

A MORE PARTICIPATIVE APPROACH TO SCIENCE COMMUNICATION: CASE STUDIES FROM REGIONAL AUSTRALIA

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ABSTRACT

Communities are increasingly being recognised as a vital partner in the development of sustainable scientific solutions. There is growing recognition that the context for scientific research needs to help shape the form, content and application of scientific knowledge. To support this partnership between science and community, science communicators need to develop and implement science communication processes that go beyond a traditional role of public relations and education and give communities greater ownership and control over research outcomes.

The Resource Futures Program of CSIRO, Australia's national scientific research agency, researches approaches and tools to assist communities in making decisions about natural resource use planning and management. A number of examples from research with rural communities in Australia are used to discuss the principles, benefits and challenges for communicators, researchers and organisations in taking this more participative approach

INDEX TERMS

Science communication, PCST 2005, community engagement, dialogue, natural resources

INTRODUCTION

The world in which science operates is changing. Public scepticism of the value and impact of science developed in isolation from the social context in which it will be applied is driving demands for a new approach. According to Gibbons et al (1994) there is a growing shift away from discipline centred approaches where knowledge production is hierarchical and separate from application, and problems are largely determined by the scientific community towards a new interdisciplinary approach where research is carried out in the context of application and 'value' is determined according to the beneficial impacts that are derived. This shift can be described as a transition from 'Mode 1' (traditional) science to 'Mode 2' (transdisciplinary and contextual) science where a new social contract between science and society is developed in which scientific knowledge is 'socially robust', and the community regards its production to be both transparent and participative (Gibbons 1999).

In rural communities in Australia, natural resource management (NRM) has been underpinned by the traditional scientific presumption that once we know the facts we can fix the problem. Centralised agencies have overused scientific information to define problems and yet this has not translated to science-based decision-making to manage the problems (Dale and Bellamy 1998). As Australia NRM moves to devolve decision making for NRM to the community level there is a growing need to support and empower communities to be able to understand and solve their own issues (Jamison 2001; Lawrence 2004)

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THE SCIENCE COMMUNICATION PROCESS

For science communicators working with and within research teams this shift to a more participative approach has also driven a parallel change in their role from ‘Mode 1’ (traditional) to ‘Mode 2’ (community engagement). Mode 1 communication predominantly focuses on promotion, education and linear processes to select stakeholders while Mode 2 communication is an embedded component of the research process, playing a key role in facilitating dialogue, building interpersonal relationships, building stakeholder capacity, supporting skills and knowledge transfer, managing expectations and conflict and evaluating project outcomes. Table 1 outlines the changing focus and drivers for science communication in this new context.

Table 1. Changing role of science communication

MODE 1: TRADITIONAL	MODE 2: COMMUNITY ENGAGEMENT
1. Marketing/ positioning	➔ Supporting contextualisation of information and knowledge
2. Primary input at beginning and end of research process	➔ Integrated part of research design, implementation and succession planning
3. Single issue focus within defined boundaries	➔ Managing multiple issues across diverse organisational, geographical and community boundaries
4. Organisational control of message and process	➔ Joint responsibility for process and decision making, community control
5. Translating ‘our’ message, linear process	➔ Creating and facilitating two way dialogue, participatory process
6. What we think and want you to know	➔ What do you need, what do you want to contribute
7. ‘Our’ knowledge	➔ Combined knowledge of all stakeholders
8. Researchers/ communicator in privileged position of ‘experts’	➔ Working in equal partnership with stakeholders
9. Focus on information delivery, education	➔ Focus on networking, information and process accessibility, equity and capacity building
10. Branding, issues management	➔ Providing framework for knowledge exchange, evaluation and relationship management
11. Rationalist, deficit model	➔ Recognised value and role of lay knowledge
12. Objective, separate defined boundaries	➔ Acknowledges values, aspirations and power, flexible boundaries

Mode 2 communication places a stronger emphasis on facilitating learning rather than creating a process to ‘contain’ issues. It involves bridging and integrating input from multiple disciplines and knowledge groups (both lay and scientific) in what can often be messy and fluid processes. For science communicators to manage these processes successfully, new skills outside of their traditional kit bag are required.

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While some important communication functions such as the translation of complex scientific knowledge into an accessible format, generating awareness and excitement in science and monitoring impact aligns easily within both modes there are many areas where this new way of operating can clash and cause tensions.

As communicators we have been taught that maintaining control of the process and message is essential to maximising opportunities for positive organisational exposure, effectively managing issues and ensuring the 'right' people receive the 'right' message. Indeed most communication structures, processes and timeframes within organisations are designed specifically to achieve this end.

