

KNOWLEDGE FLOWS: DEVELOPING INFORMATIVE POLICY-ADVICE IN WATER RESOURCE COMMISSIONS

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Abstract

Finding the appropriate water resource management policies is a challenge faced by all levels of governments today. The issue is complicated by water not being confined by jurisdiction boundaries. Governments are accepting the need to develop ways to work together to manage the resource, and water resource commissions (WRC) are becoming a main organizational (governance) arrangement for developing effective water management policies. The organizational arrangements of WRCs play a role in how the agenda is set, hence the development of policy. The number of communication pathways, the number of management levels, and the composition of decision-making bodies are factors that could alter how the information gathered by supporting programs is turned into policy. It is unlikely one WRC would be structured the same as another. For instance, the Mekong River Commission (MRC) currently has eleven supporting programmes, ranging from the 'Flood Management and Mitigation Programme' to the 'Fisheries Programme'. In Australia, however, nineteen working groups, five project boards and various high-level committees support the Murray Darling Basin Commission (MDBC). Often WRCs are the highest-level advisory group that report directly to a policy decision-making body, such as a Ministerial Council. The development of advice is constructed via a myriad of knowledge pathways crossing a number of management levels and decision-making groups. A bottleneck in the information pathway occurs where information must be filtered, or culled, as there is only one high-level advisory group to review the many alternatives presented by supporting programs. For instance, the MRC Secretariat is responsible for considering information from the eleven supporting programs and presenting it to the Joint Standing Committee to assist them in deciding on how to advise the Ministerial Council. Another problem in WRCs is that decision making is complicated by the range of technical expertise required for understanding the physical, biological, economic and social aspects of a basin system; and finding a way to balance input. The availability, the type, and possibility the order of how gathered information is considered is likely to be important for ensuring for effective management. This research aims to identify the factors that affect the exchange of technical advice and its use by the highest-level policy advisory groups in WRCs. The proposed hypotheses are that (1) organizational arrangements affect how technical advice is transferred and (2) membership composition of the highest-level advisory group affects how technical advice is used in water resource commissions. A comparative institutional analysis will be applied, using the MRC and MDBC as case studies. These organizations were chosen as they are both well-established and have similar structural arrangements, although their political contexts are quite different.

Keywords: water policy, organizational arrangements, knowledge flows

This article is on proposed research for a PhD thesis.

1. MANAGING OUR WATER RESOURCES

Water affects all areas of life: variable water availability can affect food production and economic well-being; poor water quality can affect health (e.g. cholera and dysentery); demands on water supplies can potentially lead to political conflict and war, and misguided use of water resources can degrade the environment. Governments across the world, at all levels, are struggling to grasp how best to manage water

resources. The seriousness of the issue is highlighted by the United Nations Environmental Programme (2006) position on the state of the world's water resources:

“(yet) we are far from achieving the sustainable use of water and in many parts of the world, people are facing a water crisis. And, unlike the energy crisis, the water crisis is life threatening, and it is the most immediate and serious environmental, social and economic problem facing over a billion people in the world today”.

The majority of water-related concerns are usually to do with or related to, water quality and quantity, and understanding how best to manage the resource within an ecosystem to benefit people livelihoods and the natural environment. However, an area that is fast gaining attention is to understand how governance arrangements of natural resource organization affect the policy process.

It has been internationally recognized that ‘good governance’ for sustainable development, including effective water governance, and its dependency on scientific information to identify the problem and the options to resolve the issues are important (UNDESA 2006). However, it is not well understood how the governance arrangements of natural resource management institutions affects the policymaking process (Biermann 2002). This proposed research focuses on understanding the processes of how technical advice is transferred and used to find solutions in water resource commissions. Section 2 provides a brief overview of the integrated environmental management approach and water resource commissions: their structural arrangements, roles and responsibilities. Section 3 outlines potential problems with the governance arrangements in context with related studies to demonstrate the need, and direction, of the research. Section 4 presents the proposed research question, working hypotheses, and the developing methodology to test them.

2. Integrated Environmental Management

Since the 1970s ‘integrated’ environmental management principles have been progressively applied at all levels of government for managing water resources. Initially the focus was on understanding how the regulation of a water resource affects an ecosystem via scientific analysis. Nowadays governments are more open and supportive of a multi-disciplinary approach that also includes economic and social analysis to develop a more holistic way to find effective water management practices.

