Abstract: Integrated water resource management (IWRM) is a response to current acknowledgement of the complexity and wickedness of water management. IWRM aims to enable appropriate responses via multi-party participation. Adaptive management - purposeful learning for improved action- is a useful tool for integrating water resource management. It provides a framework to enable participatory processes and social learning to contribute to changed policies and practices. However, the institutional constraints on moving to adaptive management (and hence IWRM) are many and deeply entrenched. The paper explores these constraints by considering the almost unconscious, and generally uncritical, reliance on 'projects' in natural resource management. Using examples from Australia, it reflects on the defining features of natural resource management 'projects' and critically considers these in relation to the conditions needed for adaptive management, social learning and IWRM. Projects, bounded in time and space and strongly tied to political and financial cycles, encourage short term planning and action, not to mention risk avoidance and solidification of power differentials. Active reflection on the nature of projects provides a useful space to explore a possible clash between the normative idealistic and the critical realist perspectives of integrating water management.

Author Address: callan@csu.edu.au

Rethinking the "Project": Bridging the Polarised Discourses in IWRM

Dr Catherine Allan
Senior Lecturer, Environmental Sociology and Planning
Institute for Land, Water and Society
Charles Sturt University
PO Box 789
Albury NSW 2640
AUSTRALIA
Ph: 02 60 519781
Fax: 02 60 519897
callan@csu.edu.au

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CATHERINE ALLAN

Institute for Land, Water and Society, Charles Sturt University, Albury NSW 2640, Australia

ABSTRACT

Integrated water resource management (IWRM) is a response to current acknowledgement of the complexity and wickedness of water management. IWRM aims to enable appropriate responses via multi-party participation. Adaptive management - purposeful learning for improved action- is a useful tool for integrating water resource management. It provides a framework to enable participatory processes and social learning to contribute to changed policies and practices. However, the institutional constraints on moving to adaptive management (and hence IWRM) are many and deeply entrenched. The paper explores these constraints by considering the almost unconscious, and generally uncritical, reliance on 'projects' in natural resource management. Using examples from Australia, it reflects on the defining features of natural resource management 'projects' and critically considers these in relation to the conditions needed for adaptive management, social learning and IWRM. Projects, bounded in time and space and strongly tied to political and financial cycles, encourage short term planning and action, not to mention risk avoidance and solidification of power differentials. Active reflection on the nature of projects provides a useful space to explore a possible clash between the normative idealistic and the critical realist perspectives of integrating water management.

KEY WORDS:Project; adaptive management; social learning; Integrated Water Resources Management

Introduction

Integrated water resource management (IWRM) is a response to the complexity and

trickiness (aka "wickedness") of managing water for current and future social and

ecological sustainability. Grigg (2008, p. 282), defines IWRM as "*a framework for*

planning, organizing and operating watersystems to unify and balance the relevant

views and goals of stakeholders". There is much-and very necessary- reflection on the

outcomes of attempts at achieving IWRM (for example Petit & Baron, 2009). There is

also extensive interest in the processes and methods of *integrating*. The various

participatory and reflective approaches used or proposed as part of integrating draw on

the normative rational communicative logic of Habermas (Saravanan et al. 2009). These

approaches span adaptive management (for example Alfred, 2003; Pahl-Wostl, 2007; Painter & Memon, 2007) and social learning (for example Blackmore, Ison, & Jiggins, 2007; Collins, Colvin, & Ison, 2009; Mostert, Craps, & Pahl-Wostl, 2008). All use variations on the theme of facilitating systemic practice and learning across and within diverse social groups.

