



The relevance of governance models for estuary management plans

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ABSTRACT

The latest theories on the governance of water resources point to the need to adopt integrated approaches, allowing the mediation of conflict between public and private interests by building consensus to include the participation of stakeholders and civil society in formulating and implementing policies, thereby ensuring their legitimacy. Models of governance have particular relevance in the context of estuaries, because of the complexity associated with them. Estuaries are areas where valuable, highly sensitive and diverse natural systems coexist, which are frequently threatened by the numerous human activities concentrated there. They are also areas where several organizations overlap, with their own jurisdictions and management instruments and where there is a wide range of users with distinct interests. At a time when the Planos de Ordenamento de Estuários (POE) (Estuary Land Use and Management Plan), a new tool for water resource management and planning, are being drawn up in Portugal, this paper discusses the specificities of the new Portuguese estuary plans, as well as associated potentials and constraints to further understand how water resources and land use policies may effectively be integrated in estuary contexts. It critically analyses the Portuguese legal framework established for these plans, arguing that, in spite of the novelty of the newly defined legal measures to better plan and manage estuaries, implementation of its ambitious objectives requires a robust governance model for plan preparation and implementation. Taking into account the main institutional features of complex estuaries with various agencies, stakeholders and users, as well as relevant governance principles, this paper proposes a governance model capable of enriching the implementation of estuary plans by contributing to a stronger involvement of all stakeholders and users in the construction of the plan, allowing conciliation of interests and participation in decision-making, within a framework of collaborative governance. Whilst the paper focuses on the Portuguese Law, the approach adopted is also of interest to other countries to assessing estuary planning regulations and associated collaborative measures.

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Introduction

It is now recognized that water problems are multi-dimensional, multi-sector, multi-regional and involve multiple interests, and can only be addressed and solved through efficient multi-institutional coordination with multiple stakeholders using a platform of collaborative governance (Biswas, 2004). Water governance is of particular relevance in the context of estuaries, given the inherent complexity of these ecosystems. Their geographical location at the interface between marine and fluvial environments and aquatic and terrestrial systems results in significant variability of environmental, physical, chemical and geomorphological conditions, making estuaries highly dynamic and complex systems subject to numerous risk and uncertainty situations (McLusky and Elliott,

2004). Their location also favours a wide variety of distinct values and functions (environmental, landscape, economic, social, cultural) that translate into goods and services of countless value (Townend, 2002; Cooper et al., 2004), which is why estuaries are considered the most productive and valuable ecosystems on the planet (Constanza et al., 1998). They are therefore locations for the concentration of diverse human activities, not always compatible, which threaten their values and functions and the uses that depend on them (Goldberg, 1995; Kennish, 2000; Townend, 2002). As transition systems, estuaries are also heavily exposed to the cumulative effects of human activity both upstream and downstream (Aubry and Elliott, 2006). The occupation, use and transformation of estuary banks and bodies of water have variable consequences, with effects which are often irreversible (Elliott, 2004). Relevant contributions have indeed been made in the specific literature aiming to clarify current knowledge regarding the understanding of the functioning of estuaries covering science and management issues, as well as the resulting paradigms (Elliott and Withfield, 2011). These authors group such paradigms into eight

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categories grouped into science (definitions, scales, ecotones, linkages, productivity, tolerances and variability) and management (pressures, valuation, health and services) of estuaries. The challenges brought to the fore by clearer insights into the roles and values of estuarine ecosystem services, by the recognition of their vulnerability to climate change and consequent need for adaptation measures and proactive intervention to ensure higher resilience levels (Elliott and Withfield, 2011; Chapman, 2012), however, call for a deeper attention to estuary governance mechanisms. Ballinger and Stojanovic (2010) add that the greater challenge is the need for the governance and associated decision-making system to be sufficiently robust, adaptive and balanced to be able to tackle the myriad of complex issues associated with the multidimensional estuary system. Specific planning and management plans dedicated to estuarine protection and improvement can be seen as one (among other) mechanism to better understand and pursue such a challenge.