However a whole new set of complexities and challenges arise when we relinquish this control and work in partnership with communities, at their pace, across multiple and sometimes conflicting interests, and with a commitment to incorporate local knowledge and act on outcomes.

EXAMPLES OF THIS APPROACH

The Resource Futures Program of CSIRO researches approaches and tools to assist communities make decisions about resource use planning and management. A number of projects from this program are used to explore some of these complexities and challenges with specific examples outlined in Table 2. The projects include:

1. The Central Highlands Regional Resource Use Planning Project (CHRRUPP) – this was a three year project which concluded in 2000. Its aims were to improve the sustainability of resource use and management in the Central Highlands region of Queensland by assisting sectoral groups with provision of information, negotiations of support, technical advice with planning, and assistance with communication within and between groups. CHRRUPP has been extensively evaluated.
2. The Regional Development Futures Framework (RDF) Framework – this framework is based on a 'whole-of-community' approach, helps communities and decision makers to identify and understand the issues and drivers associated with future planning and development, and to identify and evaluate strategies to achieve a shared vision for the future. Both a toolbox and an approach to thinking about the future, the RDF allows communities and decision makers to understand where they want to go, why they want to go there, and how they'll get there. The Regional Development Futures Framework is currently being tested through three projects due for completion in 2005. Two project will be discussed further:
 - i. Augusta Margaret River Futures Project (AMR) (www.amrsc.wa.gov.au/future)
The Shire and community of Augusta-Margaret River in Western Australia are working with CSIRO to develop a better system for making decisions that affect the region into the future. The aim is to ensure Augusta-Margaret River remains a vibrant region with a great quality of life for all.
 - ii. Catalyst Project (www.ccacc.com.au/html/cc.html).
The Catalyst project based on New South Wales Central Coast aims to provide local decision makers with the ability to predict the consequences of development and will ensure the Central Coast develops in a manner that will provide responsible growth but protect our region's unique cultural and environmental identity.

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Table 2: Project Activities as an Example of Mode 2.

Mode 2 Approach	Specific project activities illustrating Mode 2
<p>1 Support contextualisation of information and knowledge ↳ <i>Project is promoted as a community learning experience</i></p>	<p>➔ For CHRRUPP and AMR a lot of effort was made to ensure the project was not perceived as a ‘CSIRO’ project but as a genuine community partnership. This meant the development of a project ‘branding’ that was separate to, but acknowledged the strengths of, the individual entities involved.</p>
<p>2 Integrated part of research design, implementation and succession planning ↳ <i>Development of an iterative communication plan in consultation with project team and key stakeholders</i> ↳ <i>Communication is regarded as integral to the project – communication and evaluation plans linked to project objectives</i></p>	<p>For CHRRUPP there was a communication plan was developed for the first phase of the project (project establishment from 1997-1999) and a revised plan for the next year (the continuation phase 1999-2000). The revised communication plan was developed following a formal evaluation of the project, which included an evaluation of communication processes and products (Bellamy 2000) and interviewed a range of community and project stakeholders in mid-1999. This evaluation resulted in a number of changes being made by the project team for the final phase of the project</p>
<p>3 Manage multiple issues across diverse organisational, geographical and community boundaries ↳ <i>Use of a systems approach, which looks at issues in a holistic way.</i></p>	<p>➔ CHRRUPP established a Regional Coordinating Committee (RCC) with representation from across 15 community-identified sectors. These representatives were encouraged to liaise with their own sector to bring a grassroots perspective on resource use planning issues in the region. RCC forums enabled a common regional vision to be developed and regional strategies developed across sectors.</p>
<p>4 Joint responsibility for process and decision making ↳ <i>Reference group to act as a community link</i></p>	<p>➔ A community reference group was set up for the AMR project with members drawn from diverse backgrounds. Their role is to monitor the project and act as a conduit to/ from the community.</p>
<p>5 Create and facilitate two way dialogue, participatory processes ↳ <i>Specialist and community workshops with broad representation</i></p>	<p>➔ The Catalyst project facilitated a series of specialist and community workshops and forums in the region. These explored the different emphasis placed by groups within the region in the broad areas of social, governance, and environmental and economic considerations.</p>
<p>6 What do you need, what do you want to contribute ↳ <i>Establishment phase focus is on building relationships so as to ensure that the regional partners play a strong role in scoping the project and its aims and outcomes</i></p>	<p>➔ CHRRUPP was preceded by a one year scoping study that developed three cornerstones for regional planning that were tested over the CHRRUPP project’s three year life span. This was a good opportunity to develop relationships, trust and understanding in the region. Similarly both the Catalyst and AMR project were at least 1.5 years in the development phase – time spent building relationships, understanding and confidence in the research process, team and outcomes</p>
<p>7 Combined knowledge of all stakeholders ↳ <i>Multi disciplinary teams</i></p>	<p>➔ Each of the project teams comprises a number of researchers with specialities in biophysical, geographic, social, economic, and communication disciplines.</p>
<p>8 Working in equal partnership with stakeholders <i>At least one project staff member will have strong links to the</i></p>	<p>➔ In CHRRUPP we employed a local person to work as a project facilitator in the Central Highlands region. ➔ In the Augusta-Margaret River Futures Project the project leader has previously lived in the region. A</p>