Evaluation of on ground activities has produced some dismay over the apparent difficulties of achieving participatory, adaptive, systemic and/or learning centred management. In one of many examples of this dismay Byron (2011) laments that Australia's recent Murray-Darling Management Plan "*...is fundamentally confused about causes and effects, and about means and ends. The problem is seen as a technical one to be solved by experts, rather than a social learning, adaptive process—an inclusive, long-term national conversation*". This statement highlights where much of the blame is laid- at the command and control management paradigm that has dominated natural resource management for the past century or so (Gunderson, Holling, & Light, 1995; Rogers, Roux, & Biggs, 2000). Dismay is also directed at the often poor application of specific integrating processes such as adaptive management. Aacademic critique of adaptive management suggests that the major constraints on moving from conventional to adaptive management are institutional, and deeply entrenched (Light, 2002; Muro & Jeffrey, 2008). My contribution to the critique of adaptive management has also hitherto focused on exposing institutional constraints, including inappropriate temporal and physical boundaries, and societal/cultural preferences for activity over reflection, auditing over learning and competition over cooperation (see for example Allan & Curtis, 2005). In this paper I am not directly concerned with the constraints

themselves, but rather I reflect on current implementation practice, in particular the practice of acting via projects, to better understand the apparent intractability of those constraints. In taking this approach I am responding to calls for researchers and practitioners to seek greater epistemological awareness (McClintock, Ison, & Armson, 2003: Ison, 2008).

I contend that the constraints on being adaptive, participatory, and systemic are deeply entrenched in our natural resource management world because they are part of the package that is the 'project'. The project as a concept deserves attention because, although it emerged in an era of command and control management, it is transferred to newer management paradigms. 'Projects' thus have the potential to be the limiting feature of holistic and integrative strategies. They may also an appropriate unit for bridging conversations around new approaches and current on ground, wicked realities.

I am not the first to highlight the "project" as an important unit of interest (see for example Ison, 2010, p. 224), nor the first to suggest that as a concept has been ignored in academic and management discourses. Andersson (2009, p. 188) notes that regional development in the European Union is based upon projects but that very little attention is given to understanding projects *per se*, rather

> *" Although projects seem to be ubiquitous, little consideration has been given to them as a distinctive way of doing things, let alone to the possibility of studying them, using theories and methods comparable with those used in other fields of administrative research. Thus the literature on EU's regional policy—which is, according to many—a domain dominated by projects, often treats them as self-evident devices and constructs that need neither definition nor theoretical foundation."*

Similarly, Sjöblom & Godenhjelm (2009) are surprised that the potential consequences of project proliferation have been neglected in the debates on governance in the EU.

The ubiquitous and apparently non-reflective use of projects is also exemplified by their current use in land and water management in Australia. Over the past three decades or so projects have become central for pursuing government funded natural resource management goals. Environmental/ natural resource management in Australia is constitutionally a responsibility of the governments of the individual states that together form the Australian nation (Bates, 2006, pp. 50-57). However, since the 1980s the National government has had an increasingly important role in guiding and funding environmental/ natural resource management activities. This has included large funding commitments such as the National Landcare Program (from the late 1980s to 2008), the Natural Heritage Trust (1997-2002), the National Action Plan for Salinity and Water Quality (2002-2008) and the current Caring for Our Country (Commonwealth of Australia, 2008a, 2008b, 2010). For three decades "frameworks", "blueprints" and "plans", usually at regional and/or catchment scale, and consistent with National visions, have facilitated the movement of National Government funds from these programs to research and implementation activities 'on the ground', with the overall intention of achieving desired environmental, social and economic outcomes. Initially the plans focused on short term goals, generally by establishing, implementing and completing distinct projects. Since the adoption of a National Strategy for Ecologically Sustainable Development (NSESD) in 1992 the policy approach of all Australian jurisdictions has been increasingly strategic and moderately-long term (Ross & Dovers, 2008). However, the dependence on projects to implement the strategic direction is strong, as demonstrated by the Caring for our Country program. This program has a budget of Aus$2.25 billion over five years, and much of this funding is allocated via projects (Robins & Kanowski, 2011). For instance, in 2009, using a competitive

process, over Aus$403 million in Caring for our Country funding was provided for environmental and sustainable farming projects. Much of this went to land and water management projects administered by 56 regional organizations, 1200+ community groups and more than 12,000 individual landholders (Commonwealth of Australia, 2008b). That is more than 13000 projects for this one funding program, in one year. Projects have been, and continue to be, important- but what **is** a project?

