REGIONAL APPROACHES TO RANGELAND PLANNING

Seeking Sustainability in the Western Division of New South Wales by Changing Laws, Policies and Administration





Nick Abel and Art Langston

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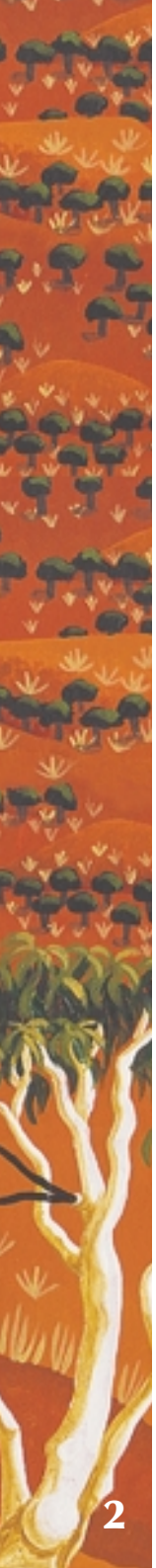

RANGELAND 21C

WRITTEN BY:

Nick Abel, CSIRO Sustainable Ecosystems
Art Langston, CSIRO Sustainable Ecosystems

PUBLISHED BY:

Land & Water Australia GPO Box 2182, Canberra ACT 2601.
Tel: 02 6257 3379 Fax: 02 6257 3420
E-mail: public@lwa.gov.au
Website: www.lwa.gov.au

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DISCLAIMER

The purpose of this booklet is to communicate information obtained and developed during a project, *Sustainable Use of Rangelands in the 21st Century*. The views and conclusions are those of the authors, based on existing literature and consultations with project participants. CSIRO, NSW Department of Land and Water Conservation and Land & Water Australia do not accept any risks and responsibility for losses, damages, costs and other consequences resulting directly or indirectly from using any information in this booklet.

ACKNOWLEDGMENTS

The project staff is indebted to participating stakeholders and policy makers for their help and commitment. Stakeholder sectors comprised Aboriginal peoples, agro-pastoral interests, conservation groups, and the mining and tourism industries. In total 130 contributed much time and knowledge over three and a half years of research. Forty-five organisations were represented, including:

Aboriginal and Torres Strait Islander Commission, Arid Lands Environment Centre, Australian Conservation Foundation, Australian Labor Party, Australian Local Government Association, Bureau of Rural Sciences, Cobar Shire Council, Darling River Environment Group, Earth Resources Foundation, Ecotourism Association of Australia, Environment Australia, Greening Australia, Landcare, Lower Murray Darling Catchment Management Committee, National Australia Bank, National Parks Association, Nature Conservation Council, Northern Floodplain Regional Planning Committee, NSW Aboriginal Affairs, NSW Aboriginal Land Council, NSW Agriculture, NSW Environmental Protection Authority, NSW Farmers' Association, NSW Land and Water Conservation, NSW Mineral Resources, NSW National Parks and Wildlife Service, NSW Premier's Department, NSW Roads and Traffic Authority, NSW Tourism, NSW Urban Affairs & Planning, Orana Development Board, Outback Regional Development Organisation, Pasminco Mines, Pastoralists Association of the West Darling, Primary Industry Banks Australia, Resource and Conservation Assessment Council, Rural Industry Research and Development Corporation, Wentworth Shire Council, West 2000, West Farmers Dalgety, Western Catchment Management Committee, Western Lands Advisory Board, Western Lands Review, Westpac, World Wide Fund for Nature.

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Introduction

The Western Division of New South Wales is at the crossroads of change. Stakeholders, planners and policy makers across the division must find ways to respond to the impacts of past land use, globalisation and climatic change to ensure sustainable natural resource use over the next fifty years. Yet there are major barriers to doing this.

The population is ageing and declining, and services are withering. Demand for wool has been falling, and pastoral debts rising. Aboriginal peoples and pastoralists are in conflict over land access and ownership, and conservationists have been unable to secure enough land for the conservation of biodiversity. Many of these barriers are a consequence of the outdated and complex laws, policies and administration affecting land use in the division.

