Waterwatch – An integrated capacity building initiative

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Abstract

Waterwatch is a community-based water quality monitoring initiative founded upon the principles of participatory action research. Since its inception in the early 1990s, it has established a sound reputation for its environmental education programmes, and has continuously refined its water quality monitoring standards to ensure community-collected data is valid and useful for natural resource managers. However, a 2004 review of Waterwatch identified that the true value of Waterwatch as a 'capacity building' tool for regional NRM bodies, has not been as widely appreciated as it should have been. This paper introduces Waterwatch and examines its credentials as an integrated 'capacity building tool' for regional NRM. It examines Waterwatch against a theoretical model of a 'capacity building program' to demonstrate how Waterwatch can be utilised across a range of contexts and program phases. The paper discusses key institutional and program design challenges that Waterwatch needs to overcome to maximise the potential of Waterwatch within regional NRM delivery. The paper concludes that Waterwatch should form a key component of every NRM body's river health, capacity building and M&E programs because it is an effective way of instilling long-term practice change among key audiences.

Keywords

Waterwatch, capacity building, community monitoring, regional delivery

Introduction

With the shift from Natural Heritage Trust phase 1 (NHT1) to the extension of NHT (NHT2) in 2003, Waterwatch funding was rolled up into the Regional NRM Delivery Model. This marked the end of ten years of Waterwatch as an Australian Government Program in its own right. However, recognising the reputation of Waterwatch and the communities recognition of the 'brand', the Waterwatch name has continued to be recognised by the Australian Government and it still funds Waterwatch through the regional delivery model. The funding changes had a significant initial impact on Waterwatch in many States and Territories. However, as a 2004 national 'Needs and Gaps Analysis of Community Participation in Waterwatch' (LSR, 2004) identified, these changes are potentially of benefit for Waterwatch because the structure and philosophies of Waterwatch provide many of the community engagement, capacity building and monitoring and evaluation tools and methods regional NRM bodies need.

The recent (2006) reviews of the Natural Heritage Trust (NHT) and National Action Plan for Salinity and Water Quality (NAP) have revealed that there are still gaps and opportunities in regional natural resource management (NRM) across Australia. These relate to the capability of regional bodies to monitor and evaluate their impacts, to engage and inform their communities and key stakeholders, to share knowledge and data, and to form enduring partnerships and relationships with industry that effectively broaden the funding base for NRM (Bartlett, 2006). These are all areas in which Waterwatch can add value within the regional NRM delivery model.

A key to maximising this potential is demonstrating the value of Waterwatch to regional NRM bodies, in particular, as an integrated capacity building tool. This paper presents a case for investing in Waterwatch as a framework to help regional NRM bodies utilise Waterwatch to address many of the needs and opportunities identified in the NAP/NHT reviews. The first three sections of this paper establish the case for investment by: 1) outlining what Waterwatch is, and how it works; 2) examining the degree to which Waterwatch can be considered an integrated 'capacity building' tool; and 3) highlighting how Waterwatch has responded to the 2004 national review to maximise its value in the regional NRM delivery model.

What is Waterwatch?

Waterwatch is essentially a **framework** that is supported by a **national network** of over 120 coordinators operating at local, regional, state and national scales to facilitate the engagement of communities in integrated natural resource management (NRM). The framework is flexible to ensure that it responds to the local biophysical and social contexts and is responsive to the needs of hosts and participants.

Waterwatch is based on **two entwined themes**:

1) **Participatory learning *for* sustainability**, built around catchment health and water quality; and,
2) **Community-based monitoring** of water quality and aquatic habitats, providing valid community data of a known quality to assist natural resource managers in targeting their investments and monitoring the impacts of works on resource condition.

