

**The Advantages of Cooperation under the UNECE Transboundary
Rivers Convention**

**The Experience of Transboundary Management of the
Iberian Watercourses**

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Introduction

The Iberian Peninsula and its transboundary rivers



Introduction

Portugal is an independent Nation since 1147, at a time when in the Iberian Peninsula coexisted many kingdoms that afterwards would give place to the Kingdom of Spain.

Spain is the only neighbour of Portugal, the historic enemy, the main commercial partner, the country with whom we have signed many treaties, where from came the princesses with whom our kings would get married.

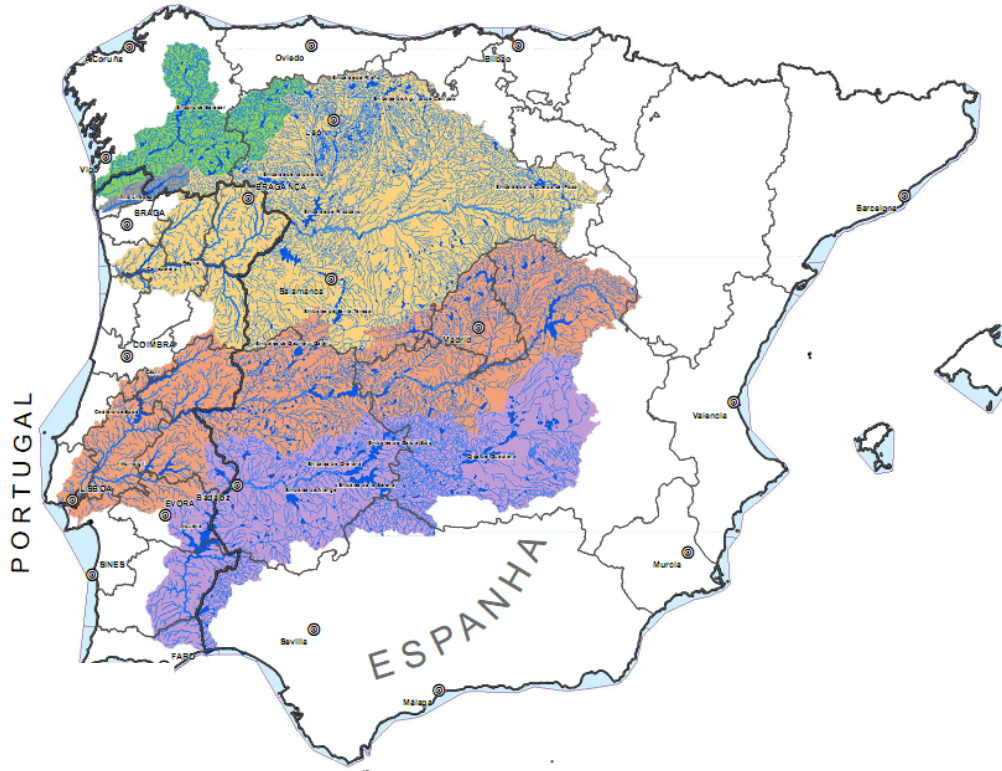
The borders between the two countries was defined in 1298 and they are the oldest in Europe, eventually in the whole World.

Two thirds of the border is constituted by rivers, some of them the main shared rivers (Minho, Douro, Tajo and Guadiana).

The two countries shared the Oceans among themselves in 1493 (the Tordesilhas Treaty, blessed by the Pope himself)...

In 1866, 150 years ago, a first treaty was signed that dealt with the transboundary rivers. Issues such as navigation, fisheries and constructions were dealt with. It is still valid and a bilateral Commission still meets regularly for the management of issues related with this Convention.

Introduction



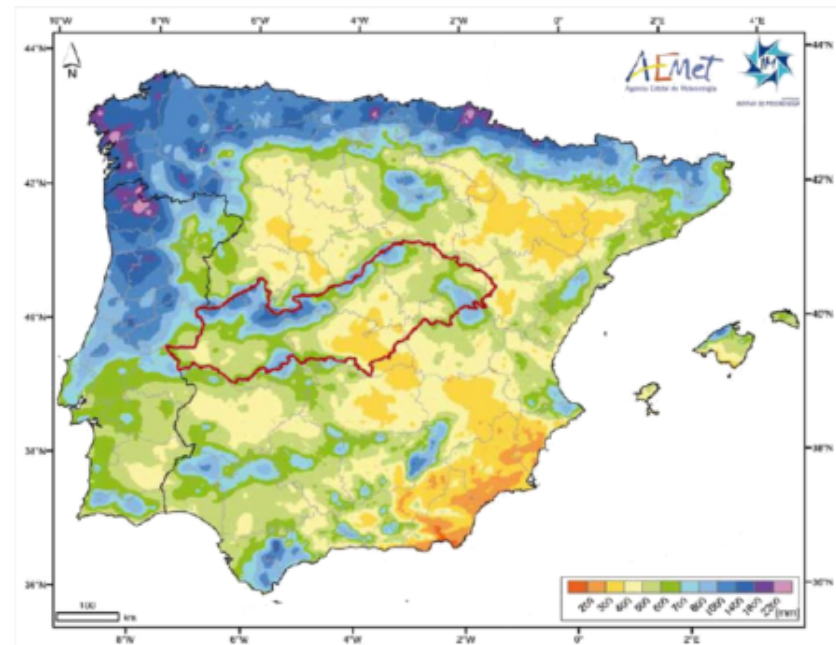
Portugal and Spain share 5 river basins, Portugal being in every case the downstream country. Transboundary groundwaters are not particularly relevant.

Almost 50% of the Iberian Peninsula territory drains to the Atlantic coast of Portugal, although the Portuguese territory represents no more than 20% of the total.

Pluviometria and geography are advantageous to Portugal.

The Northern part of the Peninsula is humid, whilst the Southern part is dry, specially in Spain.

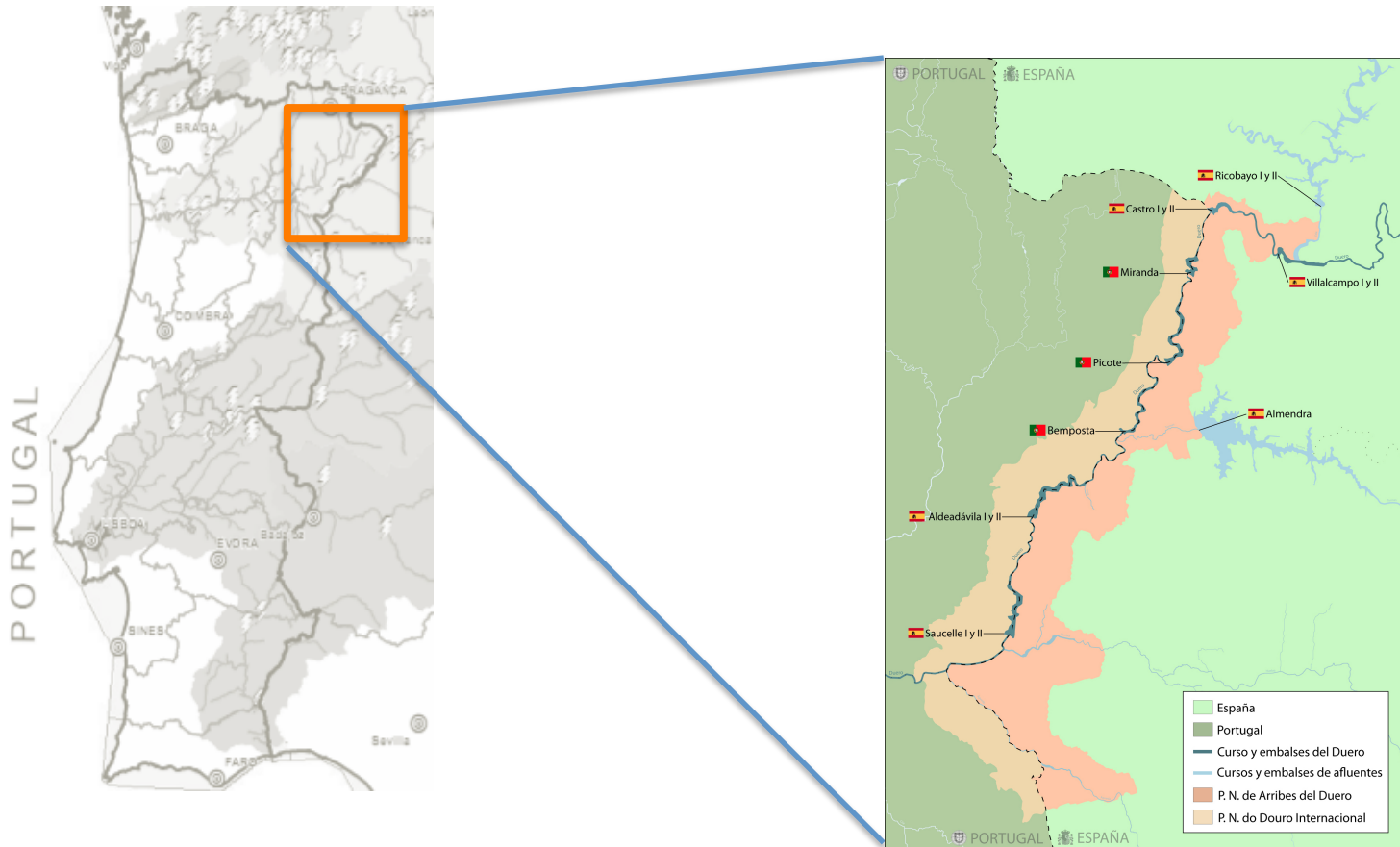
Tajo's river basin makes the transition from the humid Iberia to the dry one, in Spain as well as in Portugal.



The 1927 Convention on the Douro

But transboundary cooperation really started in 1927, when a Convention on the sharing of the hydropower potential of the border stretch of this river was signed and a Portuguese-Spanish Commission in charge of management was set up.

The international reference was Nations Society's Geneva Treaty of 1923.



The 1964 Convention on the Douro

Under this 1927 Convention, Spain built a large dam and power plant (Ricobayo) in the Esla river, a tributary on the right bank of the Douro, between 1927 and 1930.



This was the first hydropower plant in the Iberian Peninsula.

But the other undertakings that were planned for the Douro in the border were only built after World War II, because of the Great Depression and the Spanish Civil War.

