



**Australian Government**  
**Bureau of Rural Sciences**

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## **Discussion Paper**

# **Water for what? Productive and environmental values for water**

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*Understanding social values*

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## Executive Summary

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### Introduction

Divergent values for water are often a key cause of conflict in negotiating changes to water allocations or access. Although many would agree that social values are important for understanding responses to water allocations, there is little information available as a guide for policy about the way people construct their values and the influence this might have on acceptance for changes to water access or allocations, particularly in the rural context.

### Purpose of this paper

The purpose of this discussion paper is to synthesise the key points from two reports prepared for the Department of the Environment, Water, Heritage and the Arts – *Assessing a community's capacity to manage change: A resilience approach to social assessment* and *Water for what? Productive and environmental values for water*. The reports investigate the values people hold for water and how this influences responses to changes in access to and allocations of water and include three case studies. It is recommended that this discussion paper is read in conjunction with these two reports.

This discussion brief also considers the findings from three case study investigations in light of possible ways that a social resilience assessment framework could be applied to improve practice for engaging communities in changes to water resources access and availability.

### Approach taken in the study

One of the ways that values are traded-off is through stakeholder-based statutory water planning processes. Using a case study methodology, a range of social and institutional characteristics and processes were identified that helped or hindered the negotiation of competing values in the context of rural water planning and allocation changes in which intense value differences were apparent.

### Case study findings (summary)

The ability to incorporate a range of competing values and to negotiate changes to water allocation, access or availability in these cases appeared to be related to the following:

- the way stakeholders and the community were engaged in the change process
- the diversity of values and interests that were represented and included
- understanding of the objectives and scope of the engagement process
- capacity and commitment of lead agencies to facilitate and carry out consultation and the capacity of stakeholders to participate
- transparency and frequency of communication between the parties
- best use of scientific and technical information
- the policy and institutional framework for

compensation and assistance

- the role of key political figures.

### **Understanding social factors influencing water values**

One of the key needs is for greater transparency of the trade-offs being made in water allocations; that is, weighing up of the benefits and risks of proposed strategies in decision-making processes (Hamstead et al 2008). While it is unlikely that a one-size-fits-all method for recognising and negotiating values will be possible, these preliminary themes provide a starting point for understanding the broad social factors influencing trade-off of values in rural water negotiation processes.

### **Community resilience**

A particular gap in water planning appears to be developing an understanding of *community resilience* to changes in water access or allocations (Hamstead et al 2008). Community resilience may be an important element in managing change, particularly the ability to recognise and negotiate competing values. However, processes for assessing and enhancing community resilience are not consistently applied in statutory water planning.

### **Way forward**

A community resilience assessment approach is scoped as part of this study that could be applied in water planning (Maguire and Cartwright 2008). This framework is aimed at developing an awareness of the resources and the abilities of a community to cope with and manage change in partnership with governments. This discussion paper scopes the potential applications of a resilience approach to social assessment in light of the key findings from these case study investigations. These applications could contribute to improved processes for managing changes to water access and allocations in partnership with a community.

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## Introduction

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There is an increasing emphasis on achieving environmental sustainability in the use of water resources<sup>1</sup>. The National Water Initiative (NWI 2004) sets out the major changes that would be needed in the way water resources are managed in Australia to achieve sustainable water resource use, including the return of all currently allocated or overused systems to environmentally sustainable levels of extraction and giving environmental water statutory recognition. The initiative describes management practices and institutional arrangements that identify environmental water outcomes and the establishment of environmental water managers (NWI 2004). The Water Act 2007 reaffirms this broad framework and sets out how these objectives are to be implemented in the Murray-Darling Basin through the preparation of a Basin-wide water resource plan that defines sustainable limits on diversions of water. Given that many water systems are rated as overallocated or overused, trade-offs between environmental and productive water uses and underlying values, will be needed to achieve the necessary diversion reductions. An important mechanism for such changes will be to engage the wider Basin community in developing the Plan and in managing the Basin's resources.

A significant challenge will be to achieve these changes in practice in the context of competing values and uses for water, particularly at the Basin level and in the context of the sustained drought across much of south eastern Australia. This is because a diverse range of social sectors—including stakeholders representing organisations, 'user' groups and members of the wider community—have differing values, attitudes and beliefs when it comes to water and its uses. This means that any changes made in pursuit of sustainable water use goals may be both controversial and contested. A key question for policy makers is how to elicit and interpret public values in the context of changes to water allocation and use and to incorporate this information into policy to build support for change.

