Addressing interests and values in a consensus building framework for water allocation

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Abstract

This work considers a central theme that arises when community engagement processes 'get stuck' as a result of divisions in the community and how to understand the matters that are implicit and explicit in conflict to facilitate its resolution. The issue at hand in this project is water allocation, which is becoming increasingly contentious both globally and within Australia. A participant action research approach is used to ultimately develop and evaluate a best practice consensus building framework for water allocation and use which takes account of underlying interests and values in two case study sites in Queensland, Australia – the Lockyer valley and Lower Balonne catchment. This paper describes the first steps in this exploration, the use of an innovative qualitative data generating technique - photovoice - to uncover conflict interests and values related to water. We describe the richness of this method to inform stakeholder interests and values and to monitor them throughout an engagement process about water allocation. This will contribute to community and institutional capacity to prevent and resolve conflicts in water management in agriculture and trade-offs between environmental and consumptive uses of water, and public and private interests.

Introduction

This paper outlines the difficulties of engaging communities in politically sensitive and personally meaningful issues such as water, that are fraught with the propensity for conflict and the need for a consensus building approach to community decision making in the face of such conflict.. It identifies gaps in our knowledge about how communities make decisions and how to better understand and address stakeholder interests and values to avoid conflict. It focuses on an innovative technique – photovoice - for eliciting values and interests about water management in two case study areas in Queensland, Australia - the Lower Balonne and the Lockyer catchments.

Perceived stress on water resources in both of these catchments has resulted in conflict within the community, and between community and the State government which has responsibility for engaging community in water resource planning to better manage the resource. Within these two geographic areas, the community of interest for this research are key stakeholders who have the ability to influence decisions about water management – irrigators, regional natural resource management and catchment groups, government officers, and politicians. This participant action research project aims to understand the cognitive, behavioural, and emotional basis for conflict which can then be reframed to build consensus.

Water as a source of conflict

Water scarcity and sustainable use is an increasing concern on a regional, national and global level. Some 20 UN agencies have freshwater on their agenda and the issue of water conflict is such a high priority that in 2001, UNESCO and World Water Council created the Water for Peace programme to turn "potential conflict" to "cooperative potential" in relation to freshwater disputes. Australia's Council of Australian Government's (COAG) water reforms have resulted in rapid institutional change with consequential expectations on irrigators and the community to meet the challenge. The Queensland government and segments of the southern Queensland community have experienced protracted negotiations over water allocation and use over the last few years.

Wolf, Yoffe et al. (2002) found that very rapid changes either on the institutional side or in the physical system appeared to be at the root of most transboundary water conflict. They hypothesized that: "The likelihood and intensity of dispute rises as the rate of change within a basin exceeds the institutional capacity to absorb that change." (Wolf, Yoffe & Giordano 2002) This hypothesis also applies to water related conflicts within countries, not just across border issues.

It is clear that resolution of such issues ultimately requires a shift in institutional action and capacity. Australia introduced rapid changes to the institutional regime governing water with its COAG water reforms in 1996. Since then, government agencies and water boards/corporations as well as individuals on the land have been struggling with the challenges associated with:

a) the science and equity issues of allocation for environment and consumption;
b) implications of separating water property rights from land title and water trading;
c) implications of full cost recovery;
d) greater transparency and accountability through complex separation of purchaser/provider roles in natural resource industries; and
d) the role of integrated catchment management, and adaptive management.

The more recent National Water Initiative (2005), while renewing commitment to the COAG Water Reform agenda, acknowledged that those changes have not gone smoothly

Stewart and Jones (2003) in their analysis of conflict about three rivers in New South Wales concluded that one of the key problems is how to integrate environmental considerations into decision-making systems still predominantly shaped by other values. Despite expanding use of economic instruments, such as tradable water licences to encourage efficient water use, regulation remains the most entrenched form of river governance. At the same time demands are emerging for broader community-based forms of collaborative river governance as per catchment associations, confirming the need for capacity building. (Stewart & Jones 2003, p43) Improved management also depends on having information about the effects of one's actions, so building the feedback loop of adaptive management is also essential.