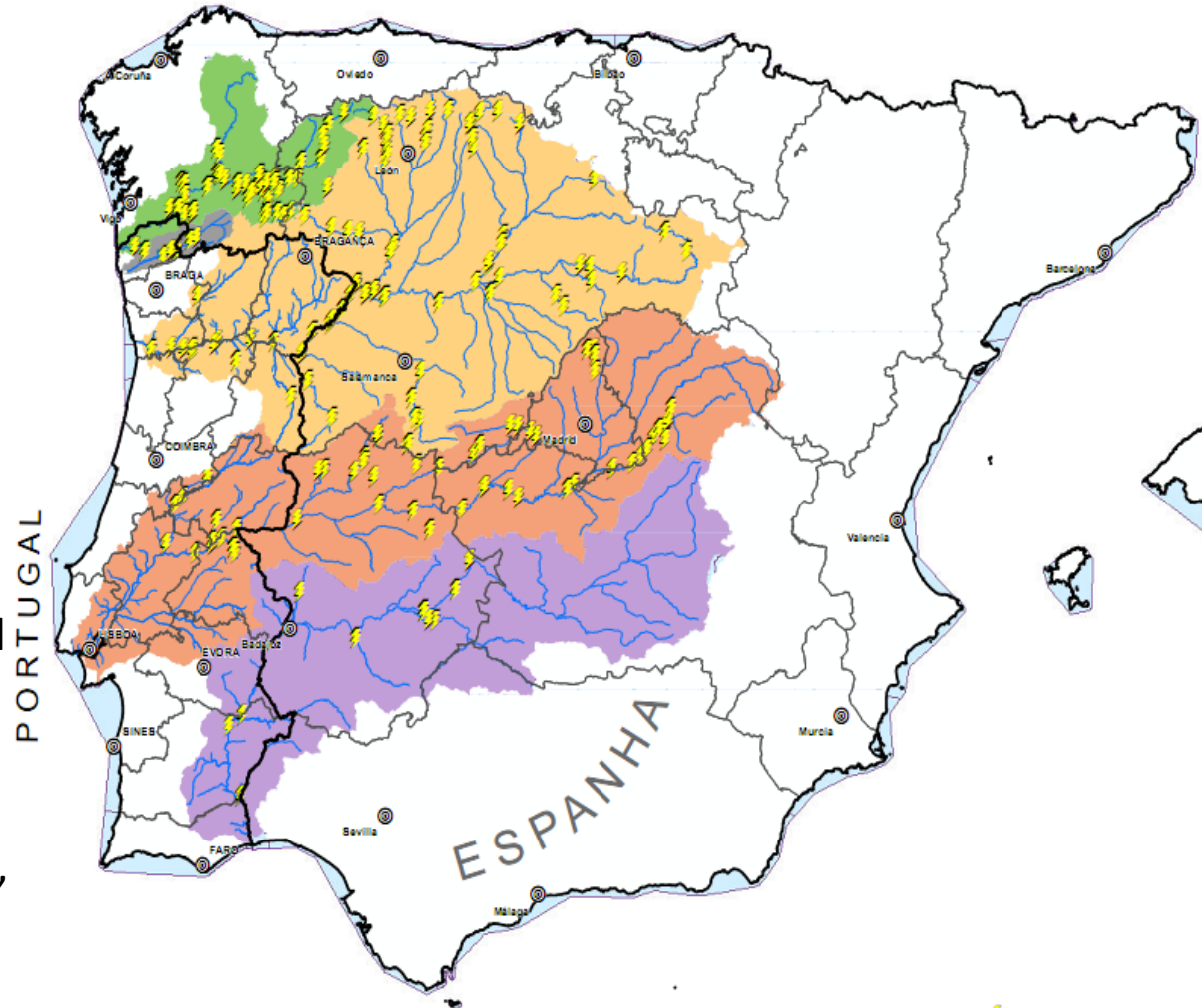
In 1964 a 2nd Convention on the Douro was signed, that extended the sharing of the hydropower potential to the right bank tributaries, which have their sources are in the Cantabrian Chain before entering into Portugal.

The 1968 Convention on the Minho, Lima, Tajo and Guadiana rivers

Another Convention was signed in 1968 with the scope of sharing the hydraulic potential, and no longer the hydropower potential, of the border stretches of these transboundary rivers.

By that time almost 80% of the electrical energy consumed both in Portugal and Spain came from hydropower plants.

But other interests were being considered. Spain wanted to build the Tajo-Segura Aqueduct, to bring water to the Southern part of the territory, and Portugal wanted to build the Alqueva Dam, for irrigation purposes in the Alentejo.



The 1968 Convention on the Minho, Lima, Tajo and Guadiana rivers



Aqueduct Tajo-Segura

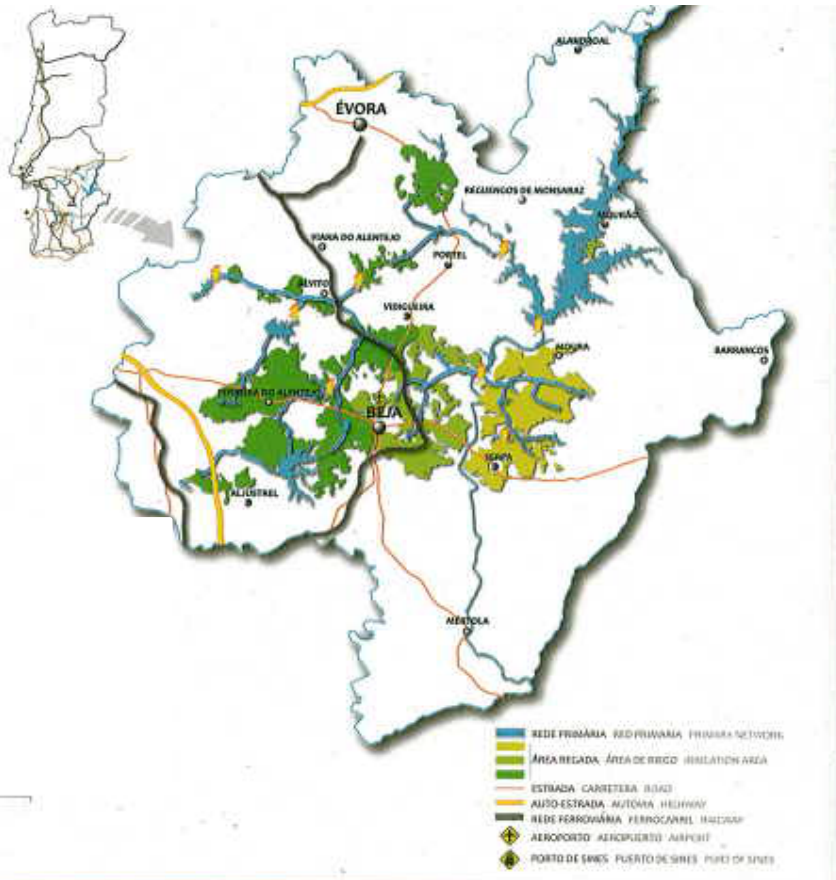
Up to 1000 million m³ may be transferred each year (30 m³/sec) to be used in the Segura river basin.



The 1968 Convention on the Minho, Lima, Tajo and Guadiana rivers

Alentejo's Irrigation Plan

In Portugal the irrigation of 200.000 ha in Alentejo, in the Tajo, Guadiana and Sado river basins, was foreseen.



Dam builders



The environmental impacts were mostly ignored.

Beautiful landscapes and rich habitats were destroyed in the 1960ies.



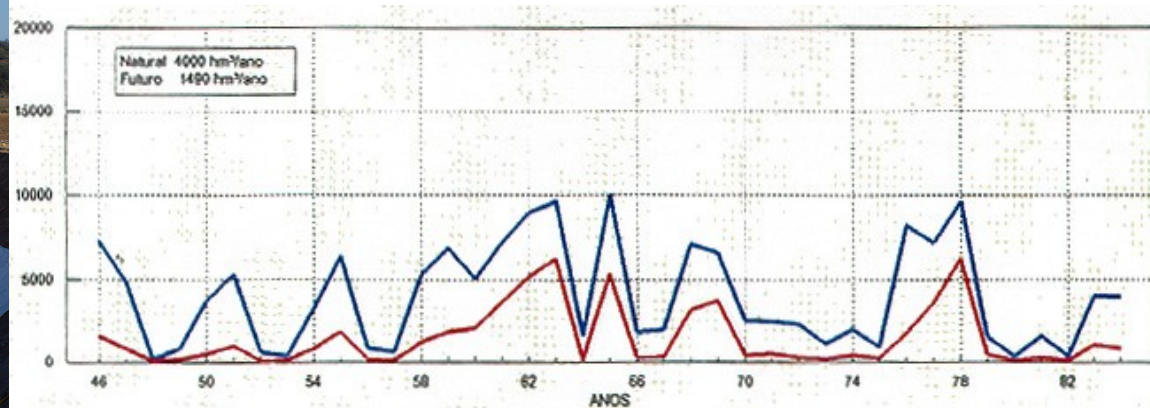
Dam builders

By the end of the 1980ies the situation in the main transboundary rivers presented itself as follows:

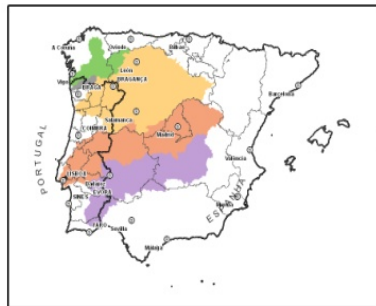
- Dozens of dams had been built, both in Spain and Portugal;
- Because of agricultural and industrial development, waters were highly polluted almost everywhere;
- Water abstraction for irrigation severely reduced the flows arriving to the border and flow regime was highly irregular.



Hydrogramme at the border of the Guadiana river obtained by simulation for pristine conditions (**blue**) and with the uses as set up in 1990 (**red**).



