

# Historical Perspectives on Integrating Social Science in Natural Resource Management Agencies

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All have given permission for their stories to be published.

## INTRODUCTION

This paper focuses on the integration of six social scientists into five government and statutory agencies that deal with issues of natural resource management (NRM). The paper is based on the oral history research report 'Where's Wally: integration of social science in natural resource management organisations' by Alice Roughley. The report is available through Land & Water Australia and is on the web at [www.lwa.gov.au/sirp/research](http://www.lwa.gov.au/sirp/research)

*Who is Wally?* Wally is a social scientist of the behavioural variety:- a psychologist, community worker, or sociologist. There always seems to be just one Wally in every crowd of biophysical scientists, which may include biologists, botanists, geomorphologists, engineers, chemists, hydrologists or ecologists. Wally is the character of Martin Handford's, eye-boggling book for children, a character that is perpetually difficult to spot in a crowd. *Where is Wally?* Although not immediately visible, Wally resides in most natural resource management agencies. *Why Wally?* The



analogy here between Martin Handford's character, Wally and social scientists explores why the social scientist in natural resource management has remained camouflaged over a period of twenty-five years from 1978 to 2002.

The agencies are the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Great Barrier Reef Marine Park Authority (GBRMPA), the Western Australian Social Impact Unit, the Murray Darling Basin Commission (MDBC) and the Queensland Social Impact Assessment Unit. The agencies were selected because their mandates encompass biophysical, social and economic aspects of NRM. All five have a key planning function but face the challenge of being removed from implementation of innovation on the ground.

Natural resource management operates on a number of levels. CSIRO, GBRMPA, MDBC and the two social impact units represent the echelon sandwiched between policy and on-ground management with responsibility to service both. These agencies generate information about the nature and extent of resource management problems and methods for addressing those problems. Transmission of innovations for on-ground management is essential but complex given the separation of the agencies from the end-users of their products.

In NRM agencies social science can tend to be seen as an add-on activity and the task of integrating it with the agency's traditional operation is typically under resourced and somewhat marginalised. To understand why this is and what steps might be taken to improve the integration of social science in NRM, a range of social scientists and their managers who have worked in five major NRM agencies were interviewed. Five of the six social scientists interviewed were pioneers in that they were the first social scientists to be employed by their agencies. The period being considered is their collective time in these positions (1978 to 2002).

Though the social scientists came with varying backgrounds and were working in significantly different organisations, a number of common issues arose. These included a lack of understanding of how social science fitted into the agency, a lack of infrastructure to integrate social science knowledge into NRM, inadequate resourcing of the area and a consistent clash of cultures that frequently undermined the professional standing of the social scientist. This paper highlights some of the strategies the social scientists employed to raise the profile of social science and integrate it into the operation of their agencies. The common ground of their experience provides us with clear signposts on where we need to go for social science to be better integrated in NRM agencies.

Though the social scientists experienced many disappointments, they also achieved significant change in the their time at the agencies.

## THE CAST OF PLAYERS

### CSIRO

Dr Geoffrey Syme, social psychologist, joined the CSIRO Division of Land Resources Management in Western Australia in 1978. He is now the Director of the Australian Research Centre for Water in Society at CSIRO. Geoff's position, the first official social science position in CSIRO, was one of three in a new multidisciplinary program that was introduced to bring about a return of some applied research that would "have a broader public influence". The team included Geoff, the social psychologist plus an economist and a systems engineer. Their first task was to investigate natural land resource systems on a regional scale. Barry Carbon was Geoff's manager when Geoff commenced work at CSIRO.

Geoff reflected on one of the reasons he has stayed for so long at CSIRO:

*We do, in spite of what you tend to think about survival, really believe that better social ideas, even if we are not the ones to present them or even if we come up with some dud ones, at least create a choice amongst social ideas which is a really good thing for us to have in this country at the moment. We get quite turned on about that.*

### GBRMPA

Lea Scherl, psychologist, started work at GBRMPA in 1990, in Townsville, Queensland. While completing a PhD at James Cook University, Lea, an active member of the North Queensland Conservation Council and the Australian Conservation Council, was very watchful of what GBRMPA and other natural resource management agencies were doing, particularly with respect to considering social issues. Dominique Benzaken, with qualifications in pharmacy, zoology and environmental psychology, took up the position when Lea left. Simon Woodley, was Lea's manager and Dominique's manager for her first 12 months at GBRMPA in the Research and Monitoring Program. At first, Dominique established a database on human use of the Great Barrier Reef Marine Park and then worked steadily for the next four years on developing the program for social, cultural and economic research at GBRMPA. Tourism research and management had been the major focus of Lea's work. Dominique pursued these projects and incorporated the range of human uses of the Park's resources that required a management strategy. She conceptualised recreation as only one activity among the range of human uses.