The urgent need for increased understanding of what interferes with a community of stakeholders building consensus, and hence the capacity to manage water resources, is evident. In southern Queensland, it took more than 6 years for a water sharing plan – a Water Resource Plan (WRP) - to be developed for the Condamine-Balonne catchment at the headwaters of the Murray-Darling river system. Such a process is usually expected to take a maximum of 2-3 years. In Queensland's Lockyer valley, one of the researcher's case study sites, water supply available for irrigation has diminished to such an extent as a result of the combined effects of overextraction, drought, and lack of regulation, that this year some farmers are planting only one-tenth to one-half of their irrigatable area. Other states in Australia have also struggled with building resources and capacity to address the tough issues.

Major issues about water arise when there is a threat to this life-giving resource and inadequate capacity to deal with it. These issues have strong cognitive, emotive and almost spiritual components Rivers have been treated as 'common good' resources which can be used at will without their real value being taken into account. Water affects the interests of many private landholders as well as public corporations, so solutions about water management necessarily involve consideration of the diversity amongst community stakeholders. Water evokes basic human values and is imbued with deep cultural meaning. Water resource issues touch on deep-seated sensitivities about public and private good and principles of fairness and equity. In spite of improved processes for decision-making about water with better scientific information, hydrologic data and modelling techniques, community consultation, and community 'capacity' building, there are still major areas of mistrust and conflict in relation to water allocation and use. Conflict about water often arises in cases where there is biophysical stress on the resource and challenges to institutional capacity to deal with it.

Building an improved decision making framework within community

On the basis of preliminary interviews and literature review from the areas of consensus building, negotiation, public consultation, and conflict resolution, my research has identified that there is common agreement among theorists and practitioners on many basic principles and processes of decision making, conflict resolution and consensus building in community contexts. Key ingredients for a good process, as an example, include: purpose-driven; inclusive; designed by those involved and appropriate to purpose; respectful of diverse interests; accountable and transparent; search for new and innovative ideas; objective criteria to assess options; sharing of non-aligned scientific data; and collaborative.(Consensus Building Institute 2001; McCollum & Vanderbyl 2003; Policy Consensus Initiative 2004; Rivers Trails and Conservation Assistance Program 2002; Round Tables on the Environment and Economy in Canada 1998; Vanderbyl & Boully 2004)

There is also agreement in the literature that unless there is an understanding of underlying values and perceptions of parties in a decision-making process, a mutually satisfactory outcome is unlikely (Hassan

2001; Hassan et al. 2001; Ross, Buchy & Proctor 2002). In layman's terms, it is often referred to as the magic that happens after parties in conflict spend a evening together in the pub, or over a dinner with bottles of wine – conveying the image that it might not happen without some facilitating ingredient. The 'magic' refers to the building of relationships, respect and trust through sharing of values and interests.

Considering a community's values and interests: How do we know what they are?

If values are understood in a group process then it improves the likelihood of stakeholders having their views reflected in potential solutions. Or stated another way, the more diverse the perspectives focused on a decision, the greater the chances of the outcome accommodating the widest range of societal values, therefore reaching more favourable outcomes. It can facilitate sensitivity and respect of the value differences across stakeholder groups (Sandall, Kaine & R 2001). Understanding values can also help reframe the traditional conflict between conservation values and production values by focusing on shared interests of the parties and building common ground, possibly in maintaining ecosystem integrity or providing for future generations.

The alternative dispute resolution (ADR) literature uses the term 'interests' to refer to participants' underlying reasons, needs, or values that explain why they take the positions they do. Interests are not the same as positions or demands. Interests can change in light of new information or a deeper understanding of a problem, but they can also reflect deeply-held beliefs. (Susskind 1999)

According to Fisher and Ury (1991), the most powerful interests are basic human needs. – if you can take care of basic needs, you increase the chance of reaching agreement and if an agreement is reached, of both sides keeping to it. They mention the basic needs of: security; economic well-being; a sense of belonging; recognition; and control over one's life. It's no wonder then that processes related to water allocation for irrigation might threaten deeply held interests in rural communities.

A more psychological approach is to examine individual's personal constructs and mental models. According to Abel et al (1998), personal constructs are the tools with which humans use to anticipate and to predict the future; they may be conceived as a summary of past observations from which the individual extracts generalisations and patterns about the world. Not all people construe reality in the same manner even when placed in the same objective circumstances; constructs reflect individual differences in people's interpretations of experience.

Syme and Nancarrow and their associates have written extensively about justice and fairness in relation to water referring to them variously as principles, values, interests, attitudes, concepts, criteria and motivations. (Po & Nancarrow 2004; Syme 2002; Syme & Fenton 1993; Syme et al. 2000; Syme & Nancarrow 1996) For the purposes of my research there appears to be little benefit in debating the

terminology; rather, improving our ability to address underlying interests and values of the various stakeholders about water is the prime issue.

