Transboundary river basins planning – a challenge to the implementation of the European Water Framework Directive

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ABSTRACT

Transboundary river basins pose a significant challenge to the management of shared water resources between riparian countries. The challenge is even more significant in semi-arid Mediterranean environments and under water scarcity circumstances, as is the case for the Guadiana river basin, shared between Portugal and Spain. Albeit the European cooperative context determined by the Water Framework Directive and by the existing bilateral agreement (the Albufeira Convention), Spain has a clearly dominant position in the hydro-diplomatic relations between both countries. Furthermore, the effectiveness of this agreement is undermined by the lack of basic framework conditions, namely the failure to integrate principles of water sharing and territorial planning, to identify an appropriate business model, to promote cross-border public participation and democratically sustain the treaty's entry into force, to implement an operational, empowered and adaptive management structure, as well as mechanisms for monitoring and enforcing compliance. Finally, the existence of two separate, rather different and uncoordinated river basin management plans for the Guadiana contributes significantly to the difficulty of both countries in managing their shared water resources appropriately. To overcome this gap, it will be crucial to ground the Albufeira Convention enforcement on a long foreseen but still inexistent Permanent Secretariat.

KEY WORDS: *Transboundary, river basins, Albufeira Convention, Guadiana.*

INTRODUCTION

There are 263 major Transboundary lake and river basins worldwide, that cover nearly half of the Earth's land surface, two thirds of the world's nations, and account for an estimated 60% of global freshwater flow (Cooley *et al.*, 2009). By crossing political and jurisdictional lines, managing these freshwater resources through national laws and frameworks often becomes a challenge. Though many Transboundary water management agreements exist, almost two thirds of the world's Transboundary river basins lack a legal framework for cooperation and sufficient legal protection (UN, 2008).

Transboundary water agreements typically take two forms: i) general principles of international behaviour and law, or ii) specific bilateral or multilateral treaties negotiated for particular river basins (Cooley *et al.*, 2009).

The former includes, at the global scale, the overarching legal framework provided by the UN Convention on the Non-Navigational Uses of International Watercourses (UN Watercourse Convention – UN 1997), which establishes basic standards and rules for cooperation between watercourse states on the use, management, and protection of international watercourses (Le Quesne *et al.*, 2007). Unfortunately, this Treaty has not yet come into force due to insufficient signatories, and even if it eventually comes into force, countries must themselves define what exactly these terms imply in their own watersheds that they share with others.

According to the UN Watercourse Convention, international law related to Transboundary freshwater serves three basic functions: (1) it defines and identifies the legal entitlements and rights and obligations tied to water use, providing the prescriptive parameters for its development; (2) it provides a framework for ensuring the continuous integrity of the regime, i.e. through monitoring, regulation, compliance, stakeholder participation, dispute avoidance and settlement; and (3) it allows for rational modifications of the existing regime, in order to be able to adapt to the constantly changing needs and circumstances.

There are numerous specific bilateral or multilateral treaties negotiated for particular countries and/or river basins. Regional examples affecting Mediterranean Europe include:

- the Convention on the Protection and Use of Transboundary Watercourses and International Lakes of the UN Economic Commission for Europe (UNECE Water Convention – UNECE 1996), an Eurasian agreement intended to strengthen national measures for the protection and ecologically sound management of Transboundary waters;
- the European Union Water Framework Directive (WFD), which in 2000 introduced a legislative approach to managing and protecting water, based not on national or political boundaries but on natural geographical and hydrological formations (the river basins), requiring coordination of different EU policies, and setting out a precise timetable for action, with 2015 as the target date for getting all European waters into "good condition".

More commonly, neighbouring countries have set and defined the terms for managing shared water resources. The agreements set over a century and a half by Portugal and Spain (the earliest dating back to 1864), are good examples of such bilateral treaties, in a particularly complex and difficult context. In fact, albeit the relatively stable and friendly relations of the two Iberian countries for over three centuries now, cooperation on water resources has always been challenged and hindered by the dominant Mediterranean conditions (extremely variable rainfall, coincidence of dry and hot seasons, frequent severe

droughts) and by competition of excessive water uses over scarce water resources.

The most recent agreement on water issues between Portugal and Spain, the Albufeira Convention, was signed between both riparian countries in 1998, and regulates the cooperation for the protection and sustainable use of shared river basins and respective water resources. It is the focus and case study for the analysis presented hereafter.

HYDRO-DIPLOMATIC IBERIAN RELATIONS

As in most fields of international relations, conflict and cooperation coexist over Transboundary waters. According to Allan & Mirumachi (2010), four levels of conflict can be distinguished: non-politicized, politicized, securitized and violized. As Transboundary water debate becomes more intense and politicized, ministries of foreign affairs tend to take on responsibility for the topic. The data, information and analysis about the status of the water resources and their management become their concern, and their priority is sovereignty. Therefore, responsibility for Transboundary water affairs passes to the shadow state and its security services, as defined by Tripp (2001), and relations progressively disappear from the public domain. This makes the research of Transboundary water management particularly difficult, as most decisions take place beyond the public realm.