Water resource management is a unique task requiring possibly an inexhaustible amount of socioeconomic and scientific information (Kessler et al. 1992; Hirji and Panella 2003). Many river systems throughout the world have been modified to provide water for a range of uses including urban and agricultural supplies, to generate electricity, flows for navigation, and controlling floods. As such, Hirji and Panella (2003) argue that the environmental flow requirements in water resource management decision-making have become complex, and one in which the complexity is compounded by lack of data and weak institutional capacity. Furthermore, they suggest that in developing countries the issue is heightened as the downstream impacts of environmental flows are often difficult to assess as the area impacted and the population at risk are not easily defined. In the Mekong River Basin, for example, the environmental flows to maintain ecosystem viability requires an understanding of three complex ecosystems: freshwater, coastal and marine.

3. Water Resource Commissions: Structure, Roles and Responsibilities

There is growing acceptance by governments at all levels of the need to develop ways to work together to manage water resources. Water resource commissions (WRC) are becoming a more common governance arrangement for developing water management policies. A few Commissions have been established for more than 50 years. These include the International Commission for the Protection of the Rhine (ICPR) in Western Europe, and the Murray Darling Basin Commission (and its predecessor the River Murray Commission) in Australia, both well-established organizations that serve as reference points for multi-jurisdiction river basin management across the world. More recently established Commissions include the Mekong River Commission (MRC) in South-East Asia and the Okavango River Basin Commission (OKACOM) in southern Africa, formalized within the last 15 years.

The responsibilities of these commissions vary. Often they are responsible for a specific river basin, such as the Murray-Darling Basin in Australia or the Mekong River Basin in South-East Asia. Alternatively, their responsibilities are bounded by jurisdictions, not geography, and can cover many isolated water bodies as is the case with the National Water Commission (Australian) and the Mexican National Water Commission.

The basic functions and structures of WRCs are described next to provide some background prior to exploring how the governance arrangement of WRCs can influence the policy development processes.

Roles and responsibilities

The roles of WRCs are usually underpinned by broad integrated environmental management principles – they try to capture the social, economic and environmental concerns of the basin. They instill a multi-disciplinary approach to gather as much knowledge about the resource in aid of developing effective, holistic policies. For example:

Mekong River Commission

“Article 1. Areas of Cooperation:

To cooperate in all fields of sustainable development, utilization, management and conservation of the water and related resources of the Mekong River Basin including, but not limited to irrigation, hydro-power, navigation, flood control, fisheries, timber floating, recreation and tourism, in a manner to optimize the multiple-use and mutual benefits of all riparians and to minimize the harmful effects that might result from natural occurrences and man-made activities”

(Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin 1995).

Often they have the responsibility to provide evidence supported policy advice to a Ministerial body (e.g. a Council) to enable them to make effective policy decisions, and to implement both investigation and operational programs. For example:

Murray-Darling Basin Commission

“Clause 17:

to advise the Ministerial Council in relation to the planning, development and management of the Basin's natural resources;

to assist Council in developing measures for the equitable, efficient and sustainable use of the Basin's natural resources;

to coordinate the implementation of, or where directed by Council to implement, those measures;

to give effect to any policy or decision of the Ministerial Council”

(Murray-Darling Basin Agreement 2006).

Structural arrangements

WRCs usually have two major structural components: supporting programs and a high-level policy advisory group. In some cases, such as trans-boundary organizations, they can also include the Ministerial policy decision-making group, as it is the case of the Mekong River Commission (Figure 1).