Values and Interests about Water

The importance of addressing some of the well-recognised values about water is discussed below, with the point being made that there is a paucity of research on how to effectively uncover the values and use that information to achieve consensus.

From the literature and experience, in the field of environmental and natural resource management and planning, we know that some of the 'interest' challenges are:

- fair procedures for decision making eg including adequate time and information to ensure genuine community input, non-discrimination against marginalised areas and peoples
- fair and equitable allocation of assets ie "first in time, first in right" vs best use eg timber, water, land lease or permit
- public versus private interests and how to define what is in the public interest or what is 'public good'
- sustainability, environmental allocation and intergenerational equity reflecting long term versus short term perspectives
- a resource being perceived as a human right, eg physical and economic accessibility to adequate and good quality water, (Assaf et al. 2004; Scanlon, Casser & Nemes 2004)
- non-use intrinsic values (eg for conservation) versus use (Winter & Lockwood 2004)

Value collisions are particularly likely to occur at times when society's attitudes are in a state of flux, as people struggle with defining new boundaries of acceptable behaviour. Expectations are changing so rapidly they don't know where they stand. Skills and techniques for handling these value collisions are like "life rafts".(Cornelius 1998)

With the rapid change in water policy and institutional arrangements in Australia introduced through the 1996 Australia–wide COAG water reform agenda, it is not surprising that stakeholders may feel threatened. Tisdell, Ward, and Grudzinski (2001a) suggest that the COAG objectives are likely to be in conflict with each other and also with views of the community. For example, objectives of maximising income generated from available water supplies, ensuring an equitable and fair distribution of water, meeting environmental flow requirements and accounting for local economic and social impacts, may be difficult to achieve simultaneously. It is not surprising then that these reforms have generated years of misunderstanding, confusion, and conflict in some parts of the country. In studies of the Goulburn Broken and Fitzroy catchments, respondents ranked the need to distribute water in a fair and just manner higher than all other issues listed. It is intriguing, then, that maximising the return from water, measured in terms

of aggregate farm income, is the most commonly used measure of COAG water reform success. (Ibid, p17).

Syme and Nancarrow (1996; 2002) have also found fairly consistent community agreement on universal fairness judgments over surface and groundwater allocation issues, such as:

- water is a common good to be managed for the welfare of community;
- efficiency of use should be considered; and
- there is a moral obligation not to affect others negatively.

There is thus a solid literature about the importance of values in addressing conflict and about some basic values related to water. This has helped shape the design and content of the survey instruments used in this research project. However, an area of the literature and practice which appears to be deficient is how to identify and address values and interests throughout the decision-making process to reach satisfactory outcomes.

Prior (2003) in referring to the need for a systematic environmental dispute resolution research program suggests, for instance, among other things, that priority be given to:

  - incorporating stakeholder values within dispute resolution processes to complement the multitude of strategies dealing with scientific information, as stakeholder values often provide the conceptual filter through which information is sought; and
  - how to facilitate disclosure of diverse values, how to reflect values within problem definition, and how to incorporate values and science under conditions of uncertainty into a process involving interest-based negotiation; and
  - including monitoring and evaluation procedures in order to improve the system.

Purpose of this study

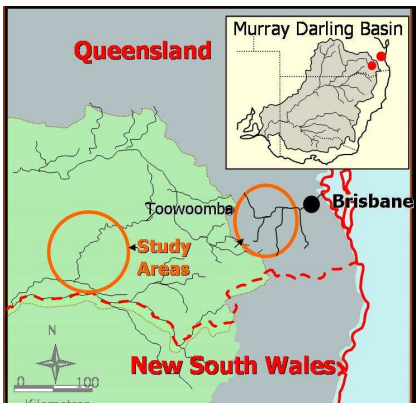
The objectives of this study therefore are to:

- identify the values and interests about water that need to be taken into account throughout a water decision making process;
- develop a best practice decision-making framework that integrates consideration of values and interests to ensure they are addressed; and
- evaluate the extent to which those values and interests are addressed, validated, and refined in the process as appropriate.

