



Innovative economic instruments: Market-based instruments in Spain (1994-2025)

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Economic Instruments for Resilient River Basin Management
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Background –market-based instruments in the world

Country	Water-rights Nature	Level of development	State control
Spain	Public allocation (25-years)	Medium	High (discount of return flows)
USA-SW	Private (full)	High	Medium
Australia	Private (full)	High	Medium
Chile	Private (full)	Medium	Low (conflicts)



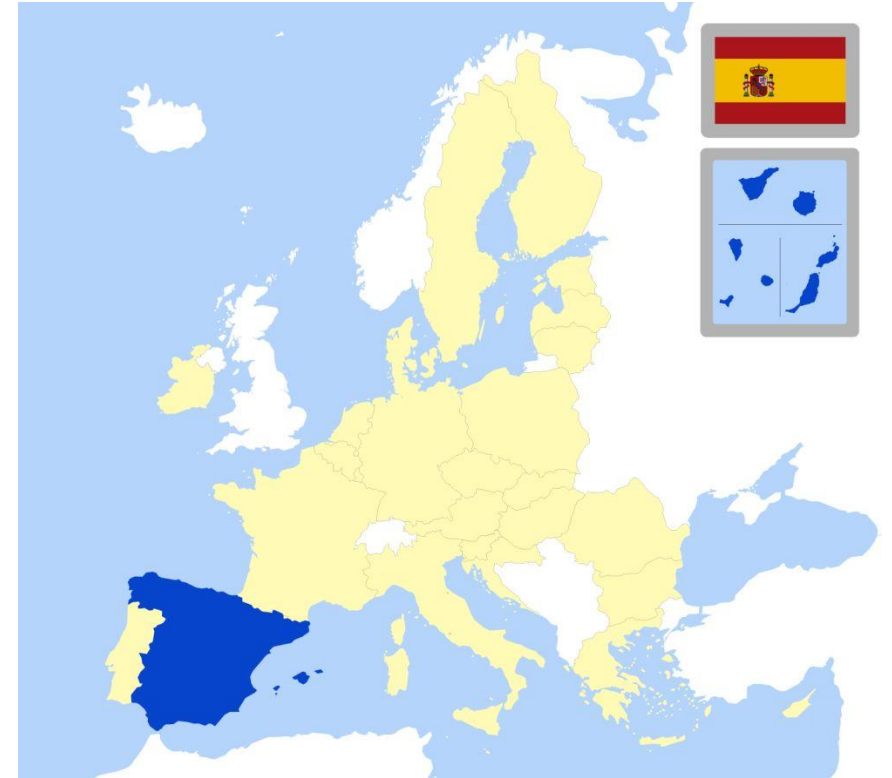
- Water markets
- Buy back
- Water Banks
- SWAPS
- Water banking
- Carry-over

Definition of water right (entitlement)

Country	Legal nature of water right	Right type	Comment
Spain	Administrative concession over public water	Right to use (not property)	Basin 'land moratorium (no more rights) / trade allowed under RWB supervision
Australia	Statutory entitlement to a share of water	Share of Basin resource (estimated annually)	CAP & trade (free market with some limitations: (e-flow..)
USA-SW	State-law usufructuary right to beneficial use	Prior appropriation system	Conflicts (courts)
Chile	Constitutionally protected private property right	Minimal state discretion	freely transferable, inheritable, and <i>mortgageable</i> .

Spanish case study

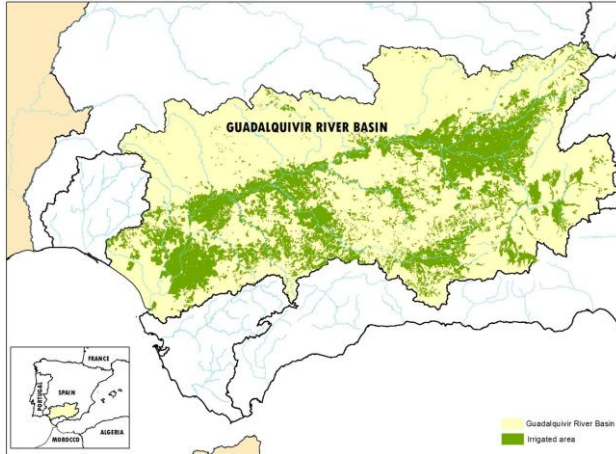
- **Spain** only EU country with water trade experience.
- **Six basins** have operated water trade instruments:
 - Guadalquivir,
 - Mediterranea-Andaluza
 - Guadiana,
 - Jucar
 - Segura
 - Tajo
- Market instruments have operated always under:
 - **Structural scarcity** and/or overallocation
 - Temporal shortage (**Drought**)
 - **Institutions** that allow trade
- Canary Island have specific local law that allows water markets*