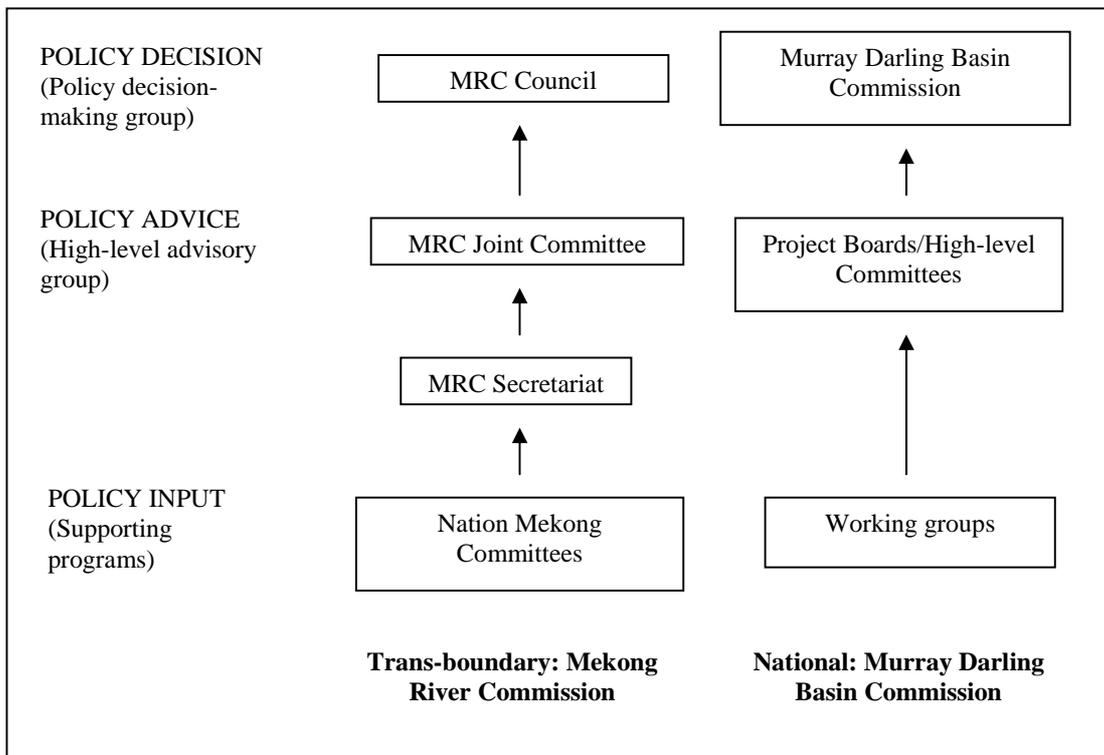


Figure 1: Governance arrangements of two water resource commissions

Supporting programs

These programs support commissions in meeting their objectives by providing technical advice, and assisting in the implementation of various programs. Advice can be very general encompassing all aspects of integrated environmental management principles, to more specific, such as operational options for managing surface water. The number of programs varies between commissions. In the MRC, examples include the Environmental, the Drought Management, and the Water Utilization Programmes.

Membership composition

In WRCs the group with the most influence on the policy development process, aside from the policy-decision making group, is the highest-level policy advisory group (e.g. MRC Joint Committee). Unlike the policy-decision making group, which is comprised of Ministers, the high-level advisory group can comprise of a range of representatives, including executive bureaucrats only; a combination of bureaucrats and technical experts; or technical experts only. The participating governments determine the membership composition terms, hence the nature of the membership including the size of the group (Figure 2).