Projects

The "project" originated and matured in the field of engineering. Modern engineering emerged during the Renaissance when practical know-how connected with new scientific understanding. Adhering closely to Cartesian logic and focused on application, engineering methods and processes became distinct and explicit, as goods and services were reduced to pieces that could be dissected and, most importantly, managed (Moriarty, 2008). This reductionist approach to achieving predefined outputs complemented, indeed facilitated, command and control management of industrial and manufacturing processes.

The development and implementation of 'projects' is no longer limited to engineering; the approach is used in many circumstances and contexts, including public and private administration of activities. The meaning of the term has expanded a little as it has entered new disciplines and geographical locations, but the central ideas remain the same, as the following examples from the disparate fields of business, information technology, library science and sustainable development suggest. A project is:

- "a non routine, one time effort limited by time, resources and performance specification designed to meet customer needs" (Cope, Cope, & Root, 2007)

- an undertaking to achieve a defined objective, with recognised start and finish points (Lehmann & Prabhakar, 2008)

- any undertaking with a defined starting point and defined objectives by which completion is identified (Anzalone, 2000)

- a "defined activit[y] carried out by defined people with a defined endpoint in mind at a defined cost and over a defined period of time" (Bell & Morse, 2007).

These examples suggest that the original meaning of 'project' has maintained its currency in general understanding; it is an **undertaking that is discrete, bounded in time and/or location and/or task, with a specific, identified outcome**.

The theoretical and practical understanding of projects as discrete, bounded and operating for a specific outcome has obvious application in engineering where 'blueprint' and 'plan' have literal meanings, but it is instructive to explore the concept of the project as a discrete means to an end in some of the other fields- not all producing tangible outputs- that have embraced it with gusto. As management ideology has infused western government administration, projects have become popular as a means of achieving outcomes. Projects are congruent with management ideology, with its implicit use of market, technocratic and objective rationalities for decision making, communication and persuasion (Durant & Legge, 2006). Projects are so congruent with it that their use is expanding. Kovách & Kučerová (2009) propose a framework for conceptualising and understanding what they term projectification, building on earlier work (Kovách & Kučerová, 2006) in which they focused on the rise of a 'project class',

people who mediate the redistribution of public and private funds, and the transfer of materials, ideas, knowledge and power.

Projects also underpin action in the field of natural resource management. Direct discussion of projects as concepts is rare in this field, so evidence of how projects are conceptualised/lived must be sought by indirect means, such as analysis of the metaphors used in discussions and texts related to project implementation. Because metaphors frequently operate at a subconscious level, analysis of the metaphors in use can provide a means of accessing and understanding cultural constructions of realities (Lakoff & Johnson, 1980). Analysis of metaphor is particularly useful for exploring natural resource management projects, as the transference of the idea from literal engineering to different context renders the "project" itself a kind of grand, or meta metaphor.

My awareness of the project as metaphor, and the metaphors for projects, was sparked during research in which I interviewed a sample of Australian farmers, managers and natural resource management policy makers about the implementation of two National government supported land and water management programs (Allan, 2004). Analysis of the metaphors they used during those discussions revealed nuanced understandings of the discrete, bounded and purposeful nature of projects. In some situations the interviewees articulated their project as a journey, being *driven* by project leaders, who were sometimes urged to *bring the community along* as they aimed toward *milestones*. Projects were also conceptualised as boats, with participants being *on board* and *running* [their] *own ship*, or sometimes *rocking the boat*; a failing project was simply a

sinking ship. When projects were conceptualised as buildings, with *structures* or *frameworks* that sometimes required *propping up*, project management in these terms was about *gatekeeping, keeping control in the backroom* or *trying to get a foot in the door.* Attempts to grasp the reality of projects ran on through theatrical metaphors (projects bounded by performance time and *scripts*), metaphors for living things and even metaphors for puzzles, each metaphor exploring and exposing the bounded, purposeful and/ or outcome focused idea of the project. And each metaphor has its own entailments. For instance the self contained world of a boat has internal hierarchical management; rules and compliance with the Captain's orders keep the boat from the dangers of the water that surrounds it. Thus the invitation to come "on board" a project brings expectations of specific roles and behaviours.