According to the previously referred methodology proposed by Allan & Mirumachi (2010), the situation in the Iberian Peninsula varies between "politicized" and "securitized" – i.e. between having shared water resource scarcity on the political agenda, and developing separate (although agreed) efforts to protect and capture the resource. In fact, Iberian water relations are still mostly securitized, taking into account the high level of water scarcity in the basin, the fact that the hegemonic riparian (Spain) is more capable of determining the agreement outcomes, and that public cooperative initiatives are of minor relevance to actual decision making. Although researchers can participate in such initiatives, they only have retrospective access to data on interstate negotiations.

The hydro-hegemony of Spain can also be assessed using the methodology proposed by Zeitoun & Warner (2006) and applied by Cascão & Zeitoun (2010), based on four major forms of power:

- Geographic – riparian position of each country;
- Material – includes economic, technological and financial capacity;
- Bargaining – the capability to control the rules of negotiations, set political agendas, and influence agreements and incentives for compliance;
- Ideational – the capacity to impose and legitimize particular ideas and narratives, controlling the perceptions of the allocative configuration.

According to this methodology, power relations between the two riparian states can be presented as depicted in Figure 1. The fragile downstream position of Portugal is clear (Figure 2, next page) – although, in the case of the Guadiana, both countries share the final stretch (about 40km) and estuary.

This relative hydro-hegemonic position of Spain has always dominated hydro-diplomatic relations between the two countries. Furthermore, the geographic position of a country is found to be an advantage for the upstream country primarily if combined with material, financial and geopolitical power – as is the case here. Even in the context of the current economic and social crisis, Spain retains a widely superior capacity to mobilise actors and resources to manage shared waters.

The bargaining power is also stronger for Spain, mainly because of its linkages to the previous two dimensions, but in this case Portugal performs better, making use of claiming the moral high ground (such as compliance with international law and EU legislation), public media and legal advocacy campaigns, and issue linkage between both riparian states (Cascão & Zeitoun, 2010).

Finally on the ideational (and less visible) power, both countries perform similarly, but for different reasons. Portugal often makes use of its downstream position to victimize itself, easily accusing its neighbour of any flow reductions or quality losses, and put pressure on any decisions upstream that may change the agreed balance and resource allocation (Thiel, 2004).

On the other hand, Spain makes use of a constructed biased idea of "Atlantic Portugal vs. Mediterranean Spain" to request more resources and dramatise drought impacts and severity, and to deliberately confuse structural water scarcity (due to over-exploitation and excessive demand) with temporary, and mostly shared, drought events (Moral, 1996; Aguilera *et al.*, 2000; Buchs, 2010). As Phelps (2007) argues, conflicts are seldom ignited by droughts, but rather

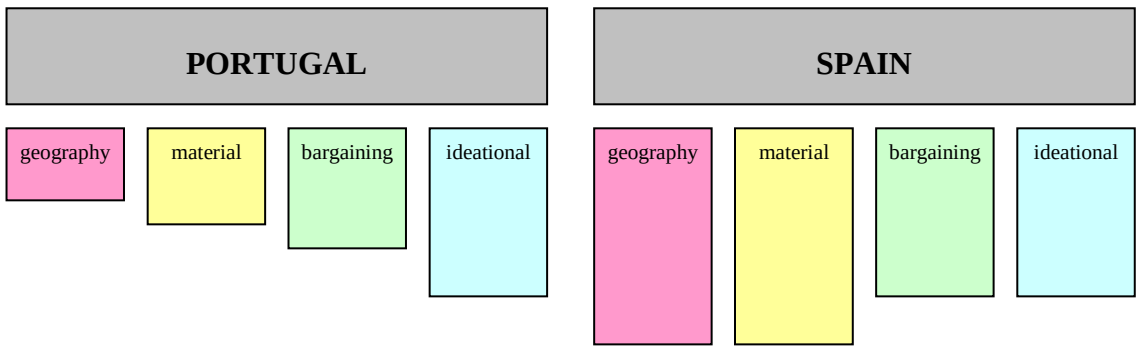

Figure 1. Suggested plot of hydro-hegemonic power configuration for shared Iberian river basin.

Figure 2. Transboundary river basins in the Iberian Peninsula.

by the lack of equitable water allocation during droughts.

The Albufeira Convention establishes an annual flow regime for all major Transboundary rivers (Minho, Lima, Douro, Tejo and Guadiana), defining mandatory flow volumes in sections upstream of the border, for Spain, and on the respective estuary or mouth for Portugal. The Guadiana is the only river where both countries share the final stretch, and where no flow regime was defined in the section where the river becomes border again (just 50 km above its estuary). The only flow determined by the Convention at this section was a minimum daily of 2 m³/s, which can be perceived as a basic ecologic minimum.