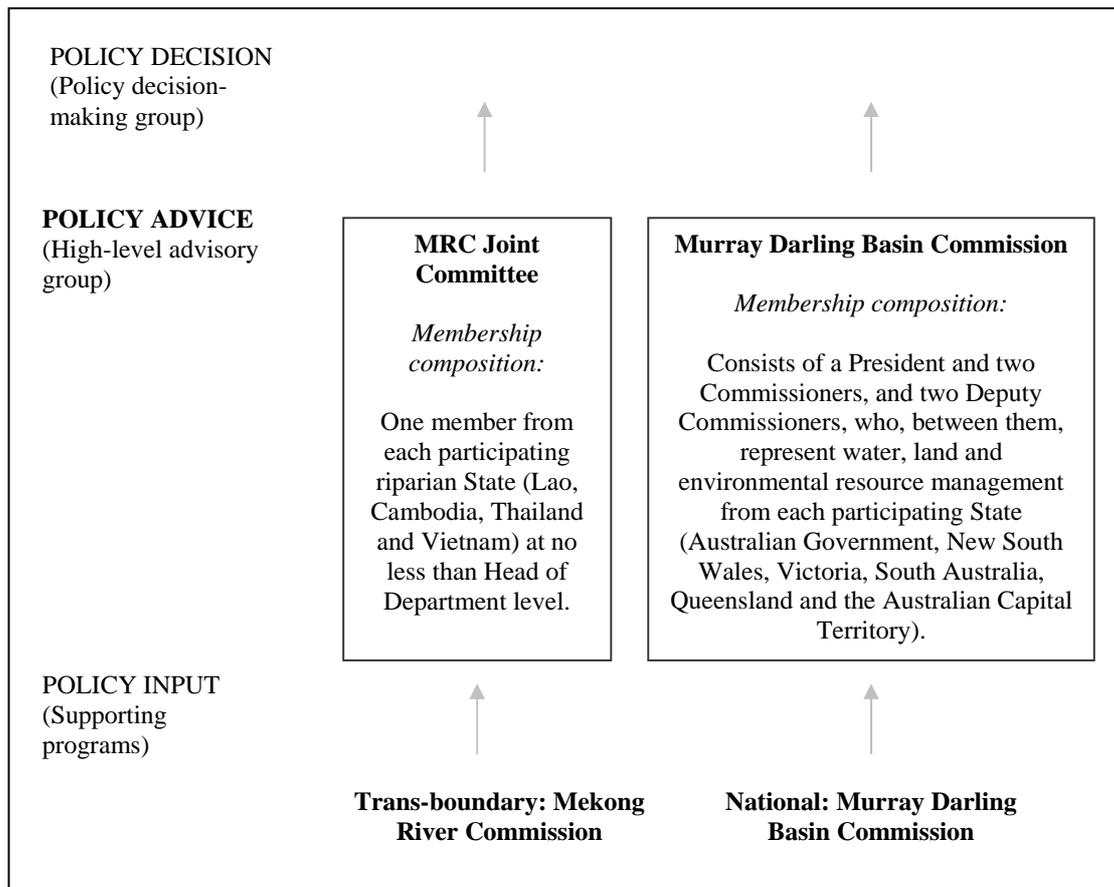


Figure 2: Membership composition of the highest-level policy advisory group in two water resource commissions

3. Governance arrangement concerns in water resource commissions

Water resource management can be underpinned by an integrated environmental management approach where technical advice is provided to assist policymakers in identifying problems and the options to resolve them. However, there is limited systematic research on understanding how these government arrangements affect the policy process. This section identifies a number of concerns to do with the transfer and use of technical advice in WRCs. It does not present findings, as data have yet to be collected, but rather establishes where the proposed research is heading.

- 1) *There is a need to understand the processes of how technical advice affects policymaking in water resource commissions, including the barriers to knowledge flows.*

In looking at the MRC, for example, is advice from the Flood Management and Mitigation Programme used more than advice from the Environmental Programme by the MRC Joint Committee, and if so, for what reasons (e.g. access, time constraints, competency)? Biermann's (2002) work on international technical advisory groups (i.e. global environmental assessments) in India suggested that socio-economical advice is more important than scientific to decision-makers in developing nations. He found that it was not the lack of information but how the information was prioritized, as local problems, such as soil degradation or air pollution, were more important as they affected daily livelihood. He suggested that technical advice could be more effective by having stronger participation of developing countries experts in discussions, and enhancing the research capacity in developing countries.

The number of supporting programs, communication within programs, and the linkages between these programs, may also affect how advice is transferred and used by policymakers. Cash and Moser (1998) suggested a number of barriers ('sources of friction') with the transfer of technical advice in cross-scale environmental management institutions (Table 1).

Factors	Definition
Missing links and missed opportunities	Missing realizable opportunities that could assist the development, transfer and use of advice by policy makers
Lack of technical and institutional capacity	Technical and institutional capacity may be missing to produce, process and disseminate advice to connect with policymakers.
Incompatibility of perspectives and languages	Differences among technical advisors and policymakers in how they conceptualize problems, and the respective languages in which they are conveyed may impede mutual understanding, and to use it appropriately in decision making.
Lack of trust	Not being taken seriously may affect how advice is used.

Table 1: Barriers to the development of information and decision systems across scale
(Revised from Cash and Moser 1998)

In consideration of the factors in Table 1, with the Murray-Darling Basin Commission, for instance, are the Commissioners able to interpret and appropriately use the information gathered by the nineteen supporting programs? Are they given enough time to consider all advice? Is the advice presented in a language that can be understood by a layperson? Are there adequate institutional arrangements in place for the dissemination of advice? Do the supporting programs capture enough information to generate appropriate advice to assist in making decisions? Is there enough interaction between program directors and the Commissioners to ensure all advice is used appropriately? These types of issues are to be examined in this proposed research.

From a different perspective, Peterson (1992) demonstrated that an on-going debate in a technical advisory group cause fracturing, and severely diminishing their influence on policymakers. However, (Haas 1989) found that overall technical advisory groups do play an important role in gathering information, forming consensus on the available scientific evidence, disseminating the advice to government, and assisting in formulating policy options. Drake and Nicolaidis (1992) also found that technical advisors were important for framing issues and establishing policy options in which governments could use to define or redefine their interests and pursue multilateral cooperation. As such, do more programmes result in the capture of more useful information, and hence better understanding of the issues and more appropriate advice? The Mekong River Commission, for example, has eleven supporting programmes, compared to the MDBC that has nineteen. Or do too many programs result in less interaction with policy makers, less consensus between advisors, less clarity of policy options, and hence reduced the importance of the advice? Again, these issues are to be explored.