While there are several stages to this research project which use a mix of qualitative and quantitative social science methodologies and draw on conflict resolution techniques, this particular paper focuses on how the innovative photovoice technique is used to uncover the underlying values and interests of stakeholders early in the water decision making process, so that these values and interests can be built

into the decision framework and addressed in the process. It examines those interests according to three categories of process, content, and relationships (Ruby 2001).

The two case study sites are areas characterised by perceived stress on water resources primarily from agricultural development; institutional challenges; and a history of conflict about water. This paper reports on progress to date in the Lockyer catchment where the researcher is working in partnership with the Lockyer Water Users Forum (LWUF) and the Queensland state government Department of Natural Resources and Mines (NR&M). LWUF is comprised of representatives of 17 irrigator groups and is looking at how to resolve issues about diminishing amounts of water and poorer water quality for irrigation in the catchment. NR&M has been engaging with local irrigators about future water security and sustainable use and has recently commenced the process for developing a Moreton Water Resource Planning process – a plan for sharing water in this horticultural irrigation area, required by the COAG national water reform agenda.



Case study sites: Lockyer and Lower Balonne catchments

The bottle of red or another method?

Without always resorting to facilitating substances (like the bottle of red), how can we elicit information about values and interests from stakeholders in a multi-party decision making process?

While it is beyond the scope of this paper to review the range of techniques that could be used to elicit values, we note the following as being helpful in community engagement where conflict management and resolution are an issue.

From the ADR literature, in the case of multi-party conflicts with complex issues, there is great support for in-depth individual interviews to provide understanding of values and related interests at various stages: at 'intake' to establish roles, procedures, and appropriate representatives (ie process issues), and later for building relationships, gathering information for a shared vision, clarification of issues and concerns (ie content issues). (Charlton & Dewdney 2004; Ruby 2001). International Association for Public Participation (IAP2) (2003) also suggests interviews should be used to gain in-depth information exchange in a non-threatening environment for consensus building programs.

Abel et al (1998) found that interviewing while walking the land with stakeholders was a powerful way of eliciting mental models crucial to the resolution of conflict about natural resource management.

Relatively inexpensive, focus groups can provide fairly dependable data within a short time frame. They allow people to answer questions, bounce ideas off one another, and hence provide richer and cumulative data as people share and elaborate on their issues and identify reasons behind their views. Dialogue can facilitate self disclosure and self validation, and be consciousness raising, building on each other's opinions and thoughts and lead to social change. (Coastal Zone Australia 2003; Denzin & Lincoln 2000). The Delphi method can also be used to gain a consensus on issues and ideas from a group, with responses prioritised by the group and an explanation given for differences.

While many favour methods involving personal contact, Syme and associates used mailed questionnaire surveys in several studies to identify community attitudes in relation to procedural preferences and determinants for fair allocation of water resources (Syme & Fenton 1993; Syme et al. 2000; Syme & Nancarrow 1996, 1997). Tisdell too has undertaken a number of studies using mailed questionnaires to determine community attitudes to water trading (Tisdell & Ward 2003; Tisdell, Ward & Grudzinski 2001b, 2001a).

The technique used to elicit values needs to be tailored to the purpose of the study and appropriate to the sample size, with interview and focus group techniques more suitable for in-depth analysis of smaller groups and questionnaires more suitable for larger sample sizes.

I have chosen a semi-structured interview method using an adaptation of the photovoice technique to provide an engaging method for participants. It allows in-depth exploration of values and interests of stakeholders about water as a basis for providing the opportunity for those values to be addressed through community engagement about a water decision-making process.

Why the Photovoice Interview Technique?

The photovoice method is an innovative and engaging method of primary data collection. Photovoice was originally applied with three main goals: (1) to enable people to record and reflect their community's strengths and concerns through community members taking photos about agreed themes; (2) to promote critical dialogue and knowledge about personal and community issues through large and small group discussion of their photographs; and (3) to reach policy makers media, researchers and others as the audience for the community to present and discuss photovoice findings with the intention of mobilising. change (Wang 2001; Wang et al. 1998).

It has historically been used as a participatory action research methodology to promote women's health as a community development approach in villages of rural China and a homeless shelter of Ann Arbor, Michigan. Others have used it to capture children's perceptions of river landscapes and play (Tunstall, Tapsell & House 2004), with mothers to discuss children's illness (Higgins & Highley 1986) and with young

Aboriginal people in Australia (Larson 2001). Little evidence has been found of photovoice previously being applied to identifying values and interests for a natural resource decision making process.

