

Catchment Management Planning in Coastal Areas: Some Preliminary Insights from New South Wales, Australia

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ABSTRACT

This study applies an institutional analysis framework to examine the institutional arrangements used for developing an integrated management plan for a coastal catchment in New South Wales, Australia. The Southern Catchment Management Board, the case studied, presented well defined institutional arrangements for coordinating its activities, which had the potential to lead to more integrated approaches. We suggest, however, that specific focus on coastal issues, and direct representation of coastal stakeholders would improve catchment management in coastal areas of NSW.

Keywords: catchment management, institutional arrangements, management plans, coastal zone management, New South Wales, Australia.

Key learnings:

1. Focus on coastal issues should guide catchment management in coastal areas.
2. Direct representation of coastal interests is required in catchment management entities.
3. Coordination with coastal stakeholders is essential for effective coastal catchment management.

INTRODUCTION

The coastal zone constitutes an integrated and complex system interlinked to river catchments through a number of natural and socio-economic processes. Consequently, very often, catchment-based activities can adversely affect the coastal natural and socio-economic systems. Catchment management, thus, can be an appropriate approach for dealing with coastal issues that originate beyond the usually narrow political and administrative boundaries of the coastal zone¹ (Beatley et al., 2002).

In the Australian state of New South Wales (NSW), catchment management was adopted as a statutory policy in the late 1980s (NSW, 1989). In 2000, Catchment Management Boards (CMBs), the entities then in charge of coordinating catchment management at the regional level, were responsible for the preparation of integrated catchment management plans (the Catchment Blueprints) (DLWC, 2000). The Southern Catchment Management Board (SCMB), which was located south of Sydney and covered an area of 9,000 km², extending from the coast to almost 100 km inland (SCMB, 2003a), was the only Board in the NSW's coast to have an exclusive section on coastal issues as part of its Blueprint (Fidelman et al., 2004).

Moving towards more integrative catchment management approach, which takes into account the interests of the coastal zone, requires coordination of a range of management entities and key stakeholders. Such coordination, in turn, requires specific arrangements for resolving conflicts and making joint decisions (Margerum and Born, 2000).

¹ The coastal zone of New South Wales, for instance, - as defined by the NSW Coastal Policy - includes the area one kilometre landward along the coastline; three nautical miles seaward; and all coastal lakes, lagoons, estuaries and islands (NSW, 1997).

This paper applies an institutional analysis framework to gain insights into the institutional arrangements used for developing the Catchment Blueprint for the SCMB. It aims to describe the structure and process of coordination, noting potential opportunities and challenges to consider coastal zone interests as part of the planning exercise.

METHODS

The *Rules Framework*, an institutional analysis framework developed by Margerum and Born (2000), was applied to examine the structure and process of coordination for developing the SCMB Blueprint. The framework describes the problem domain, structure, and process of coordination using sets of rules (i.e., scope, position and boundary, authority, information, and decision rules). The sources of data/information for this study included documents such as meetings minutes and reports, and consultation with some of the individuals involved with the development of the Blueprint.

RESULTS AND DISCUSSION

In developing the Blueprint, the SCMB identified five major areas of concern (first order objectives), i.e., coast and estuaries, water, sustainable land use, biodiversity, and developed environment. These objectives were identified from a review of the existing reports and plans and also public input. Working groups were used to develop catchment and management targets, and management actions for each of the first order objectives identified. The management actions were prioritised and the organisations responsible for their implementation identified. Public consultation was undertaken throughout the planning process (SCMB, 2003b). The preparation of the SCMB Blueprint involved well defined institutional arrangements, specified primarily by the NSW government through the catchment management legislation (NSW, 1989; NSW, 1999), and the Minister for Land and Water Conservation directives (DLWC, 2000). Such institutional arrangements are described below and summarised in Table 1.