- 2) *There is a need to understand how the membership composition of high-level policy advisory groups in WRCs can affect the policy making process, and to what extent.*

Members of these groups are often bureaucrats with conflicting responsibilities. In relation to the MDCB, Scanlon (2006) comments:

“Heads of government agencies work very closely with Ministers, and while not political in a party political sense, are quite properly close to the politics of government. They are contracted to carry out the government’s policy agenda and the expectations of the government of the day and obligations to the Basin under the Agreement may not always coincide. This stands in contrast to the intended role of Commissioners under the Agreement to act in the best interests of the Basin without regard to political borders, although this obligation is not expressly stated”

Scanlon (2001) goes further to suggest that to be able to deal effectively with the many challenges facing water resource management, an independent Commission possessing relevant skills and experience is required. He suggested that membership should be drawn from appropriate disciplines including finance, business management, science and technology, law, engineering, conservation and management of natural resources, and government.

Mills and Clark (2001) study, however, found that scientific advice could facilitate productive discussion amongst bureaucrats with conflicting interests by raising a credible neutral position, and by focusing the discussion on choices and their consequences. In doing so, they argued that decision-makers develop a clearer understanding of the consequences of management decisions, and as such their ultimate decisions are more likely to lead to the expected outcomes. Thomas (1997) found that policymakers in natural resource agencies became increasingly dependent on staff ecologists to provide solutions to their collective dilemma. However, the technical advice alone was not enough for the policymakers to encourage cooperation. He found that they only considered engaging with technical experts when it presented a means for alleviating uncertainties that impinge upon their organizations.

From another perspective, Biermann's (2002) findings counter the belief that science and scientific assessments are political neutralizers, at least at an international level. He found that the advice provided by international scientific advisory institutions tended to be to the disadvantage of or oblivious to the interests of developing countries. His implication is that there are different processes going on in the way technical advice affects policymaking groups in developing nations compared to developed nations. Hence, the external political and economic environment is likely to play role in how technical advice is considered by high-level advisory groups, regardless of their membership composition.

In conclusion, the factors that affect how members of these high level policy advisory groups make decisions, in both developing and developed countries, are not well understood. Contrary to Mills and Clark (2001) findings, technical advice could also increase the complexity in these groups, thereby the conflict, making it even more difficult for policymakers to understand the consequences of options. Further research is needed to understand the barriers to the transfer and use of technical advice to policymakers in natural resource institutions, such as water resource commissions. As Cash and Moser (1998) comment:

“..little effort has been made to understand how assessment of scientific and technical information which is gathered, constructed, and produced at one scale interacts with decision making and risk management strategies at other levels of scale”.

From management perspective, understanding these barriers can lead to the identification of characteristics for effective linkages between technical advisors and policymakers, and hence promote more effective environmental management (Cash and Moser 1998). Furthermore, it could assist policymakers in determining ways to alter the direction and communication of research so that it is more receptive to management needs (Jung 1999).

4. Research focus: research direction, hypotheses and methodology

The proposed research helps to fill this information gap by conducting a comparative institutional analysis of two similarly structured water resource commissions. Specifically, it will seek to identify what are the factors that affect the exchange of technical advice and its use by the highest-level policy advisory groups in water resource commissions. The proposed hypotheses are:

- 1) How do organizational arrangements affect how technical advice is transferred in water resource commissions?
- 2) How does the membership composition of the highest-level policy advisory group affect how technical advice is used in water resource commissions?

The methodology to be used to test these hypotheses is at an early stage of development. An exploratory approach is likely to be applied, using both qualitative and quantifiable methods. The barriers

(Table 1) identified in Cash and Moser (1998) study may be used as factors to guide the development of an analytical framework to focus the collection of data. Open-ended interviews will be used to ensure unknown factors are captured.

The Mekong River Commission (South-east Asia) and the Murray-Darling Basin Commission (Australia) were selected as case studies as they are both well-established water resource commissions and have similar structural arrangements. However, their political contexts are quite different, including their responsibilities. For instance, the MRC is comprised of partners from four adjoining nations with different political regimes and economic growth. On the other hand, the MDBC has been formed under the Australian federal system, as such is comprised of partners from adjoining states, and representatives from the Australian government. As part of the research, the political contextual differences will be analyzed and used to discuss findings.

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