



Joint project with:



U N I K A S S E L
V E R S I T Ä T



and with partner organisations in six case study regions

Strengthening Coordination in River Basin Governance in Southern Spain – Cooperation, Incentives and Persuasion

Summary

This Briefing Paper presents one of six analyses of cross-sectoral coordination challenges that were conducted as part of the STEER research project and on which separate Briefing Papers are available.

The European Union (EU) Water Framework Directive (WFD) requires member states to achieve a good status for all waters by 2027. Mediterranean countries, including Spain, are facing significant problems of water quantity, which is why one of their main challenges in achieving a good water status is to maintain ecological flows and reduce over-extraction of groundwater. Authorities are confronted with mediating between the competing interests of different water using sectors, such as irrigation, urban water supply and tourism, and non-consumptive uses, such as the environment. Despite recurring requests by scholars and commitments by policy-makers to strengthen cross-sectoral and cross-level coordination to address these trade-offs, coordination deficits remain in the Mediterranean, but also in many other parts of the world. This Briefing Paper examines coordination and implementation challenges between the water and agricultural sectors in relation to water quantity in the context of WFD implementation in the Guadalquivir river basin, southern Spain. These have been identified as: (i) the lack of revision of water rights after the implementation of drip irrigation, (ii) weaknesses in monitoring water use and closing illegal wells, and (iii) limited cross-sectoral exchange during participatory processes. These challenges are interlinked by the underlying

difficulty of imposing unpopular decisions against the will of powerful actors in the agricultural sector. To address these challenges, we suggest various coordination instruments based on incentives, voluntary cooperation, persuasion and information exchange. In particular, we recommend the following:

- Increase financial and human resources for the revision of water rights, monitoring of water use and closure of illegal wells.
- Facilitate cooperative processes to achieve a multisectoral consensus on how and where water rights will be reduced.
- Provide incentives for irrigation communities to further strengthen self-control of groundwater use among members.
- Strengthen cross-sectoral exchange among stakeholders within participatory processes, especially between environmental and agricultural interest groups and improve communication with citizens.
- Use more comprehensive and inclusive ways of providing information in the context of river basin planning.

However, since the identified challenges are systemic and relate to fundamental distributional questions, there are limits to the potential of coordination instruments. Thus, a clear indication of political will is also needed.

Background

Projections show that Spain will be confronted with a severe reduction of water availability and a high risk of desertification in the coming decades due to climate change. Since the agriculture sector uses the largest share of water in the study area, accounting for 88% of water use in the Guadalquivir river basin (CHG, 2015), reducing the quantitative pressure on water bodies posed by irrigation extractions is considered crucial. However, although this topic has been on the political agenda for many years, the governance system is still far from achieving the WFD objectives of a good quantitative status for groundwater bodies and ensuring the maintenance of ecological flows of surface water bodies. In fact, agricultural water consumption at the basin level has been increasing in the last years (CHG, 2013, 2015).

The Guadalquivir extends over four Spanish regions (*comunidades autónomas*), namely Andalusia (encompassing 90.1% of the basin's surface area), Castilla-La Mancha (7.1%), Extremadura (2.7%) and Murcia (0.1%) (see Figure 1). The basin covers 57,184 km² and holds a population of 4.3 million inhabitants, 98% of whom live in Andalusia (CHG, 2015). As an interregional basin, the Guadalquivir is managed by the central state through the Confederación Hidrográfica del Guadalquivir (CHG) (see Table 1). However, sectors that include many water-related concerns, such as agriculture and land use, fall within the competency of the respective region. Due to this multi-level governance system on the one hand, and the interconnected nature of water resources and their uses on the other, cross-sectoral and cross-level coordination is crucial for the sustainable management of water resources.

Figure 1: Map of river basins Spain



Source: Borrego-Marín and Riesgo (2016); all rights reserved, used with permission

The analysis for this Briefing Paper builds upon data collected through interviews with public, private and civil society actors, as well as stakeholder workshops conducted in June 2019 and February 2020 in Seville, and a review of grey literature. It is part of the research project "Increasing Good Governance for Achieving the Objectives of

Integrated Water Resources Management" (STEER), which has been funded by the German Federal Ministry of Education and Research (BMBF). STEER analyses how the social and environmental context, in combination with characteristics of the governance and management system, determine the performance of integrated water resource management, and aims at identifying approaches to strengthen coordination in relation to complex water resource problems.