Scope

The problem domain or scope defines the issues (e.g., planning and management activities) addressed by the SCMB that required coordination (Margerum and Born, 2000). The scope of the SCMB – investigated in this paper² – was the preparation of the Blueprint for the Board area, which included the river catchment plus the coastal zone (i.e., the geographic scope), covering, therefore, a range of potential Natural Resource Management (NRM) issues (SCMB, 2003a). Despite a geographic scope that included the coastal zone, there was no particular recommendation by the NSW government that coastal issues should comprise a specific part of the Blueprints. As the scope of the planning exercise was narrowed, however, the SCMB, as mentioned above, identified coastal issues as one of its major areas of concern.

Position and Boundary Rules

Position and boundary rules define those involved in the preparation of the Blueprint (position holders), their roles, and how they enter and leave their positions (Margerum and Born, 2000). The SCMB comprised 5 representatives from resource users, 4 from nature conservation, 2 from the aboriginal community, 4 from local government and 4 from state government. Board members were appointed by the Minister for Land and Water Conservation, usually from a panel nominated by particular interest groups (e.g., Nature Conservation Council, industry groups) and/or through public

² In addition to the development of a Blueprint, the Board's roles also included communication with the community, and development and assessment of proposals for funding.

advertisement (i.e., self nomination) (NSW, 1999). Despite the lack of direct representation for coastal stakeholders, duplicate membership of a few members of the SCMB may have provided some representation for coastal interests. One member of the Board, for instance, also served as chairperson for estuary management committees in the Board area.

Table 1. Coordination rules framework applied to the SCMB planning process.

Category Rules ^(a)	Description
Scope	<ul style="list-style-type: none"> • The development of an Integrated Catchment Management Plan (The Blueprint).
Position and Boundary	<p><i>The Board</i></p> <ul style="list-style-type: none"> • Representatives from resource users, nature conservation, the aboriginal community, local and state government, appointed by the Minister for Land and Water Conservation. <p><i>Working Groups</i></p> <ul style="list-style-type: none"> • Mostly technical experts from state agencies and stakeholder representatives such as local government, Board members, and university.
Authority	<p><i>The Board</i></p> <ul style="list-style-type: none"> • Authority to develop the Catchment Blueprint, i.e.: <ul style="list-style-type: none"> - to identify critical opportunities, problems and threats associated with the use of natural resources; - to identify critical objectives and targets for the management of natural resources; and - to develop management options, strategies and actions to address the objectives and targets identified. • Authority to delegate functions, such as through the establishment of working groups and the specialist team. • Authority to consult with stakeholder groups and the community • Authority to advise the Minister on NRM within the Board area. <p><i>Working Groups</i></p> <ul style="list-style-type: none"> • Authority to refine issues, review existing information and recommend targets and actions for the Board's consideration.
Decision	<ul style="list-style-type: none"> • Consensus-based decision making
Information	<p><i>The Board</i></p> <ul style="list-style-type: none"> • Between members: <ul style="list-style-type: none"> - Regular meetings, which included briefings, reports, circulation of information sheets, and discussion/issue papers. • Between the Board and the Minister: <ul style="list-style-type: none"> - Reports • Between the Board and stakeholders and the community: <ul style="list-style-type: none"> - Community forums - Focus groups - Mail surveys - Written submissions • Between the Board and other NRM bodies <ul style="list-style-type: none"> - Duplicate membership - Communication between the NRM bodies' chairpersons - Newsletter, reports, minutes from other NRM bodies - Inputs from the Board (e.g., submissions) to other NRM bodies <p><i>Working Groups</i></p> <ul style="list-style-type: none"> • Meetings to analyse issues and make recommendations to the Board • Reports and/or discussion papers

(a) *Scope* corresponds to the problem domain, *position* and *boundary* are rules governing structure, and *decision*, *authority* and *information* represent rules governing process (Margerum and Born, 2000).

Working groups for each of the major areas of concern (i.e., NRM issues) identified and a specialist team on aboriginal issues were established by the SCMB. The coast and estuaries working group included members from state government agencies (e.g., DLWC, EPA, NPWS, NSW Fisheries), local government, the University of Wollongong, the aboriginal community, and Board representatives. The group comprised mostly technical expertise that had been involved with estuary and/or coastal management in the Board area.