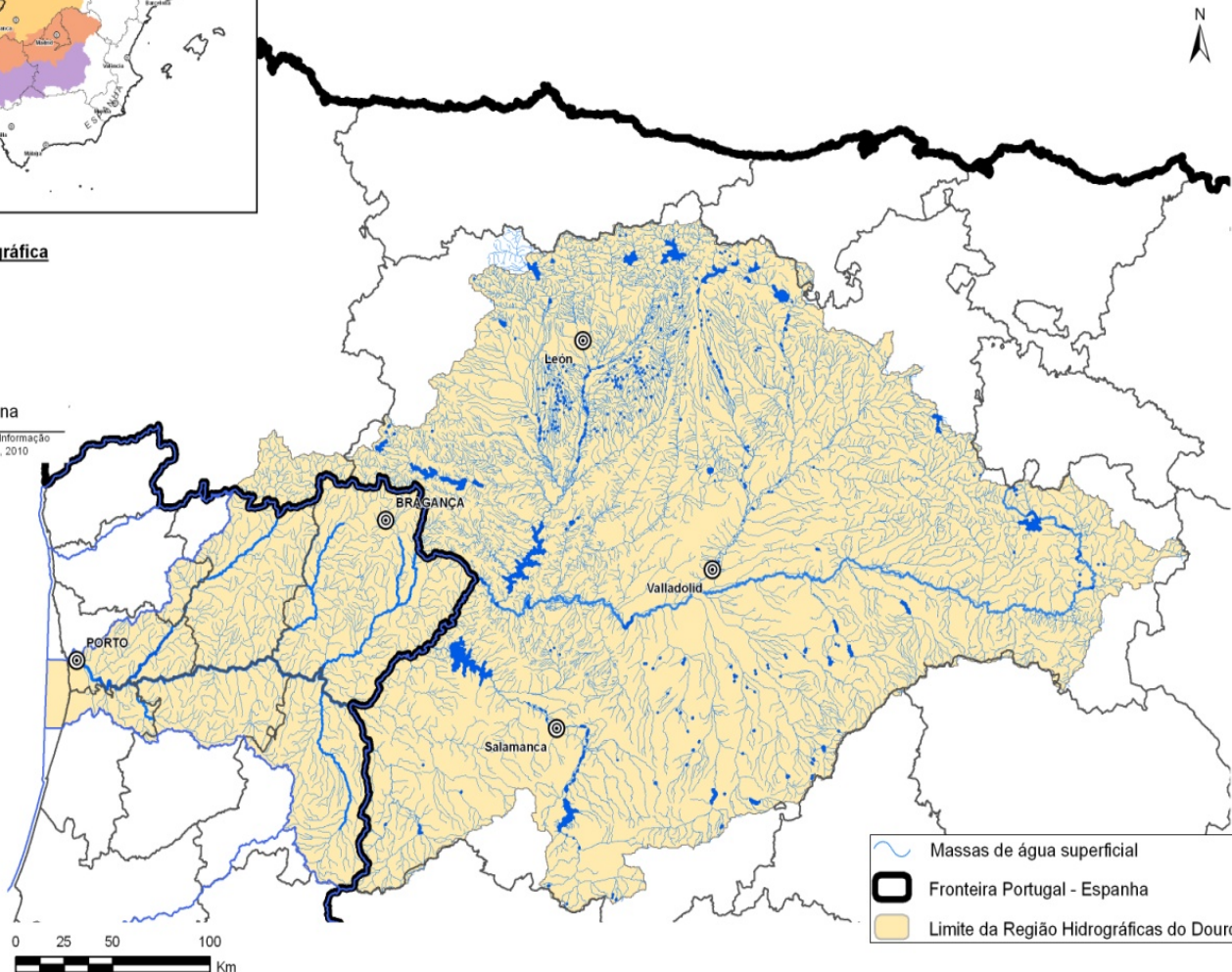
Dam builders – Douro river basin



Bacia Hidrográfica

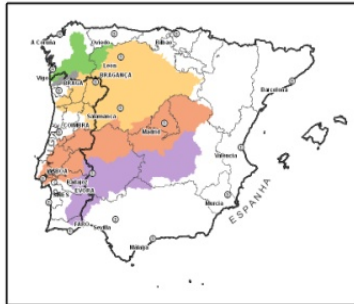
- Minho
- Lima
- Douro
- Tejo
- Guadiana

Sistema Nacional de Informação de Recursos Hídricos, 2010



- Massas de água superficial
- Fronteira Portugal - Espanha
- Limite da Região Hidrográficas do Douro

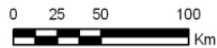
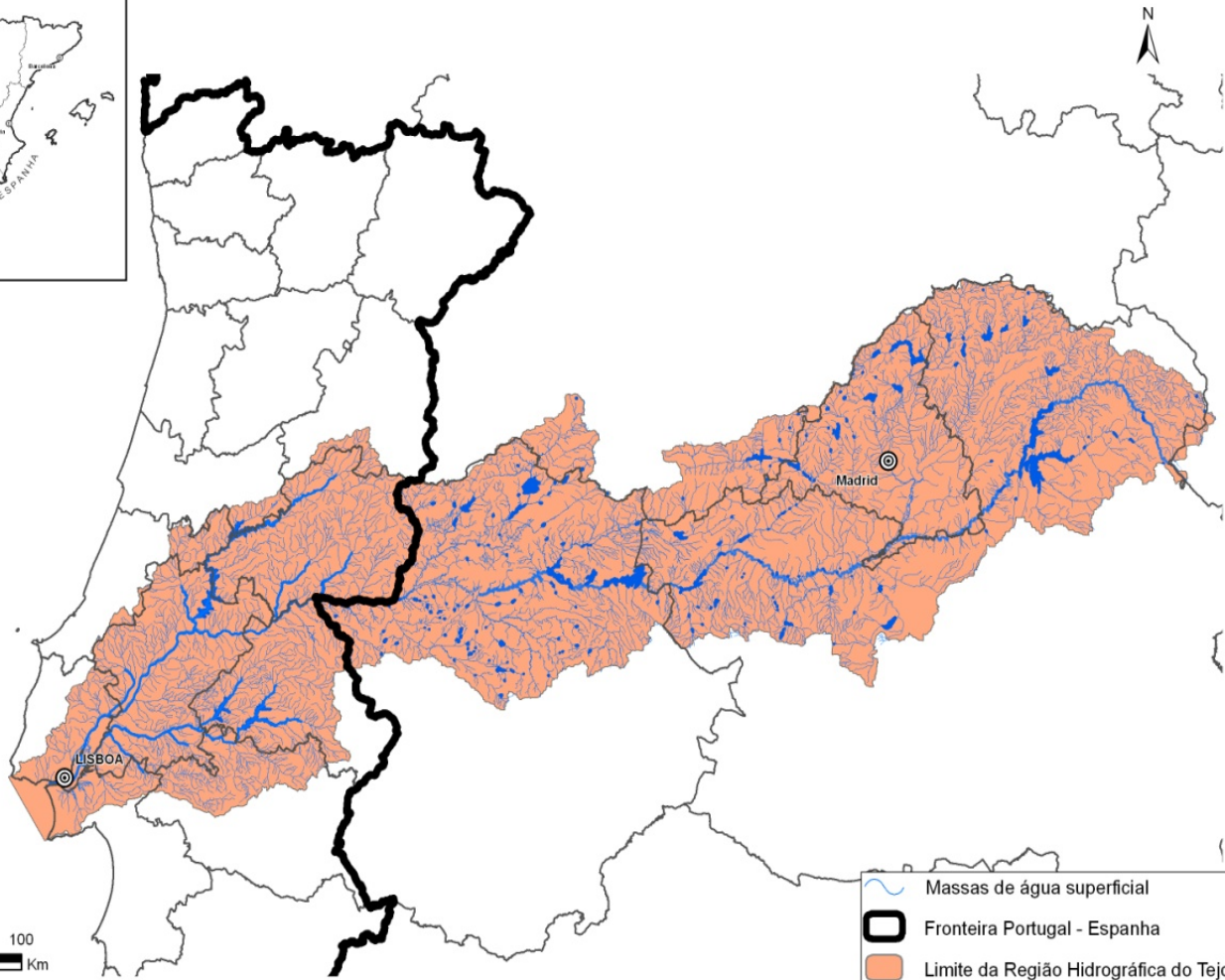
Dam builders – Tajo river basin






Bacia Hidrográfica

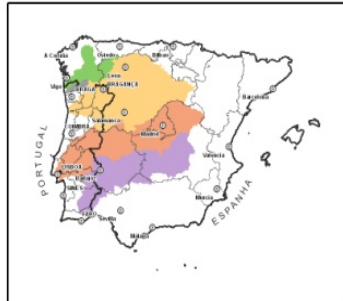
- Minho
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Sistema Nacional de Informação de Recursos Hídricos, 2010



-  Massas de água superficial
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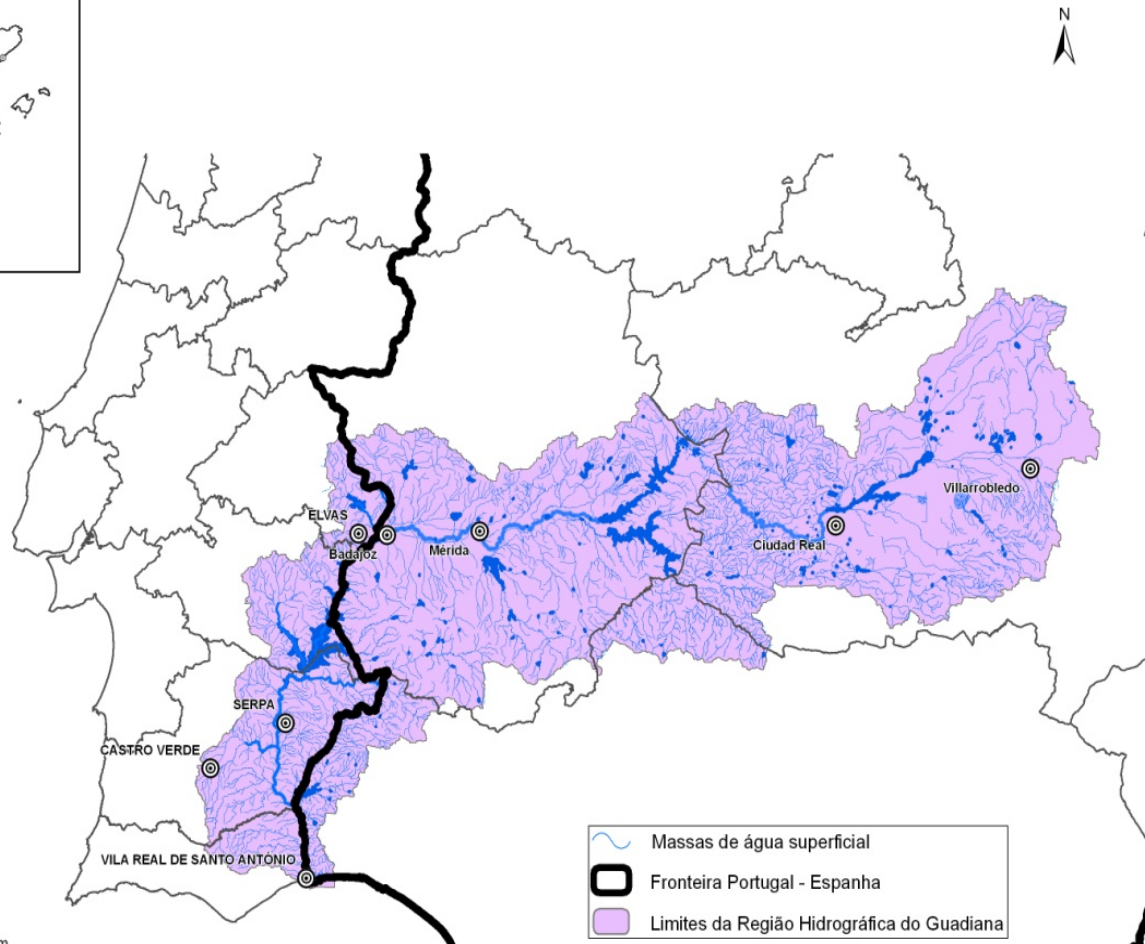
Dam builders – Guadiana river basin



