

RETOUCH NEXUS

REsilienT water gOvernance Under climate CHange within the WEFE NEXUS

Deliverable D1.1

Factsheet on economic instrument Development across Europe

Eulalia Gómez, Adrià Rubio & Solène Fovelle

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RETOUCH NEXUS Partners

Technical University of Munich - TUM (Germany) - Maria Vrachioli, Johannes Sauer, Markus Disse, Juan Pablo Henao Henao, Jingshui Huang & Nicole Tatjana Scherer

Valencia Polytechnic University - UPV (Spain) - Manuel Pulido-Velazquez, Hector Macián Sorribes, Adria Rubio-Martin & Eulalia Gomez Martin

Vrije Universiteit Amsterdam - VUA (Netherlands) - Erik Ansink, Nicolien van der Grijp, Daniel Petrovics & Leon Bremer

adelphi research gemeinnutzige - adelphi (Germany) - Annika Krammer, Elsa Semmling, Karolina Heck & Binayak Das

Slovak University of Agriculture - SUA (Slovakia) - Jan Pokrivcak, Ema Lazorcakova & Miroslava Rajcaniova

Euroquality - EQY (France) - Barthélémy Maillard, Clémence Gracia & Solène Fovelle

Vlaamse Instelling voor Technologisch Onderzoek - VITO (Belgium) - Katrien Van Hooydonk, Lilian Tavernier, Steven Broekx & Wim Schiettecatte

De Watergroep - DWG (Belgium) - Pauline Ottoy, Charlotte Jacobs & Ian Montauban Van Swijndregt

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Hoogheemraadschap Hollands Noorderkwartier - HHNK (Netherlands) - Floor van Schie, Ronald Koolen & Marja Korting

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Regierung Oberfranken - RegOb (associated) (Germany) - Andrea Kuenzl

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Ministry of Agriculture and Rural Development - MARD (associated) (Slovakia) - Martin Kovac

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Introduction

This document aims to provide additional information about the economic instruments studied for the European water context and support previously displayed factsheets. The information offered is the result of the collective analysis of the researchers involved in the RETOUCH NEXUS project.

1. Insurance

Insurance involves paying a premium to ensure protection in case of a loss. Insurance is a widely used tool for mitigating financial losses that may result from unexpected events. In this system, the policyholder or insured individual pays a premium to the insurer in exchange for potential monetary compensation in case of a loss. By doing so, the insurer takes on and spreads the risks from multiple policyholders, making them easier to evaluate and handle. While crop insurance may not be a direct economic tool for water management, it could significantly address the motivations behind the over-pumping of aquifers during drought.

Rainfed agriculture losses due to drought were only compensated by insurance schemes in Spain, Italy, France, and Austria until recently. However, emerging mutual funds now offer coverage against income losses rather than yield losses, extending drought coverage to irrigated agriculture. The European Agricultural Fund for Rural Development, a part of the EU CAP, has subsidized these mutual funds since 2014.

Country: Portugal						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Insurance						
Implementation: Over the past decade in Portugal, measures have been implemented to address events caused by calamities that are not covered by crop insurance. In these cases, the primary recourse has been the Calamities Fund or Fundo de Calamidades. The Fund is funded through allocations from the Government budget as well as contributions from farmers. To be eligible for compensation from the Fund, farmers must have purchased a crop insurance policy at the time of the calamity and they are required to make a contribution to the Fund amounting to 0.2% of the insured value. Compensation from the Fund is typically provided as a bonus to credit interests, although direct subsidies may be granted in exceptional circumstances.						
Contribution to governance						
Management of water-related risks	**X**	The reluctance of water users to take risks and their readiness to pay for income stability can be addressed through insurance schemes. If structured well, insurance premiums				

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		can serve as a warning against risk and discourage behaviors that may lead to higher risks or exposure.
Pathways for implementation		
Requirements to implement the instrument	No data	
Challenges to implement the instrument	No data	
Degree of success	**Low**	**Medium**	**High**