Dominique on planners:

*Natural science explains the physical setting while social scientists are explaining the social setting and it's all to do with making decisions in the context of resource management. That was really difficult for people to come to terms with, particularly planners, because they had a way of doing things and never necessarily reflected on how they did it and why and whether it worked or not. They didn't think about the process, they used to just do it.*

## MDBC

In 1994, the Commission appointed Esta Knudsen, with qualifications in social science/humanities and experience in community development in the areas of housing and to the position of Community Participation Coordinator, a dedicated social science position. Don Blackmore, the Commission's CEO, was her manager.

Don on Esta's approach:

*Esta pulled us up from the normal engineering, 'hit the throttle and open the pull' to, "No Don, you can only open the throttle to the degree that all the participants that have a stake in it can move along, otherwise this thing will be in trouble." So, she had the honour of slowing us down but also of achieving an outcome which we couldn't have otherwise achieved. If we had gone flat out we would have alienated them. We did go flat out for some parts of it and we failed. She can wear that as a badge of honour.*

## Social Impact Assessment Unit, WA

The Unit was opened in 1989 (as part of the Department of Resources Development). Lisa Pollard was recruited in 1990 as a Project Coordinator. . Lisa studied Anthropology before going to work with indigenous people in the Kimberley. After completing an interdisciplinary Doctorate she took her keen interest in cultural anthropology to the Social Impact Unit. Major projects she was involved in included fly-in fly-out mining development projects, indigenous social impact assessment and developer contributions to local governments from mining industries. Anne Verscheur was Lisa's manager.

Lisa on assessing social impacts:

*For a lot of the resource management issues it's about teasing out what's really going to change for people. That is the hardest thing to do and yet it's not necessarily the bit that has the academic rigour. That's the bit that's the poetry of it all. It's trying to understand and translate for the technical people you're working with, yourself, government policy-makers and the community. Just what is it you're assessing the change of?*

## Social Impact Assessment Unit, Qld

Allan Dale was manager of the new Social Impact Assessment Unit in the Department of Family Services and Aboriginal and Islander Affairs in Queensland in 1993. Allan identifies as a natural resource planner. His undergraduate qualifications are in Agricultural Science and his Doctorate was concerned with social and cultural impacts of development in indigenous communities. He has sustained an involvement in social assessment and community development for over ten years.

Allan's manager was Tim Gleeson.

Allan on the importance of being somewhere that understands social science:

*In Family Services we were safe. People absolutely understood the community development language, ethos and principles. It was essential in those early years to have a home that was politically supportive and technically supportive with what we were trying to achieve. This is a really critical thing. If we'd been established in Premiers or in Office of Coordinator General of Department of Local Government and planning, I don't think the unit would have had a chance of working on a community development model.*

## WHY SOCIAL SCIENCE IN NRM?

“Social sciences frame the context in which other knowledge can be applied; questioning the fit between that knowledge and its context and evaluating its purpose; and providing a critique of science and technology which is valuable as an input to technological decision-making from the beginning...” (ASTEC 1993:13). Natural resource management problems are rarely the domain of a single conventional discipline due to their scope and diversity. Efforts to integrate knowledge and skills across disciplines can enhance our ability to establish competencies to address these multi-dimensional issues. Social science is pivotal as it brings to natural resource management expertise in interpreting human behaviour. Human activity is the central consideration of natural resource management. The prerogative of the social sciences is to frame the context for natural resource management through development of theory based on the many different assumptions about resources, environment and quality of human life. The context is one into which other knowledge, including that derived from the biophysical sciences, can be applied.

## The imperative for integration

*Integration* is the buzzword in natural resource management but exactly what or who is the subject of integration is often ambiguous. Does it refer to integration of knowledge from multiple disciplines, integration of management practice approaches, integration of the various stakeholders in a resource management area or issue, integration of policy objectives from the various relevant policy portfolios or does it refer to all of the above?

The focus on integration in natural resource management is increasingly on integrating social science because it entered the fray late in the life of natural resource management, an area of natural science, represented by expert, disciplinary, positivist research.

