



## Analysis

# Applying a 'Value Landscapes Approach' to Conflicts in Water Governance: The Case of the Paraguay-Paraná Waterway



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## ABSTRACT

Values have been identified as important factors to estimate preferences within water governance and to assess the political legitimacy of water governance in a given time and location. The present study applies an interdisciplinary 'value landscapes approach' to water governance in the state of Mato Grosso, Brazil, using conflicts around the construction of the Paraguay-Paraná Waterway as a case study. Using material from interviews with major stakeholders in the region, the results demonstrate that supporters of the waterway hold similar 'value landscapes' around economic values of water, efficiency, order, and economic development, while opponents' 'value landscapes' centre on cultural and non-economic values of water, social justice, solidarity, conservation and tradition. This suggests that persistent conflicts around the Paraguay-Paraná Waterway are only an expression of much deeper value conflicts that are also relevant to other water governance issues. Moreover, values expressed through the planned construction of the Paraguay-Paraná Waterway disproportionately reflect values of powerful stakeholder groups such as the agribusiness sector, which significantly undermines its political legitimacy.

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## 1. Introduction

Values are one key element in understanding conflicts (and cooperation) within water governance (Groenfeldt, 2013; Hermans et al., 2006; Ioris, 2011; Schulz et al., 2017). This includes both values that serve as transsituational goals or guiding principles for human behaviour (Glenk and Fischer, 2010; Schwartz, 1996; Steg et al., 2014) and values of the environment, i.e. how we value for example water resources (Gibbs, 2010; Groenfeldt, 2013; Ioris, 2011). A recent conceptual contribution of Schulz et al. (2017) introduced a novel framework, which aims at identifying "value landscapes" of stakeholders in water governance scenarios. Value landscapes can provide a deeper understanding of processes and conflicts in water governance and they also serve to evaluate political legitimacy of water governance projects. These value landscapes take into account stakeholders' positions and preferences within water governance in relation to their values, from

more abstract guiding principles to the values that they assign to water resources.

This paper applies the value landscapes approach outlined in Schulz et al. (2017) to a concrete water governance context. In particular, the paper seeks to investigate value landscapes of the main stakeholder groups affected by the plans to construct the Paraguay-Paraná Waterway in the Brazilian state of Mato Grosso, which is expected to especially benefit the agribusiness sector (in terms of facilitating commodity exports and the transportation of agricultural inputs), but may as well have environmental and social impacts (as in the case of the disruption of the regional hydrological regime). The construction and extension of the Paraguay-Paraná Waterway has long been very contentious, as it would potentially affect hydrology, ecology and biodiversity of the Pantanal wetland, the largest continental freshwater wetland in the world and recognised by UNESCO as a biosphere reserve (Calheiros et al., 2012; Gottgens et al., 2001; Hamilton, 1999; Wantzen et al., 2008). This in turn may have repercussions for the livelihoods of communities of subsistence fishermen in the Pantanal. The current state government (under the administration of Governor Pedro Taques, elected in 2014) aims at reviving this idea (Arévalo, 2015), which had first been proposed over 100 years ago and received renewed interest in the 1980s and 1990s (Gottgens et al., 2001), as it would facilitate

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the export of agricultural products to world markets, especially soybean, one of the principal products of the state of Mato Grosso (ANTAQ, 2013; Richards et al., 2015). Since the end of the 1990s, Mato Grosso is the main soybean producer in the country and one of the global centres of production (Ioris, 2016).

Given its importance to the agribusiness sector and the regional economy, on the one hand, and its impacts on hydrology, biodiversity and local communities in the Pantanal, on the other hand, the potential construction of the Paraguay-Paraná Waterway interrelates many aspects relevant to water governance and state politics more generally. It thus can serve as a worthwhile case study to apply the conceptual framework proposed by Schulz et al. (2017). To the best of our knowledge, the present study is also the first that adopts an interdisciplinary social science perspective on this infrastructure project as existing academic literature is mostly published by concerned ecologists and biologists (e.g. Gottgens et al., 2001; Hamilton, 1999) or enthusiastic engineers (e.g. Pires and da Silva, 2009; Pomper Mayer et al., 2014).

## 2. Value Landscapes and the Value Base of Water Governance

Different authors have highlighted the need to study values to better understand water governance (Glenk and Fischer, 2010; Groenfeldt, 2013; Hermans et al., 2006; Ioris, 2011). In this context, Schulz et al. (2017) have proposed a new conceptual framework, rooted in natural resource governance, ecological economics, and the study of environmental values more generally (see e.g. Jones et al., 2016; Lockwood et al., 2010; Martinez-Alier, 2002; O'Neill et al., 2008; Seymour et al., 2010). Following Treib et al. (2007), Schulz et al. (2017) conceive of (water) governance as the combination of polity, politics, and policy, i.e. the institutions, the power relations between political actors, and the instruments to achieve certain outcomes. With regard to values, they propose looking specifically at three categories which may be relevant for understanding water governance: fundamental values, governance-related values and assigned values or water values, which differ by their locus, i.e. where the valuing person locates them. Fig. 1 captures the multiple links that exist between these categories.