Authority Rules

Authority rules define the coordination activities of the Board, the basis of authority, and the degree to which the authority is binding (Margerum and Born, 2000). CMBs were statutory bodies to advise the State Government on NRM. The Board's activities were controlled by the Minister for Land and Water Conservation. The Department of Land and Water Conservation (DLWC), the host agency, oversaw activities and provided the Board with technical, administrative, and financial support (DLWC, 2000). The Catchment Management Regulation 1999 assigned the SCMB the authority to prepare the Blueprint for the Board area (i.e., identify opportunities, threats and problems associated with NRM; identify objectives and targets for the use of natural resources; and develop management options, strategies and actions) (NSW, 1999). The Blueprint had no legal status, i.e., it was advisory only, rather than a regulatory document. However, it aimed to guide investments in NRM in NSW. The Board also had the authority to delegate functions and established working groups and a specialist team, as mentioned above. The working groups were given the authority to refine issues, review existing information and propose catchment and management targets and actions to the SCMB. The leadership of the coast and estuaries working group was provided by the DLWC, the agency also responsible for estuary management in NSW.

Decision Rules

Decision rules define the procedures by which the SCMB made collective decisions (Margerum and Born, 2000). Consensus-based decision making was the rule prescribed by the DLWC (DLWC, 2000) and adopted by the Board. Consensus was reached, basically, through discussion and negotiation. Decisions made by consensus are common in collaborative approaches and are believed to be effective decision rules, as they help build long term support and unanimity among participants (Margerum, 1999).

Information Rules

Information rules define the procedures for information exchange (e.g., sharing analysis, goals, objectives) within the Board and between the Board and other interests (Margerum and Born, 2000), such as other stakeholders and the community, and other NRM bodies; for example. Margerum and Born (2000) point out that information rules are important to create a networked management process, reducing transaction-costs for participants and enhancing joint, adaptive management.

The SCMB presented various procedures for exchanging information. Formal meetings, the main means for communicating among Board members, were held in a regular basis – some 15 meetings took place during the preparation of the Blueprint, between September 2000 and July 2002. Workshops and briefings were held with local government representatives. Information, including request for inputs from stakeholders and the community at large, was circulated by mail, internet, and through the press at various stages of the development of the Blueprint. Public meetings took place in different locations within the Board area to discuss the Blueprint, as its major components were being developed (e.g., first order objectives, catchment and management targets) (SCMB, 2003b).

The Board had to report to the Minister for Land and Water Conservation about the progress concerning the preparation of the Blueprint (DLWC, 2000). Interaction with other NRM bodies was facilitated by duplicate membership, e.g., a couple of board members were also representatives in other NRM bodies, such as the Shoalhaven/Illawarra Water Management Committee, the Lake Illawarra Authority and estuary management committees. Other forms of interaction included eventual attendance of Board members at meetings of, and newsletter, minutes and reports from, other NRM entities.

Communication with experts included reports and briefings from the working groups, and also interaction with staff from the DLWC and other agencies. In addition to working groups, expert focus groups were conducted with university, government and industry staff (SCMB, 2003b). The DLWC assisted in providing the necessary information and data for the Board. The coast and estuaries working group met monthly from April 2001 till the completion of the Blueprint, in July 2002. The group produced discussion papers and advised the board on the development of catchment and management targets, and management actions.

Opportunities and Challenges to Coastal Catchment Management

The area of the CMBs provided adequate geographic scope for addressing coastal issues at the regional level, as it encompassed the coastal zone including the state waters, i.e., 3 nautical miles offshore. This is very positive and somewhat unusual in catchment management initiatives, where coastal management needs are, in general, given limited attention (UNEP/MAP/PAP, 1999). However, adequate geographic scope itself would not necessarily result in particular attention to coastal issues, as has been observed for other coastal catchments in NSW (Fidelman et al., 2004). It would be desirable, therefore, that a specific scope be recommended by the NSW government to guide catchment management in coastal areas of the state. Such scope should focus primarily on coastal issues that may be significantly affected by catchment-based activities, as not all coastal issues in the Board area would require an integrated approach at the regional catchment scale (Fidelman et al., 2004).