Much uncertainty surrounds integration due to lack of a unified body of discourse but the dispersion of discourse is most important. Confusion is frequently apparent between the terms *integration* and *interdisciplinary*. Integration incorporates the idea of people from different disciplines bringing their knowledge and methods to bear on a particular problem in a particular place at a particular time with a common purpose. It encompasses an assumption that there is a willingness to share and exchange knowledge. The aim of synthesizing the knowledge from different disciplines is to arrive at a conclusion or solution which unifies the disciplines that have contributed (Gibbons, et. al., 1994; Klein, 1990; Rossini, and Porter, 1984; Roughley, 1998). It is 'A seamless woven garment' in contrast to a patchwork quilt (Rossini and Porter, 1984).

Natural resource management engages a multitude of disciplines within the biophysical and the social sciences. Talk of integrating biophysical and social science is therefore an attempt to grasp amorphous phenomena. It involves consideration of the different epistemological and methodological paradigms with competing views on why the problem exists in the first place, how it has manifested and what are the best ways to arrest or address it? Let us take for example salinity, a major and long-lived environmental resource management problem. The geomorphologist, social psychologist, environmental planner, geographer, agricultural extension officer, botanist, economist, senior policy officer working in the Department of Environment and Heritage, Australia, State and Federal Environment Ministers, the farmer and the local conservation council may have quite different answers to every one of those questions. Depending on who has the greatest decision-making power at each level, the response to integration will diverge in relation to institutional, organisational and methodological arrangements.

Literature dedicated to understanding multidisciplinary integration suggests that integration in the natural resource management field is best conceived as an amalgamation of the bodies of knowledge identified as essential to solving a specific problem. It is a means of solving problems and answering questions that cannot be satisfactorily addressed using single methods or approaches. This scenario typically applies across natural resource management. But, how often do we actually sit down and ask exactly what expertise is required at the time of conceiving and establishing research or management projects?

The positive experiences of integrated multidisciplinary approaches in natural resource management reveal that integration of knowledge occurs most effectively in small, non-hierarchical structures where team members have equal status and a strong generalist leader (Booth et. al., 2001; Klein, 1990; Rossini and Porter, 1984). Importantly, successful integration relies on not predetermining interdisciplinary outcomes through premature imposition of a particular model without exploration of the paradigm from which it arises and the respective methodology and epistemology (Klein, 1990). Integration across disciplines occurs when problems are formulated in terms that genuinely enable the different disciplines to work in close collaboration without competition. Integration is also facilitated where the method of data acquisition is

helpful to all the relevant disciplines, not biased in a particular direction, and the results of the research will make a difference to the policy decisions that will eventually be taken (Klein, 1990).

Integration is of course not a new idea. Its origins trace back to Plato, Aristotle, Kant and Hegel. The term *discipline* was pre-eminent in the Middle Ages. The emergence of disciplinarity emerges from the Nineteenth Century and the industrial revolution, technical advances and agrarian agitation. Around the same time, it was acknowledged that problems of war, labor, propaganda, population shifts, housing, social welfare and crime were problems larger than the scope of any one discipline and applied social science disciplines emerged such as sociology, psychology, social work and criminology.

As the modern university took shape, industries demanded specialists, and universities created disciplines to provide them. Differentiation in scholarly and scientific institutions to progress individual disciplines was common throughout the 1950s and 60s.

Four key influences have shaped the modern concept of integration. They include:

- attempts to retain historical ideas of unity and synthesis;
- emergence of organised programs in research and education;
- broadening of traditional disciplines, and
- emergence of identifiable interdisciplinary movements (Klein, 1990).

Natural Resource Management policy during the 1980s was directed towards technological innovation. Deteriorating economic performance in the 80s forced a rethink from previous positions where policy had aimed for growth of scientific enterprise. Policies throughout the 1980s linked scientific enterprise to industrial innovation and competitiveness, blurring the distinction between science and technology (Rossini and Porter, 1984).

In 1962, Thomas Khun questioned the sharp distinction between science and humanism. This questioning amid a focus on non-market goods and social concerns, including environmental quality and technology assessment, manifested as university courses in environmental studies in the late 1960s. Environmental studies programs emerged because of the 'misfit between perceived need, experience, information and the prevailing configuration of knowledge embodied in the disciplinary organisation of academia' (Klein, 1990:34). Environment Studies was not its own field of integrative study but more eclectic.

Environmental impact assessment emerged through legislation in the United States in 1969 (National Environment Policy Act 1969 (US)) and in Australia in 1974 (Environmental Protection (Impact of Proposals) Act 1974 (Cwlth)). The Australian experience with environmental impact assessment reveals that the legislation did little to assist the practice of integrating potential impacts of development and change for people. In the conduct of environmental impact assessments, the anticipated affects of development on people, communities and lifestyles are typically segregated.