## Water values as a source of conflict

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One of the key reasons why it is worthwhile investigating social values for water is the insights this information can provide into the reasons for conflicts over water. Understanding the causes gives us some hope of preventing or managing conflict and can open avenues for policy intervention.

Some researchers have explored the nature of value conflicts in water resource management (e.g. Hoekstra 2000). Much of this commentary identifies causes of conflicts over water as not simply about its physical properties (e.g. variability) and multiple uses, but also highlights the myriad of different social and cultural frameworks that people overlay onto water (Navarro-Carrascal 2006). Indeed, conflicts over the use of water resources are often ascribed to the presence of conflicting

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<sup>1</sup> An environmentally sustainability level of extraction is defined in the National Water Initiative (NWI) as the level of water extracted that, if exceeded, would compromise key environmental assets, ecosystem functions and the productive base of the resource (Schedule B(i)).

values and interests. Nie (2003) for example points out that such conflicts may be distributive conflicts about sharing water resources or about the rules defining who can use water, when and how (Nie 2003).

Part 1 of this review identified multiple competing values and perspectives when it comes to water, each with its own logic and underlying philosophy. While traditional and economic value perspectives have held importance in the past, there is increasing consciousness about incorporating a range of other value perspectives into water resource management, including ecologically-based, social and cultural perspectives. The presence of multiple perspectives highlights the complexity that characterises water resource management negotiations.

The values people hold for water may arise from many complex and inter-related factors, including education, experience, stage of life, relationship to the water source, seasonal changes and the reliance on water for a living – although it is less clear what the importance of these factors are in any specific situation or how they influence people’s responses to changes in water access.

## **Institutions for negotiating water allocation changes**

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Institutional frameworks provide the conditions that structure and inform the processes of interaction through which changes to water management are negotiated. There are different institutional mechanisms by which competing values may be traded-off—or negotiated—in practice. These are commonly categorised in terms of public (government) allocation, market allocation and participatory planning processes for water sharing. Each entails different treatment of the concept of ‘value’ particularly in terms of the way that values and beliefs inform human behaviour. While the public sector has tended to play a significant role in procuring and distributing water in the past, markets for trading water rights and participatory planning approaches are becoming more common for negotiating about water.

The widespread implementation of participatory processes for water planning in Australia is recognition that resolving problems of resource scarcity requires practical ways of addressing the interests and values of diverse groups. Participatory processes usually involve delegating a degree of decision-making responsibility to non-officials. Community participation is often required as part of statutory water planning processes. Such processes have the potential to generate a sense of ownership and commitment to the outcomes, to enhance transparency and legitimacy.

The concepts of distributive and procedural fairness and contextual conditions, emerge as important for understanding why conflict arises in negotiating water sharing and how better processes for change could be encouraged. One of the key findings from Part 1 (literature review) was that involving stakeholders and the community in the change process is critical to how these policy changes are received by the public (Nancarrow et al 1998a, Nancarrow et al 1998b). A key issue identified by Hamstead et al (2008) was the need for greater transparency of the trade-offs being made in water planning, that is, weighing up of the benefits and risks of proposed strategies in decision-making processes. This literature suggests the importance of transparent, consultative and representative processes for decision-making to facilitate negotiation of competing values for water.

## **Water value negotiation in practice (empirical work)**

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In order to better understand how value trade-offs are negotiated in practice, it was decided to investigate case studies of participatory water planning in Australia<sup>2</sup>. The three exploratory case studies of water allocation changes provided considerable opportunity to examine the development of agreement or conflict and the negotiation of value differences by different stakeholder groups related to sharing of water resources. Three case study experiences from different jurisdictions in Australia were investigated, including the:

- Namoi groundwater allocation process, New South Wales
- Lake Mokoan ‘return to wetland’ initiative, north eastern Victoria
- Daly River catchment and water planning process, Northern Territory.

These case studies were chosen because they represented a range of different experiences of water allocation changes in Australia. Information was collected about each case using publicly available documents as well as nine key informant interviews with stakeholders directly involved in the planning process. Interviewing key informants allowed more detailed insights into the social value perspectives, motivations and the kinds of informal social interaction that would enable value trade-offs to be made in practice. The key informants included water users, government representatives and members of the community.