Waterwatch currently operates in all States and Territories. Local and regional coordinators hosted by regional NRM bodies, water authorities, NGOs and local government. Around Australia around 1500 groups, 15,000 individuals and 1200 schools regularly monitor some 5000 sites. The National Waterwatch Facilitator manages the initiative at the national level, with the assistance of staff within the Australian Government's Joint NRM Team (who deliver the NHT and NAP programs). A National Waterwatch Forum, comprising representatives of Waterwatch programmes in each State and Territory, oversee the development of Waterwatch resources, professional development of coordinators and manage communications across the network. Australian Government funding is provided for Waterwatch through the Regional Delivery Program for the Natural Heritage Trust (NHT) and the National Action Plan for Salinity and Water Quality (NAP). Australian Government funding is also provided for the National Waterwatch Facilitator Project and for some state-level support. Waterwatch is commonly co-funded at the local level by NGOs, local governments, regional NRM bodies, water authorities and the corporate sector. This maximises the possibility that Waterwatch can be embedded into a range of NRM planning, decision-making and action programmes. It also means that a wide range of organisations are engaged in Waterwatch, providing valuable partnership opportunities.

Waterwatch facilitates the involvement of communities in a wide range of activities, which can be specifically tailored to assist key audiences achieve agreed outcomes. Most activities involve hands-on environmental monitoring activities because Waterwatch is based on theories of participatory action research. Waterwatch helps empower people to identify issues of concern in their local catchments and participate in the development of workable solutions that fit their own landscapes, lifestyles and livelihoods. Where Waterwatch coordinators are embedded into regional NRM program delivery, they ensure that these local actions and monitoring programmes contribute to the strategic priorities of the regional bodies.

Waterwatch develops and supports tools and methods to enable volunteers to collect valid, reliable data that can be used by a variety of natural resource managers. These tools and methods are developed in consultation with the community, scientists, government agencies and natural resource managers. Waterwatch supports environmental education in primary and secondary schools. It does this by producing high quality, locally relevant curriculum-based resources and innovative activities to involve students of all ages in practical activities to foster learning about environmental issues.

Can Waterwatch be considered a capacity building tool?

The national review of Waterwatch (LSR, 2004) found that the often-perceived focus of Waterwatch as a "school-based education program" has limited the degree to which natural resource managers have seen its potential as a capacity building tool. Indeed, many NRM regions have struggled with designing and implementing 'capacity building' programs whilst simultaneously hosting a fairly narrowly conceived Waterwatch program, focussing on schools and/or limited *ad hoc* community-based water quality monitoring programs. The review highlighted the enormous potential of Waterwatch as an integrated, multi-layered capacity-building program, and recommended that Waterwatch adopt a strategic plan to embed Waterwatch into the regional NRM delivery model.

So what is it about Waterwatch that makes it an integrated capacity building program? This section of the paper considers how Waterwatch 'fits' within a capacity building program 'model'. Thomson (2005)

analysed Waterwatch against Land & Water Australia's 'Capacity Assessment Tool for Riparian Rehabilitation', finding that it contributes to nearly all the 'dimensions of capacity' upon which the model is based (see Table 1). These 'dimensions' are key issues that enable and constrain riparian rehabilitation efforts – they are called 'dimensions' because they are not static: they have variable influence, and wax and wane in space and time.

Table 1. 'Dimensions' of capacity relevant to Waterwatch (in bold text), after Thomson, 2005.

Theme	*Dimension*
Context	Economic conditions, **community cohesion & support, awareness of water quality/quantity issues**, setbacks, **community networks**, **community negotiation structures**, complexity & cost of works.
Values and Perceptions	**Values**, **shared vision**, **skills in working with diverse values & perceptions**, **awareness**, **open mindedness & learning, perceptions of solutions**, **ownership of problems and solutions**.
Communications and Empowerment	**Data availability**, **communications – targeting, communications – mechanisms**, **consistency of communications**, **cooperation between agencies**, **empowerment**, **inclusiveness**.
Program Design	**Roles and responsibilities**, financial security, **program consistency**, **institutional consistency**, **flexibility**, forward planning, **transparency**.
Program Delivery	**Decision-making**, **consistency of key people within agencies**, personality of key people within agencies, **skills and experience of key people within agencies**, **community 'champions', monitoring and evaluation**, **institutional capacity**.