Environmental impact assessment reports have predominantly reported on biophysical impacts although integration of social assessment is a condition required under the legislation (Cox et al 2001; Roughley and Scherl 1992).

In natural resource management, historical influences continue to affect integration. For instance, the natural sciences have traditionally competed for academic recognition in the technology field, competition has been linked to technical efficiency, and in industry to efficiency that generates financial return. Contradictions at the policy level encapsulate the complexity of the natural resource management task. In Australia, economic policy rests upon the notions of maximum financial return from government-funded activities and relies on competition to realise its key objective. Natural resource management policy binds the external environment in a challenge to collaborate with the aim of maximizing commodity production *and* sustaining environmental quality. These imperatives often represent a contradiction for natural resource management at every level.

A common assumption is that integration can resolve the contradiction. Just because integration is now so universally acclaimed does not mean that it can occur simply by aspiring to it. A closer look reveals that ‘much which is thought to be inter or transdisciplinary in reality amounts to a mere accumulation of knowledge supplied from more than one discipline’ (Rossini and Porter, 1984). Integration methodology is formative at best. There remains a tension in the discourse between those who believe integration is a philosophically conceived synopsis and those who view it as a practical rather than theoretical way to solve problems that have arisen (Klein, 1990).

## INTEGRATING SOCIAL SCIENCE IN PRACTICE

A key motivation for initiating social science positions in CSIRO, MDBC and GBRMPA and for establishing social impact units was growing public concern over environmental degradation and the manner in which resources were being managed. For example, according to Esta, the catalyst for MDBC employing a social scientist was vocal public protests along the Murray–Darling in response to varied results from projects the Commission had carried out. There was public pressure on the Commission for genuine public participation in the management of the River.

Similarly, in the mid 1980s there was public criticism that GBRMPA had not conducted a social survey of the residents of Magnetic Island or beyond in their management planning. GBRMPA staff became sensitised to the need for a more rigorous approach to including social science considerations in the planning and management of the Park.

The Social Impact Units in WA and Queensland were born largely out of heightened concern over the social consequences of land use and development. While each state government was required to account for the human dimension of any development, their environmental protection acts and authorities lacked the capacity to appropriately deal with social impacts.



The social sciences have traditionally been represented in NRM in Australia as stray individuals in generic management or research positions for more than two decades. Dedicated social science positions began appearing within NRM agencies around the mid to late 1970s, where this history begins.

NRM problems are rarely the domain of a single conventional discipline due to their scope and diversity. In a field where natural resource problems and management issues have long been viewed as predominantly biophysical in nature, the induction of social scientists has been a bumpy ride (Booth et al, 2001).

## WHAT WAS EXPECTED OF THE SOCIAL SCIENTISTS?

Each of the six social scientists interviewed entered a position in an NRM agency that was largely unformed and each experienced their position as a challenge on both a personal and professional level.

CSIRO, GBRMPA and MDBC, with long histories and strong cultures as essentially biophysical science agencies, created social science positions with limited arrangements for their inclusion in the agencies' activities. Geoff, Lea, Dominique and Esta were thrown in at the deep end. In contrast, the staff in the social impact units were appointed with clear job descriptions, indicating that managers had a good understanding and clear expectations about Allan and Lisa's roles. These agencies were new, as were their functions.

### Multiple- and ill-defined roles

At the time when the social scientists commenced in their positions, their managers' expectations ranged from 'getting results quickly' in the arena of changing community attitudes, to developing 'a system' for engaging the community in NRM. These things, of course, don't happen quickly. While all social scientists said their employer was initially quite vague about what they could contribute, there was a general expectation that the role of the social scientist would:

- engage, empower, persuade (and at times, placate) the community;
- involve the social scientist as a researcher and/or a research project manager;
- have the social scientist taking on a key, if not lead, role in establishing multidisciplinary integration across the agency.

Geoff summed up these multiple expectations as 'schizophrenic'.

### Public participation

One aspect that came up repeatedly was that while the social scientists were supposed to engage and empower the community, when they actually carried out this role it frequently challenged the agencies in which they were operating. This is possibly due to a lack of understanding on the part of managers and colleagues about the complexities

of public participation and its political nature. It was acceptable to consult the public, and some of the managers believed that social scientists could somehow wave a magic wand and change the attitudes and behaviour of people, but apprehensions were apparent when the social scientist argued in favour of giving the communities some real power over decisions.

The social scientists worked with multiple communities. They included the staff of their own agencies, Commonwealth and state government departments, some of who were formal partners, farmers, regional groups concerned with environment, development, cultural heritage, the economy, and industry groups.