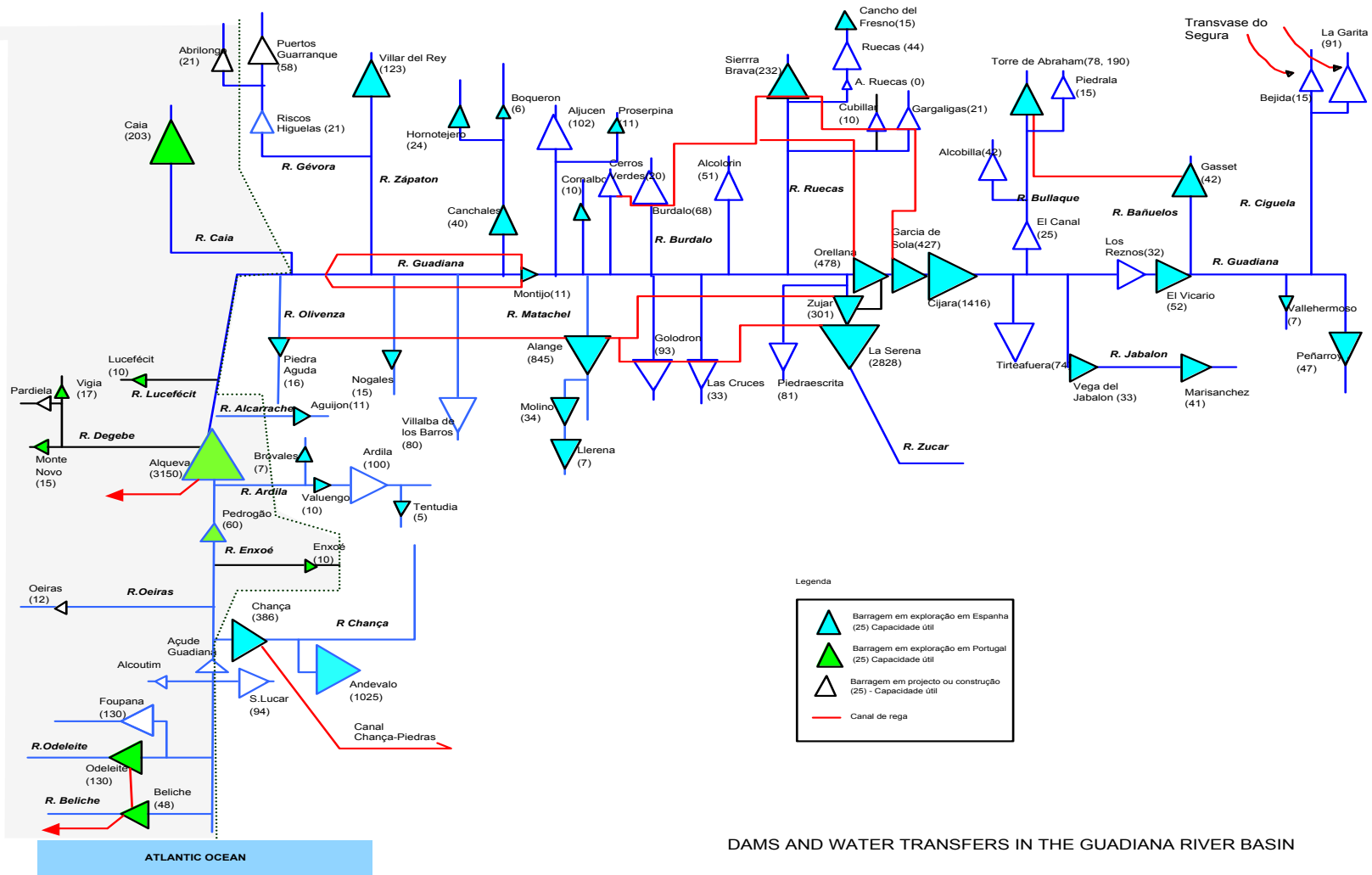
Bacia Hidrográfica

- Minho
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Sistema Nacional de Informação de Recursos Hídricos, 2010

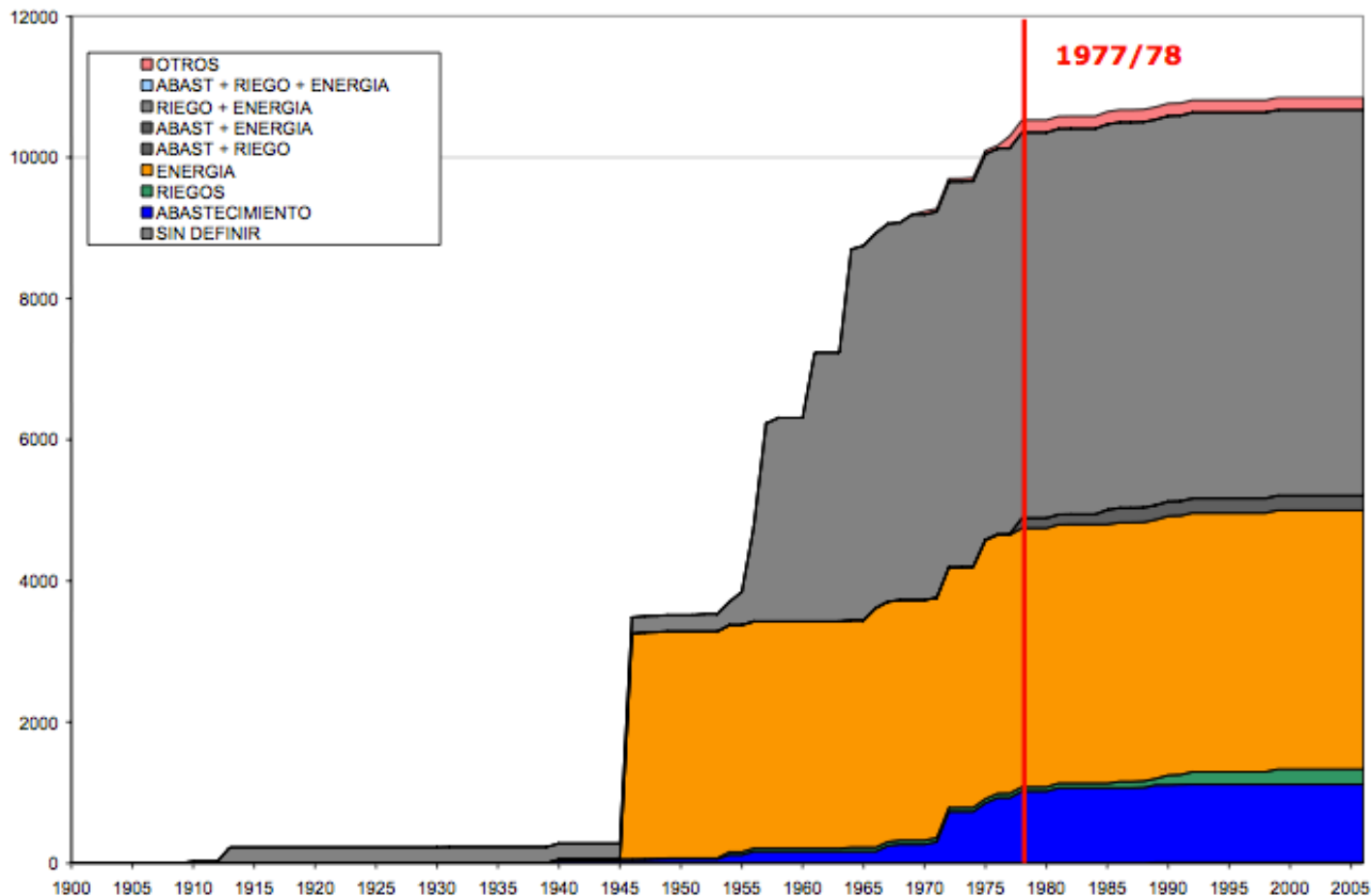


Dam builders – Guadiana river basin



DAMS AND WATER TRANSFERS IN THE GUADIANA RIVER BASIN

Tajo river basin – Installed flow regulation capacity



The 1993 crisis

A crisis in the relations between the two States arose in 1993

The years 1991-1995 were very dry, both in Spain and Portugal.

In 1993 a draft National Water Plan was submitted to public consultation in Spain that was badly received by the Portuguese public.

A second water transfer in direction of the Southern river basins, again in the order of 1.000 hm³, was considered, now having as origin the Douro basin.

The two governments decided to start negotiating a new water Convention.



The negotiations of the new Convention

The negotiations for the new Convention started in 1994 and by the end of that year the Ministers of the Environment met in order to establish the working programme and agreed on the principles that should be considered (the so called Oporto Declaration). The number of delegates in each side was limited and consisted of:

- The Water Directors;
- Diplomats;
- Jurists;
- Experts on hydrology and hydraulics;
- On the Spanish side, representatives of the hydraulic administration of the regions concerned;

The Working Group met at least every 6 months alternatively in Spain and Portugal.

Besides, the Ministers and the Water Directors met regularly in Brussels at the Environment Councils and also at the Spanish-Portuguese yearly Summits chaired by the Heads of Government of both States. The progresses registered were then evaluated and disputes settled by political arbitration.



The negotiations of the new Convention

Negotiations took advantage from the fact that:

- Relations between the two Governments were very good and a Treaty on Friendship and Cooperation had just been signed;
- The two States were by that time members of the European Union and had both to abide to very stringent water directives, namely in what concerns the prevention of water pollution and the protection of the environment;
- **The two States had already subscribed the UNECE conventions (Helsinki, Aarhus, Espoo) even if Helsinki Convention was awaiting ratification;**
- There was a long-lasting and solid tradition of fruitful cooperation between the authorities of the two States on transboundary water issues, and friendly personal relations; the Commission that had been created for the management of the 1964 and 1968 Conventions was meeting from time to time and people knew each other. Confidence and even friendship had been created.

For Portugal, the downstream country, this was considered to be a vital issue, for Spain, the upstream country, it was more the kind of a water management issue.

For Portugal, it was very important to arrive to a satisfactory result as for the flows issue, for Spain it was more the definition of a framework for further water uses that was at stake. It was Portugal's responsibility to take the lead and present proposals (the petitioner).

Kew words of the new Convention

- Cooperation
- Coordination
- Environment protection
- Sustainable development
- Exchange of information
- Consultation
- Impacts mitigation– **no harm principle**
- **Flows Guaranties – Principle of equitable and reasonable use**
- Development of the Law

An open Convention, flexible, modern, equitable and friendly to the environment, covering the whole basins, from source to estuary.