A comparative analysis of the case studies evaluated the major drivers or issues that appear to have influenced the outcomes of the case or helped to understand what happened. The sorts of aspects that were considered in the analysis reflected the concepts of *procedural*, *distributive* or *contextual* issues that emerged from the literature review (refer to Part 1 Section 5 ‘*Participatory planning processes*’, in Stenekes et al 2008). In some cases, allocation changes remain on-going. Therefore it may be premature to identify any substantive ‘outcomes’, such as a water sharing agreement, a monitoring regime or compliance arrangements. However, it is useful to document these experiences and to evaluate the aspects that appear to be influencing the process currently.

There is some guidance in the literature as to the broader ‘social goals’ against which water planning processes can be evaluated, such as, lowering of conflict, the development of trust and any informal agreements reached (Beierle 1998; Beierle and Konisky 2000). These experiences are also social learning processes from which the participants can learn about the perspectives of others (through ‘value-reflection’) (Mostert 2007; Mostert et al 2007). Drawing on these concepts, a number of descriptive aspects of case studies were examined, including the local context and history, policy and institutional context, stakeholder value perspectives and the process of public and stakeholder involvement.

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<sup>2</sup> For the purposes of this study, we considered ‘water sharing negotiation’ to include any decision-making process, initiative or planned change to water access, allocation, distribution or sharing between resource users, including the environment, that involved stakeholders and the public.

Several common themes and issues emerged from the case study analysis about the institutional frameworks structuring these processes and their significance for the tensions, delays and difficulties encountered.

## **Key issues and themes from case studies**

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A comparative discussion of the similarities and differences between the cases is summarised in this section<sup>3</sup>, and is then discussed in light of the potential ways that a resilience approach to social assessment might have helped in each instance.

The resilience approach<sup>4</sup> has many potential applications within the water allocation or planning contexts. It could be a basis for engaging communities about change as a stand-alone process or as a tool within a stage of the water planning process (e.g. to evaluate the socio-economic impacts of different water allocation options). Community confidence in the approach and its outcomes is likely to be enhanced if it is conducted by an independent organisation.

The approaches described below point out broad examples of the many ways that a resilience approach might strengthen responses to the changes in water access, but does not mean to imply that aspects of the resilience approach were not undertaken in these particular cases.

### **Local place and history**

One of the features to emerge in the study was the significance of the local place and history of each area for understanding how the water problem emerged. For example, each locality had very different natural endowments of water and thus the water resource availability issues varied.

In the more developed catchments in the south east of Australia, a key driver for water resource use stemmed from agricultural, community and industrial development pressure and expansion. Natural resource use was a foundation of prosperity in each of these regions. Similar pressures for opening up access to water resources from land clearing, groundwater extraction and irrigated farming were apparent in all the case studies. However, in the two south eastern case studies in Victoria and New South Wales, overallocation or overuse of water resources was exacerbated by the sustained drought conditions. The Daly River case in northern Australia, however, illustrated a different issue about the limit to resource development that would be necessary in order to protect the biological and social (Indigenous) values in this tropical river catchment.

If a community resilience approach had been applied in these cases, the historical factors which had led to water resource development could have been explored in greater detail as part of a community learning process. The benefit of collecting, organising and evaluating this type of information may have been a greater understanding of the drivers of dependence on the resource as well as potential conflicts between groups in the community about changes and strategies for managing the change.

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<sup>3</sup> To guide the reader, a summary of comparative features of the three case studies is provided in Table 1.

<sup>4</sup> The resilience approach referred to in this discussion is developed in a related report by Maguire and Cartwright (2008) '*Assessing a community's capacity to manage change: A resilience approach to social assessment*', BRS, Canberra.

A key issue for example may have been the history of reliance on water and what this means for understanding the current vulnerability of different sectors of the community to changes in water access. For example, the values and priorities of ‘active’ irrigators in the Namoi community and economy differed from those of ‘sleeper’ irrigators.

Historical conflicts or differences in the community can also impact on the way a community functions and responds to change (Maguire and Cartwright 2008). There are likely to be more vulnerable groups within a community who may need special consideration (e.g. those in remote areas, with high debt, unemployed, low access to services). Indeed, some groups are more likely to be impacted by any potential changes than others, while the capacities of the groups to manage change will vary. In the Daly River Region, for example, there are many Indigenous groups in the area who may be more affected by changes to flow regimes than others because of their reliance on the river and groundwater systems.

Raising awareness of the internal community structure or the community history may have revealed key lessons and pathways for managing changes to water access, or minimising conflict between groups. For example, if significant changes were experienced in the past (e.g. droughts, booms, population change), how did the community handle them and what strategies could be applied to the current situation for managing water allocation changes?