## **Social science research**

As newcomers to the five agencies, these social scientists also had responsibility for devising a social science program for their agency. These social science positions incorporated a range of roles from developing a social science research program and managing projects, to actually undertaking research. Only in CSIRO and the Social Impact Unit in Western Australia was there an expectation of the latter. All six social scientists were involved in managing research projects in addition to other program development and coordination functions.

## **Integrating social science**

The social scientists found that incorporating social science knowledge in the NRM field required reflection on organisational structure and culture. Frequently, their efforts to achieve integration were ineffective because the organisations they were working within were vertically structured and in silos with little capacity to work across areas. In addition to this, the social scientists did not have the professional recognition necessary to make the changes needed.

In the MDBC, CSIRO and GBRMPA as well as in the external groups that the social impact units worked with, 'soft science', the qualitative, participatory approaches that social science brings to NRM, was considered to be a matter not of science at all, but of common sense. 'When it comes to the social, everyone's an expert'. Three separate managers identified this as one of the most challenging barriers to effectively integrating social science in NRM.

Predominantly, all six social scientists worked from a community development model that involved:

- bringing people together and encouraging the recognition and ownership of needs and functions;
- translating needs into strategies for action;
- forming coalitions with others who have interests in common; and
- challenging power relationships and structures to redress inequalities (Lynn, 1994).

The three most commonly recognised practice models in community work literature are locality development, social action and social planning. The social scientists, apart from Esta, engaged in both quantitative and qualitative approaches. Integration required special conceptual and communication skills. Esta and Dominique working from a constructivist theoretical framework, upon reflection saw their integration role as being similar to that of an organisational change agent. Both recognised that the bureaucratic agency structure was at odds with multidisciplinary integration and this barrier was at the core of the challenge of integration.

## IMPEDIMENTS TO INTEGRATION

The social scientists and their managers identified many of the same issues as impediments to integration, and most of those have persisted over the twenty-five years. The issues are:

- **organisational arrangements**, the lack of consideration that agencies gave to the culture of the organisation and the structures that would therefore be required to promote the social science perspective;
- **the misfit of social science methodology in the ‘hard science’ culture** of the agency,
- **being both the integrator and change agent**, the function that social scientists inherited by default that overwhelmed them
- **the bureaucratic constraints** that limit community involvement.

### Organisational arrangements

Neither the agencies’ mandates nor their organisational charts incorporate social science, which therefore remains often peripheral and largely undefined. Esta, in the process of developing the Human Dimensions Program in MDBC found that social science did not fit into any one of the biophysical silos but that it was integral to all of them. In GBRMPA, social science was outside of the policy area where it could have contributed significantly.

Geoff, Lea, Dominique and Esta all struggled to build relationships between their work, the biophysical program areas, the broader stakeholder communities and the policy and planning areas because it was a huge area to cover. Establishing structures and processes for communication between program areas has been a complex challenge for these three agencies.

Institutionalising social impact assessment (SIA) was also very difficult. The Social Impact Assessment Unit in Western Australia (SIAU) was an initiative of the Minister, and Anne had established networks in the senior echelons of major development industries. These associations gave the unit profile, power and legitimacy but not longevity. With the resignation of Anne, the central link to these senior figures, one industry’s successful lobby and a change of state government, the structure was

unsustainable and the unit was shut down. Institutionalisation of social science in NRM or resource planning, it seems, cannot be built to last solely through personal relationships or party-based political support.

Based in a social department, the Queensland unit found it was a challenge even to get the environment or planning departments to make referrals to the unit as a standard procedure. Strong internal support, and the strategy to expand and regionalise were no more effective in institutionalising SIA in Queensland than the arrangements in Western Australia, as the Queensland unit has diminished.

In both SIA units, unclear definition of what constitutes a social impact and unclear SIA guidelines in the environmental impact assessment and or planning legislation acted as a barrier to integration and institutionalisation of the social dimension of environmental impact assessment (Cox, et al, 2001; Dale et al, 2001; Duffecy and Pollard, 2001).

## **Status and resources**

The lack of status of the social scientists in the agencies studied illustrates a lack of serious commitment to integration on the part of their employing agencies, and acted as a constraint to effective integration of social science knowledge.

Allan was the unit manager but often found it difficult to ‘negotiate high level referral deals’ with managers of other state government agencies because of the status of his position together with the lack of status of the Department of Family Services and Aboriginal and Islander Affairs among the other Queensland Government departments.