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<p><i>region. Usually we appoint locals to the project, or sometimes a staff member relocates to live in the region.</i></p>	<p>person from local government office was also a link. → The benefits of this are that a locally-based project staff can build resource users networks, link local knowledge, increase understanding of the issues and research processes, builds capacity of the local community and demonstrate commitment to the region</p>
<p>9 Focus on networking, information and process accessibility, equity and capacity building ↳ <i>Develop resources and tools with local people to help this community manage change in the future.</i> ↳ <i>Local people regarded as experts</i></p>	<p>→ The Augusta Margaret River Futures project conducted an oral history component as it was recognised that learning from the past could be used to help manage change in the future. This was an important part of a community vision for the future and involved building the capacity of the local historical society to run focus groups to collect the information – a skill they will be able to use for their own purposes in the future. (www.amrsc.wa.gov.au/future/news/040309orahhistory.html)</p>
<p>10 Providing framework for knowledge exchange, evaluation and relationships management ↳ <i>Project attempts to draw in results from previous studies</i></p>	<p>→ CHRRUPP and the RDF projects have sought to centralise as much information as possible from previous and existing studies in the region so it links, rather than repeats, things that have already been done in the area. Though CHRRUPP a web portal for a range of community information, the Central Highlands Regional Information System, was set up then handed over to community control. (www.centralhighlands.com.au)</p>

CHALLENGES OF THIS APPROACH

While a more participative approach is needed to achieve enduring outcomes, this approach also creates many challenges. These can be grouped – although often not discretely – into personal, organisational, and community-associated challenges.

Personal challenges include:

- Balancing immediate organisational drivers for reports, launches, briefs, brand positioning with longer term relationship building, community needs and aspirations
- Managing diverse expectations
- Local knowledge/ experience may be contradictory to scientific understanding
- Handling issues of commercial in confidence, intellectual property – who owns community knowledge?
- There is a potential risk of becoming ‘co-opted’ into community agendas.

Organisational

- Managing multidisciplinary teams requires active strategies to ensure communication occurs within the project team and that the project utilises transdisciplinary potential.
- Outcomes may not align with the official organisational position
- Timeframes required to develop relationships and build trust may not always fit neatly within organisational requirements and expectations.

Community

- People may be too busy or not see benefits of being involved
- Not everyone will be able, or want to participate – who is heard? who is not heard? how does representation influence outcomes and communication strategies used?
- Participation in research can lead to unintended consequences – positive and negative.

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- Communities are not homogeneous groups – multiple and sometimes conflicting agendas, needs and values will emerge
- Communities, and the groups that comprise them, have their own agendas and local politics can emerge and destabilise relationships

Maintaining relationships, research quality and brand value in changing and often politically charged environments can indeed be a juggling act but there are many benefits to be gained by organisations, researchers and communicators in adopting community engagement principles. Principles such as inclusive participation, shared responsibility, collaboration, knowledge sharing and recognition offer a useful framework for the development of good relationships with all stakeholders, ensuring the right questions are being asked and addressed, and fostering the ownership and uptake of research outcomes (Solomon 2000, Kenny 1999). All are important to maintain public confidence in and support for science.

Negotiating clear expectations and boundaries both with participants and within the organisation is fundamental to the implementation of these principles. Internal education on the value of this approach may also be required to secure appropriate resourcing to enable effective engagement.

The emphasis for science communication within this ‘Mode 2’ is working as part of the research team to ensure an inclusive process in which the right questions are being asked and addressed and the capacity for uptake of research outcomes is built through the project. Although this style of research can be ‘messy’ with aspects of control handed over to the community, the results are more relevant and more enduring:

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