According to Imperial and Hennessey (1996), estuarine ecosystems are highly complex, dynamic and subject to many internal and external relationships that are subject to change over time. This creates conditions of extreme uncertainty and presents unique challenges for the design and management of governance systems. Moreover, estuaries and estuarine banks are areas where a multitude of governmental agencies coexist, often having their own jurisdiction, specific powers, responsibilities, legislation and management instruments, often poorly articulated and coordinated among each other. Equally, the diversity of, often conflicting, uses, associated with the multiplicity of users and organizations whose interests do not always converge, generates numerous pressures and conflicts which threaten the sustainability of the estuarine ecosystem, as well as its values and functions. Given the inherent complexity of these ecosystems, the issues involved in the planning and management of estuaries and estuarine banks need to be addressed in a holistic manner, as to be successful an ecosystem-based management program must develop an institutional arrangement capable of integrating environment and development considerations in a manner acceptable to society (Imperial, 1999). According to this author, *“it is important for practitioners and researchers to recognize that ecosystem-based management is as much a problem of ‘governance’ involving multiple organizations located at different levels of government as it is a question of science and designing effective policies for managing natural resources. A lack of understanding of these important institutional questions is likely to result in inappropriate policy recommendations and decrease the effectiveness of resource management programs”*.

In Portugal, the management of estuaries has been characterized by a mix of sector approaches, such as port activities, navigation, nature conservation, fisheries or urban management, leading to fragmented management strategies. Specific recent literature about the Portuguese estuaries is rich but it is more focused on particular issues such as hydrology, water quality, ecology, anthropogenic stress, monitoring strategies or indicators, among other themes, but less dedicated to planning and management approaches (see, for instance, Veloso-Gomes and Taveira-Pinto, 2003; Cardoso Silva and Carmona Rodrigues, 2004; Ferreira et al., 2005; Vasconcelos et al., 2007; Elliot and Quintino, 2007; Vasconcelos et al., 2007; França et al., 2009). Estuary management strategies, if at all existent, undertaken by existing planning and land management instruments, have on the whole been shown to be unable to cope with the complex reality of estuaries. This is either because approaches to management and planning do not integrate the main issues of estuaries such as water, land, nature and port activities, or because of the lack of coordination between the various management agencies and associated instruments.

More recently, through the enactment of the Water Law¹ and a specific Decree Law², estuaries have received special attention through the creation of a set of plans specifically dedicated to the planning and management of estuaries. These are meant to be applied to the estuary and estuarine margins and seek to protect their waters, beds and banks and the ecosystems associated, pursuing an integrated management perspective, including the improvement of the estuary as well as its associated environmental, economic, social and cultural assets.

At a time when the basis for the preparation of the “Planos de Ordenamento de Estuários” (POE) (Estuary Land Use and Management Plan) has just been set, it is worth assessing how far the new legal measures for their preparation provide mechanisms to ensure full integration of the various sets of values, stakeholders and institutions, and how they include concerted and integrated approaches to address the complexity of estuaries. This paper aims to present a critical reading of the challenges faced by the planning and management of estuaries in Portugal. Firstly, it analyses the recent provisions for the adoption of estuary management and land use plans regarding the conceptual essence of these new types of plans. Secondly, it discusses how the preparation and implementation of these plans could be far more effective if additional collaborative and governance measures were to be added, especially with the adoption of a model of governance applicable to the preparation and implementation of plans.

Methodological approach

To achieve this objective we developed a methodology based on three phases. The first phase involved a review of the literature regarding governance and in particular on the management and governance of estuaries, enabling us to identify four principles for the “good governance” of estuaries. The literature review was complemented by an analysis of two methodological approaches to management and governance of estuaries adopted in the United Kingdom and the United States, under *English Nature’s Estuaries Initiative* and the *National Estuary program*, respectively. In the second phase, the results that emerged from the literature review were used to critically address the Portuguese legislative context of the POE. For this purpose we briefly describe the provisions of the Portuguese Law regarding the estuary plans and we analyse how these provisions provide mechanisms to ensure good estuary governance. In the third phase, and taking into account the principles of good governance emerging from the literature review and the opportunities and weaknesses of the POE regulatory framework, we propose the adoption of a governance model to improve collaborative means for the estuary plan preparation and implementation in Portugal.

Principles of governance relevant for estuaries

In recent years it has been accepted that territorial development and environmental management are unlikely to be achieved by mere administrative imposition and unilateral action by government, by passing the development of regulatory and prescriptive land use plans (Campos, 2009). The concept of governance, traditionally seen as a way to implement pre-established rules in a given community, characterized *“by strongly hierarchical and unilateral relations, by scarce or non-existent participation”* (Aragão, 2009) is also changing. In recent years there is an intense debate in scientific and political circles about governance content and

¹ Law No. 58/2005 of 29th December.

² Decree Law No. 129/2008 of 21st July.

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