The agreed flow regime was the object of an additional Protocol to the Convention, which defines (on its article 5) the minimum volumes allocated for each river basin, as well as the conditions for defining an exception regime, usually associated with drought periods. It also establishes:

- priorities among economic activities (urban supply, livestock, permanent crops, ecologic functions);
- bilateral compliance with European and international laws and regulations;
- water transfers to other river basins[1] limited to 5 hm³/yr;
- set-up of permanent information exchange circuits;
- the promotion of a sustainable and frugal use of water (Serra, 2000), since any significant increase on water consumption results on increasing risk of non compliance with the flow regime defined;
- the need to inform the other part and conduct a Transboundary impact assessment (based on the Espoo Convention principles) for any water abstraction above 40 hm³/yr.

The Convention was revised in 2008, and a trimester flow regime was added to the annual and daily flows previously established. Once the thresholds defining "exceptional year" are passed, Spain is no longer obliged to any minimum flow – i.e. when cooperation is more necessary, the Convention loses its most significant tool. In the Guadiana basin this has only occurred once since the Convention approval (in 2005), but longer or more severe drought periods are expected to enter the exception regime, and increase tension over water resources between the two riparian countries.

The Convention has also provided the institutional and operational framework for both river basin administrations to cooperate, namely in the identification, monitoring and assessment of shared water bodies, and in the informal exchange of methods and know-how. Although insufficient, this cooperation is likely to lay the grounds for a more in-depth and effective cooperation between both parts. An integrated Transboundary framework is far from being reached, and co-ordinated planning seems far more likely to be implemented by 2015, corresponding only to a deepening of the existent cooperative framework.

THE GUADIANA RIVER BASIN: A CASE OF INCOMPATIBLE RIVER BASIN PLANNING

Within the Iberian Transboundary territory, the Guadiana is the river basin that presents more arid and drought-prone conditions. In fact, and contrarily to what might be expected from its geographic position, the Iberian Southwest where the Guadiana river basin is located presents particularly enhanced Mediterranean climatic features, with little Atlantic influence, and a strong continental component. In fact, the Guadiana is one of the most water stressed European basins, mostly subject to semi-arid environmental conditions. In the shade of the sub-tropical high pressure systems, this region presents the highest values of summer temperatures, annual solar radiation, and potential evapotranspiration, and the longest dry season average records in the whole Europe. More importantly, it also presents the highest values of rainfall variability, which are only surpassed, at the global scale, by arid and desert climates (Do Ó, 2008). Such extreme variations in rainfall – from season to season, year to year, and region to region – aggravate scarcity in water flows, particularly in the drier south of the Peninsula (Bukowski, 2011).

Agricultural irrigation is the main source of consumption for both national parts of the basin, which is also a typical Mediterranean feature. Although water use in the Iberian Southwest, learning both from scarcity and variability, has traditionally been frugal, the last decades have witnessed a major shift. Modern technologies and infrastructures (such as dams, boreholes, pumping stations and irrigation channels), mainly developed after the 1950s, have made water readily available in many areas, while state initiative and subsidies have kept water prices artificially low, and unequal among different users. This has resulted in over abstraction, overuse, and poor efficiency (Lopez-Gunn, 2009) – even if some efforts have been made in the last years, in terms of increasing water conservation and efficiency. These problems are aggravated by the historical focus of both countries, and particularly Spain, on large hydraulic projects featuring not only the construction of local and regional infrastructures such as dams, but also large-scale water transfers from wetter to drier regions (Bukowski, 2011).

Given this natural and economic context, the Guadiana is, amidst Transboundary river basins in Europe, a particular interesting case study for the research and planning of shared water resources, due to:

- high rainfall variability and aridity conditions over large parts of the basin;
- the importance of Transboundary water resources for Iberian countries, particularly in the drier Southern

[1] Nonetheless, the fact that the 1964 and 1968 Conventions are still effective means that each part can plan transfers on its own, regardless of volume limits.

regions;
- water scarcity resulting from a relatively high demand and intensive water use;
- climate change scenarios pointing to reduced flows and increasing drought risk.

In November 2011, the Spanish Water Authority presented the preliminary version of the Guadiana River Basin Management Plan, subject to a 6-month period of public consultation, and another 6-month period to incorporate pertinent allegations, final reviewing and editing. The Portuguese version for its part of this international river basin came two months later (in January 2012), and will follow a similar calendar prior to its final approval.

The two different versions of the Guadiana river basin plan, for its two separate national parts, follow a similar structure and general methodology, pre-determined by the EU for implementing the WFD. Nevertheless, significant differences and incompatibilities arise from a thorough analysis of these preliminary versions of both plans.