## **Drivers for initiating water allocation changes**

There were several different kinds of drivers in the case studies that appeared to lead to the initiation of changes to water allocations. These included:

- the recognition of the impact of natural resource use on riverine environments at the state and national levels
- increasing community awareness of environmental issues affecting river health.

Thus the compelling drivers for water allocation changes emerged out of Australian Government and state government water policies that were concerned with the overallocation of water resources and consequent degradation of the natural environment. Primary amongst these was the 1994 Coalition of Australian Governments’ agreement and the Murray-Darling Basin Cap on diversions that followed. However, it could be argued that these drivers could not have led to a change process without recognition of water use problems at the local level.

A resilience assessment approach may have promoted a greater awareness of the need for the changes in water allocations among irrigators as well as the wider community. A greater understanding of the need for change may have encouraged support of the changes sought. In the Namoi case, it appears that a social assessment process was actually initiated early on (Nancarrow et al 1998a; Nancarrow et al 1998b; Turrall and Fullagar 2006), which was effective in raising awareness of the problem of over allocation of groundwater and the widespread support for protecting river health through environmental flows. However, it is unclear to what extent these findings were integrated into the statutory water planning processes.

## **Stakeholder and community engagement**

One of the most important issues in the case studies was the extent to which trust-building and developing agreements on the use of water depended on stakeholder<sup>5</sup> and community engagement. Two common themes articulated by government representatives in these case studies was the need to encourage the acceptance of water use changes and engage users in compliance and monitoring. However, it was also about obliging the community to assume a greater degree of responsibility for their water use. For these reasons, there was consistent emphasis by lead organisations on the use of stakeholder committees, as well as wider community engagement, as a way to implement these changes to water use.

The case study experiences suggest there has been a change in the degree of consultation expected, and also in the range of legitimate values and interests recognised in water allocation planning processes. Legitimate values and interests increasingly include social and cultural values, ecological values and Indigenous values for water, beyond the more traditional development and economic values. However, there has been varying levels of capacity and success in engaging the diversity of stakeholders, communities and perspectives in water allocation changes.

Establishing a partnership between governments and communities is a fundamental part of the resilience approach to social assessment. If stakeholders and the community are engaged from the early stages of the change process, the level of uncertainty about the change may be reduced and the community's resilience to change may be enhanced (Maguire and Cartwright 2008). This is because the ability to adapt to change depends on people's understanding of the issues and impacts the changes will bring. Part of the rationale for engagement is that people in the community are often able to provide the best understanding of issues and vulnerabilities within their own community as well as its resources and capacities for adapting to the changes.

## **Including the diversity of interests and values**

Committee processes were a key decision-making structure for water sharing in each case. It appeared that how the diversity of interests was represented on the committees for advising on water allocations was a common theme. The membership of these committees was drawn from a range of different interests and/or expertise groups, including government, irrigator, environmental, stock and domestic, recreational and Indigenous groups. Although the legislative language defining the criteria for membership varied between jurisdictions, the community representatives tended to be from the local area. There was less evidence of broad representation from across the water system or at the catchment level. In the Namoi case, for example, the surface water and groundwater committees were separate and there was little evidence of integrated management of these two systems.

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<sup>5</sup> The term 'stakeholder' (Mitroff and Mason 1981) is often used to denote the more organised interests, ranging from those potentially influencing policy or the beneficiaries of policy (e.g. government representatives, non-government organisations, industry associations, community groups, environmental advocates).

One of the issues this raises for water planning is whether representation on water planning committees could be widened to include community and industry members from other geographical, river reach or catchment sub-systems. This may overcome some of the integration issues in complex inter-connected systems such as those involving surface/groundwater interactions, or upstream/downstream sharing issues in inter-connected systems like the Murray-Darling Basin. In some cases, such as the Daly River planning process, there were more attempts to include a range of stakeholders representing interests and values beyond an immediate local area and from different geographical areas in the catchment (e.g. groundwater and surface water users, upstream and downstream etc). However, a particular challenge was including Indigenous language groups into the process since a diversity of ‘voices’ were evident (more than 10 different language groups were present in the region). This experience suggests that it is much more complicated to involve Indigenous interests than other stakeholders. The development of appropriate protocols and arrangements for Indigenous engagement in water resource planning is likely to be a priority.

One of the advantages that a resilience approach may have provided is a better understanding of all the stakeholders who are concerned with, impacted by or interested in the proposed change earlier on in the process. One of the key issues was the varying level and intensity of interest of different groups and the different degree of influence they had on the outcomes.