The following sub-sections briefly discuss how Waterwatch contributes to two of these themes – 'values and perceptions', 'communications and empowerment'. These are key dimensions in the model, and are useful in illustrating the integrated nature of Waterwatch as a capacity building tool. Some of the key ways in which Waterwatch contributes to the 'program delivery' theme are discussed later in this paper.

Values and perceptions

The national review of Waterwatch heard repeatedly that data collected by members of the local community is more likely to be believed and understood by local communities than 'official', scientific data. People take their Waterwatch results home and discuss them with their families and friends. Data collected by volunteers, under the data confidence plans developed by each state and fed back to the community via various formal and informal communications channels, can play an important role in raising awareness of river health problems. Community-based monitoring programs can be important mechanisms to influence general awareness of river health issues.

Involving communities in strategic monitoring programs is particularly useful in enhancing community values and perceptions about the need for, and nature of, river and riparian rehabilitation. It helps communities build a deeper understanding of catchments and the factors affecting water quality. The degree to which restoration initiatives are likely to be supported in a community is dependent upon the degree to which key sectors of the community understand and value the works. Because Waterwatch tools and activities are generally place-based, they can be utilised to both elicit an understanding of the values people hold for particular resources, and to influence those values. This enables natural resource managers to break down barriers to understanding, and equip key people within communities with the skills and knowledge to participate more fully in restoration planning initiatives and on-ground works.

Waterwatch tools and activities can be utilised as either short-term information-based tools/activities, or as a longer-term participatory learning tool to significantly enhance knowledge and understanding (see later discussion about responding to different degrees of engagement). The hands-on, participatory nature of Waterwatch increases the effectiveness of learning and allows people to build upon their existing knowledge about their local places.

Waterwatch recognises that it is often more effective to achieve long-term social change through quality learning activities with students. Influencing the values of future generations is a valid, long-term strategy to

achieve resource condition change.

Communications and empowerment
The national review of Waterwatch (LSR, 2004) emphasised the ability of Waterwatch to enhance community networks and strengthen links between communities and a range of NRM agencies. For example, local government authorities, water authorities, State and Federal governments as well as the catchment management authorities sponsor Waterwatch programs in various States and Territories, and coordinators are often housed within the offices of partner members. This greatly strengthens networks by enhancing opportunities for communications, increasing the quality of communications between partners, and providing multiple access points for community monitors (Thomson & Pepperdine, 2003).

By facilitating networks between volunteer community monitors up and down catchments and regions, Waterwatch builds community networks and cross-catchment communications, building awareness and understanding of catchment processes and the need for strategic rehabilitation in parts of catchments (LSR, 2004).

The skills developed by Waterwatch volunteers in a range of sampling and analysis methods, and their awareness of the range of factors influencing river and riparian health, significantly enhances the sophistication of their understanding of river health issues, enabling them to more fully participate in NRM planning and community consultation programs. Having members of the community skilled up in Waterwatch tools and methods provides an excellent opportunity for these people to act as communications conduits between NRM authorities and their particular communities (LSR, 2004).

Waterwatch has a long history in working with a wide range of local and regional partners, including governments at various scales, community and the corporate sector. Waterwatch is an excellent tool for breaking down the 'barriers' within and between community and various agencies because it is based on places of local meaning and identity (LSR, 2004). Schools involved in Waterwatch often participate in regional and/or catchment conferences, enhancing awareness of catchment issues and building community networks. School-based Waterwatch activities usually involve other NRM experts, the broader school community and resource managers further contributing to the development of communications mechanisms and social networks (LSR, 2004).