ABOUT THIS BOOKLET

This booklet is one of a series published by Land & Water Australia about regional rangeland community planning processes. Others in the series include:

- *Rangeways: Community Based Planning for Ecologically Sustainable Land Use in the North East Goldfields of Western Australia*
- *Central Highlands Regional Resource Use Planning Project: a Planning and Learning Experience.*

Each booklet has a similar structure so readers can compare and contrast the projects.

This booklet discusses key aspects of organising a participatory planning process to bring about changes in land use laws, policies and administration. With the participation and cooperation of regional communities these changes could support sustainable natural resource use and prosperous regional communities.

The booklet draws from the experiences of researchers involved in the project *Sustainable Use of Rangelands in the 21st Century* and provides suggestions for those embarking on regional planning activities. It includes sections on:

- laying the social foundations for a project
- creating a learning environment
- understanding the visions of the community
- learning about policies, laws and organisations
- maintaining the momentum of the planning activity.

We cannot cover the full extent, findings and output from this project in this booklet, rather we have included things we found novel or especially important. This booklet does not try to replace the extensive literature on regional planning and policy processes, or the publications and website produced by this project (see *Further Reading*).

The Sustainable Use of Rangeland Project

Sustainable Use of Rangelands in the 21st Century was a partnership among CSIRO Sustainable Ecosystems, the NSW Department of Land and Water Conservation, stakeholders in the Western Division and policy makers from State and federal agencies and sectoral lobby groups. Stakeholders were from five sectors: Aboriginal peoples, agro-pastoralists; conservation groups; and the minerals and tourism industries. Figure 1 shows the structure of the project.

The project stands out as a model regional planning process because of its integration of traditional land allocation techniques with theories and methods from psychology, complexity and resilience.

A conventional land use plan would show where, according to experts, land uses ought to be located to achieve social and private goals. Other limitations apart, such an approach would not be useful in the Western Division, where 93% of the land is held under perpetual leasehold, and land use change depends heavily on private decisions. We therefore focussed on the decision-making environment that affects the allocation of land to various uses. It was clear early in the project that to achieve sustainable land use we had to develop proposals for changing the policies and laws affecting land use.

While we did use some conventional techniques such as land use suitability maps, other less conventional elements were at least as important. For instance, we conducted an historical analysis of land use change and carried out economic and ecological evaluations of future land use scenarios. We took a systems approach to reviewing and developing policies and legislation to influence land use, and to analyse the resilience of production and social subsystems. The last is important in understanding how land use and social systems can ride out shocks and disturbances (for example drought and market collapse) but also how organisations might resist change to current policies, laws and administration.

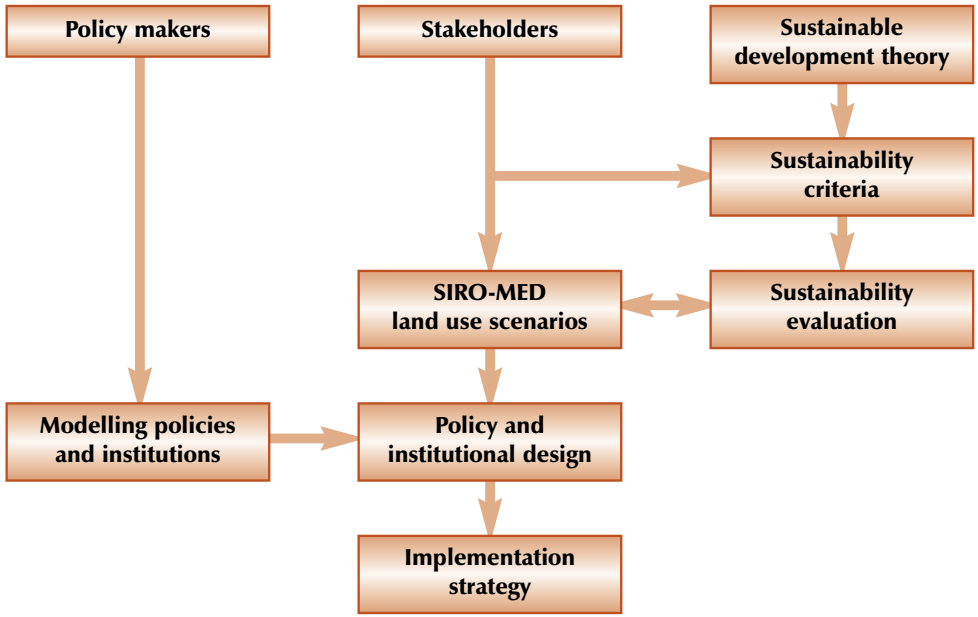
A feature of the project was the involvement of stakeholders and policy makers. More than one hundred and thirty people and 45 organisations contributed to the project over a period of three and a half years. They were closely involved in each of the three major project streams, which were:

- policy analysis
- stakeholder visioning
- evaluation of the sustainability of future scenarios.

Each of these streams contributed to the development of proposals for institutional redesign. There was extensive communication across the three streams.

Why was participation so important? Firstly, it gave us access to people with knowledge and data about how land use can be influenced and what effect land uses have on the society, economy and ecology of the region. Secondly, close involvement of the community can increase the equity of land use by stakeholder sectors. Finally, participation by the stakeholders and policy makers increases the likelihood that proposals for institutional change will be implemented.

Figure 1. Structure of the Rangeland Project.



Laying the social foundations

Participatory processes already existed in the region, but did not equitably represent all stakeholder sectors. Membership of catchment and vegetation management committees has traditionally been dominated by agricultural and pastoral sectors with little involvement from the conservation sector. Aboriginal peoples have been insufficiently involved. Our aims were to improve involvement of all stakeholder sectors and increase communication among them.

PARTNERSHIPS, SECTORS, NETWORKS

When establishing a participatory process for this project we ensured that it was fully integrated into the local community, that local champions were identified, and that activities such as workshops and meetings were accessible and easy to attend.

Integrating into the local community. We recommend that all participatory projects adopt a strategy of embedding the project process within the society it is trying to influence.

From the outset of this project we tried to ensure the social networks developed by our project spanned the various stakeholder groups and organisations, and the range of scales the project was attempting to influence. These groups formed the social environment within which our project was set.

We learned much from them, and came to understand their points-of-view through workshops, shared meals and visits to their enterprises. The policy makers taught us about the legal and administrative environments of the region, State and Commonwealth, and the constraints under which they work. The two Catchment Management committees (now boards) and Aboriginal and conservation networks helped us identify people who would join our project as representatives of their stakeholder group.

Identifying and using champions. Around forty-five organisations make policies and operate under laws that affect land use in the region. From these organisations we sought people who knew the region, who were influential and who could participate in the project. People with influence within their own organisations can act as champions for the outputs from your planning process.

The official policies espoused by representatives of an agency, and the actual agenda of the agency often diverge because of inter-agency competition for influence and resources. Also, influential people can be involved in struggles for power and influence within their organisation. For reasons like this we suggest you monitor the actual agendas of agencies and review the effectiveness of champions from time to time.

Accessibility. Sparseness of population and poor transport and communications limit the capacity of people in the Western Division to be involved, so a participatory process in rangeland NSW is different from one in more populous regions. We made participation easier by locating workshops to minimise participants' travel times. Full financial support for travel, food and accommodation for unemployed and self-employed people also facilitated their involvement.

Goats: woody weeds and a pest create a new opportunity

INVOLVING THE BROADER COMMUNITY

We were able to make connections with wider society in the region through existing networks and ones we established. The Catchment Management boards (Western and Lower Murray Darling), which endorsed the project, provided links to producers trying new things on their own properties. These innovators attracted the attention of the local community and, as such, were an important way to seed ideas about land use change. They helped the project move beyond established approaches to land use sustainability.

Because it was difficult to communicate the complexity of such a large participatory project through radio and newspapers, we used these media mainly to let the broader community know of the project's existence.