An initial scoping of issues<sup>6</sup> and a stakeholder analysis as part of a resilience approach would have assisted in identifying key representatives early on in the process. The advantage of identifying all affected or interested individuals and groups would be in recognising that they have different needs, interests and values. The stakeholder analysis could be done in conjunction with the community engagement process and might focus on:

- Who is the ‘community’ – or sectors of concern? What are the existing relationships between these groups?
- What changes are likely to arise for the community?
- Who is likely to benefit, have an interest in or be impacted by the change?
- What are the characteristics, concerns and needs of these groups?

An understanding of the impacts of change on the different groups in the community flows more easily from this. The stakeholder analysis may also have helped to anticipate the potential conflicts arising between sectors in the community.

## **Expectations about purpose and scope**

There were different expectations as to the purpose of consultation among the stakeholders in these case studies. Views on the purpose of the consultation differed markedly between the water agency and water users in some instances. For example, the Lake Mokoan steering committee was set up to

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<sup>6</sup> Part of an issues scoping stage may include defining the nature of the issue or problem at hand and identifying the *whole* system of concern (physical systems e.g. catchment/river/groundwater systems, as well as social and economic systems, e.g. communities / industries, at the local, regional or basin scales).

*advise* the Minister about future land use options, rather than to make a decision about whether or not to decommission the lake. A misunderstanding of the role of the committee led to frustration on the part of some community representatives who had expected to be involved in making decisions. In situations where the outcomes were already determined ahead of the consultation process, it could be argued that the social process was really about managing the social impacts of the decision, rather than about decision-making. This was particularly apparent in the Lake Mokoan case where the critical decision to decommission the lake had already been made. Similarly in the Namoi case, some irrigators reportedly believed that by being part of the committee, they would be involved in the formulation of the water sharing plans, rather than ‘providing an opinion’ (Kuehne and Bjornlund 2006). In all cases, the final decision about water or land use rested with the relevant state water minister. This confusion suggests that it is important that all the stakeholders involved are clear about the purpose of the exercise, the role of the stakeholder committee and how the outcomes of the consultation process will feed into the broader policy framework.

If the resilience framework had been applied there may have been more opportunity to interactively define or explore the nature of the issue at hand while identifying the process of change that is likely to take place. Part of this process would have been to clarify the purpose and scope of consultation with stakeholders and the community as well as how the outcomes would be received within existing policy and planning frameworks. If the purpose and scope were better clarified early on, it may have avoided the frustration and lack of confidence some participants had in the engagement process.

## **Capacity to participate**

The differing capacity of stakeholders to participate appeared to impact on the plans or decisions about water sharing. The Namoi and Lake Mokoan case studies show, for example, that there were very intense local interests among the interest-based membership on the management committees, which may have made these processes more adversarial. Water users in the Namoi were the only group who stayed the course from start to end of the committee process. Such an intense local interest base and significant ability to organise (e.g. advocacy; legal actions) suggests that these values were well-represented. Other stakeholder groups were less well-represented in these consultation processes for a number of reasons (e.g. Indigenous groups were not represented on the Lake Mokoan committee). It appeared that the financial and time burden prevented participation to the full extent in some instances. The capacity to participate over a significant period of time was reflected in the outcomes in the Namoi case in which there were ‘no provisions for the environment’ in the Groundwater Sharing Plan and a reversion to a ‘history of use’ principle for sharing between consumptive users. In the Daly River case study, the capacity of stakeholders to participate in the process was also a significant issue especially for Indigenous groups. In any case, the representation and distribution of interests had significant implications for the outcomes of the water sharing arrangements where agreements were reached.

Flowing from the stakeholder analysis would have been information about the capacity of each stakeholder group to participate. If a resilience approach had been applied, there would have been more scope to identify and assist the groups who needed resources to facilitate their participation in

the engagement process. For example, this may have included assistance for agency staff and planners in the lead organisations to develop the skills to facilitate and manage a change process, including community capacity building and conflict mediation skills. For other stakeholders and members of the community, skills in technical, scientific and economic analysis may have assisted in understanding the issues and evidence considered in the committee discussions.

## **Indigenous involvement**

A significant issue is Indigenous involvement in water planning and an increasing recognition of Indigenous values and uses for water in water planning. This suggests a change in practice compared with the past when Indigenous groups had almost no presence in water planning processes. Comparisons can be made across the case studies. It appeared that in the Namoi, Indigenous interests were represented on the committee, but there was no real translation into substantial outcomes for water access. Indigenous water access was flagged through native title provisions, but there were no native title rights defined in the local area. It appears that the more intense water sharing issues existing between consumptive users in the Namoi overshadowed those of Indigenous values for water. Complex issues of Indigenous representation were deferred in the Lake Mokoan case with the intention to develop a protocol for Indigenous engagement, and no Indigenous representatives were appointed on the Steering Committee.

