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Improving integration for integrated coastal zone management: An eight country study

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HIGHLIGHTS

- Qualitative comparative analysis of ICZM progress in eight EU and non-EU countries
- Focus is on five types of ICZM mechanisms and their role in improving integration.
- All countries have shown some progress in implementing ICZM.
- Certain mechanisms are better suited to enhance specific types of integration.
- Poor enforcement of regulations is one of the main barriers limiting integration.

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ABSTRACT

Integrated coastal zone management (ICZM) is a widely accepted approach for sustainable management of the coastal environment. ICZM emphasizes integration across sectors, levels of government, uses, stakeholders, and spatial and temporal scales. While improving integration is central to progress in ICZM, the role of and the achievement of integration remain understudied. To further study these two points, our research analyzes the performance of specific mechanisms used to support ICZM in eight countries (Belgium, India, Israel, Italy, Portugal, Sweden, UK, and Vietnam). The assessment is based on a qualitative comparative analysis conducted through the use of two surveys. It focuses on five ICZM mechanisms (environmental impact assessment; planning hierarchy; setback lines; marine spatial planning, and regulatory commission) and their role in improving integration. Our findings indicate that certain mechanisms enhance specific types of integration more effectively than others. Environmental impact assessment enhances science–policy integration and can be useful to integrate knowledge across sectors. Planning hierarchy and regulatory commissions are effective mechanisms to integrate policies across government levels, with the latter also promoting public–government integration. Setback lines can be applied to enhance integration across landscape units. Marine spatial planning is a multi-faceted mechanism with the potential to promote all types of integration. Policy-makers should adopt the mechanisms that are suited to the type of integration needed. Results of this study also contribute to evidence-based coastal management by identifying the most common impediments related to the mechanisms of integration in the eight studied countries.

1. Introduction

Coastal zones are spatial units with great importance worldwide. In addition to their economic and social values, coastal zones often possess unique flora and fauna and provide many essential services such as maintenance of habitats for commercial fish spawning and flood protection. Yet assessments reveal a continuing degradation of littoral environments (e.g., European Environment Agency, 2006). Over the past several decades, policy-makers have indicated the lack of integration as a stumbling block for successful management of the coast (Anker, et al., 2004; Miles, 1991; Underdal, 1980).

Integration is a sought-after policy norm in many areas of environmental governance including energy production and distribution, watershed management, forestry, pollution prevention and environmental planning (Portman and Fishhendler, 2011). Much empirical research, academic literature and many professional publications have described the benefits of integration for resource management including reduced conflict over resource use in the long-term and a better chance for

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sustainable development (Barusseau et al., 1997; Ernsteins, 2010; UNESCO, 2003).

Integrated coastal zone management (ICZM) is a widely-accepted approach to managing resources that has been adopted in response to the well-documented failures in sectoral management of marine fisheries, coastal hazards, mining and land use (Cicin-Sain and Knecht, 1998; Cordah Ltd., 2001). Today, almost all plans and programs for the coast call for the use of ICZM. Yet practitioner evaluations and research on ICZM have found that in many cases it is unclear what ICZM can accomplish and how (Rupprecht Consult, 2006). Past studies suggest that further empirical and comparative analyses are needed to inform how to best use specific mechanisms within particular institutional and organizational contexts (e.g., Anker et al., 2004).

To address some of the gaps identified in previous research (e.g., Anker et al., 2004), this article presents the results of qualitative comparative research on different mechanisms used to support ICZM in eight countries. These countries have highly variable institutional conditions and variable socio-economic contexts (See Portman et al., 2012). The countries are partners working on the EU-funded project "Solutions for Environmental Contrasts in Coastal Areas" (SECOA[2]) and consist of Belgium, India, Israel, Italy, Portugal, Sweden, United Kingdom, and Vietnam. In this research we address two core questions: (1) which mechanisms are most suited to enhance different types of integration?; and (2) what are the common impediments (including costs) to their implementation?. The comparison of the use of ICZM mechanisms within the different institutional and socio-economic contexts of the eight countries highlights common impediments. Policy-makers can use this information to improve coastal management aimed at enhanced integration.

Section 2 briefly reviews the main tenets of ICZM. Then it summarizes the contributions of past evaluations of its implementation and identifies relevant gaps in knowledge. This section also qualifies mechanisms as our unit of analysis to further understand the concept of integration. Section 3 explains the basis for the methodological approach used. Section 4 reports the results of the qualitative empirical research conducted. The findings also indicate the most common challenges to their implementation. We close with overarching recommendations for achieving greater integration for management of the coastal environment and improved ICZM.