Creating a learning environment

A key role of the researchers was to build a learning environment. We developed theories and methods, refined issues and questions, organised workshops, collected and analysed data, made and ran models, espoused scientific values, synthesised outputs, provided opportunities for reflection, and communicated within and outside the project.

Stakeholders and policy makers brought to the learning process their experience, judgement, practical knowledge, cultures and values. Organisers of a participatory project have only limited control over the learning process, and that is as it should be, since organisers and participants are learning together. The following is a good example of allowing workshops to go at their own pace and letting relationships and learning among participants evolve.

During our first workshop on regional policy development, despite our best efforts, the pace was slow. People weren't communicating with each other, expressing their ideas or driving the process along. Many of the participants were involved in agricultural production in some form or another. It had been a dry few months and people wanted to be at home dealing with the drought. Then it rained. Smiles emerged, conversations were struck up, and the rest of the day was more productive than we had ever hoped!

PARTICIPATIVE LEARNING PROCESSES

To unravel and address the complex problems of the Western Division required deep and shared understanding by policy makers, stakeholders and researchers. Analysing people's problems for them and telling them solutions is not an effective way of promoting understanding and resolving problems. Rather, working with people to analyse the issues and to facilitate their own discovery of solutions is far more likely to result in adaptive change. It would have been a waste of resources if we, the researchers, had studied the region and then tried to communicate our understanding to the other groups through written reports. That is why we embarked on participative research.

Participative research leads to better understanding between stakeholders with differing views because they learn from each other. We found that even when disagreement persisted, it was leavened by better mutual understanding and respect. The learning environment we created provides a useful model for community-based natural resource management processes.

Participatory processes can also be slow. You should not expect shared knowledge to develop quickly in the initial phases of your project. Even when project targets are not met, participatory activities such as workshops are a way of making contact among participants and researchers and at least initiating the process of developing shared concepts.

You must be prepared to follow up workshops with extensive analysis and information so that participants can continue the process of learning and evaluation. You should expect to spend time at the start of each workshop re-explaining the objectives of the project and reinforcing concepts that were developed in previous workshops. The pace of learning will increase as mutual understanding improves.

INFORMATION AND TECHNOLOGIES THAT INFORM LEARNING

To be effective in the learning process information must be presented in ways that simplify the complexity of relationships and promote understanding. Some people learn best through presentation of tabulated data, some through colour, some through pictures and diagrams, and others through discussion. Where possible communication tools should support all forms of learning. For example, desktop mapping and data analysis suit those who learn best through visual communication, while there is nothing like sitting around a table talking about the maps and data to satisfy those who learn best from the spoken word.

Aboriginal stakeholders and facilitators developing land use value maps.

In our project we carried out a participative analysis of land suitability. We used about 6,000 mapping units each containing one hundred and eighty attributes to address 500 guidelines across fifty-five land uses as input into a multi-criteria analysis.

To enable us to work interactively with stakeholders we required technology that could analyse large data volumes efficiently. In this arena WinLUPIS (Land Use Planning and Information System), developed by CSIRO, leads the field. WinLUPIS also has the advantage of integration with GIS technology so results of land use value

analyses can be seen on a screen - a significant tool for interactive exploration of results. However, being specialised software, it does require a lot of time to develop data and guidelines and is best run with the support of people experienced in its application. Use of WinLUPIS and the associated SIRO-MED process is discussed more in the section on understanding visions.

Another area where complex relationships needed to be presented in simple ways was the analysis of policy and legislative controls on land use allocation. To do this we used the simulation modelling software, VENSIM. Descriptive system models were developed for each stakeholder sector and these models contained hundreds of variables with numerous connections. In some instances paths of influence through the models were nested six deep. This product excels in two areas. Firstly, its ability to edit relationships between variables in a graphic on-screen environment. Secondly, its use of "causal trees" (Figure 4, page 10) that show links between variables. While we did not use this tool interactively it proved a valuable "back end" to producing large format hard copy analyses as input into workshop based learning.