Country: Italy						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Insurance						
Implementation: Italy has been a pioneer in developing and supporting mutual funds in Europe. The establishment of mutual funds eligible for public funding was initiated through Decree 102/2004 2004 (Gazzetta Ufficiale della Repubblica Italia, 2004) and Law 388/2000 (Gazzetta Ufficiale della Repubblica Italia, 2000). These laws allowed for the formation of mutual funds by the Defense Commission, known as "Comisioni di Difesa," and made them eligible for public financial support. As a result, mutual funds started to emerge in Italy, even without public backing in various agricultural sectors. Although they have yet to receive final approval from the European Commission, the new CAP for 2014-2020 is expected to revive mutual funds and increase their relevance. However, their impact is still relatively small.						
Contribution to governance						
Management of water-related risks	**X**	The reluctance of water users to take risks and their readiness to pay for income stability can be addressed through insurance schemes. If structured well, insurance premiums can serve as a warning against risk and discourage behaviors that may lead to higher risks or exposure.				
Pathways for implementation						
Requirements to implement the instrument	• assess willingness to pay and risk • target subsidies					
Challenges to implement the instrument	• Willingness and ability to pay • If subsidized: budgetary constraints, • infringement of polluter-pays principle					
Degree of success	**Low**	**Medium**	**High**			
		X				

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Country: France						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Insurance						
Implementation: Rainfed agriculture losses due to drought were only compensated by insurance schemes in France until recently. However, emerging mutual funds now offer coverage against income losses rather than yield losses, extending drought coverage to irrigated agriculture. The European Agricultural Fund for Rural Development, a part of the EU CAP, has subsidized these mutual funds since 2014.						
Contribution to governance						
Management of water-related risks	**X**	The reluctance of water users to take risks and their readiness to pay for income stability can be addressed through insurance schemes. If structured well, insurance premiums can serve as a warning against risk and discourage behaviors that may lead to higher risks or exposure.				
Pathways for implementation						
Requirements to implement the instrument	• assess willingness to pay and risk • target subsidies					
Challenges to implement the instrument	• Willingness and ability to pay • If subsidized: budgetary constraints, • infringement of polluter-pays principle					
Degree of success	**Low**	**Medium**	**High**			
		X				

Country: Slovakia						
Type of instrument	**Financial**		**Business**	X	**Economic**	
Subtype: Insurance						
Implementation: Insurance is a financial compensation for losses caused by water-related unexpected events like floods and flooding, hail, or frost to the insured entities (individuals or companies). In addition, for agricultural entities there is also insurance against extreme drought. Due to climate change, it is more difficult for individuals or companies in some areas to be insured against floods or droughts because if these events occur frequently in that area, they are not considered unexpected anymore. Insurance policies apply to: a. properties: real estates, machinery and equipment, other property,						

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b. crop and animal production in agriculture, forest vegetation,
c. liability insurance: operational and environmental liability.

In Slovakia, insurance against water-related unexpected events is offered by private companies within their non-life insurance policies. There are efforts to set up a common risk fund for agriculture; the necessary legislation is under preparation. The risk fund should have resources from the state and farmers and should protect against natural disasters. Currently, governmental compensations for farmers have to be approved ad hoc (in 2022 a compensation for extreme droughts in the total amount of Eur 50 million has been approved).

Contribution to governance		
Management of water-related risks	**X**	Insurance decreases the loss under negative circumstances. Insurance against drought is expected to reduce water demand for irrigation in agriculture. However, insurance against floods may not have the same effect on building retention measures. Environmental liability insurance makes it possible to remediate damages, a contribution of the polluter is in principle also required.