Geoff recalled a number of events, particularly in his early days at CSIRO when the organisational culture presented such a force for him to reckon with that he came close to ‘throwing it in’. One of those was when he had been at CSIRO for about eighteen months and consultants had been engaged to review his program. Geoff was instructed not to come to work in case he was ‘discovered’. The psychologist position was so well hidden in CSIRO that many CSIRO staff didn’t know he existed. His manager feared that the reviewers would find his position to be an anomaly in the organisation.

The social science programs in GBRMPA and MDBC were initially combined into the communications programs. Even though Esta was a manager and the human dimension had gained program status, Esta was junior to the Education Manager in the Communication and Evaluation Directorate. Dominique, Lea, and Geoff also assumed the same roles as biophysical program coordinators in their agencies but did not have recognised coordinator status. In contrast to the other four coordinators within the Research and Monitoring Program at GBRMPA, the social scientist did not even have an office.

## **The misfit of social science**

In four of the five organisations, understanding of social science theory and methods was limited. The six social scientists and their managers identified the lack of understanding and respect for social science as critical to their struggle to gain recognition.

Of the six social scientists, only one, Allan, took up a position in the NRM field in an organisation with a human and social welfare focus. Impact assessment was a new methodology for the organisation and was embraced enthusiastically. Allan experienced excellent support from management and colleagues in the department. However, gaining an appreciation of SIA methods among the planning and environment departments where the physical sciences dominated, required much effort.

There are sound arguments for impact assessment to combine technical and participatory methods (see for example Taylor et al, 1990 and Dale et al, 2001). Experience has shown however that technical and participatory or political approaches are informed by a number of opposing assumptions (Craig, 1990). Technical approaches are considered more scientific and politically saleable. Biophysical environmental impact assessment managers often discarded the participatory and qualitative components of SIA.

Geoff, Lea, Dominique and Esta felt this limited their capacity to develop ideas about how to conceptualise, approach and address NRM problems, and move them beyond ideas. The methodological cleavage was exacerbated because the social scientists were often not involved in projects until a late stage.

### **‘Integrator’ and change agent**

The onerous expectation of the new social scientists in MDBC, CSIRO and GBRMPA was to integrate not only social science knowledge with the biophysical programs but also to link the biophysical programs with each other. Managers and social scientists all touched on this issue and considered the ‘integrator’ role to be an overzealous expectation of social scientists by agencies. Integral to the role of integrator are questions of culture change.

Integration of social science is difficult in a bureaucracy because the multidisciplinary framework is usually a network model which in theoretical and operational terms is the opposite of a hierarchy (Klein, 1990). Hierarchies are appropriate for operating a number of single-focus programs but do not offer models for multidisciplinary integration, yet this has remained the dominant organisational form in NRM agencies. Network models remain substantially untested within government NRM agencies and will be more resource intensive because communication will be multi-directional and connectors within the networks will need to be defined and established to replace existing organisational charts. These usually represent an *integrated organisational approach* in a series of boxes connected by anonymous arrows. What will connect the boxes?

The SIA units provide a unique opportunity to observe integration of social science in planning and NRM from the other end of the spectrum, where the social science functions, situated in a dedicated agency, had lead agency status. They both report that they had effective internal communication arrangements but experienced constraints to integrating the SIA knowledge with the biophysical information collected in external agencies.

The role of integrator was unofficially bestowed to Esta, Lea, Dominique, Allan and Lisa. Esta, Lea and Dominique upon reflection realised that a big part of the role they had played was that of change agent. The change in culture had to occur before integration of the different disciplinary perspectives was possible. In the cultures of these agencies, the attempts made by the social scientists to introduce integration were often resisted because they were viewed as something of a takeover.

This situation also produced a profound sense of isolation. Not only were the social scientists isolated within the agencies but they were also isolated professionally. Formal networks for social scientists working in NRM have been slow to emerge.

## BUILDING RELATIONSHIPS

This study indicates there are a number of strategies that will assist in the successful integration of social science. Building relationships plays a key role. Positive and constructive relationships survive through give and take. Mutually beneficial relationships generally develop through the establishment of trust. Building trust occurs gradually, over time. Relationship building is the most positive strategy for integration of knowledge across the disciplines involved in NRM in the view of the entire group of social scientists and managers.