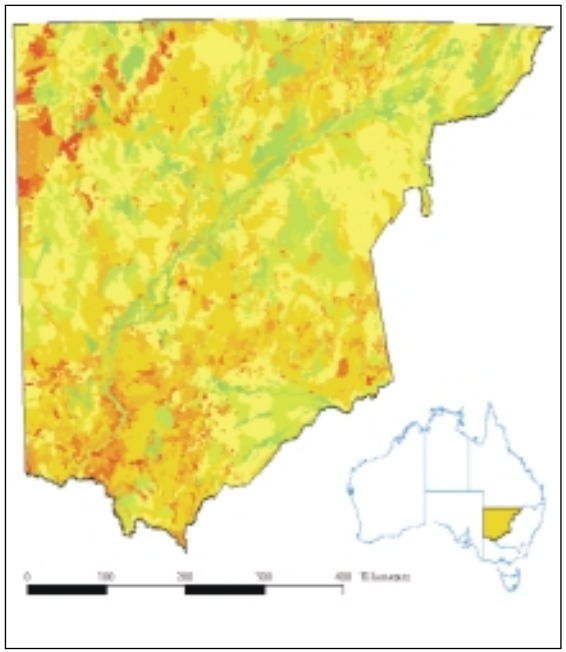
A similar technology that we found extremely useful in developing descriptive models was a set of colourful stick on shapes produced by VISIT-IT. They come in a variety of shapes, and are large enough to include writing visible from three metres away. We used hexagons to describe variables suggested by participants. These were readily moved around large white plastic sheets while the model was being developed. Whiteboard markers were used to draw arrows representing the influence of variables on each other. The results were readily transported after the workshop, and could later be entered into VENSIM for analysis, feedback, modification and long term storage.

Understanding visions

PREFERRED DIRECTIONS

We used the SIRO-MED process as the backbone of our vision setting. Stakeholders identified potential land uses and told us what characteristics of the land made it more or less suitable for each use. Researchers wrote rules for estimating the suitability of land for land uses and collected data required by the rules. For example, a rule about Aboriginal spiritual value required data about cultural heritage, while a rule about dryland cropping needed data on climate and soils. A benefit of letting the rules determine the data requirements was that we avoided the acquisition of unnecessary data.

Figure 2. Land Use Value Map



We used WinLUPIS to generate maps of 'suitability' or 'land use value' from the rules and data. Figure 2 is an example. Fifty-five such maps were generated, one for each potential land use. Each map was discussed with the stakeholder group advocating it, and rules were modified until the map accorded with stakeholders' knowledge of the land and the land use.

The mapping unit you choose is critical to the success of this task. Criteria to guide the choice are:

- Keep the number of units small enough to limit the time taken to process guidelines and produce the land use value maps.
- As far as possible, the mapping units should be homogenous for the key land attributes to minimise the area of land that is incorrectly classified.
- Keep mapping units sufficiently broad scale. This is so individual stakeholders cannot pinpoint their own piece of land and worry about the implications of the land use value maps for their personal interests, but they are fine enough to sample the variation of landscapes across the region.
- Make sure that map units reflect the scale at which the bulk of the data are available. This scale should be consistent across the region. For the Western Division, land system mapping satisfied these criteria better than available alternatives.

CLARIFY STAKEHOLDER ROLES

Making sure stakeholders are aware of their role in the vision setting process is very important, as that role will change during the process. In the early phase they act as experts identifying which attributes of the land make it suitable for each land use. This information is used to generate guidelines and then land use values maps.

At this point the role of the stakeholder begins to change from that of expert to that of proponent for the particular sector they represent. This can be a difficult time. Having developed land use value maps based on guidelines and land attributes, stakeholders may begin to show disquiet about the results of that process. Those maps will usually show uneven land use values across the region, and stakeholders may feel their actual or potential access to land of lower value is threatened. They may wish to counter this perceived threat by adjusting the guidelines so values are smeared evenly across the region, despite the evidence those values are highly variable.