Compared to photo elicitation techniques, photovoice reduces the risk of researcher bias by allowing participants to choose what to photograph and which to use when discussing and thereby defining the issues. It has also been found to: break down barriers and enhance communication (Higgins & Highley 1986); enhance participants' self-esteem and peer status; affirm creativity, brainstorming and problem-solving abilities; increase credibility by virtue of affiliation and collaboration; increase local control and autonomy; and increase access to power (listened to by policy makers) by conveying local expertise and knowledge to others who govern their lives (Wang 2001). It can ensure that people are talking about the same thing. Furthermore it can be fun and give participants an opportunity to express themselves in new and imaginative ways (McIntyre 2003)

Individuals differ in their ability to communicate verbally and it should minimise distortion of the communication process by offering visual prompts. The photos and collages from the focus groups can be used for presentations and brochures. (Rivers Trails and Conservation Assistance Program 2002)

Compared to Abel et al's study of interviewing while traversing property, it provides a time and cost-efficient method for the researcher, reduces problems with tape recording in the field, and provides adequate time for the participant to contemplate taking their photos and the reasons for them. The photos can be taken any time over a 2 to 3 week period prior to interview, thus allowing time for the participant to think about what they want to take and why.

While tape recording interviews may affect interviewees' responses, it is up to the interviewer to reassure and establish rapport to minimise this impact. Participants are less reactive when absorbed in an activity, so focusing on photos during interviews can distract the participants from audio recording (Heisley & Levy 1991).

In this project, individual interviews are conducted prior to the focus group discussion for a couple of reasons:

- to identify individual values and interests;
- to tap into possibly contentious views that participants may share confidentially with the researcher that they would not share in a group;
- to ask additional questions about decision-making processes that are not directly related to the photos; and
- to determine if a focus group would create an appropriate atmosphere for shared understanding of values and interests and potential for a consensus.

Issues to be investigated in the draft semi-structured interview were discussed with key contacts in LWUF and NR&M to clarify themes, wording and length, and related efficiency of responses. The LWUF respondent suggested that the term 'decision-making' would be more acceptable to irrigators than the term 'consensus building', which had been included in the original title of the research project. 'Reflexivity' will be used to identify areas of potential researcher bias throughout the research project (Robson 2002, p. 173).

Focus groups are an integral part of the photovoice methodology for critical reflection and dialogue; selecting photographs; identifying issues and themes, and documentation. In this case, they will also be used to establish common ground and identify areas in need of further data gathering or research. Some of the methodological limitations of focus groups will be dealt with by introducing ground rules, facilitation to ensure contribution by all parties, and specific techniques to move the group in a positive direction using techniques from 'appreciative inquiry' and ADR to stimulate discussion, foster inquiry, empower participants, and enhance empathy towards each other. The focus groups will be constructed to include representatives from different parts of the catchment or diverse backgrounds. Limitations in terms of generalizeability of data from focus groups are understood. Other issues about confidentiality and groupthink are partly addressed by the individual interviews. (Coastal Zone Australia 2003; Denzin & Lincoln 2000; Rivers Trails and Conservation Assistance Program 2002; Robson 2002; Watkins & Mohr 2001).

This article reports on outcomes to date based on a preliminary analysis of the first two stages of the project. By the time of presentation at the conference, the researcher will be able to report on progress on stage 3 and more advanced analysis using NVivo software.

Methodology applied

Stage 1 – uncovering participants' interests and values individually

The photo interview technique (Wang 2001) was used with a sample of 15 adult members of the LWUF and 15 others who are likely to influence water decisions in the Lockyer. The latter group included 5 non-LWUF irrigators, as well as 12 others - staff of the regional NRM group, Lockyer Catchment Association, and relevant local and state government representatives who are considered influencers and significant to the process. The latter were identified through the 'snowball' sampling technique - an approach for locating information-rich key participants. These non-LWUF participants were approached individually by telephone followed up by a written request which included more detailed explanation of the project and the consent form.

At a regular meeting of the LWUF the researcher introduced the research project. At this meeting, the researcher confirmed agreement by 15 members (5 from each of the Upper, Central and Lower Lockyer) to participate in the study, gave instructions and briefed on ethics considerations, provided disposable

cameras, and explained how to return the cameras for processing. Participants were asked to take at least one photo for each of the following 5 themes:

- Capture images that describe how you use water
- Capture images that illustrate sustainable water use
- Capture images that describe issues about water on your property
- Capture images that describe issues about water in your catchment
- Capture images that illustrate what water means to you.