The negotiations of the new Convention

For all issues, with the exception of the flows regime issue, there were already formulae that had been accepted by the two Parties (in the EU water directives, the UNECE conventions, the 1966 Helsinki rules, the New York Convention).

But these formulae had to be adapted:

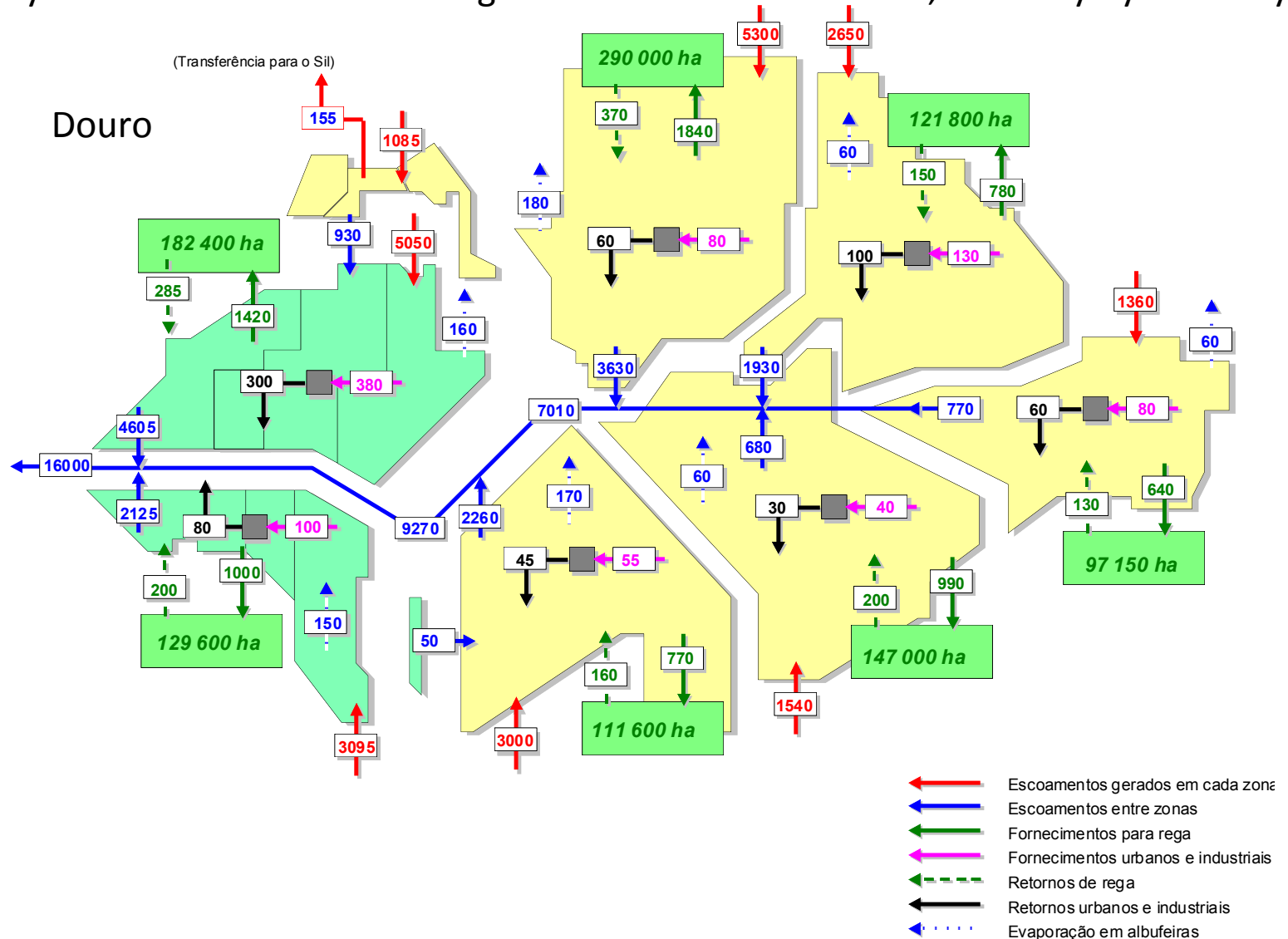
- To the specificities of the shared rivers;
- To the previous water agreements (the 1964 and 1968 Water Conventions, which rested in place);
- To the *de facto* situations (the already built dams, the water transfers, the irrigation perimeters);
- To the specificities of the State organisation and administration of the two States.

All this had to be studied and considered by the two Parties and very thorough and extensive exchange of information followed, with both Parties proving to be in *bona fide* (good faith).

But in what concerns the flows regime, even if some precedents existed (EUA-Mexico for the Grande/Bravo river, Greece-Bulgaria for the Nestos/Mesta, amongst other), we had to innovate.

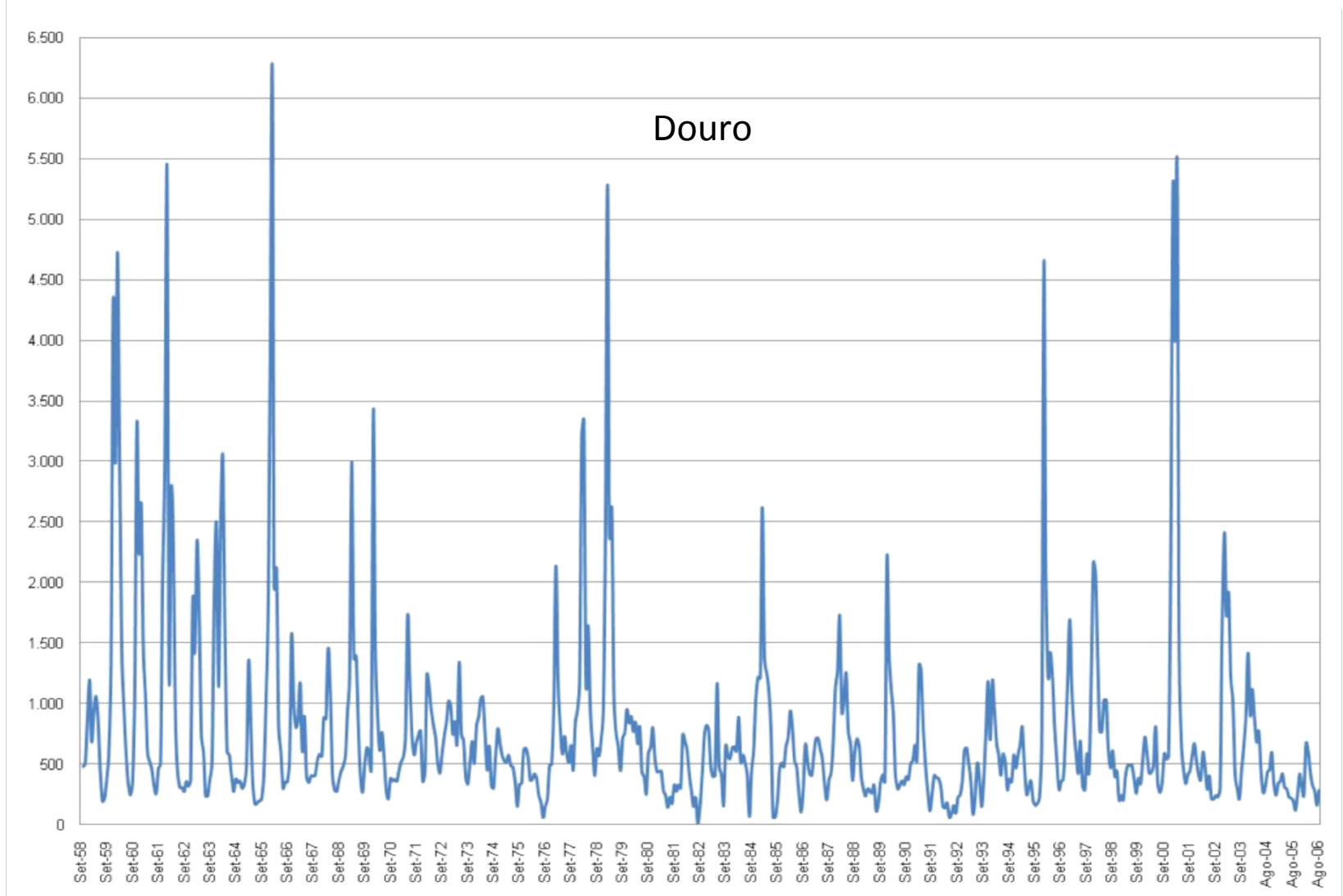
Studies made by the Portuguese Party and presented to the Spanish Party

Study of water uses and flows regime in modified conditions, tributary by tributary



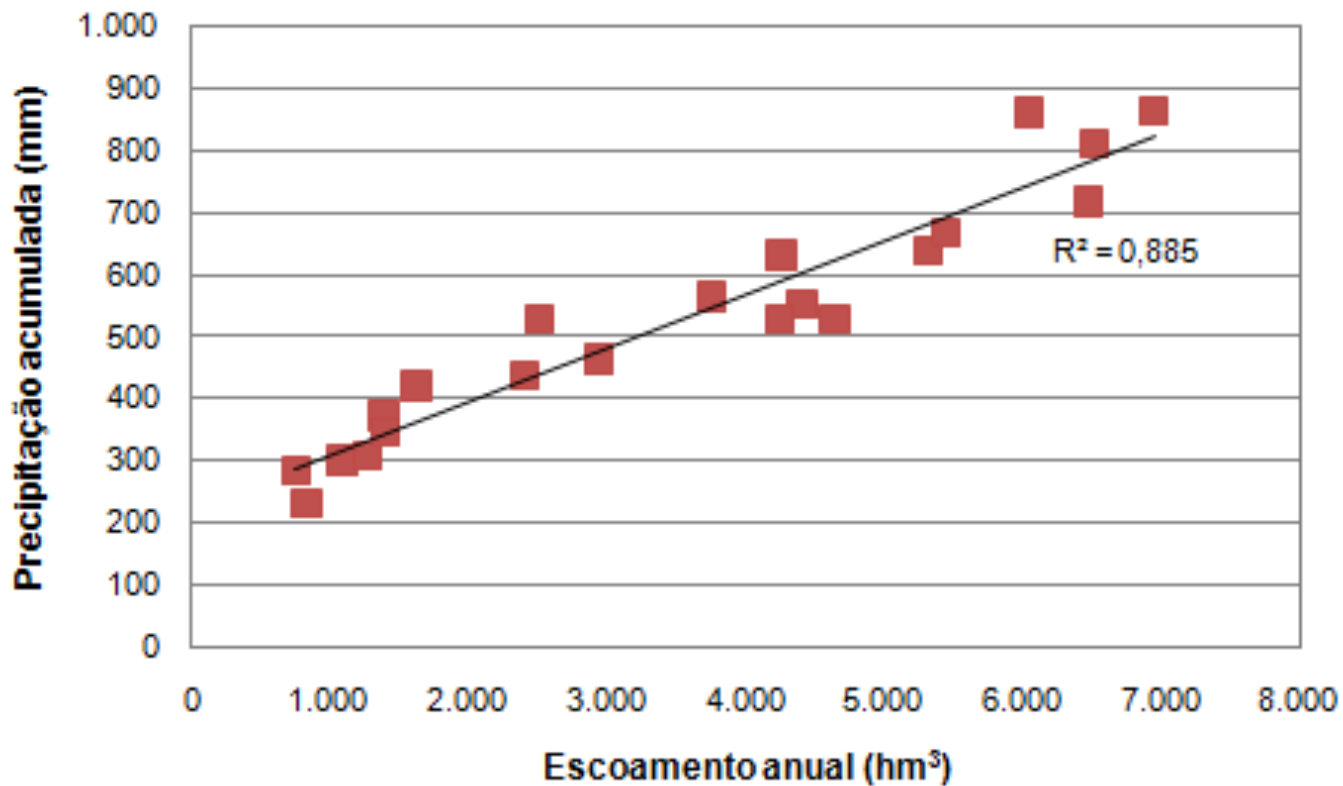
Studies made by the Portuguese Party and presented to the Spanish Party