Figure 3. A small portion of a land use conflict matrix

Key

- (0) Fully compatible - same stakeholder group
- (1) Fully compatible - different stakeholder group
- (2) Conditionally compatible
- (3) Not compatible - disagreement
- (4) Not compatible - agreement
- (X) Not applicable
- (H) Defined at higher level
- (L) Defined at lower level

	Aboriginal - traditional subsistence	Aboriginal - ceremonial	Aboriginal - spiritual	Conservation - reserve system (pub & prv)	Conservation - with production	Agriculture - grazing	Agriculture - Intensive cultivation	Agriculture - opportunity cultivation	Agriculture - wild animals	Agriculture - wood extraction	Agriculture - emus
Aboriginal - traditional subsistence	X	0	0	4	1	2	4	2	2	2	3
Aboriginal - ceremonial	0	X	0	4	1	2	4	3	3	4	3
Aboriginal - spiritual	0	0	X	4	1	2	4	3	3	3	3
Conservation - reserve system (pub & prv)	L	L	L	X	4	4	4	4	4	4	4
Extensive conservation management (pub)	2	2	2	H	H	H	H	H	H	H	H
National Park	2	2	2	H	H	H	H	H	H	H	H
Intensive conservation management (pub & prv.)	2	2	2	H	H	H	H	H	H	H	H
Modified rivers and wetlands	2	2	2	H	H	H	H	H	H	H	H

CONFLICTS AND SYNERGIES BETWEEN VISIONS

As for other regions, there are land use conflicts in the Western Division among all sectors. We explored conflicts and compatabilities by asking stakeholders which pairs of land uses could coexist on the same tract of land.

Results were presented in matrix form, using both colour and a numerical code, to express the levels of compatibility in ways that most people could easily interpret (see Figure 3). Eighty percent of land use pairs were compatible. Some of these needed no changes to management practices to make them compatible. The potential for resolving land use conflicts through multiple land use is therefore excellent, provided laws can be changed and incentives offered.

Part of the visioning process was the creation of future social, economic and land use scenarios. Together with an economic modeller (using an input-output model), we generated scenarios favouring the interests of each stakeholder sector in turn. We estimated impacts of growth in each stakeholder sector on flows of money through the regional economy, household incomes, employment, welfare payments, soil erosion hazard, shrub encroachment, carbon storage and biodiversity. We also explored the implications of climatic change.

The outputs from the visioning process were communicated to policy makers so they could take the implications into account in analysing current policies and laws and designing changes. This integration of social, economic and biophysical sustainability is likely to set new standards for future assessment of regional policies and institutions.

Learning about policies, laws and organisations

ANALYSIS OF PRESENT ARRANGEMENTS

At the beginning of the project researchers found it difficult to understand why some of the problems of the region had arisen, and having arisen, why they had not already been addressed.

The reasons became clearer after an historical analysis combining archival data, oral histories and published accounts was integrated with theory and the practical experience of specialists in administration and environmental law. Our analysis showed how policies and institutions had evolved; how legal and administrative layers were added as problems arose; how there was little or no fundamental reorganisation; and how there was no regular reassessment of the principles and fundamental purpose of the policies and institutions under which the division was operating. The role of history in understanding complex social and environmental systems is being included in the frameworks of a number of major 'systems-thinking' groups around the world.

Our historical insights were incorporated into the analyses that policy makers made of the factors that affect allocation of land to the various stakeholder sectors. This knowledge was built into an easily-updated descriptive model of the laws, policies, physical and economic constraints that affect land allocation within the Western Division. We called it PIMWEST (a policy and institutional model for the Western Division). Taking a systems approach to this stream of the project allowed participants to see possible relationships among institutions, policies and land use. It was also the basis for participants to recommend changes and explore the consequences.