Respondents were given 3 weeks in which to take photos and return the camera in a self-addressed stamped envelope. The processed prints (numbered) were taken to the interview to be used as prompts and support.

A semi-structured interview instrument was developed using open ended questions with prompts and probing questions, providing the ability to clarify points and probe more deeply about underlying views and reasons. This technique was chosen for its appropriateness for extracting in-depth information. It offers common cues yet constrains interviewees as little as possible in presenting their perceptions (Robson 2002). Input into development of the questions was sought from LWUF and NR&M. Questions were identified to probe three areas of 'interests': process – key features of a good decision-making process; content – views about aspects of water management and water reform; and relationships. Wording design incorporated some concepts from ADR and appreciative inquiry. At interviews participants were asked to choose a few key photos which addressed the above issues and to discuss them. Interviews averaged about one hour in length and were audio-taped.

Stage 2 – sharing views about 'process' and establishing a decision making framework

After interviews with LWUF were completed, a mini-workshop was held at a regular LWUF meeting where participants were invited to brainstorm "what makes a good decision making process", with responses recorded. The researcher then provided examples of how she had interpreted interview responses related to decision-making asking "this is how I saw it; can you think of another way a person might interpret this?" in order to broaden and clarify interpretation. Other views about ingredients of good decision-making processes from the literature were also presented. Participants were then asked how they would like to use the information. Two members volunteered to work with the researcher to put a proposal to the next meeting about where in the process their values and interests could be taken into account. The results were adopted at the next meeting.

Results to date

All 15 LWUF members followed through to interview, with one providing their own previously taken photographs about water due to time constraints. A high engagement rate was expected as the photo technique is appealing and interactive and it was expected that LWUF members would perceive practical

benefits from the research. Other (non LWUF) respondents similarly used the cameras, with 2 respondents taking photos with their own digital cameras and emailing the photos to the researcher. This might be a time and cost-effective approach for future studies, provided participants have access to a digital camera. Two decided not to take photos for lack of time and they both felt they could provide responses without photos.

Observations of interviews suggest that the photovoice method is proving to be an extremely useful technique. First, there appeared to be little inhibition in expressing often emotive views about water management while being audiotaped during the interview. Secondly, it provided provocative images that demonstrated and clarified points; and third, many of the interviewees said they appreciated the method and enjoyed taking the photos. Each respondent was left with a duplicate set of prints in appreciation of their participation. It is expected that the method will be an effective mechanism to share disparate views in the focus group.

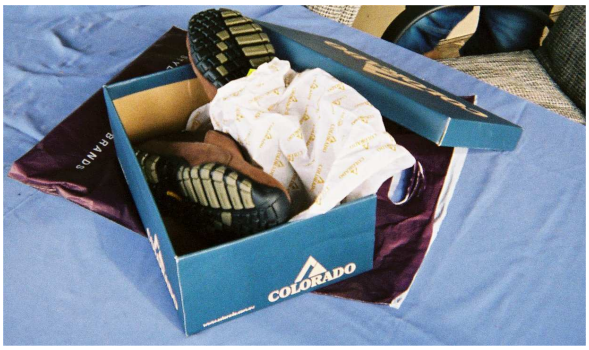
Preliminary content and thematic analysis of interviews have been undertaken and a few illustrations are reported below under the headings of content, process, and relationships.

Interests and values about water management - the 'Content'

The following is from the photovoice interviews.

In response to the question about *what water means to you*, almost all of the irrigators interviewed referred to the economic benefits of water via their livelihood and local employment. Photos of crops were used to illustrate the material benefits resulting from a good crop. Some put it dramatically - "it's the difference between surviving and not surviving"; "it simply means you're either here or not here". The photo of running shoes poignantly illustrates the effect of the diminishing water supply on some irrigators. A couple of other respondents showed photos of children and referred to "our livelihood and our children's future"; and water as "the gift of life".

"Prosperity"



Water means "I am able to buy a new pair of running shoes this year"

In contrast, non-irrigator respondents many of whom live outside of the valley, referred to the triple bottom line aspects of water and water providing a certain lifestyle and quality of life, with photos of gardens and construction materials which were developed using water.