Geoff claimed that building and nurturing relationships has been integral to his long engagement with natural resource management in CSIRO. In particular he mentioned an incident in a relationship with a colleague that illustrates the effort required for interdisciplinary integration:

*... my best mentor has been from outside... I remember once we had been doing some work on, 'how do you know when you've done a good public involvement program'? ... I had been working with B for about 30 years and we both decided that we would go to the public involvement conference and we would write a joint paper... I wrote the first draft of the paper and it was really hilarious. He had sent me back this thing on procedural justice and how to evaluate something using a normative perspective. Of course we sort of talked about this all the time... We were getting close to the deadline and suddenly he sent me back this fax with comments all over the paper but the fax was really incredible, it said, "I've read our paper with some interest. It seems to me that although we have been working together and talking with each other for 30 years, we've been ships passing in the night. And, I cannot comprehend this paper." He was serious. So in the end, I had to go around to his place, and we sat down and we talked and we talked and we talked and we ended up getting quite a highly academic paper called, Evaluation of public involvement in water resources planning: A researcher-practitioner dialogue ... His fax is in the introduction... (Syme. and Sadler, 1994). It created an awful lot of debate in the journal... It made me feel that this is a generational change that we are involved with. You have to want to play the game and hope that you can get to some genuine integration and that you are going to get somewhere.*

### Strategic relationships

Creating a social science presence was the initial task of the social scientists because their positions were not meaningfully structured into the existing organisation. Once they had surveyed the organisational terrain, Lea, Allan, Dominique, Esta and Geoff

made some observations about where social science could make the most important contribution and where the decision-making power was vested. By joining committees they introduced themselves and began the process of ‘selling their wares’.

In a field that has not inherently embraced social science, runs on the board are an important progression towards building trust. When Geoff started work at CSIRO, the environment was more hostile to social science than the other agencies considered here. Geoff’s credibility evolved through relationships he built with industry groups outside CSIRO. Both the water industry and the Environmental Protection Agency were impressed with early work Geoff provided and gradually returned to him for advice. In turn, this contributed to the increase in his credibility within CSIRO.

## Symbiotic relationships

Geoff initially adopted a teamwork process to build a relationship with industry. The process was to work with people from the water industry in ways that allowed for real knowledge exchange across disciplines in the context of specific problems. He started to think of problems in different ways and to understand the problems from, for example, the perspective of the engineers. Geoff was able to assist with ideas for communicating these problems and possible solutions, in simple terms, to the general public and industry groups as is summed up in the following quote:

*We have developed a method for what policy you need to undertake in terms of aesthetics of drinking water criteria here in Perth. I am really quite proud of it. A guy came over here and said “We’ve got a real problem... So, I developed this methodology that answered simply his question. ... at the end of it I presented the whole thing. I put up the questions that I said I could answer. I said, ‘the answer to this is ....’ The guy said “Jesus that’s clever! I haven’t understood a word you’ve said throughout the whole 3 months of this thing, but now when you put it that way I can see where the bit fits in and that’s really good. I’m glad that I trusted you”. They are actually coming back now and this is where it is important; they are learning to trust us to do our technical bits and pieces so long as it relates to questions that they want answered. So long as they can understand it and trust that I’ve got the ability to answer their questions.*

As terms and perspectives from the biophysical disciplines became more familiar, Geoff was able to communicate within CSIRO. As the amount of external funding to the Centre increased, he also started to contribute something that the organisation seriously valued. CSIRO began to realise that there was a demand for social science and that, consonant with the broad goals of CSIRO, its products were assisting industry.

Integration was a positive outcome of Lea’s involvement in the multidisciplinary Lady Musgrave Project. An important aspect of multidisciplinary project work is that it lifts people out of the structure, out of their disciplinary boxes.

Lisa pointed to her close work with the Environmental Protection Authority officers on guidelines and the social perspective as another example of a positive experience of integration. As a facilitator of integration, through her experience as manager of the Lake Victoria Project, Esta also heralded the multidisciplinary team approach.



## Sharing knowledge

Through establishing mutually beneficial relationships, the social scientists found that it was possible to begin sharing knowledge across disciplines. Demonstrated technical competence assisted integration in the opinion of almost all managers and social scientists. Allan and Geoff suggested that integration will be assisted by social scientists contributing a balance of technical and political competence; decent data collection and data manipulation and the right institutional arrangements to make it work.

Integration through sharing knowledge was also served by the authority of having support from those at the top and through credibility. Esta led the Lake Victoria Project team and as leader had authority and therefore an engaged audience. Similarly, the SIAU WA had authority to give formal advice to the Environmental Protection Agency on environmental impact assessment guidelines and on consultation methods. Therefore, it was necessary for the Environmental Protection Agency assessment officers to learn about social assessment. Lisa found that good knowledge exchange relied on using accessible and understandable language.

## The stamina to survive

Above and beyond working to integrate social science into NRM agencies, the social scientists had to find ways to survive, both personally and professionally. Having a safe home made this easier for Allan and Lisa.