(*) Private-law water rights and trading have existed in the Canaries historically ('heredades') and since at least the mid-20th century, recognized by Canary Islands Water Law (1956). The new Law (1990) declared water a public good, it preserved the existing rights of private water holders

Farmer to farmer temporal trade - Drought Guadalquivir 2023 (1/2)

2023: 106 contracts authorized by RBA



Price range

Min	0,15 EUR/m ³
Max	0,53 EUR/m ³
Most frequent	0,24 EUR/m ³

Other markets-based instruments:

- **Tajo and Segura(*)**: 2007, 2008, 2015 market between Murcia /SCRATS y Estremera. 0.19 EUR/m³
- **Guadalquivir 2008**
- **Canary Islands**

(*) including 'options' to determine future price

AGRICULTURA

Denuncian "mercadeo" con los derechos de riego de los arroceros

La Mesa Social del Agua critica la "pasividad" de la CHG y alerta de que habrá una "guerra" entre agricultores



Social conflict from 'eco' and 'left' ideology agents. Ej: "Mesa social del agua" integrates these agents and is always against trade on ideological grounds

Farmer to farmer temporal trade - Drought Guadalquivir 2023 (2/2)



- This is the paperwork to get the permission to trade
- River Water Authority autorizes when farmers do not belong to the same scheme
- Inside an irrigation community informal or forma trade is allowed

CONTRATO DE CESIÓN DEL DERECHO AL USO PRIVATIVO DE LAS AGUAS PARA RIEGO

En, ade de

REUNIDOS

De una parte, como CEDENTE del derecho al uso de las aguas:

(CEDENTE: titular del derecho que se cede):

D/D^a.....
 DNI....., con domicilio a efecto de notificaciones ende
 (.....).

- Identificación del derecho al uso del agua del CEDENTE:

Inscrito en el Registro de Aguas, Sección__Tomo__hoja_____*(si se conoce)
 Corriente/ acuífero:
 Término municipal y provincia de la toma:.....
 Caudal máximo (l/s): _____ Superficie con derecho a riego (ha): _____
 Otorgado o inscrito por resolución de fecha:.....
 Ref. de expediente:.....
 Para facilitar la identificación del derecho que se cede se aporta fotocopia de la resolución de concesión/inscripción.

De otra parte, como CESIONARIO interviene:

(CESIONARIO: quien con la celebración de este contrato y de forma temporal tiene derecho al uso del

Farmer to others sectors permanent - Farmer to thermo-solar and urban use

Sevilla city (1994) (drought-temporal) [1]



Permanent irrigation water rights [2]



Example buy back: Farmer to environment - Doñana: 'Los Mimbrales' buy back

Average recharge:	97 hm ³
Water rights 2015:	113 hm ³
State buy rights:	≈ 7 hm ³
Water rights 2025:	106 hm ³