The specification of a coastal zone focus (change in scope) should be accompanied by changes in the structure by defining direct coastal representation in catchment management entities. The fact that the SCMB had some members (e.g., the chairperson) who were familiar with coastal issues in the Board area, may have influenced the consideration of these issues in the Blueprint. As one of the individuals consulted suggested, if the SCMB chairperson was from a rural area, for example, attention to coastal issues might have been different, and possibly quite limited. Therefore, it is important to secure direct coastal representation by either creating a coastal membership category (changes in position rules) or changing the boundary rules so that in each of the membership categories (e.g., resource user, nature conservation, local and state government) there would be a coastal representative. Specifying a coastal focus and representation for coastal catchments is particularly important in NSW, as the Catchment Management Authorities (CMAs) that recently replaced the CMBs are operating in a larger geographic area and with a smaller membership in their boards (NSW, 2003).

As these sets of rules tend to be interrelated, the changes in scope and structure suggested here require and/or lead to changes in the process of the coordination arrangements (Margerum and Born, 2000). It is important that participants in the decision-making process establish effective ways for interaction with coastal stakeholders and the community at large. The coastal zone constitutes an unique system characterized by particular multiple and conflicting interests (Cicin-Sain and Knecht, 1998). Thus, it is imperative to foster effective procedures to exchange information and resolve conflicts among coastal stakeholders and between coastal and "non-coastal" stakeholders, if coastal zone interests are to be adequately coordinated at the catchment management level.

The specific rules observed in this study do not necessarily mean better coordination (Margerum and Born, 2000). Margerum and Born (2000) argue, however, that well specified institutional arrangements lead to more regularised approach to coordination and are prerequisite for developing

effective integrated approaches. Future research on institutional arrangements for coastal catchments of NSW need to assess the effectiveness of the arrangements described in this paper, so that ways to improve coordination can be devised.

CONCLUDING REMARKS

This paper provided preliminary insights into the structure and process of the institutional arrangements used for developing the Blueprint for the SCMB, and noted potential opportunities and challenges for coordinating coastal interests as part of the planning process. The SCMB presented well defined structure and process for coordinating its activities, which had the potential to lead to more integrated approaches. We suggest, however, that specific focus on coastal issues established at the policy level (change in scope), and direct representation of coastal stakeholders (change in position and boundary rules) would improve catchment management in coastal areas of NSW, now under the responsibility of the new CMAs.

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REFERENCES

- Beatley, T., Brower, D.J. and Shwab, A.K., 2002, *An Introduction to Coastal Zone Management*. Island Press, Washington, 329 pp.
- Cicin-Sain, B. and Knecht, R.W., 1998, *Integrated Coastal and Ocean Management - Concepts and Practice*. Island Press, Washington, DC, 517 pp.
- DLWC, 2000, Catchment management board support package (draft), NSW Department of Land and Water Conservation.
- Fidelman, P.I.J., Morrison, R.J. and West, R.J., 2004, 'Coastal issues in regional natural resource management plans: the case of the New South Wales catchment blueprints', paper presented at Coast to Coast '04, April 19-23, Hobart, Australia.
- Margerum, R.D., 1999, Integrated environmental management: the foundations for successful practice, *Environmental Management*, 24(2): 151-166.
- Margerum, R.D. and Born, S.M., 2000, A co-ordination diagnostic for improving integrated environmental management, *Journal of Environmental Planning and Management*, 43(1): 5-21.
- NSW, 1989, Catchment Management Act, New South Wales, Australia.
- NSW, 1997, NSW Coastal Policy, New South Wales, Australia.
- NSW, 1999, Catchment Management Regulation, New South Wales, Australia.
- NSW, 2003, Catchment Management Authorities Act, New South Wales, Australia.
- SCMB, 2003a, Integrated management plan for the Southern Catchment 2002, Southern Catchment Blueprint, Southern Catchment Management Board and NSW Department of Land and Water Conservation.
- SCMB, 2003b, Southern Catchment Blueprint accreditation appendix (draft), Southern Catchment Management Board.
- UNEP/MAP/PAP, 1999, *Conceptual Framework and Planning Guidelines for Integrated Coastal Area and River Basin Management*, UNEP Priority Actions Programme, Split, 78 pp.