Pathways for implementation			
Requirements to implement the instrument	• Suitable insurance schemes and policies • Willingness to pay for insurance by risk averse entities		
Challenges to implement the instrument	• Increased frequency, intensity and more territories hit by natural disasters • Some entities are not willing to pay for a voluntary insurance • Consensus across government, farmers and agri-food organisations on a common risk fund can be difficult to reach		
Degree of success	**Low**	**Medium**	**High**
			X
			Once an insurance contract is signed, both the insurer and the insured entity act according to its terms and conditions. However, a drawback is that some risks are not covered by any insurance policy.

Country: Spain						
Type of instrument	**Financial**		**Business**	X	**Economic**	
Subtype: Insurance						
Implementation:						

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In Spain, a comprehensive insurance program for farmers protects against major natural risks like hail, frost, and floods. The program is largely funded by the Ministry of Agriculture and, to a lesser extent, by regional governments. Depending on the commodity and the contract terms, costs are subsidized up to 45%. Over the past decade, several studies have been commissioned by agricultural insurance companies and the Ministry of Agriculture to explore the possibility of implementing drought insurance policies also for irrigated agriculture using traditional yield insurance, index-based insurance, and income insurance. However, the design and implementation of such policies remain complex and challenging for companies and institutions, as noted by several researchers (Maestro et al., 2016; Ruiz et al., 2015).

Contribution to governance		
Management of water-related risks	X	The reluctance of water users to take risks and their readiness to pay for income stability can be addressed through insurance schemes. If structured well, insurance premiums can serve as a warning against risk and discourage behaviors that may lead to higher risks or exposure

Pathways for implementation			
Requirements to implement the instrument	• assess willingness to pay and risk • target subsidies		
Challenges to implement the instrument	• Willingness and ability to pay • If subsidized: budgetary constraints, • infringement of polluter-pays principle		
Degree of success	**Low**	**Medium**	**High**
		X	

Country: Hungary

Type of instrument	**Financial**		**Business**	X	**Economic**	

Subtype: Insurance

Implementation:

Insurance is a commercial instrument, in Hungary different insurance schemes are offered by private insurance companies. Various types of water-related insurance are available to provide coverage and protection against risks and damages associated with water-related incidents.

Contribution to governance		
Management of water-related risks	X	

Pathways for implementation	
Requirements to implement the instrument	Accurate and reliable data on water-related risks, such as flood zones, historical water damage, or hydrological information, is essential for insurers.

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Challenges to implement the instrument	• Data availability and quality can pose challenges, particularly in areas with limited historical data, or due to changing climate and more frequent weather extremes. • Some risks remain uninsurable by private insurance companies.		
Degree of success	**Low**	**Medium**	**High**

Country: Poland						
Type of instrument	**Financial**		**Business**	X	**Economic**	
Subtype: Insurance						
Implementation: Water-related insurance in Poland is typically offered by insurance companies and providers operating in the country's insurance market. These companies specialize in property insurance, liability insurance, and other types of coverage related to water risks. Farmers and agricultural businesses often opt for agricultural insurance policies that include coverage for water-related risks. This can involve protection against crop damage or losses caused by excessive rainfall, drought, or other water-related challenges impacting agricultural production.						
Contribution to governance						
Management of water-related risks	X					
Pathways for implementation						
Requirements to implement the instrument	Poland faces water-related risks due to its geographical location, climate patterns, and land use characteristics. Addressing these risks requires comprehensive water management strategies, including flood protection measures, pollution control, sustainable land use practices, water conservation initiatives, and investments in resilient infrastructure.					
Challenges to implement the instrument	Certain water-related risks may present challenges for insurance coverage, such as: historical flood zones, extreme events, aging water infrastructure, properties located near heavily polluted water bodies etc. In all these cases, assessing and pricing water-related risks accurately can be challenging. Climate change and unexpected extreme events present additional uncertainties and challenges for insuring against water-related risks.					
Degree of success	**Low**	**Medium**	**High**			