Some implications of "projects" for natural resource management- the case of Australian IWRM

Sjöblom & Godenhjelm (2009) suggest that the proliferation of projects in administration of policy is part of a shift towards informal modes of governance. They posit (p170) that the temporary project organizations at all levels in society

> *" play a vital role as horizontal as well as vertical interlinking mechanisms between various administrative sectors and levels. The need for such mechanisms is especially apparent in policy areas like environmental management, where policy problems are of a highly complex nature and have strong inter-organizational implications.*

I am suggesting a different reading of the rise of projects. Rather than seeing project proliferation as a new **response** to complexity I suggest that it is a vestige of the conventional way of managing carried into newer, progressive management paradigms. Further, I suggest that the entailments of the project meta-metaphor actually set limits

on adaptive capacity. In this section of the paper I explore this idea with the specific

example of IWRM in Australia, before pulling the conceptualisation of the project apart

to see why and how the limits work, and what might be done to mitigate such limits.

Australia, a continent of low and erratic rainfall, supports a population of high per capita

water users (Beeton, et al., 2006). In the two hundred or so years since European

colonisation water ownership, use and management have caused disputes among

individuals, communities and governments. The political, cultural and environmental

factors that prompted the greater National government intervention in

environmental/natural resource management described in the introduction were

operating with particular urgency in the water sector. In 1992 water management began

major reform, when the heads of all Australian governments adopted the NSESD, an

action that committed them to more integrated water management policies and practices

(Pigram, 2006). Integrated Catchment Management was the leading policy approach by

the end of the 1990s; it was designed as an overarching framework for the

implementation of water management strategies (Connell, 2007). Within a few years,

however, water policy was integrated in name and intent only. For example (Bellamy,

Ross, & Meppem, 2002 p vii) noted that

> *Much of the on-ground work is achieved indirectly, through small grants to*
> *bodies such as Landcare and other stewardship groups, through the NHT and its*
> *predecessors. These are rarely linked explicitly to the strategic planning of*
> *regional bodies, though the need to do so has been identified in several states.*
> *They are also necessarily short-term projects, subject to great funding*
> *uncertainties.*

The desire to coordinate improved water management is still apparent, and its current

manifestation is the National Water Initiative, officially "Australia's enduring blueprint

for water reform" (Australian Government, 2005). Developed in the 2004, and agreed on by Australian and State governments, the NWI has also been called an ideological battlefield, where old and new policy approaches clash as Australia's water woes continue (Connell, 2007). Despite all the changes in policy direction and ideology of the past few decades, projects continued, and continue, to play a central role in implementation, for example.

> "Recognising the need to assist governments and communities in their water reform journey, the Commission has continued to invest in projects to improve our water understanding, planning and management" (National Water Commission, 2009).

So, within Australian water governance projects are familiar, nearly ubiquitous and barely perceptible. Courtesy of their development within the command and control management paradigm, they are also likely to be a key constraint on achieving adaptation and integration. Bellamy et al. (2002), while reviewing Integrated Catchment Management attempts in the Australian state of NSW, suggest that reliance on project funding from government initiatives "fragments the implementation effort". Projects are, by definition, discrete, and it is the arbitrary division or fragmentation of what could otherwise be continuous activities that makes projects problematic for integration. As noted earlier, achieving water policy integration requires social learning and adaptive management. Projects constrain co-learning and adaptive management in at least three, interrelated, ways.