Study of hydrologic series at the entrance of Portugal and other relevant sections



Studies made by the Portuguese Party and presented to the Spanish Party

Studies on the correlation between rainfall and runoff



Studies made by the Portuguese Party and presented to the Spanish Party

The Portuguese Party presented proposals for minimum annual flows at the relevant sections:

- At the entrance sections of the border stretches of the rivers (Minho and Douro) and the sections where the rivers enter into Portugal (Douro, Tajo and Guadiana), thus creating an obligation to the Spanish Party.
- At the entrance of the estuaries (Douro, Tajo and Guadiana), thus creating an obligation to the Portuguese Party;

For the Minho, Douro and Tajo rivers, exceptions were considered whenever the pluviometria is below some reference values (by the end of the rainy season) as measured in pluviometric posts that have been agreed as representative.

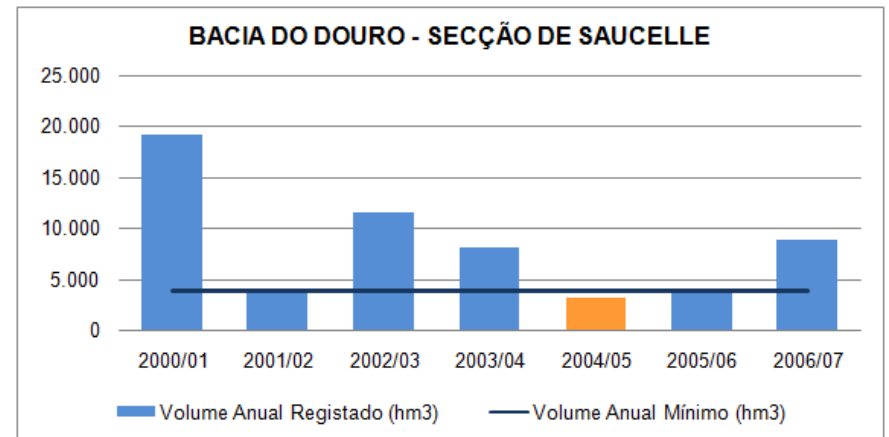
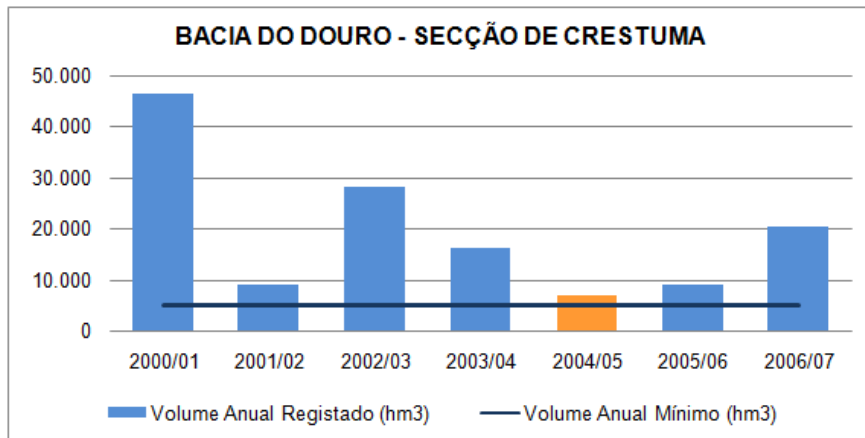
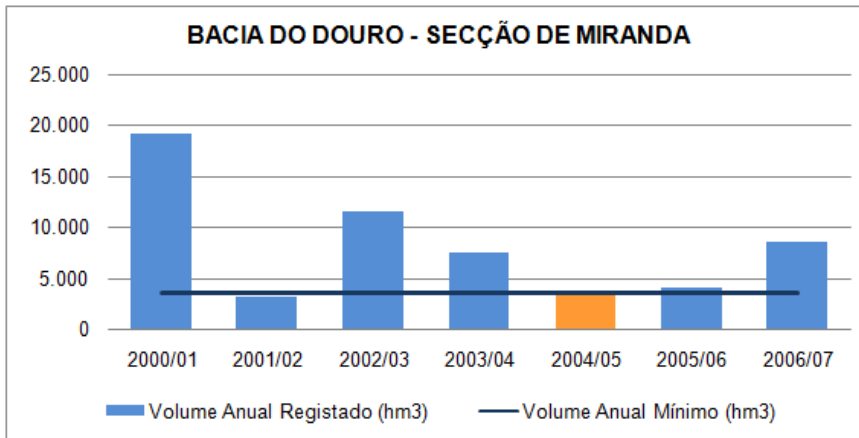
For the Guadiana river, where the installed regulating capacity in Spain doubles the mean annual flow at the entrance into Portugal, minimum flows that depend not only on rainfall but also on the volumes of water stored in Spain were agreed.

That is to say that Spain agreed to allocate some of its regulation capacity installed upstream of the border for the service of Portuguese needs (principle of equitable use).

Studies made by the Portuguese Party and presented to the Spanish Party

Proof that the proposed regime would not constitute any severe harm to Spanish interests had to be presented.

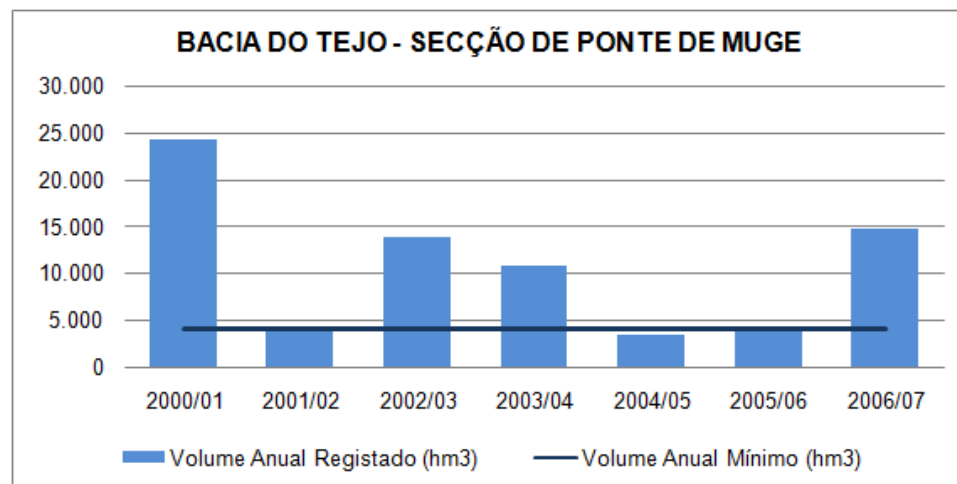
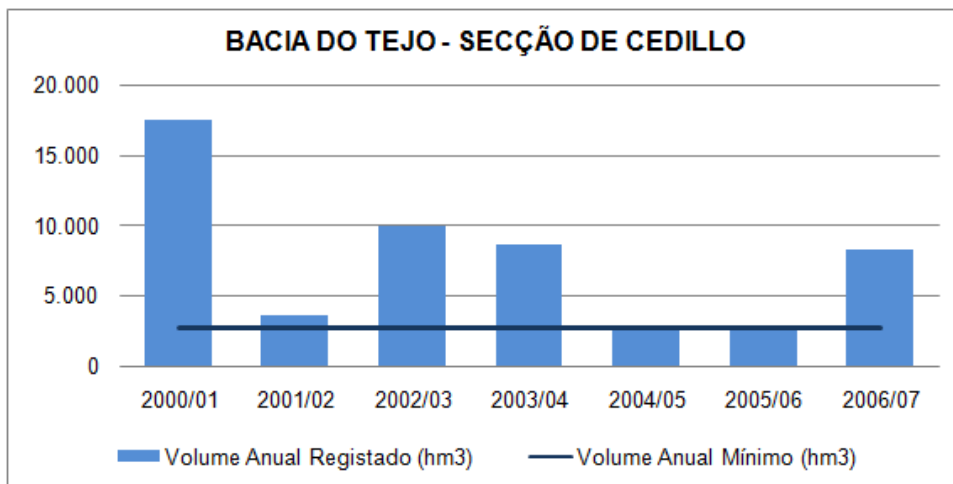
DOURO



Studies made by the Portuguese Party and presented to the Spanish Party

The same with Portuguese interests.

