

## **Coordination between the water and agricultural sector: A comparative case study of Spanish river basins on the modernization of irrigation**

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This paper aims to present the theoretical framework (*work in progress*) and first empirical insights of the PhD Dissertation on coordination between the water and the agricultural sector in Spain, as well as between different jurisdictional levels, using the example of modernization of irrigation in two river basins.

Coordination, defined here as “the act of managing interdependencies between activities performed to achieve a goal” (Malone and Crowston 1990), is particularly required in governing the use of water due to the multifunctional character of the resource – water is needed for drinking and hygiene, irrigation, industrial, energy production or the environment. However, the lack of vertical and horizontal coordination is still seen as major governance challenges in water management (Pahl-Wostl 2015), which is why the OECD (2011) states that the “water crisis is largely a governance crisis”.

Against this backdrop, the research aims to shed light on how different polycentric *governance structures* effect coordination among actors, whether and under which conditions this coordination *changed over time*, and what are the effects of coordination on the *performance* of water governance. Theoretically, the research is embedded in literature on polycentric governance, distinguishing between different forms of coordination among decision-making units: cooperation, competition and coercion (Jordan et al. 2018). Scholars argue that depending on the specific social problem characteristics and the overall constitutional structure, interests of actors vary which ultimately also results in different forms and extend of coordination (Thiel and Mukhtarov 2018). However, empirical research is still lacking. Therefore, different empirical instances of coordination – varying from implementing infrastructure projects to solving “zero-sum-games” of re-allocating water in a water scarce region – will be investigated to understand which incentives are needed to enable actors to coordinate and interact.

Empirically, I carry out a comparative case study of two Spanish river basins, where agriculture is the main driver of water resource conflicts. These river basins are characterized by different governance structures, requiring different instruments of coordination: while the Guadalquivir river basin is governed by the central state, the Mediterranean River Basins of Andalusia are governed by the region. However, in both basins, the so-called modernization of irrigation has been very prominent on the political agenda for the last twenty years, aiming to reduce agriculture water consumption, accounting for approx. 88% of overall water consumption. However, evidence on the effectiveness – in terms of achieved water savings – is mixed, at best. Scholars see the lack of coordination within the public sector as one of the main reasons (Corominas and Cuevas 2017). Therefore, the aim of my dissertation is to open the “black box” of coordination, analyzing how coordination actually materializes across sectors and levels, and thereby to understand the determinants, pathways and performance of cross-sectoral and cross-level coordination. Empirical evidence is collected within the scope of the BMBF-funded research project STEER, through qualitative interviews with stakeholders and experts as well as through an analysis of policy documents and grey literature.

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