First of all, the starting point was rather differentiated: the "Significant Water Management Issues" (a draft assessment of the key problems to be addressed in the river basin, against which the goals and objectives of the plan were defined) were determined as broad thematic chapters by Portugal (e.g. urban pollution), and as specific, located conflict issues by Spain (e.g. urban pollution in Badajoz province). From this separate starting point of the planning process, different approaches, methodologies, objectives and programs of measures followed, increasingly separating the structure and contents of both national parts of the Guadiana River Basin Management Plan. The exception was for the common water bodies (i.e. on the border), which received a significant effort for merging digital location, status assessment, and the definition of objectives and respective program of measures – an exercise that may well have shown the complexity and difficulties of a joint management process to both public authorities.

Other significant discrepancies between the two countries in the river basin planning of the Guadiana include the following:
- the runoff and input estimations for the Portuguese water balance were based on a rough estimation of 50% upstream retention in Spain – regardless of historic data records and of more accurate estimations included in the Spanish Plan preliminary studies;
- while the Portuguese water balance is based on the longest available data records (1930-2000), in Spain it is based on the shorter period of 1970-2005 (which reflects a significant reduction in rainfall and runoff), as a precautionary measure towards climate change;
- Water balance is aggregated by supply system in the Spanish part, while in Portugal that aggregation is based on theoretical, simulated geographic units;
- Demand satisfaction is not a goal by itself of the Portuguese plan, leaving the majority of water use conflicts on the side;
- The number, attendance and participation of the public consultation sessions held on each side of the border was quit unequal, and much higher in the Spanish part;
- While in Spain several measures are defined to reduce demand, increase supply, and therefore reduce drought risk and exposure, in Portugal a single measure (the elaboration of a Drought Special Plan) is determined on this theme.

Although none of the estimations is to be considered feasible under the financial and economic crisis both countries are currently facing, the global budget foreseen for implementing the Program of Measures is 6.475M€ in the Spanish part of the Guadiana river basin, and only 134M€ in the Portuguese.

These differences, together with the lack of an autonomous, operational and empowered Transboundary river basin management entity, able to address the critical factors previously analysed (above in Section 4), make it particularly hard for both countries to achieve a common roof report or coordinated river basin plan by 2015, as foreseen and determined by the WFD, and show how far both countries are from an effective shared management of their common water resources and river basins.

THE ROAD AHEAD

Albeit the Albufeira Convention relative diplomatic success, joint planning and collaborative river basin management remain hard to achieve, taking into consideration the significant differences between Portugal and Spain in terms of:
- geographic imbalance in terms of territory, population, economic capacity, water supply and water demand;
- governance structure, including planning tools, scales and legitimacy of river basin and regional administration;
- public awareness, empowerment and participation, nature of major stakeholders and pressure groups.

The challenge to achieve the WFD goals by 2015, in terms of collaborative river basin planning and management, rather lies in overcoming these structural issues (namely the two latter) than in drafting joint River Basin Management Plans, with small chances of being enforced and becoming effective for the whole international river basins. As Cohen & Davidson (2011, p.9) argue, "watersheds may not be appropriate in cases where re-scaling (the governance unit) is being undertaken to address persistent governance challenges, such as lack of monitoring and enforcement, without concomitant attention to the underlying sources of the problem", and may "perpetuate rather than solve governance failures".

A crucial tool to ensure an effective cooperative effort would undoubtedly be the set up and empowerment of a Permanent Secretariat to the Albufeira Convention. Besides the general competences foreseen in the bilateral agreement signed in 2008 at the Conference of the Parts, this Secretariat ought to have sufficient capacity and autonomy (from national institutions and lobbying) as to be capable of:
- assuming crucial and significant competences in terms of planning and managing shared water resources, simultaneously simplifying and clarifying the competences of other national, regional and local water authorities in both countries;
- assessing other financial resources than those directly provided by both riparian states, complementing and diversifying its sources and reducing its state dependency;
- identifying shared benefits and win-win situations that allow the construction of an appropriate business model, with clearly stated and shared goals and objectives;
- integrating river basin plans structure, water resource monitoring and assessment methodologies, early

warning and alert systems, and other key planning components;
- incorporating scenarios of environmental and socio-economic changes into common river basin planning, as to develop an adaptive and flexible management structure;
- developing practical and operational conflict resolution mechanisms, including stricter penalties to any failure to comply with the terms of the Convention;
- implementing procedures for an effective, bottom-up Transboundary public participation to international river basin planning and management.

Without assuming this long foreseen next step, both countries risk to enter a phase of hydro-diplomatic stagnation, unable to cope with stressed situations such as those posed by excessive water demand, environmental degradation, droughts, or social-economic crisis – a combination that both countries are currently experiencing.

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