Country: Czech Republic

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Type of instrument	Financial		Business	X	Economic	
Subtype: Insurance						
Implementation: Insurance is a commercial instrument ; different insurance schemes are offered by private insurance companies. Some water-related risks remain uninsurable in Czechia, like the risk of drought or the risk of rain making harvest impossible. A fund for difficult-to-insure risks should be established in the future as a super-structure to commercial insurance, under the auspice of the Ministry of Agriculture.						
Contribution to governance						
Management of water-related risks	X					
Pathways for implementation						
Requirements to implement the instrument						
Challenges to implement the instrument	• Some risks are not insured by private insurance companies. • Long process on establishing a fund for farmers for water related risks in agriculture, different perspectives and opinions on the fund and accumulation of resources among farmers and government.					
Degree of success	**Low**	**Medium**	**High**			

2. Water Markets

Water Markets are a set of different mechanisms that enable the voluntary exchange of water. Through these mechanisms, the responsibility of reassigning water resources from the Administration to the users themselves will be abandoned, but without making changes in the distribution of property rights and/or concessions. The users would receive signals of the scarcity of the resource through the market price and, seeking their private benefit, they would use it in an optimal way, resulting in the transfer of water to those uses of more value and an efficient destination of the resource.

Country: Portugal						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Water markets						
Implementation:						

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Water markets are not very developed in Portugal, as water is mostly considered a public good. There is not a well-established market for water used in irrigation and agriculture in Portugal, as most water rights are allocated by public authorities or private concessions However, there are some initiatives to promote water trading and pricing in some sectors, such as agriculture and bottled water. For example, the Alqueva irrigation project in southern Portugal allows farmers to trade water rights among themselves or with other users, such as golf courses or urban areas. The project also uses a volumetric pricing system that charges different rates depending on the season, the crop type, and the water availability.

Source:

(1) Water as a Public or Private Good: The Future of Water in Portugal .... https://link.springer.com/chapter/10.1007/978-3-030-11217-2_6.

Contribution to governance		
Effective valuation of water	X	Water markets can help reveal the value of water by providing an economic valuation based on supply and demand, value added form productive use.
Sustainability of water systems	X	The objective of introducing water markets in Spain was to socially optimize the uses of a scarce resource
Pathways for implementation		
Requirements to implement the instrument	• Transparency • Environmental and social impact assessment • Public consultation	
Challenges to implement the instrument	1. Low trading activity: Water markets have been operative only during drought periods, and even then, they accounted for less than 5% of total water use. 2. Administrative barriers: Many restrictions and pre-requisites before a water exchange is approved (environmental impact assessment, public consultation, third-party protection and administrative authorization) add transaction costs and red tape. 3. Environmental concerns: Water scarcity can cause negative externalities such as water pollution, groundwater salinization, loss of biodiversity and loss of ecosystem services. 4. Social resistance: Water markets face opposition from some stakeholders who perceive them as a threat to their historical or cultural rights, or who fear losing control over their water resources. Water markets need to be transparent, fair and participatory to gain social acceptance. 5. Climate change: Climate change can affect water availability and demand in Spain, increasing the frequency and intensity of droughts and floods. Water markets need to adapt to these uncertain scenarios and incorporate climate risk management strategies.	

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Degree of success	Low	Medium	High
	Not known		