Firstly, effective adaptive management begins with the framing of good questions and a thorough understanding of context (Allan & Stankey, 2009). The short time frames of projects limit the potential for identification of all stakeholders, and meaningful

participation by them in contextualisation, planning, action and learning. Trusting

relationships are a key to effective participation (Hahn, Olsson, Folke, & Johansson,

2006), but projects as currently administered allow only limited time for trust to be

nurtured and developed among stakeholders.

Secondly, project thinking sets limits on how the issue or problem can be described and

understood. Projects require defined goals and targets that are achievable, so the

temptation is always to define issues in terms that fit within the project, rather than in

terms that fit the issue. Because achieving success through meeting target goals is

desirable for cultural and future financial reasons, it is also tempting to reduce risk by

limiting the scope and the activities to those which are safe, or sure bets. Complex,

interrelated systems are reduced to a size and simplicity that can be managed within the

project boundaries. As well as obscuring the systemic nature of the issues to be

addressed, focusing on achieving the goals and targets of the project reduces the

apparent importance of the overarching issue that the plan or strategy is addressing. The

(rarely tested?) assumption is that if the project goals are met, the strategy is being

addressed. This may not necessarily be the case, particularly in situations of high

uncertainty or rapidly changing biophysical parameters.

Finally, and almost tragically, the potential for learning is constrained. Discrete projects

with predetermined outcome targets lend themselves to internal accountancy and

auditing, but not necessarily to systemic learning. Information and understanding within

the project community will stay within that community unless mechanisms for reporting

and sharing are developed and used, and trusting relationships are formed. Information,

learning and knowledge may also be lost from the project area when temporary project staff move onto their next assignment. The potential for new understandings to be incorporated into planning, as per an adaptive approach, may be limited by the project boundaries, and the imperative to deliver the desired outputs and outputs.

Take, for example, the case of Australia's Living Murray Initiative. The River Murray is an important component of the Murray-Darling Basin, Australia's so called food bowl. Extensive land and river modification since colonisation, exacerbated by prolonged drought, has taken its toll on the river's ecological systems, so that in 2007 the Murray-Darling system was listed as one of the World Wildlife Foundations top ten rivers at risk (Wong, Williams, Pittock, Collier, & Schelle, 2007). This decline was apparent in 2002 when, after "community wide" consultation, the five governments with jurisdiction on the river together pledged to contribute to The Living Murray (Murray-Darling Basin Commission, 2007). The Living Murray, the first step of which operated between 2004 and 2009, and thus in the context of the National Water Initiative, aims 'to achieve a healthy working River Murray system for the benefit of all Australians". Specifically, targets were set; to allocate 500 billion litres of water per annum to the river for environmental purposes from the expenditure of A$500million (Grafton & Hussey, 2007). Environmental goals were focused on six "icon sites" with high ecological values, along the Murray (Murray-Darling Basin Authority, 2008). The setting of boundaries (six specific sites and a five year time frame), coupled with specific water recovery and expenditure targets suggests that, despite the title "initiative" the Living Murray is in fact a large project, with smaller specifically bounded projects (albeit called programs) within it. Starting the initiative with

community wide consultation suggests that this particular project sits within the newer, participatory/democratic paradigm, rather than that of conventional command and control. However, the implementation practice is more aligned with conventional command and control. The community engagement and consultation processes attracted criticism for being tokenistic and expensive, with poor consideration of context and inadequate timeframes (Crase, Dollery, & Wallis, 2005). Within the Living Murray water has been acquired from users (mainly agricultural irrigators) through a tightly bounded tender system, which critics suggest has led to low cost efficiency (Grafton & Hussey, 2007). Adaptive management is an articulated foundation within activities of The Living Murray such as the Environmental Watering Plan 2006-07 , and one of the programs within The Living Murray is "Environmental Monitoring". However, the monitoring is geared to measuring progress towards targets at the icon sites, even though the "environmental" water flows past many sites and the icon sites receive other water besides environmental water. The narrow and expert driven monitoring process was rendered especially difficult by the extended drought conditions between 2004 and 2009 which changed the background conditions considerably (Murray-Darling Basin Commission, 2008). At this stage it is difficult to see what lessons have been learned from the Living Murray Initiative, and how those lessons will be shared with communities along the Murray, let alone among river communities elsewhere.