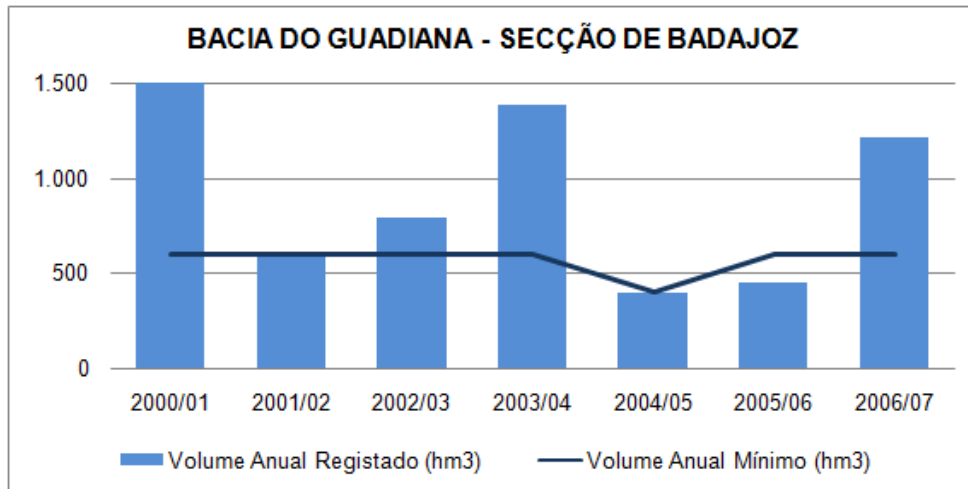
TAJO



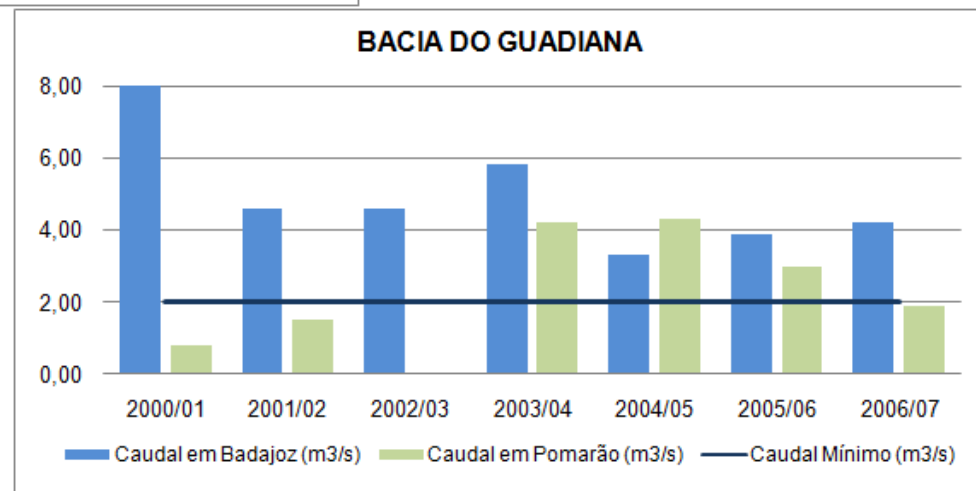
Studies made by the Portuguese Party and presented to the Spanish Party

Proof had to be done that both parties would somehow benefit from what was being proposed.

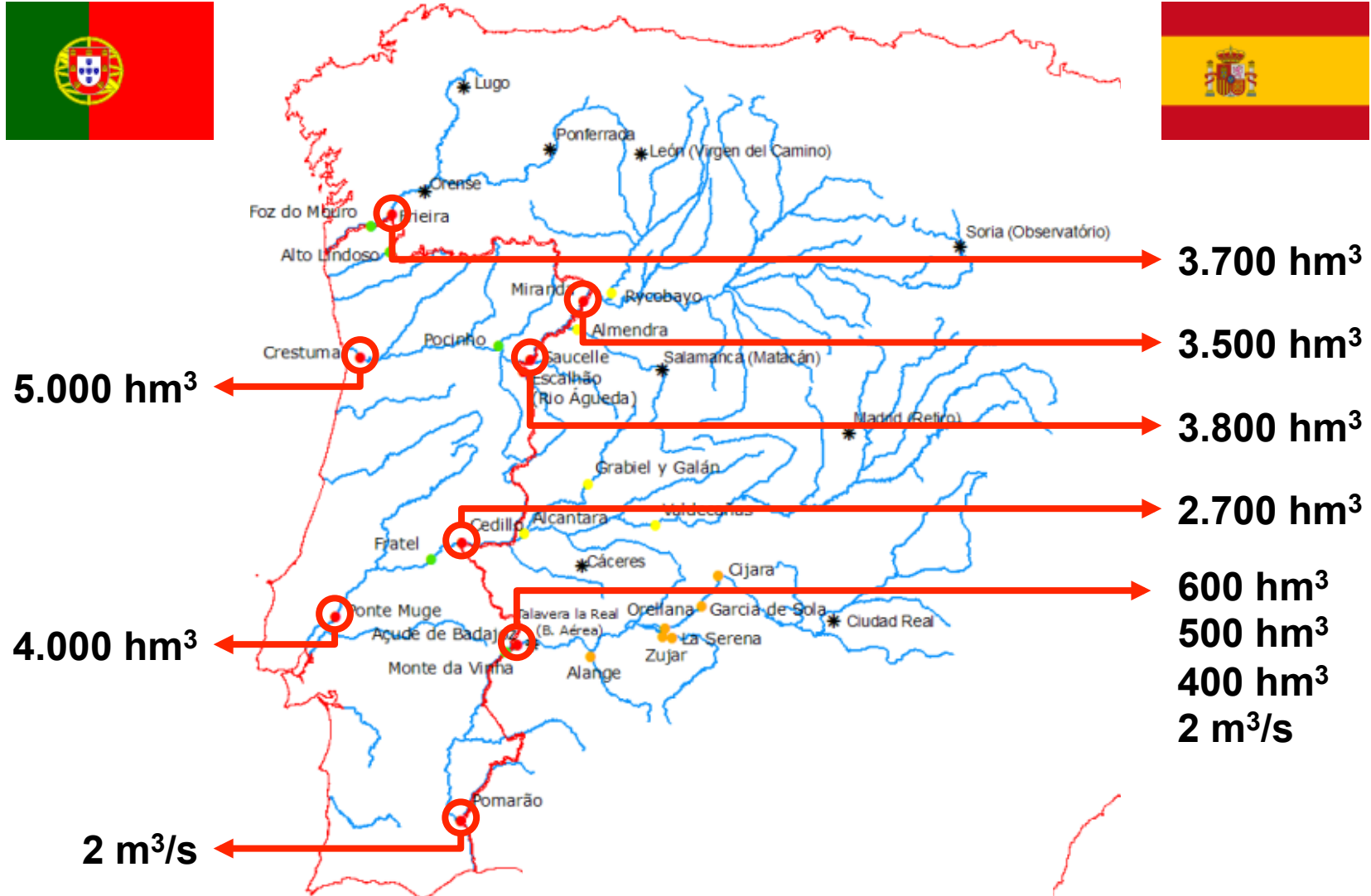
GUADIANA



A minimum instantaneous flow rate at the border and at the entrance of the estuary (2 m³/sec) was agreed.



Flow regime of the Albufeira Convention, 1998



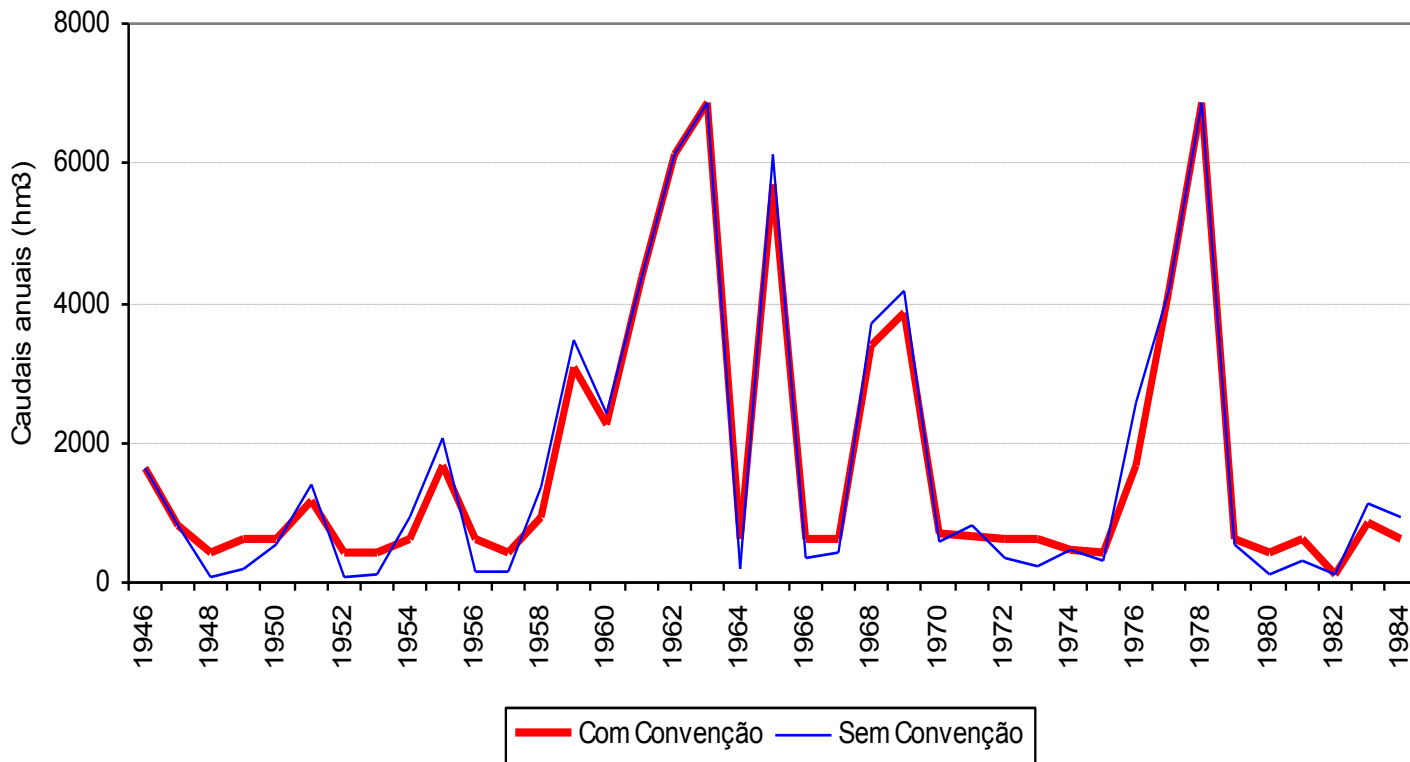
Flow regime of the Albufeira Convention for the Guadiana

For the Guadiana river the flow regime is more complex, but the principle is the same: there is exception whenever the rainfall accumulated since the beginning of the hydrologic year and the volumes of water stored in the reference reservoirs are below certain levels. The installed regulation capacity in Spain upstream the border is in the order of 8.000 hm³.