2. Integration and ICZM

To 'integrate' means to unify, to put parts together into a whole. An integrated approach to policy-making, then, refers to policy-making in which the constituent elements are brought together and made subject to a single, unifying concept (Underdal, 1980). Underdal (1980) aptly defined integration in relation to marine policy at the time which was largely managed for fisheries and mineral extraction whereas management of the coastal environment was (and is) highly dependent on terrestrial land use planning for tourism, recreation and urban development. Therefore a salient disconnect was common between landscape units and management regimes and these met at the coastal zone (Cicin-Sain and Knecht, 1998; Cordah Ltd., 2001).

Consequently integration became important with regard to coastal management following the adoption of Chapter 17 of Agenda 21 in 1992, the Jakarta Mandate on Marine and Coastal Biodiversity under the Convention on Biological Diversity, and the UN Food and Agriculture Organization's Code of Conduct for Responsible Fisheries. Article 10 of this code is entirely devoted to ICZM (FAO, 1995; Cicin-Sain and Knecht, 1998). Exact definitions of ICZM have evolved over time and they vary somewhat depending on policy makers' specific objectives. For our purposes ICZM is defined as "an adaptive, multi-sectoral governance approach which strives to balance development, use and protection of coastal environments…." (UNEP, 2009).

In the US, ICZM has been implemented for some time through the US Coastal Zone Management Act, promulgated in 1972. The Act bestows upon individual states responsibilities for the incorporation of federal coastal zone management (CZM) principles in state and local plans for the coast. The European Union (EU) adopted a recommendation for the implementation of ICZM (2002/413/EC) for its member countries in May 2002 (European Parliament, 2002). The recommendation formalizes eight principles of ICZM that should be implemented in member countries (see European Parliament, 2002).

Many countries have been implementing CZM plans using integrated approaches for over three decades. ICZM efforts in different governance, spatial and temporal contexts have met with varying success (Christie et al., 2005; European Commission, 2011; Klinger, 2004) dependent to some extent on what terms of reference are used to assess their success. In any case, the need to improve the implementation of ICZM is clear based on the poor condition of littoral environments the world over despite the widespread adoption of ICZM principles (Klinger, 2004).

2.1. A framework for evaluation based on past studies

Analysis of past studies of ICZM helps identify what it is expected to achieve. This is an important step in determining how to evaluate its implementation. In determining our framework for evaluation of the effectiveness of ICZM we considered what integration seeks to achieve and why it is important for coastal management, the strengths of evaluation methods used in the past, their relevance for our purposes and research gaps.

Mitchell (1982) undertook an early comparative study when the formal concept of ICZM was barely a decade old. Albeit outdated, Mitchell's work confirms the importance of comparative research in the field. In addition to evaluating the systems of ICZM in the US by comparing them to those of Western Europe, he examined the use of ICZM between developed and developing countries. An important finding was that despite intentions, the national programs he evaluated were not highly integrative since the ability to simultaneously manage across landscape units (e.g., marine and terrestrial) and between levels of governance remained largely unchanged. This early study highlighted sectoral governance and environmental (physical) aspects of integration, including integration at various scales (i.e., local, regional, national). Subsequent studies of ICZM and other types of resource management have examined similar aspects of integration (e.g., Cash et al., 2006; Lane, 2008; Biermann et al., 2009).

As concerns for sustainability have grown in importance over the last three decades, temporal scales have also become an important element of *integrated* resource management and environmental policy. Sustainable development calls for the use of resources in ways that serve present generations without affecting the ability of future generations to use the same resources (Brundtland, 1987). This concept is the basis for the temporal dimension of ICZM.

One way to operationalize and evaluate integration is through the use of indicators. Indicators often measure what we are looking for; they also serve for monitoring characteristic phases, elements and outcomes of ICZM. Trumbic et al. (1997) evaluated ICZM programs, plans and projects in the Mediterranean region based on performance, integration and sustainability. These three aspects of programs indicated success "against which the case studies [were] evaluated". Both the performance and sustainability indicators, respectively referring to program progress and extension (i.e., program continuity) can be thought of as related to measures of "institutional success". Indicators of integration refer to the level of horizontal or vertical interdependences achieved among sectors, plans or administration levels and it is the only dimension in that study for which the integration of environmental components is addressed (Trumbic et al., 1997; Lindemann, 2007).

[2] http://www.projectsecoa.eu/