Projects are not the problem in themselves, but are both a consequence of, and support for, a way of thinking which is mechanistic and unsuitable for tackling wicked problems. Why do we continue to use a tool from the conventional, command and control toolkit on wicked issues? A sceptic may consider the continued use of projects

as simply a defence mechanism that creates the illusion (for ourselves and others) that we are actually managing our environments and addressing change. By clinging to the project we can keep busy achieving targets and goals and milestones, thus avoiding the possibility that we are simply part of our environment rather than its managers. A conspiracy theorist might posit that the current situation is a political game played by policy makers who can talk the talk of integration, safe in the knowledge that their reliance on projects will ensure that integration, with its frightening loss of power, is never achieved. Being neither a cynic nor a conspiracy theorist I suggest that our use of projects is merely habitual, and unreflective; a residue of the transition from the conventional to the new paradigm.

Because the 'project' has travelled from one management paradigm into another the opportunity exists for reflection on the nature of projects to provide a bridge between the traditional ways of command and control, and integrative, adaptive and systemic approaches. Active interrogation of the role of projects provides a useful space to explore the tensions between two philosophies of integrating water management ; the normative idealistic (participatory, democratic, power sharing) and the critical realist (politics will never allow power sharing). Indeed, since 'projects' are used by practitioners of all persuasions, consideration of projects as process may initiate reflective and transformative discourses.

Conclusion- seizing the opportunity...

The central tenet of this paper is that unreflective use of "projects' to achieve IWRM potentially constrains the very integration that is sought. More reflective consideration and discussion about the constraints that come with the use of projects each time a

project is proposed may suggest ways of reducing the constraint. At the risk of being accused of inappropriate reductionism, I offer Table 1 as a framework to guide such discussions. The table teases apart the understanding of a project as an undertaking that is discrete, bounded in time and/or location and/or task, with a specific, identified.

[Insert Table 1 here]

Reflection and consideration of the constraints of a project may, of course, simply lead to a better understanding of the constraints- but even this is an improvement on non reflective project use, as project stakeholders can develop realistic expectations. For example, if a project team recognises that short term projects constrain long-term trust building and learning, but there are no opportunities to mitigate as per Table 1, the team may have to accept that adaptive management, or social learning, and hence integration, will not be possible, and facing up to the consequences of that decision.

Whatever the outcome- changed practices, or changed expectations, or both- active reflection on "the project" is likely to facilitate the move to the more integrated water resources management that is needed in our current complex and uncertain world.

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Table 1 A framework to guide reflection on the constraints of using projects

Project feature	Potential constraint on integration	Possible mitigating approaches/ mechanisms
Discrete, stands alone	Existing and developing knowledge, skills, developing networks within projects may not be shared with other projects	Consider developing/ using existing institutional systems to store and share knowledge across projects (i.e. actively think about integrating...)
Bounded by (usually short) time frames	Limited potential for identification of, and meaningful participation by, all stakeholders. Limited time for trust to be nurtured and developed among stakeholders.	Consider processes for increasing the project time frame. Or embed the project(s) within a longer term program in such a way that the project boundaries reduce or disappear (i.e. actively think about integrating...)
Pre-defined/ identified/ specific, targets and outcomes	Definition of issues in terms that fit within the project, rather than in terms that fit the issue. Risk reduced by limiting the scope and the activities to those which are safe, or certain. Complex, interrelated systems are simplified so they can be managed within the project boundaries. Internal accountancy and auditing is more logical than systemic learning. The potential for new understandings to be incorporated into planning, as per an adaptive approach, may be limited by the project boundaries, and the imperative to deliver the desired outputs and outputs.	Maintain the focus on the strategic goal(s). This may require increased reflection and discussion, and careful application of program logic and evaluation. Maintain support for active learning to (i.e. actively think about integrating...)