reasons. Due to its independent community base it is in the process of becoming a pre-eminent body in Australian rangelands management. Its work is considered exciting and innovative, and skilled people are keen to work for and in partnership with the Group. The Basin Coordinating Group and the catchment committees have no statutory powers: ultimately any influence is based on group consensus supported by careful planning and objective information

Key success characteristics of the Lake Eyre Basin framework appear to include;

- involvement of all interest groups from the beginning of the process
- initiated by the community not government
- the early employment of an effective catchment coordinator
- a skill based coordinating group drawn from all stakeholders
- delegation of funding and power to expert catchment committees, and building their capacity to work together and to manage diverse sources of complex information
- strong support from the private sector
- significant funding from the Australian government; and
- better decisions made at government policy and private sector strategy level as a consequence of the availability of more and higher quality information

More work is needed to overcome a lack of involvement of Aboriginal people in the overall process. There are a number of reasons. To consult more fully requires time and effort on our part to build trust and share information in different ways that are more private and less threatening. A further reason is the cultural inappropriateness for an individual Aboriginal to 'speak for' another's country.

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SUSTAINABILITY

Sustainable agriculture

Changes in attitude brought about by the group process have assisted in developing an understanding for and improvement in sustainability. This will be demonstrated by improved management practices and better decision making among pastoralists. Family businesses and large pastoral companies are equally supportive of changes. This is supported by changed attitudes at government agency and community level, now recognising and supportive of environmental as well as production goals. Much more knowledge is required to make good decisions, often this will require cross border cooperation and improved access to information. Examples of change toward sustainability led or supported by the Lake Eyre Basin framework include weed control, increased research, diversification and targeted marketing, and cross-border mapping.

Weeds, in particular woody weeds such as prickly acacia and parkinsonia, are widespread in the upper part of the basin. If left unchecked these weeds convert productive perennial grasslands into prickly shrub lands with reduced biodiversity and stocking capacity. Control methods are available and are the responsibility of the land manager but require coordinated agency support, planned strategies from local government, and the persistent effort of all properties in a designated region. Lake Eyre Basin catchment committees have identified woody weeds as a priority for government agencies and local government, have supported Landcare groups in seeking funding for weed control, and are supporting a spatial information system that will enable weeds to be accurately mapped for effective control.

Increased research is required to alleviate a lack of information and scientific research in the basin in contrast to other areas of Australia. The coordinating group and catchment committees are supporting, and will eventually be initiating, relevant research. This will assist in decision making at catchment level and management techniques at a property level. The catchment committees are already providing links with and between research projects and will be providing local knowledge such as flood levels, pasture responses, species breeding locations and habitat.

There has been a significant move to organic beef production on the lower flood plains of Cooper Creek. This shift in production was initiated by a group of innovative pastoralists. The production system relies on the maintenance of existing water flows that are free of pesticides and weed seeds and which naturally irrigate huge areas of flood plain. Large-scale water abstraction has been proposed on Cooper Creek for irrigated agriculture (DNR 1998), and would be likely to impact on flood plain beef production. Resolution of conflict over water use is likely to increasingly rely on catchment management processes, which will enable the needs of water users to be balanced with each other, and with environmental flows.

Cross-border mapping with a range of information is essential for improved decision making aimed at agricultural sustainability and biodiversity maintenance. This is not yet available. Maps showing priority issues such as woody weed location and spread should be available within a year to all land managers in the

basin. Other maps with sufficient information to improve the quality of decision making at government and property level are a few years away.

The establishment of District Plans by statutory Soil Conservation Boards in South Australia has been a significant step in documenting existing status and best practice land management in that region of the basin. These plans are likely to be used as a solid basis for catchment plans. Soil Board practices are likely to be used elsewhere in the basin to improve the sustainability of pastoral production (Soil Board 1997).

Building knowledge

More and accessible research and information is needed to enable good planning and effective decision making. The catchment groups can achieve this through:

- identifying areas of insufficient knowledge in the region;
- commissioning research targeted to immediate applied needs (e.g. searching databases to enable basin-wide maps to be constructed);
- documenting and using local knowledge;
- negotiating research partnerships where researcher and Lake Eyre Basin priorities coincide and we provide expert assistance (e.g. flood plain monitoring and decision support systems);
- lobbying for increased research funding for arid river systems and ecosystems;
- endorsement of research proposals to enhance their likelihood of funding elsewhere (e.g. wetland knowledge and decision supports); and
- establishing cooperative processes between states to develop effective inter-state information systems.

In some cases information is available but may be initially unknown or difficult to access because it is owned by a multiplicity of government agencies and private companies (e.g. mapping data). Sometimes the classifications and scales are different, making border matching difficult. Increasingly databases are considered to be the intellectual property of the collecting agency (e.g. mineral exploration databases) or are considered commercial-in-confidence (e.g. mining drill core data). A clear purpose within a research strategy, widespread consultation and negotiation based on identification, and sharing of mutual benefits is necessary in these cases. The status arising from being part of a Ministerial Forum for the Lake Eyre Basin should greatly assist us identify and obtain information in future.

THE FUTURE

The establishment of an inter-governmental Ministerial Forum is essential to effective strategy and sustainable management in future. Heads of Agreement toward this goal were signed in 1997 between the Commonwealth Minister responsible and his counterparts from Queensland and South Australia, and we are planning for its implementation late this year.

Continued effort to increase community involvement and greater resources for communication will ensure a strong foundation for this community driven process. Implementation of catchment strategies relies upon a sense of ownership of the

catchment management framework by Lake Eyre Basin communities and stakeholders.

There is every reason to expect the community-driven Lake Eyre Basin management framework to continue for at least two decades as it works toward ecological and economic sustainability in the arid rangelands of Australia.

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Biographical details

Don Blesing is a farmer based in South Australia and a business adviser in agricultural, environmental and research planning and strategy. Don is currently Chair of the Lake Eyre Basin Consultative Group and chaired the Grains Research Corporation and its predecessor body for many years. He has advised CSIRO for many years, and until recently was a member of the Australian Science and Technology Council and the Australian State of the Environment Council. His advisory work specialises in innovation in agriculture and the wool industry in particular, and in futuring.

Kate Andrews has been working with catchment management in the Lake Eyre Basin for almost three years, from its inception through to the establishment of the coordinating group. Prior to this Kate has worked in catchment management in New South Wales, with the Commonwealth government, with numerous