Price	35 million EUR
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Volume	6,8 hm ³
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Price	5,15 EUR/m ³
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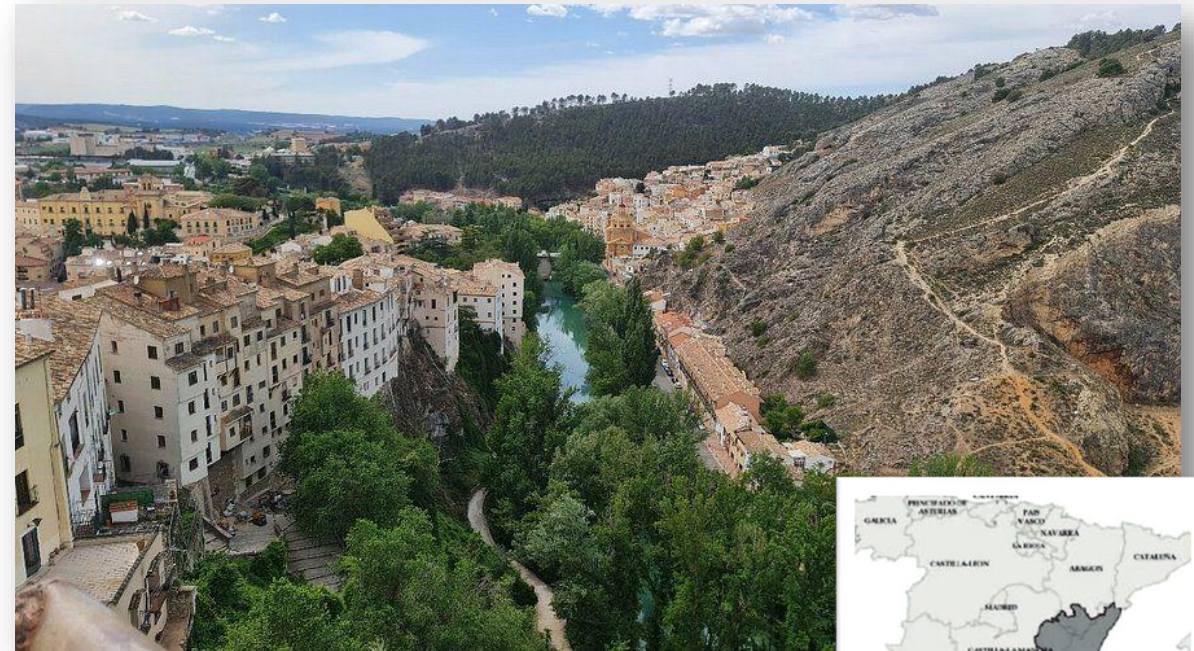


Note: Doñana still suffers of overallocation that need to be solved, in 2025 water rights have been reduced by 20%

Example “Water Banks - Jucar ‘water bank’” (1/2)

The RBA (CH Jucar) has implemented auctions and prices to buy temporal or permanent. **Objective:** environmental

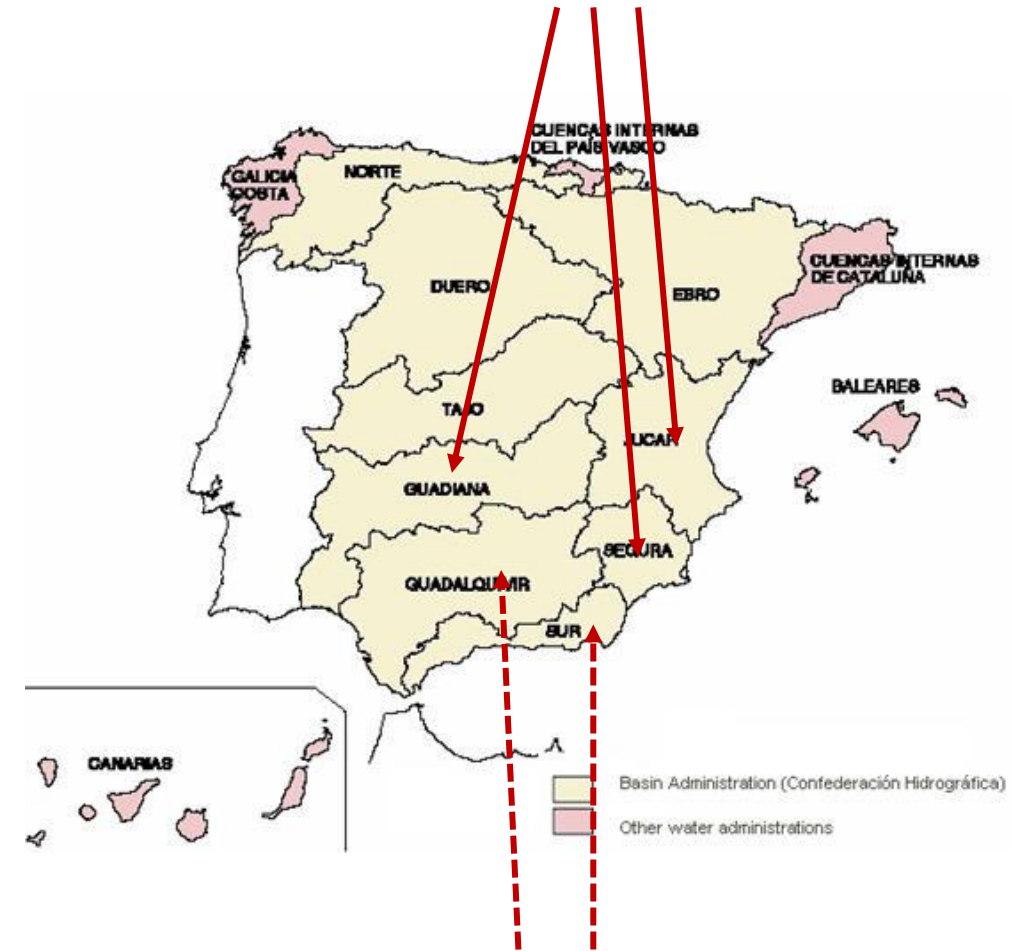
Years	Price	Type
2008	Variable (auction)	Temporal/spot (drought)
2021	~8.000 - 9.500 €/ha	Permanent (aquifer recovery)
2023-2025	9.690 - 12.920 €/ha	Permanent (aquifer recovery)