These experiences contrast with the Daly River planning experience in the Northern Territory where there is evidence of a significant change in commitment to incorporating Indigenous values through meaningful representation on the Community Reference Group (CRG) and Daly River Management Advisory Committee (DRMAC). The Daly River experience illustrates the challenges of including and representing Indigenous interests in a change process. A key issue was accounting for the diversity of Indigenous language groups in the catchment where there are more than ten groups, as the representatives cannot speak for others' country. This process could be described as 'learning by doing' with the committee gradually learning about other's perspectives, interests and values. These experiences suggest that involving Indigenous groups was much more complicated than other stakeholders.

The existence of Native Title suggests that this issue is not simply about representing another 'interest' group, but about basic legal recognition of another set of property rights (Jackson and Morrison 2007). This suggests a new dimension to the question of 'who owns the water?' beyond the consumptive and environmental water uses.

What can a resilience approach offer for Indigenous engagement and representation? The resilience approach offers a better process for understanding the particular vulnerabilities of different groups within a whole community, and the resources and adaptive capacities that influence the community's ability to take action, and to mobilise resources for adaptation. There may need to be special consideration of the concerns, needs and differences within Indigenous groups. For example, part of the process could involve an exploration of who are the respected and influential Indigenous community leaders? How could they be incorporated into the process? Or it may involve devising, in partnership with these leaders, protocols for broader Indigenous engagement in consultation (Jackson and Morrison 2007). As the resilience approach is an ongoing process of building trust and

developing relationships, this would be an iterative learning process that would take place over a lengthy period of time. Developing and applying measures of resilience as part of the process could allow the effectiveness of these changes to be assessed over time.

## **Communication flows**

Communication within the committees and between members of committees and their constituencies emerged as a key issue that affected the progress of negotiation in all of the case studies. This was partly a result of the overlay of a stakeholder committee process over a technical and scientific knowledge base. There was a general sense that members of committees struggled to assimilate the complex technical, economic and scientific information about the water issue presented to them. By all accounts, there was significant time spent in explaining the knowledge basis for decisions to each other. Within the committees, the participants had to be much more explicit about the meaning of language and terms they were using.

There were issues of communication flows between the representatives and their constituencies. In some instances, differences were evident between the views of the committee participants compared with the constituencies they represented. For example, in the Namoi, differences of opinion about whose water it was and how it should be shared, emerged between active water users and other sectors in the irrigator community. There were also differences in views within government departments hosting the processes. By some accounts, participants felt personally conflicted about their own role (personal versus organisational values). This seems to be related to a 'distance' factor (Nancarrow et al 1998a) that was evident in the differences between the views of local departmental staff and those in the head office.

These issues suggest that a range of communication flow issues were associated with water allocation changes. While this is not the place for a detailed discussion of all these issues, a resilience approach to social assessment may have assisted in several broad ways. In some instances, representatives and groups wanted to defend what they thought was the right strategy or option without a true understanding of how the change would affect different people, groups or sectors in the community, or how it would affect the environment. In this context, debates about the facts sometimes became a proxy for value disputes.

Part of the problem was the limited knowledge of the risks and benefits associated with the change in the context of competing value priorities. Hamstead et al (2008) observe that greater transparency may be achieved if full public disclosure is made of how environmental and resource security objectives will be met by a Water Plan. For example, how much and how often is water needed for the environment? Who would be impacted by redirecting this water, by how much and what could be done to mitigate the impact? (Hamstead et al 2008). A full analysis of the social and economic impacts on different groups in the Namoi community may have assisted in the decision about which formula should be used for water sharing ('history of use' compared with 'across the board'). Independent information of this kind may have underpinned a more informed debate. Such information could be part of an overall communication strategy aimed at addressing the lack of transparency around the different value trade-offs being made in water allocations.

A communication strategy could be used as part of the resilience framework in order to target the on-going information needs and interests of different groups within the community about the change process. Such a strategy could be used in several different forums. The first is among stakeholder representatives on the water planning committees. We saw that these representatives had to be much more explicit about the language they were using and the special knowledge they drew on in the committee process in order to understand each other. The second forum is within the broader community. A communication strategy between the committees, their constituencies and within the wider community could improve understanding of the different information and value-sets decisions are being based on.