At CSIRO Geoff gradually built a home for social science. The Australian Research Centre for Water in Society as a discreet section of CSIRO provides a definite and dedicated profile for social science research. This organisational model has contributed to an increased profile for and long-term survival of social science research in CSIRO. In Geoff's words, the Centre is a very team-orientated place and can be rather mysterious to the rest of CSIRO because it operates horizontally. The staff shares the up-front roles like presenting research findings. They also share in collegial support, camaraderie, when things are not going so well.

In the very process of pollinating integration across disciplines, social scientists can easily become lost between their own social science discipline and those more traditionally associated with NRM.

Allan was emphatic that social scientists in the NRM field need a professional network not only to help them survive on a personal level but to further instil them as a compelling profession within NRM.

## A FUTURE FOR SOCIAL SCIENCE IN NRM

There is no doubt that, even with the struggles these pioneers have experienced, social science is making a significant mark in the arenas of NRM.

Geoff, for example, has almost found this place among colleagues, collectively creating a body of social science theory and method directly relevant to NRM. Geoff's approach established a demand for social science research and slowly its profile grew providing the justification and external support. His Centre is recognised for excellence throughout Australia and internationally. The benefit of time, space to develop a professional portfolio, incredible persistence and a man with much humility, have made this possible.

Within the current climate that stresses that understanding human behaviour and capacity to change, social science is at the very core of resource management. Social scientists deserve to have a professional home which connotes particular areas of expertise. Solo social scientists in NRM agencies have had limited opportunities for disciplinary-based supervision and professional development. The small numbers of social scientists in this field have struggled to find the time to build networks for professional support and development. Absence of professional development and personal support had a significant impact on all six social scientists. At times, the energy they poured into creating change felt to them like a futile exercise. At other times, they started to doubt their own professional abilities and judgment.

Instituting a strong social science program will depend on agencies knowing what they want social science to do and articulating complementary roles and tasks. It is important that NRM agencies acquaint themselves with social science theory and methods if they are to be effective in serving their multiple and diverse stakeholders. There are enough social science experts in the NRM field to advise agencies on what they can realistically expect of particular social scientists.

The broad catch-all role of social science must be replaced with some clear definitions based on awareness of what social scientists can do and the myriad social science approaches available. Where an agency requires someone to undertake the role of integrator specifically, the task must be clear. The role of integrator may, but will not necessarily be a social scientist but will need to be a strong advocate for inclusion of social science.

Agencies themselves are responsible for determining the infrastructure to enable integration. If social science is to reside beside biophysical programs, it will require equal status, adequate resourcing and several social scientists. Structured opportunities for knowledge exchange among different disciplines will assist integration. Ongoing involvement of social scientists in strategic research planning, and construction and assessment of project briefs in all program areas would provide a channel for transmission of the theoretical and methodological expertise that social science brings to NRM and would offer settings for relationship building. At present, "...the limited application of sound social theory and established social science methodologies in NRM contrasts with the status of the field as an emerging discipline" (Dale and Crisp, 2001:p.134).

## Facilitating the integration of social science

### Things that agencies can do

- **Accept the responsibility:** While all players must share some of the responsibility for integration of social sciences, the agencies themselves need to take primary responsibility for determining the infrastructure to enable integration;
- **Define the position:** Social scientists have more chance of becoming integrated where they have clear and realistic job descriptions based on awareness of what social scientists can do;
- **Establish a team:** Establishing a social science team creates opportunities for collaborative development of social science theory and method directly relevant to NRM;
- **Build multi-disciplinary, project-based teams:** as these facilitate relationship building and knowledge sharing among disciplines;
- **Identify where social science fits within an organisation:** Organisational arrangements that identify the most logical relationships between social science, the key objectives and actual functions of the agency and other program/disciplinary areas are most conducive to integration;
- **Allow for professional independence:** Formal, high-level structures where the social science disciplines have a degree of professional independence enhance the professional profile of social science;

### Things that social scientists can do

- **Build relationships:** strategic and personal relationships are critical for social science to make a successful contribution in the NRM field;
- **Define your place:** Social scientists need a professional sense of place and an expert profile;
- **Establish support networks:** a professional home and personal support are essential to the survival of the social science disciplines in the NRM agency;
- **Establish relevance to stakeholders:** The social science profile is boosted where the social scientist visibly assists agency stakeholders (i.e. industry and community);
- **Enhance your independence by attracting external funds:** as this boosts the social science profile;
- **Market yourself:** as this assists in establishing acceptance of social science among biophysical scientists.

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