Country: Spain						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Water markets						
Implementation: In the explanatory statement of Law 46/1999 it is stated that the reform law by which the water markets were introduced into the Spanish legal system intended to «promote efficiency in the use of water, to what is necessary to make the current regime more flexible through the new contract for the assignment of rights, which allows for the social optimization of the uses of such a scarce resource. In Spain there are two typologies: **1. Temporary transfer of water rights:** Signed between users, implies the temporary transaction of water rights if both parts have already rights to use water and with some clearly defined limitations (not allowed transactions from non-consumptive to consumptive uses, no environmental harm, etc.). **2. Water use rights clearinghouse:** Under certain circumstances (extreme drought, declaration of aquifer overexploitation), the state can authorize the establishment of water use rights clearinghouses in the basins, allowing the River Basin Authorities to carry out public offers of acquisition and transfer of water use rights among users. The acquisition of water use rights can be temporary or permanent. Allowed users can acquire rights over public waters, but also private waters.						
Contribution to governance						
Effective valuation of water	**X**	Water markets can help reveal the value of water by providing an economic valuation based on supply and demand, value added form productive use.				
Sustainability of water systems	**X**	The objective of introducing water markets in Spain was to socially optimize the uses of a scarce resource				
Pathways for implementation						
Requirements to implement the instrument	• Transparency • Environmental and social impact assessment • Public consultation					
Challenges to implement the instrument	1. Low trading activity: Water markets have been operative only during drought periods, and even then, they accounted for less than 5% of total water use. 2. Administrative barriers: Many restrictions and pre-requisites before a water exchange is approved (environmental impact assessment, public consultation, third-party protection and administrative authorization) add transaction costs and red tape.					

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	3. Environmental concerns: Water scarcity can cause negative externalities such as water pollution, groundwater salinization, loss of biodiversity and loss of ecosystem services. 4. Social resistance: Water markets face opposition from some stakeholders who perceive them as a threat to their historical or cultural rights, or who fear losing control over their water resources. Water markets need to be transparent, fair and participatory to gain social acceptance. 5. Climate change: Climate change can affect water availability and demand in Spain, increasing the frequency and intensity of droughts and floods. Water markets need to adapt to these uncertain scenarios and incorporate climate risk management strategies.		
Degree of success	**Low**	**Medium**	**High**
		Not known	
		The Spanish Government does not share periodic data regarding volumes transferred, prices or related impacts. This lack of information transparency gave any attempt to evaluate the performance of water markets by independent organizations and technicians.	

3. Payment for Environmental Services (PES)

Payment for Environmental Services (PES) schemes are characterized as voluntary and conditional transactions involving well-defined ecosystem services. These transactions occur between at least one supplier and one user, with the underlying principle being that the beneficiaries of these services compensate the providers. In the context of freshwater resources, ecosystem services refer to the benefits people derive from terrestrial ecosystems' impact on freshwater. These benefits can be grouped into four categories: provisioning (e.g., in-stream water supply), regulating (e.g., water purification), supporting (e.g., maintenance of aquatic habitats that generate services), and cultural (e.g., recreation). PES schemes can be financed by the government, with a third party acting as the buyer, or they can be privately funded, with the buyer serving as the end-user. Alternatively, utility-financed schemes involve buyers facing user fees or tariffs from a public or regulated private utility.

Country: Italy						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Payment for environmental services						
Implementation:						

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In the water sector of Italy, there are no direct pure payment for ecosystem services (PES) schemes where buyers act as end-users. However, Italy does have PES-like initiatives that are initiated by public authorities and are firmly established. These initiatives are primarily associated with hydropower generation, tap-water provision, and the supply of mineral water. The PES programs in Italy were established with the purpose of compensating local populations for the opportunity costs related to water and improving water quantity and/or quality by implementing changes in land management practices, particularly in forest areas (Pettenella et al., 2012).

Contribution to governance		
Investment leverage	**X**	Create economic opportunities and incentives for sustainable practices.
Sustainability of water systems	**X**	Payment for Ecosystem Services allows the recipient of an existing or potential watershed ecological service, whether they are a public or private entity, to offer financial compensation to economic users in exchange for safeguarding, enhancing, or restoring those services. This system incentivizes the conservation of natural resources and can lead to more sustainable practices in water management.
Other	Support equitable water governance	Can also help to address conflicts over water resources by providing a means for different stakeholders to negotiate and agree on how ecosystem services are used and compensated. By establishing clear and well-defined transactions, PES can create a framework for more effective and equitable water governance.
Pathways for implementation		
Requirements to implement the instrument	• Legal Framework: It is necessary to ensure that there are clear provisions and regulations that enable the establishment, operation, and enforcement of PES agreements. • Identified Ecosystem Services: This involves assessing the ecological, social, and economic value of these services and determining the specific actions or practices that contribute to their provision. • Stakeholder Engagement • Payment Mechanisms: This involves determining the source of funding, the payment rates or incentives, and the mechanisms for distributing payments to landowners or providers of ecosystem services. • Monitoring and Evaluation: This includes measuring the environmental outcomes, verifying compliance with agreed-upon actions, and assessing the socioeconomic impacts of the scheme.	