The concept of fundamental values has its origin in social psychology and refers to values as transsituational goals that a person aims to realise in decision-making (Schwartz, 1996). These values, such as power, security, benevolence or self-direction are located inside the valuing person or group and have also been termed “held values” (Lockwood, 1999) and are sometimes categorised along two opposing pairs of dimensions, i.e. self-transcendence vs self-enhancement and openness to change vs conservation (Schwartz, 1996). Governance-related values are usually dealt with in normative work on good (water) governance (e.g. Ingram, 2011; Tortajada, 2010) and have been proposed as a separate category e.g. by Glenk and Fischer (2010). They encompass desirable characteristics of governance, such as sustainability, solidarity or

efficiency. Thus values can be located in elements of water governance, such as power relations, institutions, policies and processes, but also within (stakeholder) groups who consider these values desirable, even if they may not be able to realise them.

Assigned values or water values refer to values attached to water resources, such as for domestic use, irrigation, recreation, navigation, biodiversity, aesthetics, spirituality and culture, which are nowadays often categorised in the ecosystem services framework (Grizzetti et al., 2016). This perspective is most prevalent in environmental and ecological economics (e.g. Wu et al., 2012; Young and Loomis, 2014) and human geography (e.g. Gibbs, 2010; Ioris, 2011), but has occasionally also been taken in environmental psychology (e.g. Seymour et al., 2010).

Several authors have suggested that water governance should reflect stakeholders' values to gain political legitimacy (e.g. Edelenbos et al., 2011; Hill et al., 2008), often in the context of discussing participatory governance. However, the authors' understanding of the term ‘value’ often remains vague and it is unclear, what kind of values exactly should be addressed. Nevertheless, if we accept the premise that water governance outcomes should reflect stakeholders' values, a comparison between different stakeholder groups' desired values and the values expressed in actual water governance translates into an evaluation of political legitimacy of water governance. Such a comparison also points to power relations between stakeholders, e.g. where there is a mismatch between desired values and actual values in water governance, while distinguishing between the different types of values that have been described theoretically should offer additional insights beyond unspecific calls to address different values.

Broadly summarising debates on values and water governance, the conceptual framework introduced by Schulz et al. (2017) suggests two main hypotheses: 1) if we know stakeholders' or people's values in a given time and location (or value landscapes, i.e. groups of values that are interrelated), this can help us understand their preferences and behaviour in water governance and 2) if we compare the values that are expressed by stakeholders with the values expressed by actual water governance (i.e. the ways in which water governance actually takes place “in reality”), we can make statements about the distribution of political power, as well as the legitimacy of actual water governance in this particular time and location (a perspective which connects well to political ecology). Furthermore, it should be clarified that the value landscapes approach is a *relational* approach, i.e. values are not studied in isolation, but are seen as interrelated among each other, as well as related to preferences, decisions and actions in water governance. Also, values are *dynamic*, i.e. they may change over time, depending on the social context of a person for example. However, they are considered to be the most stable theoretical construct e.g. in environmental psychology research, if we compare them to attitudes or beliefs for example (Dietz et al., 2005). Changes in values are thus expected to occur over longer time periods.

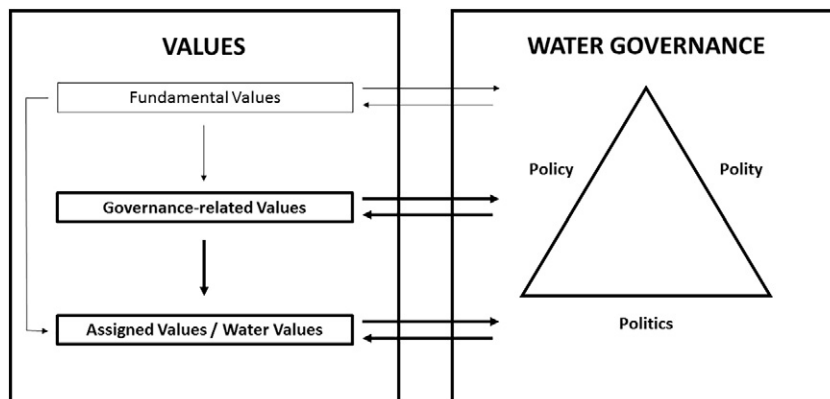


Fig. 1. The value base of water governance.  
(Source: adapted from Schulz et al., 2017; elements investigated in this study in bold).

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