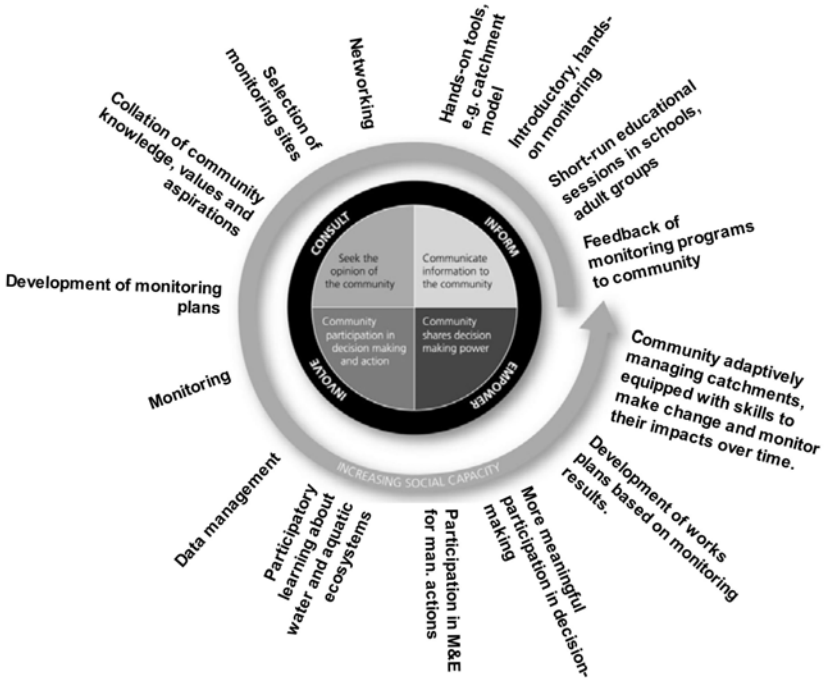

Figure 1. Waterwatch 'tools' plotted on the 'wheel of engagement' (adapted from DPI/DSE, 2004 and Thomson, 2005).

A key aspect of the 'communications and empowerment' theme within Thomson & Pepperdine's (2003) model is deciding the appropriate level of engagement for key audiences at key stages in a program's life. There are various degrees to which the community should, or could, be engaged in NRM processes and decision-making. Successful community engagement is reliant upon knowing when and who to engage, and how best to involve the different sectors of the community. There are some very good resources available to help in this regard. Arnstein's 'ladder of citizen participation' (1969), and similar typologies were developed to address the problem of 'empty' participation. These typologies provide excellent starting points for planning engagement processes for different purposes, and have formed the basis for many more recent guides and toolkits. The Victorian Government's 'Effective Community Engagement Workbook and Tools' publication contains a 'wheel of engagement' (see Figure 1) to assist in determining the level of participation required for an activity (DPI/DSE, 2004).

Against this model too, Waterwatch is demonstrated to be a useful tool. Because of the diversity of Waterwatch products and services, there is a wide range of possible entry points into NRM activities, providing ample opportunities for individuals to grow in their knowledge, understanding and skill-base. This effectively increases the 'life-span' of an individual's participation in NRM processes because they are able to shift into other forms of engagement as they develop and their interests change. Figure 1 summarises how various Waterwatch tools, methods and activities respond to the different levels of engagement.

Discussion

So far in this paper I have outlined how the diversity of Waterwatch tools and methods and the structure of Waterwatch support the proposition that Waterwatch is an integrated capacity building program. We have also seen that Waterwatch provides multiple entry points to the 'wheel of engagement' and can therefore effectively respond to the changing needs and demands of community volunteers.

I started this paper by contending that NRM bodies should invest in Waterwatch as a key delivery mechanism for their capacity building programs, and to respond to the needs and opportunities identified in the recent NAP/NHT reviews. I also highlighted that the Regional Model presents many opportunities for Waterwatch and the key outcome of the recent 'Needs and Gaps Analysis' is that Waterwatch must work towards integrating itself into regional delivery processes as much as possible. This section of the paper discusses how we envisage this happening.