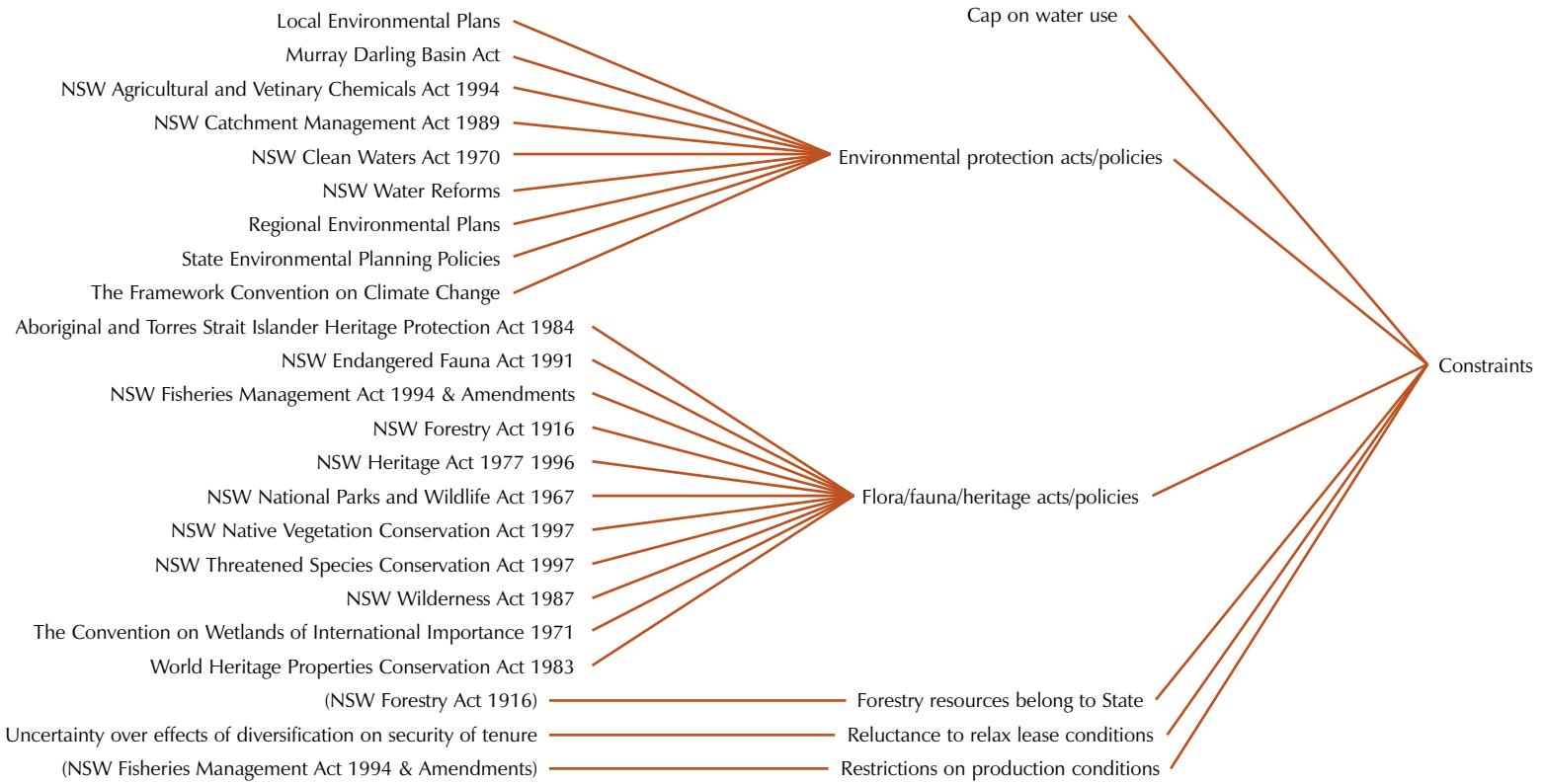
Exploring the factors affecting land use

WHAT NEEDS CHANGING, WHY AND HOW

When we understood enough about the policies, laws and organisations, researchers and policy makers proposed changes. Stakeholder representatives also participated in this process to ensure that good linkages between their visions and the outputs from that process were established.

Policy makers worked in five groups, each representing the interests of one stakeholder sector. We suggest policy groups be kept separate at this stage so that the objectives of each stakeholder sector and the means of achieving them remain clear.

Figure 4. A small part of a causal tree from PIMWEST showing legal and policy constraints on diversification



In our process, once preliminary changes to laws and policies had been drafted, each policy group commented on the changes proposed by other groups from the perspective of the stakeholder sector it represented. Each policy group also suggested modifications that would reduce negative impacts on other stakeholder groups, and enhance positive effects. Taking such a holistic approach is a significant improvement over the traditional agency based approach of restricting the analysis to those policies and laws for which one agency is directly responsible.