Confederación Hidrográfica del Guadalquivir	River basin authority responsible for river basin planning and management of water resources
Dam Release Commission	Participatory management body within the CHG responsible for deciding on the annual allocation of regulated surface water to user groups
River Basin Water Council	Participatory body within the CHG responsible for River Basin Management Plan (RBMP) approval
Regional Ministry of Agriculture, Livestock, Fisheries and Sustainable Development of Andalusia	Responsible for management of irrigation
Source: Authors	

Interrelated coordination and implementation challenges

The first implementation challenge concerns the provision of data on water consumption and revision of water rights by the CHG as a consequence of modernising irrigation systems. Modernisation of irrigation refers to the implementation of new techniques such as drip irrigation, as well as the replacement of irrigation canals and ditches with pipes in order to increase irrigation efficiency. Large amounts of public money have been invested in such measures in the Guadalquivir basin over the last three decades, with the overall aim of saving water in irrigation. However, instead of leading to reductions, agricultural water consumption increased by 6.7% (from 2,569 hm³/year to 2,741 hm³/year between 2009 and 2015) (CHG, 2013, 2015).

In other parts of the world, scientific analyses have shown that an increase of irrigation efficiency rarely leads to the desired increase in water availability. Instead, it often produces a rebound effect, that is a rise in agricultural water consumption due to changes in farmers' behaviour, such as switching to more water intensive crops or expanding the irrigated area. To prevent this, a transparent accounting system on water consumed before and after the modernisation of irrigation systems is required, as well as a revision of water rights (Grafton et al., 2018). However, most of the data provided by the CHG in the RBMP relies on surveys among farmers and on modelling, instead of water metering. Even within public administrations, such as the Regional Ministry of Agriculture, Livestock, Fisheries and Sustainable

Development of Andalusia, which oversees implementation of irrigation modernisation, consistent data sets are lacking. Also, although the revision of water rights was integrated into the Programme of Measures of the RBMP, these measures have not been implemented accordingly by the CHG. Thus, water users were mostly able to keep their original rights. According to the National Water Law (Art. 59), water rights are valid for 75 years, which is why the lack of revision has major implications. The reasons for these implementation gaps are complex. The CHG lacks the financial and human resources needed to collect and process water-related data and to revise water rights; however, one might also wonder whether there is a lack of political will to mobilise resources to carry out such measures.

A second threat to sustainable water governance in the Guadalquivir is illegal groundwater extraction, mostly in the region of Doñana National Park. This happens either through the extraction of higher water volumes than are authorised within water rights or through extraction of water from illegally drilled groundwater wells without water rights. Over-extraction of water resources for irrigation in Doñana was one of the main reasons why Spain was referred to the European Court of Justice in 2019 for failing to protect groundwater bodies that feed the Doñana wetlands, as required by the WFD. However, the closing of illegal wells is complicated by a lack of financial and human resources in the CHG for monitoring groundwater use, as well as by lengthy lawsuits brought against the CHG by farmers to prevent and delay well closure, as they can continue to extract water over the duration of the court case.

The third identified challenge relates to the unequal representation of actors in participatory decision-making bodies of the CHG and, more generally, a lack of cross-sectoral exchange during participatory processes of the WFD. Participation of actors representing consumptive water users, such as irrigation communities or municipalities, has a long-standing history in Spain. It dates back to the foundation of river basin authorities almost a century ago, when representatives of water users also became members of the most important management and decision-making bodies. Although environmental and civil society organisations became formal members of governance bodies such as the River Basin Water Council many years ago (Royal Decree 927/1988), they still remain largely underrepresented. Moreover, environmental or civil society groups are not represented in the Dam Release Commission, a participatory management body of the CHG deciding on the annual allocation of regulated surface water to the different user groups.

The Dam Release Commission is considered of particular importance in times of reduced water availability, since the allocation quota decided in the RBMP then needs to be adapted. Although the WFD and the National Water Law stipulate that ecological flows need to be considered before allocating water to other users, their interests are not represented by any external actors, such as environmental organisations. Lastly, stakeholders complain that the

participatory processes for WFD implementation do not allow for a genuinely open and constructive exchange between different sectors, most importantly between agricultural and environmental interest groups, since they are designed in a top-down manner that mainly consists of the CHG providing information to stakeholders.

We see these three challenges as interrelated since they reflect the difficulty of carrying out unpopular decisions against the will of certain actors in a region where agriculture is of high socioeconomic importance.

Ways forward – cooperation, incentives and persuasion

1. Implementing the revision of water rights

According to the National Water Law, the CHG has the authority to revise water rights if changes in water uses have occurred. To strengthen implementation, the CHG's financial and human resources need to be enhanced, in particular since the revision of water rights is among the measures with the highest cost-effectiveness in the RBMP in terms of reducing the overall volume of water extractions (CHG, 2015). In addition, a combination of persuasive and cooperation-based instruments is suggested. Under the condition that all actors have an equal say, such instruments can provide the possibility of reaching a multisectoral consensus on how and where to prioritise, but also to reduce, water rights.