The strategic direction of Waterwatch at the national level is to work with Regional NRM bodies to integrate and utilise the Waterwatch framework to assist in delivering outcomes related to community engagement, capacity building, credible community-based data collection and facilitate on-ground action relating to catchment and riverine health and management. To do this, we face some key challenges, such as:

- Convincing natural resource managers that Waterwatch is a useful awareness-rasing, communications and capacity building tool that can effectively engage a very broad audience.
- Convincing natural resource managers that the community can play a role in collecting valid, reliable data that can be used to complement other scientific monitoring programs.
- Demonstrating that Waterwatch coordinators are multi-skilled people that have significantly more potential to be utilised as key intermediaries between communities and regional NRM bodies, helping develop and implement community engagement, communications and monitoring and evaluation strategies that involve communities.
- Developing support mechanisms that allow a broader range of natural resource management professionals to adopt, adapt and deliver Waterwatch products and services, whilst maintaining the quality and integrity of Waterwatch.

Community-collected data has many strengths (such as geographic representation, frequency of sampling, etc.) and some acknowledged limitations. There is a place for community-collected data as one form of knowledge that can be used to enhance other forms of knowledge (such as scientific data). There are opportunities at the regional level to manage and use different kinds of knowledge for problem solving at the appropriate level, so we believe the regional delivery model, with good state-level support for data confidence and data management, offers many opportunities for Waterwatch as a monitoring program.

We have learnt much from the experience of the shift from NHT 1 to NHT 2 and believe that in order to

expand and improve Waterwatch we need to enhance the flexibility of Waterwatch. We are keen for Waterwatch to be used to meet the specific needs of regional NRM bodies in relation to community engagement, awareness raising, capacity building and monitoring and evaluation in core areas of NRM business relating to river health and water quality. This might mean that Waterwatch products and services are delivered by a range of staff within a regional NRM body. This has significant advantages for enhancing the capabilities of the staff of regional NRM bodies in community engagement and capacity building, as well as helping them monitor and evaluate works programs. However, under this model we will need to ensure a few key things:

- Sufficient resources are provided for national, state and regional-level coordination, training and support. This is particularly important at the state level for data management and data confidence. At the regional level, it is important that if a diverse range of staff are utilising Waterwatch tools and methods, that they are trained and supported at the regional level and at the state level.
- The Waterwatch 'brand' and identity are important. The national review found that Waterwatch is widely recognised and respected and is seen as being 'bigger' than any one agency. The continued use of the Waterwatch brand at the local, regional and state level is therefore important, but it must be protected by ensuring tools and resources that carry the Waterwatch name are of a consistent standard.
- The future of the network is dependent upon the continued participation of Waterwatch coordinators and other NRM staff in network activities, training and mentoring.

Waterwatch must also improve its capacity to monitor, evaluate and report on its activities so that we can demonstrate the impact we have in changing values, attitudes and behaviours. As part of the new Strategic Plan for Waterwatch nationally, a monitoring, evaluation and reporting framework is currently being developed.

Conclusion

Waterwatch is an integrated, multi-layered capacity building initiative that provides multiple entry points for communities into the NRM 'world'. It provides opportunities for people to be meaningfully involved (truly engaged and empowered) in learning more about 'their patch' and beyond. Waterwatch creates a shared 'point of interest' (a river or creek, an estuary) – sites that have real *meaning* to people – thus facilitating communications between community and NRM institutions. Waterwatch activities also allow people to express their values and ideas about natural resource conditions and targets, allowing NRM planners and decision-makers to understand community values and aspirations more fully than attempting to communicate through written plans and strategies. Waterwatch should form a key component of every regional NRM authority's programs because it is an effective method of integrating community engagement and capacity enhancement activities with practice-change programs. There are many opportunities for regional NRM bodies to extract value from the Waterwatch network and from the stock of social and human capital that has been invested in Waterwatch over more than a 15 years.

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