Water Banks – Spain (2/2)

		Guadiana	Júcar	Segura
Water right type	Permanent	X		
	Temporal (spot)		X	X
	Future options			
Objective	Re-allocation	X		X
	Environment	X	X	X
	Risk adaptation			
Role	Active	X	X	X
	Pasive			

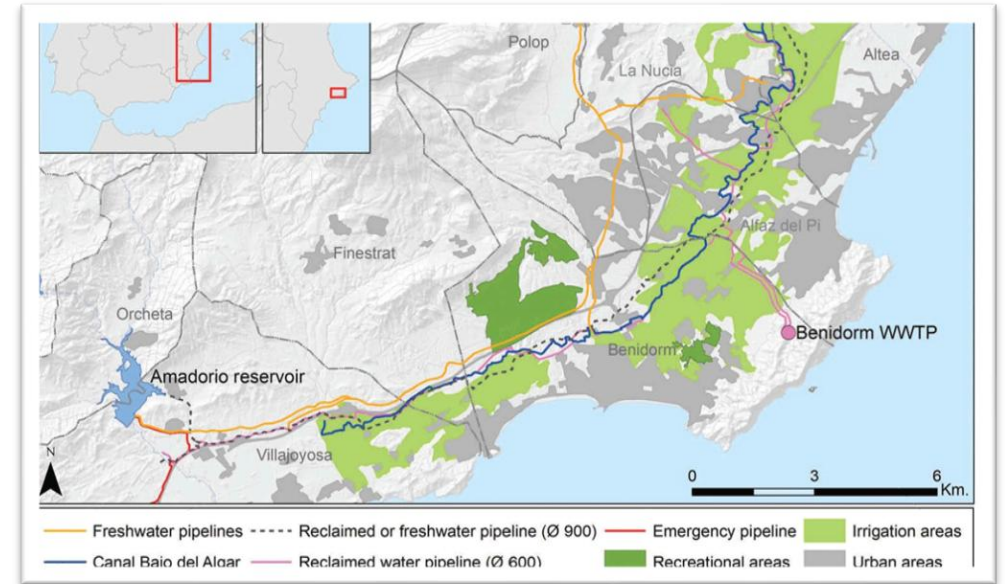
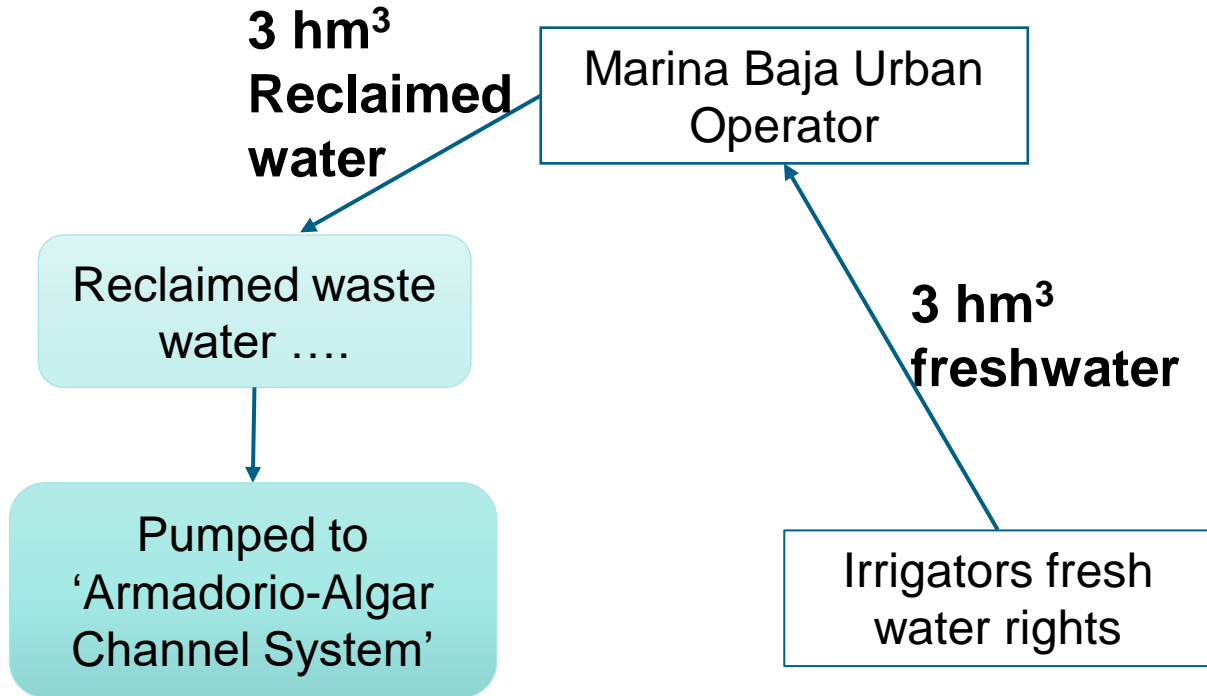
Water Banks & Water Trade