Total volume stored in the reservoirs (hm ³)	Reference cumulative precipitation from the beginning of the hydrologic year (1 st October) until 1 st March	
	More than 65% of the mean cumulative reference precipitation	Less than the 65% of the mean cumulative reference precipitation
> 4 000	600 hm ³	400 hm ³
3 150-4 000	500 hm ³	300 hm ³
2 650 -3 150	400 hm ³	Exception
< 2 650	Exception	Exception

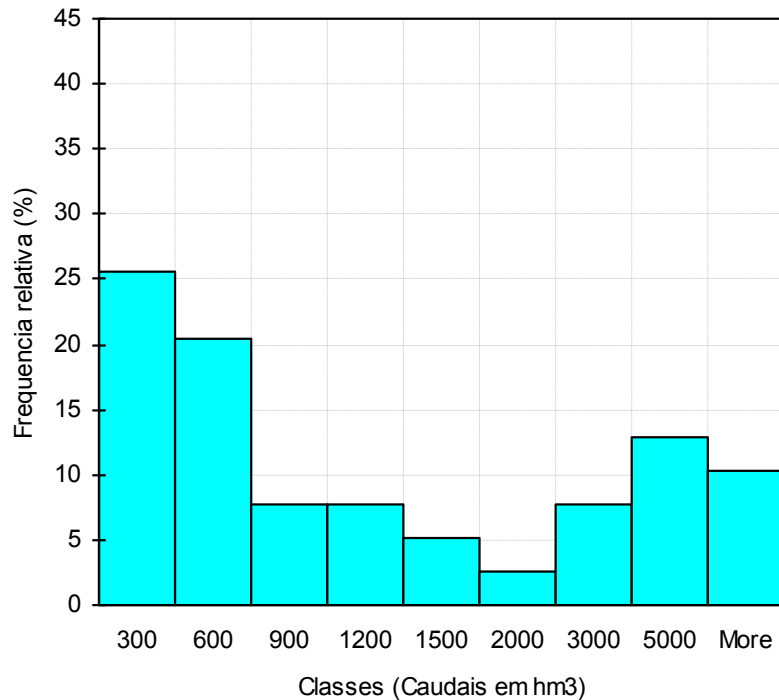
Flow regime of the Albufeira Convention for the Guadiana

Hydrogramme of river flows at the border, **without Convention** and **with Convention**, obtained by simulation

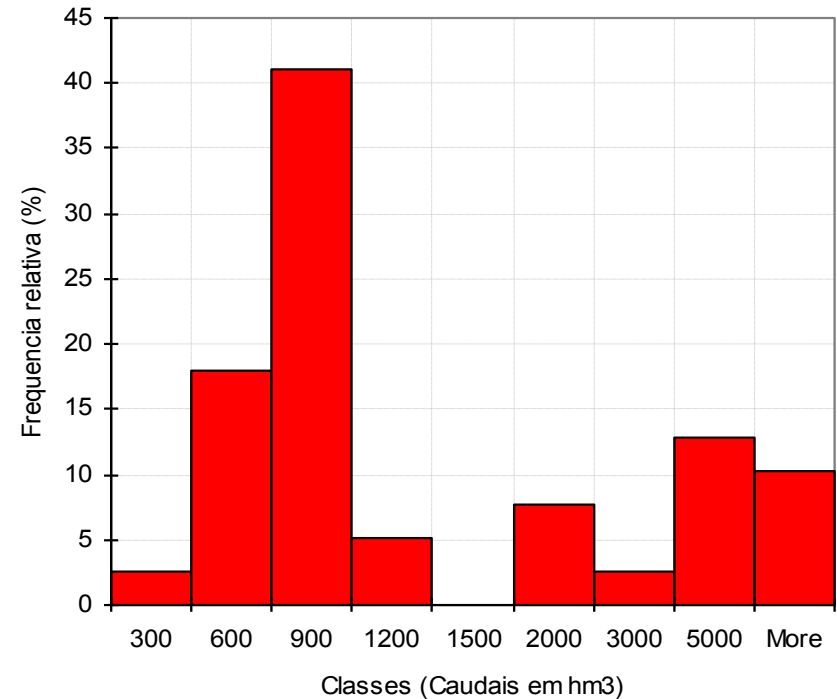


Flow regime of the Albufeira Convention for the Guadiana

Histogram of annual flows at the border without the Convention



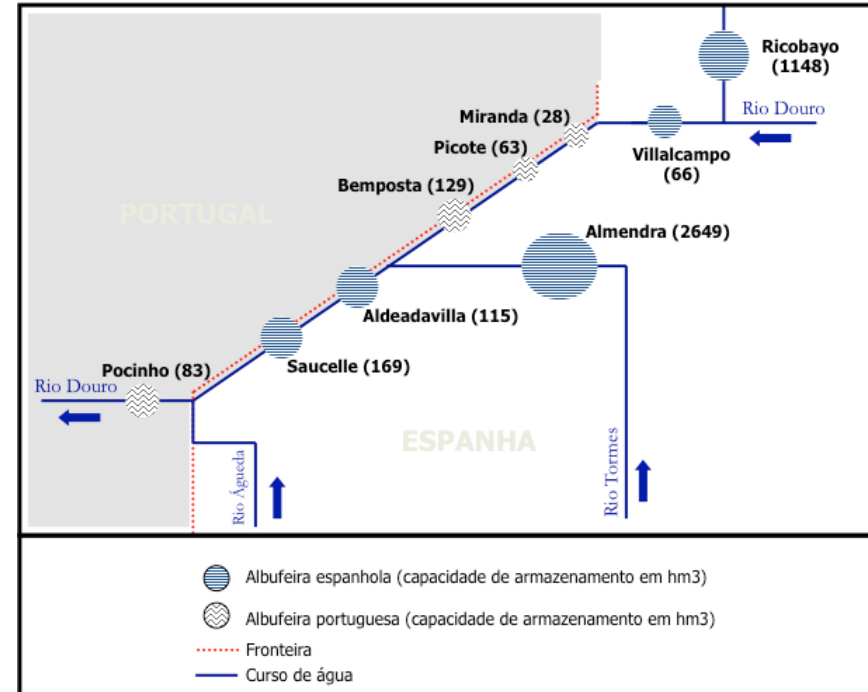
Histogram of annual flows at the border with the Convention



Flow regime of the 2008 Protocol to the Albufeira Convention

In 2008 the flow regime was detailed by means of

- The definition of minimum quarterly flows;
- The definition of minimum weekly flows;
- The splitting apart of the Portuguese and the Spanish contributions for all agreed flow regimes.



Caudal Integral (hm ³)		Miranda	Saucelle	Crestuma
Annual		3 500	3 800	5 000
Quarter	1.º	510	580	770
	2.º	630	720	950
	3.º	480	520	690
	4.º	270	300	400
Weekly		10	15	20

Douro river at the border

Lessons learned

The success of the Albufeira Convention is the result of a stubborn and very serious work that went on for 5 years.

The fact that the Parties had a common legal framework, the EU water and environment directives and the UNECE conventions, was very important for the successful conclusion of the Convention.

The technical study of the solutions took some time but proved to be crucial for the success of the negotiations. The Portuguese Party, as the downstream country, had the initiative all the time.

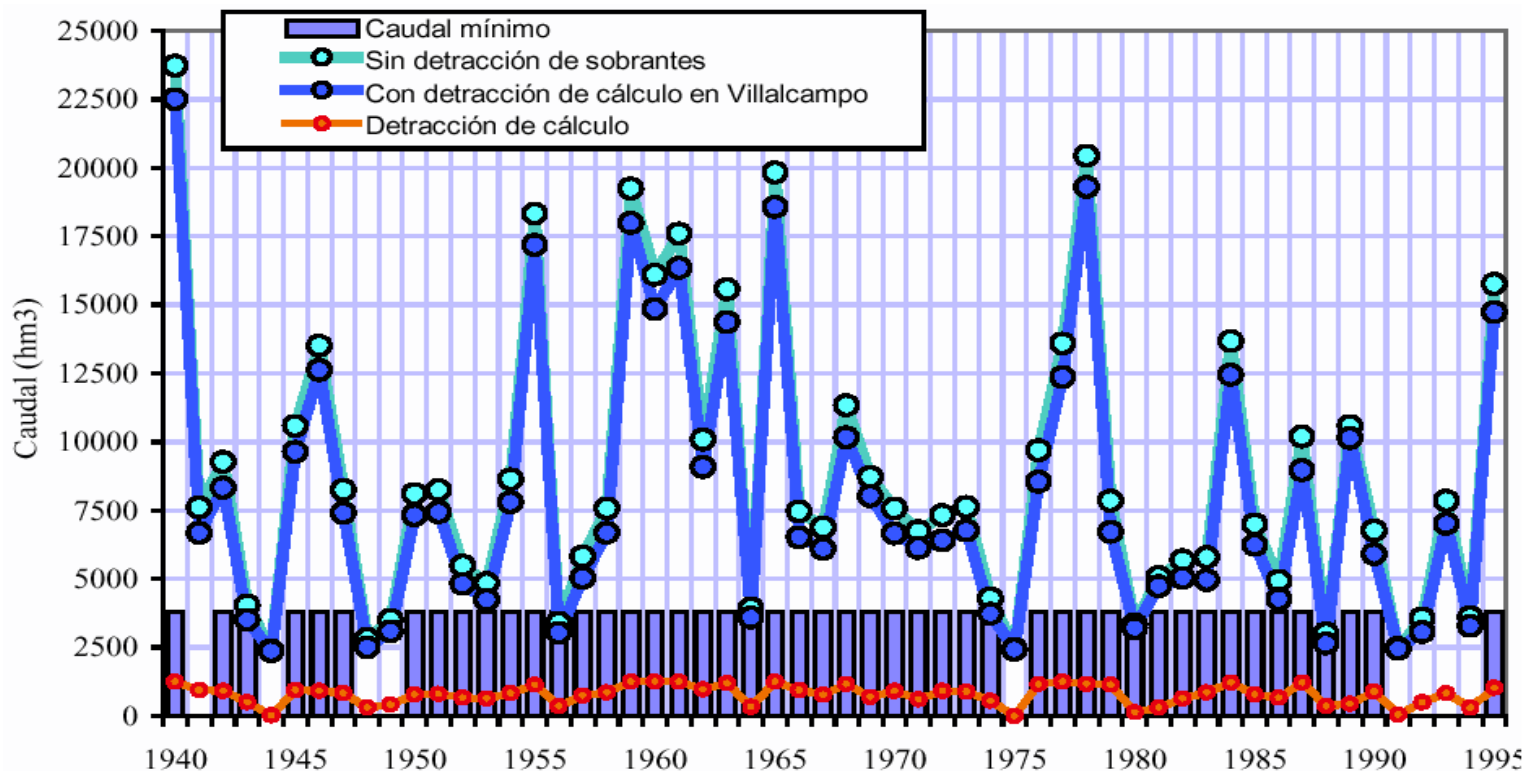
The seriousness of the negotiations consisted in not presenting biased proposals, proposals that could not be complied with by the other Party without severely affecting its sovereignty in what concerns water resources management. We both tried to systematically understand the other Party's positions and its reasons and point of view.

The presence of Diplomats at the negotiating table was very important.

The Rivers Commission that existed was replaced by a new one having in charge the management of all Conventions and arbitration is foreseen.

Afterword

The Convention came into force in year 2000. At that time a new National Hydrologic Plan was developed in Spain that considered several alternatives for the transfer of water from the wet Northern territories to the dry Southern basins. The projected transfer of water from the Douro was resumed (1.000 hm³). Having simulated the transfer the Spanish authorities arrived to the conclusion that it was not feasible if the agreed flow regime was to be respected and the project was abandoned.



Many thanks for your attention

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