Clearly there are differences between the way these two sectors communicate about water which will need to be taken into account when developing a process to resolve any differences. While we expected that irrigators' interests would mainly be related to private benefit or self-interest and non-irrigators would refer to public benefit, the results were quite mixed. Certainly irrigator interests were represented as powerful and basic human needs for economic well-being and security. But non-irrigators also referred to how water contributed to their personal quality of life (ie a private benefit). However, several irrigators explained how ample water meant good crops resulting in a community benefit for employment on farm, in packing sheds, and in marketing – illustrating this with photos of a full parking lot on a property with adequate water versus an empty parking lot on a property where there is a water shortage. Photos of children also demonstrated the concern for intergenerational implications of water. This sentiment was richly expressed with the photo of a dry creek bed with the respondent nostalgically stating that children are unlikely to ever be able to swim in it as in the past.

"The creek down there is dry. When I was in high school I remember that creek being so deep that we could swim in it. You couldn't touch the bottom. There's nothing like swimming in a creek. My kids will never get to experience it."

While there were differences in issues expressed by irrigators living in different parts of the catchment, there was one theme which predominated throughout – concerns about the water shortage and the need for a secure reliable water supply in order to stay financially viable. This theme was evident in response to questions about sustainable water use, issues on the property and in the catchment.

"That's bare farm. This should have something in it by now but we haven't got the water"

Concerns about the dwindling water supply were illustrated by irrigator respondents with photos of land ready for planting but left bare due to lack of water; cows grazing at the centre of a water supply dam; and dry creek beds. The water shortage was attributed to a number of contributing factors – many acknowledged it was due to overuse of the aquifer by too much extraction for irrigation; although some claimed it was the drought, was not different historically from

other occasions many years ago, or was due to silting of creeks preventing aquifer recharge. There were conflicting responses about whether water was being used efficiently, with some irrigators criticising neighbours' practices or lamenting that they couldn't afford more efficient equipment, and others insisting there was no wastage in the valley as "it would be suicide". Government participants attributed the cause to inefficient water use and overuse of the aquifer which affected both groundwater and surface flows – "too many people wanting a share of the resource".

It is expected that these photos will trigger good discussion and critical reflection in the LWUF focus group about causes of decline in quantity and quality and the need for good quality data, but more importantly they can be used to establish common ground, a positive reframing of the issues, - the need for a secure reliable water supply - and to provide the basis for a problem-solving and consensus approach in which no blame needs to be laid in order to move forward.

'Process' interests

The following provides some examples of interests and values from the interview data about decision making processes. Some of the more evocative quotes are presented here to illustrate perspectives about features of good decision making processes.

The need for hard facts

> re recycled water - "it's like asking if you want an ice cream and you don't know if it's chocolate – we are getting asked a question" …but we don't know anything about… the critical things we need to know, like the cost; what crops we can use it on; if we have to store it; the timeline it might be available"
>
> .. in the Central Lockyer the government has spent millions and it's all good information and it's accurate and it's cost us nothing to get that information – it's in everyone's interest to get that information in the other areas"

Valuing practical experience

> "when water started to drop we got more trickle …. the more you use it the better you become at it" … we had a "huge learning curve"
>
> "I had some uni people come here when we had water in the creek, over 5 years ago … they were worried there was no life in the creek; they'd go down and sit by the creek…(and asked) were there shrimp in the creek? … I found a piece of ¾ pipe lying there in the water – I could see where he'd been going in – and I got them a shrimp"

Need for time

> "no matter how heady I feel about the issue, I'd always sit on it a little while to see what evolves in my own opinion … and look at it from a lot of directions…patience and time are probably key things for my decision making"
>
> information "comes in a one big rush and that's the worst way to go about it" … "it takes time – it's a lot of information over a short time…. that hour out of a whole year is nowhere near enough to understand what is going on"

Communication/consultation/information

> "XX went around to every farm in the area when he was doing his management areas in the Central Lockyer – you can't complain about that for community consultation – farm by farm - as part of the community reference group here he interviewed each farmer"

> "People at farm level are starved of information – there's oceans of it out there but making sense of it is virtually impossible for most blokes, they just look at me and say how do you make sense of this garbage."

Government officers also recognised this difficulty in communication and sharing information, with -

> "Unfortunately there's a bit of a communication gap between the way a professional … delivers information about water reform and the form in which some of the irrigators need to receive information about water reform"

While government officers described the benefits of consultation and compromise within a framework (given the legislation), irrigators raised concerns about being consulted when decisions had already been made on the big issues.