## **Policy and institutional frameworks**

Policy and institutional framework for compensation and losses appears to be an area that was not well defined in the earlier part of some water allocation experiences. A key strategic issue that came up in all the cases was the contested ownership of the water ('who owns the water?'). Although this issue was handled differently in the different jurisdictional contexts, there were similar patterns of groups not agreeing on basic rights and needing other avenues for dispute resolution. In the Namoi and Lake Mokoan cases, for example, there was the breakdown of negotiation processes with some groups heading to the courts over fundamental issues of access entitlements, the compensation owed (rights) and the reliability of supply (knowledge). The policy framework defining who owns the water and the compensation for 'loss' was not well defined from the early stages in the two south eastern cases.

## **Role of key public figures**

An important feature influencing the outcomes in the two south eastern cases was the involvement of senior organisational and political figures in negotiating disputed property rights and in decisions about compensation. The tendency was for these issues to be negotiated in the public arena (i.e. through media, parliamentary or legal channels) as the issues arose, and were resolved largely outside the statutory planning frameworks operating at the local level. This suggests the need for a comprehensive framework for adjustment to be established at an earlier stage to take into account local and regional social and economic impacts of the entitlement changes. These conflicts may have been resolved more easily if these expectations had been addressed earlier in the consultation process.

The transparency of decision-making has already been emphasised as a key issue that emerges for building trust and community confidence in change processes (Hamstead et al 2008). Senior public and organisational figures are key stakeholders in any water allocation change process. Therefore, there is a need to incorporate representatives from different levels of government into the change process from early stages. Ideally, this would also involve clarifying the policy framework for adjustment assistance, how compensation will be estimated and the criteria for awarding it.

The resilience approach to social assessment could be used as a strategic policy tool at a regional or national scale to assist in identifying areas of priority for government intervention early in this process. If developed further, the framework could point to measures of resilience that identify the

capacity of communities and industries to adapt to changes in the availability, access or allocation of water. These social and economic measures of resilience can be integrated with biophysical information to identify communities and industries resilience to changes in water availability (Maguire and Cartwright 2008).

## **Social learning**

The considerable time taken to resolve intense interest and value based differences is another feature of these case studies. In each case, the processes were iterative and took between two and 12 years. Despite the conflicts and limitations evident in the stakeholder and public involvement processes, it appeared to provide significant social learning opportunities that helped build ‘provisional’ compromises on water sharing. Social learning in these cases should be seen against the backdrop of significant changes to the policy and institutional context of practice, including the national and state water reforms. As we have seen, this broader context was important in shaping the process of stakeholder engagement in the case studies, particularly in the establishment of the local and regional planning frameworks through which stakeholders could negotiate water sharing arrangements, guided by statutory objectives for environmental flows and the introduction of water trading systems. The ‘changing goalposts’ in the institutional context added to the considerable time taken to resolve the differences.

The broader context of these case studies and the water reform processes has been the drier conditions across much of Australia. This has made the water allocation changes even more contested and pressured, with drought being experienced to a different degree in each case.

The resilience framework emphasises learning from experience as it recognises that change is inevitable because communities and the environment are dynamic, interconnected systems. An appropriate monitoring and evaluation framework could be built into the process from the start using measures of resilience developed within the stakeholder process. If applied across jurisdictions, a resilience assessment approach could formalise the learning in one locality and assist in applying these lessons to other localities.

## **A ‘partnership’ approach for managing water allocation changes**

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An important question that arose through this comparative analysis is whether locally-based water management committees are the right institutional framework for resolving intense value-based differences? It can be seen that in several instances people struggled with these issues in this institutional framework. One of the findings was that wider regional interests are not being included and translated into planning outcomes on the ground. There are a range of broader public interests at stake, for example downstream interests and environmental water, however local interests seem to win out over broader public values of intergenerational equity, sustainability and biodiversity.

The findings of this comparative case study work suggest a partnership approach between governments and communities is likely to be an important element in managing and enabling communities to adapt to changes in water access. The appropriate scale at which this consultation or

engagement should occur remains to be resolved. However, if developed the resilience approach to social assessment that is suggested in this discussion paper, could provide a framework for social assessment of the capacity of communities to manage changes to water access and allocations in partnership with the relevant community. This approach can assist in identifying opportunities for promoting resilience at the local level.