Water Trade & Buy back

Farmer to farmer – SWAPS (urban-irrigators for quality and guarantee) (1/2)

Since 1990



Agreement Granada city-Irrigators: 10hm³ exchange (SWAP) signed 2025



Farmer to farmer – SWAPS (surface-G(2/2))



GW irrigators pay the cost of freshwater from San Clemente and exchange it for GW that was affecting downstream (spring) irrigators

Irrigators with GW since 1990's

San Clemente reservoir

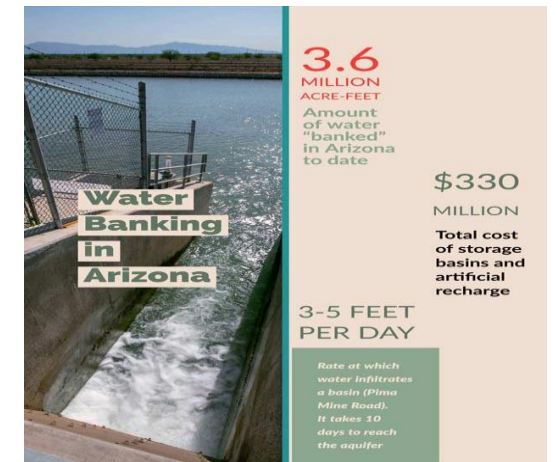
Irrigators with spring water rights since 1500

Spring was used for urban recreation

“Water banking” and “carry-over”

Not used (still) in Spain

Dimension	Annual Carryover	Water Banking
Time horizon	Short to medium term (one to few years)	No temporal limit
Legal nature	Extension of annual allocation	Non conventional water provider (State, urban, others)
Storage	Typically surface reservoirs	Surface or aquifer (often managed recharge)
Ownership	Same right holder	Involve third parties (market)
Transferability	Sometimes tradable	Explicitly tradable
Risk exposure	Spill, evaporation	Recovery risk, regulatory risk, aquifer losses



Thank you for your attention