Additional features of a good decision making process that were identified in interviews included:

- having agreed rules and goals
- listening
- reflecting individual needs and different perspectives
- showing respect and care
- good leadership that helps people accepts others' points of view
- valuing technical experience (eg from extension officers)
- working collaboratively
- the need for a dispute resolution system

The (Stage 2) workshop focussed on 'process' related interests. It commenced with initial brainstorming about *What makes a good decision-making process?* One of the key themes raised in different ways was about information –having and understanding all facts and information; giving balanced consideration to the facts; and understanding the consequence of decisions. Related to this was criteria that could be used to assess information - financial viability, triple bottom line, political ramifications, and common sense. Having clear objectives and outcomes were also listed.

In conjunction with the two LWUF volunteers a practical checklist for a decision-making process about water to be used within the LWUF and in the LWUF dealings with others, such government and other groups was developed.

Relationships

Three values affecting relationships - trust, respect and care, and equity - were evident from the preliminary analysis of interview data. Mistrust between government and irrigators; and lack of trust between areas within the catchment were matters of concern. Some spoke of trust having improved between community and politicians – "they know at the end of the day that what we disagree on, I will not publicly humiliate them and there is actually a trust there".

Values about respect and care were illustrated by statements such as: “all we’re asking for is a caring government” ; “the reason it [LWUF] worked well is that there are patient caring people involved”; “we need to respect the thoughts and values of these [community minded] people”. Farmers’ suspicion that they weren’t being treated with respect was summed up by the statement “they think farmers are second rate”.

Another clearly identified value was that of equity. Those parts of the catchment which are part of the Central Lockyer Valley Water Supply Scheme - which supplies surface water users, a pipeline and additional groundwater recharge in a ‘benefited’ groundwater area, contribute financially to the Scheme and are metered to record amount of surface water and groundwater used. In the larger portion of the catchment which is not regulated, and comprises approximately two-thirds of irrigators, farmers are presently allowed to access groundwater at no cost (except for their private infrastructure expenses). Those who are regulated felt they are discriminated against, having to pay for water supply schemes from which they have had very little or no water for several years - “every farmer [in the Central Lockyer] expressed the same sentiment to [the government officer], why are you doing it to us and not to other groups”. Yet they compete with vegetable growers in other parts of the Lockyer who have access to ‘free’ water –“we’re competing in a marketplace that has no soul”. Regulated growers felt that non-regulated growers, especially those upstream are “using our water”. The photo of a disused pump was provided as an illustration of the perception that someone upstream is “mining the aquifer”.

“ - it’s been in 10 years and 5 or 6 years since we used it….”

If some of the process principles referred to previously, such as “reflecting individual needs and different perspectives”, a consensus building approach and some specific ADR techniques can be adopted by LWUF, then there is a greater chance that conflict based on these deep-seated values about trust, respect and equity will be avoided and relationships within the valley will be maintained or improved.

Conclusions

This paper has focussed on one aspect of this research study – the use of the innovative photovoice qualitative methodology to identify interests and values that need to be addressed in a community decision making about water management. The preliminary analysis of photovoice interview data is intended to provide a powerful illustration of the different values and interests within the LWUF irrigator group and between irrigators and non-irrigators. As a participant action research project the study will assess how these differences are respected and addressed and provide capacity for addressing conflicts

that arise in the course of community engagement for Moreton Water Resource Planning and related water decision processes.

Implications for community engagement processes

This study expands the application of qualitative methodological tools to: elicit stakeholder values and interests; and contribute to conflict prevention and resolution in the context of community engagement. It will contribute to theory and knowledge on consensus building by identifying how values and interests can be built into a community decision framework comprised of principles, improved processes, and certain skills and techniques. It will contribute to community engagement evaluation and adaptive management theory and practice through application of participant action research techniques to assessment of content, process, and relationship interests in decision making.

It is expected that it will contribute directly to practical outcomes in a community engagement process that manages rural water conflicts and addresses trade-offs between environmental and consumptive uses of water, and public and private interests in the two case study areas. It will provide a basis for broader application geographically and to other potential natural resource management multiple party conflicts and thereby minimize conflict in processes of high priority and cost to governments and community, both globally and within Australia.

Keywords

photovoice, values, interests, conflict resolution, consensus building, community engagement, water management

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