2. Monitoring water use and closing illegal wells

The other two most cost-effective measures with regard to reducing water extractions are monitoring of water use and closing illegal wells. Therefore, more financial and human resources are also needed to strengthen monitoring and enforcement by the CHG with respect to illegal wells. In order to increase the resources available to the CHG, a tariff on groundwater use based on extracted water could be introduced. This would not only increase CHG funding to be used for monitoring itself, but would also require the CHG to improve the water accounting system of how much water is consumed where, when and by whom. Instruments based on cooperation among irrigators, as well as incentives for voluntary commitments from them, are important in this context. The role of irrigation communities in Spain, which have a long-standing history with regard to collective management at the local level, can be further strengthened. One example is providing incentives for irrigation communities to undertake more extensive self-control of water use and close wells by themselves.

3. Strengthening participation

To strengthen participation, first and foremost, more comprehensive and inclusive information-based instruments are needed. Decision-making processes need to be more transparent, and information in the RBMP needs to be more comprehensible and thereby accessible for all stakeholders, including citizens. This could be achieved by, for example, using a wider range of communication technologies. Persuasive instruments in the form of information and educational campaigns about water use in general, and

irrigated agriculture in particular, can also help to reach out to citizens, who are hardly addressed in the current processes. In addition, cooperative instruments can help the transition from information sharing and bilateral exchange between the administration and stakeholders towards more extensive, bottom-up forms of cooperation, where stakeholders interact among each other, cooperate and form new coalitions. Lastly, with regard to the composition of participatory bodies of the CHG, such as the Dam Release Commission, environmental interests (i.e. ecological flows) also need to be represented by stakeholders.

Conclusion and recommendations

Although the quantitative objectives of the WFD have not been achieved yet in many water bodies, and interrelated coordination and implementation challenges persist, we also observe that discussions between actors of different sectors and jurisdictional levels about changes towards more sustainable irrigation in the Guadalquivir basin are gaining momentum. New forms of collaboration and coalitions between water and agricultural actors are taking place, as witnessed in the planning phase for the Special Drought Plan of the Guadalquivir. Moreover, the initiative “Green Book of Water Governance in Spain” by the Ministry for the Ecological Transition aims to strengthen cross-sectoral and cross-level collaboration, and to address critical topics such as reforming the water rights regime, which

could lead to an important leverage effect in the context of incentivising more sustainable water use.

To accompany and further strengthen these positive developments, we recommend the following:

- Increase funding of the CHG for the revision of water rights, monitoring water use and closing illegal wells.
- Use persuasive and cooperation-based instruments to reach multisectoral consensus on the revision of water rights.
- Provide incentives for irrigation communities to strengthen self-control of groundwater use.
- Strengthen bottom-up collaboration between different sectors during participatory processes.

We must also acknowledge that coordination efforts have their limitations. The reduction of agricultural water consumption ultimately concerns questions of distribution and requires political will and alternatives to the current land-use and development models. It is therefore crucial to address these distributional questions on the reduction of agricultural water consumption more openly, especially because agriculture is a very important sector in Andalusia, both socially and economically. Since the challenge is not only to use water more efficiently, but to actually reduce overall water consumption and thereby relieve pressure on water bodies, the social, political and economic implications need to be addressed more profoundly.

References

- Borrego-Marín, M. M., & Riesgo, L. (2016). Measuring the sustainability of water plans in inter-regional Spanish river basins. *Water*, 8(8), 1-14.
- CHG (Confederación Hidrográfica del Guadalquivir). (2013). *Plan hidrológico de la demarcación hidrográfica del Guadalquivir. Memoria*. Seville: Author.
- CHG. (2015). *Plan hidrológico de la demarcación hidrográfica del Guadalquivir. Segundo ciclo de planificación: 2015-2021. Memoria*. Seville: Author.
- Grafton, R. Q., Williams, J., Perry, C. J., Molle, F., Steduto, P., Wheeler S. A., ...Ringler, C. (2018). The paradox of irrigation efficiency. *Science*, 361(6404), 748-50.

The research project “STEER” was funded by the Federal Ministry of Education and Research (BMBF) as part of the funding measure “Water as a Global Resource” (GRoW).

Nora Schütze	Researcher, University of Kassel, Germany
Prof Andreas Thiel	Professor of International Agricultural Policy and Environmental Governance, University of Kassel, Germany
Prof Pilar Paneque	Professor of Human Geography, Pablo de Olavide University, Spain
Dr Jesús Vargas	Researcher, Pablo de Olavide University, Spain
Rodrigo Vidaurte	Fellow, Ecologic Institute, Germany

DOI: 10.23661/bp18.2020



This Open-Access-Publication is free to read (<https://www.die-gdi.de/publikationen/briefing-paper/>), share and adapt under the terms of the CC BY 4.0 license.