In commenting on the proposed changes, each policy group also provided feedback on how the change might be received by rural and by urban voters. The purpose of this was to estimate the political feasibility of the proposed change, because opposition by any voters reduces the likelihood of implementation. Such political realities probably are taken into account by policy makers, but not openly. By not having a transparent process, opportunities for win-win changes may be lost, and the risk of unintended negative impacts of policy and institutional change is increased.

Participants and researchers proposed over 160 changes to policies, laws and organisations in the division. Themes of the changes are summarised as follows:

Aboriginal: a regional voice; economic development; conflict resolution; more control of natural resource use; access to land; and heritage protection.

Agro-pastoralism: diversification; security of tenure; debt; roads; sustainability.

Conservation: sustainability; a comprehensive, adequate and representative (CAR) reserve system; management priorities within reserves.

Minerals: participatory planning; regional economic development; multiple and sequential land uses; water use efficiency.

Tourism: carrying capacity planning; CAR reserve system; operator accreditation.

Maintaining momentum

DURING THE PROJECT

A crucial lesson we learned from the project was the need to adapt to changing circumstances, while still maintaining purpose and direction. Having well-structured envisioning and policy processes provided the mix of flexibility and guidance we needed.

Reporting project milestones to Land & Water Australia provided clear objectives without constraining adaptability. Stakeholders and policy makers also provided guidance mainly through their inputs to workshops, but also through evaluation questionnaires, and their responses to material posted out between workshops. We did not establish a project steering committee because its purpose was served better by these interactions.

We have already given you examples of the need for flexibility within the workshop environment. You should also be prepared to restructure your program in response to changing circumstances across the region. Often participants were able to alert us to new circumstances affecting the project. In some instances participants were closely involved with those circumstances and were able to use information from our project to influence the direction of change.

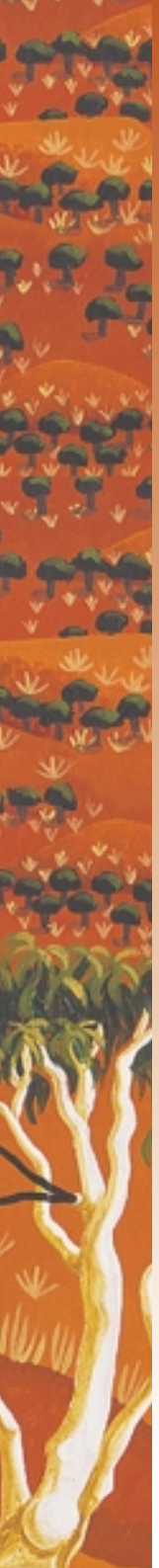
Again we note the role of "champions" in this process. Keeping participants up-to-date with progress in the project should be a core objective of any regional planning project. We kept people informed through a regular newsletter, and twice in the course of the project we organised mobile workshops for stakeholders in towns near their homes.

A balance needs to be struck between overloading busy people with workshops, requests and communications, and losing touch with them. Based on continuing participant attendance at workshops we believe that around seven workshops for each stream of participants and a similar number of newsletters is about the right frequency over 4 years.

AFTER THE PROJECT

It is not enough to come up with proposals for change – they must be implemented. Participation can be the key to implementation. We were able to identify people who were excited by the proposals for change we developed, and influential in the organisation they represented. The ability of a project to influence regional change after funding has ended depends on the extent to which it has been able to recruit and motivate such champions.

Scanning the horizon for opportunities, and looking to the future



Further reading

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For updates to further reading plus links to other relevant sites is included on the project web site, <www.cse.csiro.au/nsw_rangelands>.

MORE INFORMATION

For more information about the project, contact Nick Abel, CSIRO Sustainable Ecosystems, PO Box 284, Canberra ACT 2601, phone 61 2 6242 1534, email <nick.abel@csiro.au>.

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