## **Concluding remarks**

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This brief discussion paper has identified key issues and features for understanding the drivers and constraints influencing outcomes of water allocation changes in three case studies investigated, including:

- the involvement of the broader community from early on in the process about key social, economic and environmental issues
- recognising the importance of competing values and interests about water (e.g. expectations about property rights and structural adjustment)
- ensuring adequate stakeholder representation with a diversity of groups and values
- the capacity and commitment of lead agencies to facilitate and carry out stakeholder and community consultation (particularly experience and skills in dealing with significant local conflicts)
- developing partnerships and formal agreements between users and governments for building understanding and trust
- ensuring that committee processes are well resourced (e.g. attendance, adequate financial assistance for committee processes) and have clear scope and goals
- incorporating best available scientific, social and economic information about the impacts of the changes and the alternatives
- building interpersonal trust and respect within the stakeholder committee and encouraging communication and learning between representatives, their constituencies and the wider public
- learning across jurisdictions (state, regional) and ensuring that a policy framework is in place early on, e.g. structural adjustment policies
- the cultural shift within lead organisations towards inclusion of a wider group of stakeholders and broader knowledge base into the change process (e.g. Indigenous)
- the role of senior public figures
- allowing enough time for the community to adjust to new arrangements.

The social assessment approach presented in Maguire and Cartwright (2008) draws on the concept of resilience to propose an approach to managing changes in water allocation and access. The resilience approach identifies the resources and capacities that a community can utilise to overcome some of the problems that may result from change (as summarised in the list above). This discussion paper outlined some of the issues arising in case study investigations of water allocation changes, and discussed these in light of the possible ways that a resilience approach to social assessment could be applied to improve practice. While the approach offers some avenues for improving

practice it would need to be further developed and validated in a variety of applied contexts in order to understand its full potential.

The approach recognises that partnerships between governments and communities are likely to be the most effective way to implement the social assessment process in the context of water allocation changes. The use of the approach can promote understanding of resilience at the local level and enhance the skills of landholders, community groups, industry groups and governments in the sustainable management of resources (Maguire and Cartwright 2008). The resilience approach to social assessment offers ways to support the change process and negotiate potential conflict.

**Table 1: Case study comparisons - water planning / allocations structures and processes (Stenekes et al 2008)**

Case study	Water availability problem	Driver(s) of change	Institutional structure	Stakeholders on committee	Purpose	Major disagreement(s)	Social process / issues	Conflict resolution	Time frame
1. Namoi ground water reallocation, NSW	Yes: significantly over-allocated ground-water system.	COAG agreement / MDBC Cap and NSW Water Sharing Legislation.	<b>Groundwater Management Committee</b> membership based on interest representation. Government appointed. Final decision with NSW Water Minister.	Irrigators, Government, environment, Indigenous, town / stock and domestic users.	Prepare groundwater sharing rules.	Share of groundwater (consumptive/ environment). Reduction formula. Compensation for entitlement loss (value of water property rights).	Learning experience (lessons applied in other catchments in the state). Resourcing issues (e.g. high turnover). Representation. Communication flows (local-central agency). Expectations about role of committee.	Property rights disputes: courts. Role of organisational figures in brokering agreement (structural adjustment assistance offered).	1996-2008
2. Lake Mokoan, Victoria	Yes: lake is part of fully allocated Goulburn-Broken water system.	Living Murray/State White Paper – obligations to return environmental flows to downstream icon sites.	<b>Advisory Committee</b> membership based on knowledge/ expertise and local. Minister appointed. Final decision with Victorian Water Minister.	Government (DSE, CMA, G-MW), local residents, farmers, local environment group.	Options for future land use (not decommissioning of Lake itself).	Dispute between DSE and local irrigators over definitions of water supply reliability (knowledge), with implications for obligation of DSE to ensure reliability	Representation of community and Indigenous people Communication flows between sub-committees. Different expectations about role of committee (advisory versus decision-making). Disagreement about scope (to decommission Lake or not).	Unclear. Irrigators preparing court case.	2004-current (meant to be finished by 2006)
3. Daly River water planning, NT	No, not a problem: groundwater extractions not licensed (primary issue since 90% of NT use is ground-water).	New planning processes – must license groundwater extractions. Pressure from current and potential users for access.	<b>Advisory Committee</b> process (CRG then DRMAC). Appointed by Government. Working on water allocation planning for Daly from late 1990s.	Indigenous, environment, government, agriculturalists/ horticulturalists, recreational users and others.	Advise of options for land and water use in the catchment.	Level of (future) development permitted. Recognition of legitimate values, knowledge and interests.	Problem of engaging Indigenous community. Issues about communicating with constituencies and involving the broader community. Capacity to understand technical and economic information..	Process continuing.	2000 - current

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