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	• Institutional Capacity: This involves providing training, technical support, and resources to ensure the smooth operation of the scheme. • Adequate Funding: This may involve securing financial resources from government budgets, public-private partnerships, international funding sources, or other mechanisms. • Clear Contracts and Agreements: These agreements should outline the responsibilities, obligations, and rights of each party involved. • Adaptive Management: The ability to review and adjust the scheme based on lessons learned, changing environmental conditions, or evolving stakeholder needs is essential for long-term success. • Knowledge Sharing and Learning: This includes sharing best practices, disseminating information on successful PES initiatives, and fostering collaborative learning platforms
Challenges to implement the instrument	• Inadequate funding (budgetary constraints): PES programs require significant investment in infrastructure, administration, and monitoring. • Unclear property rights: PES programs depend on clear property rights to function properly. When property rights are unclear, it can be difficult to identify who has the right to sell or buy ecosystem services, leading to conflicts and confusion. • Limited technical capacity: Successful PES programs require expertise in fields such as environmental science, economics, and policy development. In some cases, local communities and government agencies may lack the necessary skills to design and implement these programs. • Transaction costs: PES programs can be complex and involve multiple stakeholders, leading to high transaction costs. These costs can include legal fees, administrative costs, and transaction fees associated with buying and selling ecosystem services. • Lack of political support: PES programs may require political support to succeed, and in some cases, policymakers may be hesitant to invest in these programs due to competing priorities or political opposition. • Resistance from landowners: In some cases, landowners may be reluctant to participate in PES programs, as they may view them as a threat to their livelihoods or traditional land-use practices. • Willingness to pay among potential buyers (fairness)

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	• Crowding-out of intrinsic motivations to protect ecosystems: Potential displacement of an individual's internal drive or desire to protect ecosystems by the introduction of external incentives or rewards, such as payment for ecosystem services. • Infringement of the polluter-pays principle: Insufficient pricing mechanisms that fail to accurately reflect the true cost of environmental damage caused by certain activities, leading to market failures and distortions. Additionally, some economic activities may be exempt from the polluter-pays principle, such as small-scale or traditional activities that are seen as socially or culturally valuable.
Degree of success	**Low** | **Medium** | **High** **X** In the water sector of Italy, there are no pure Payment for Environmental Services (PES) schemes where the buyer serves as the end-user. However, PES-like initiatives led by public authorities are well-established. These initiatives are associated with hydropower generation, tap-water provision, and mineral water supply. PES schemes in Italy were implemented to compensate local populations for the opportunity costs of water and to improve water quantity and/or quality through changes in land management practices, particularly in forest areas.

Country: France						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Payment for environmental services						
Implementation: In France, PES programs are primarily implemented through agri-environmental schemes and other conservation initiatives. The most notable PES program in the country is the "Paiements pour Services Environnementaux" (PSE) scheme, which translates to Payments for Environmental Services. PSE is a voluntary program incentivizes farmers and landowners to adopt sustainable agricultural practices, protect natural resources, and enhance biodiversity. Under the PSE scheme, farmers and land managers can receive financial support from various sources, including government funds, European Union subsidies, and private organizations. The payments are typically provided in exchange for implementing specific environmental actions or maintaining land in an environmentally friendly manner. These actions may involve reducing chemical pesticide and fertilizer use, implementing wildlife-friendly practices, preserving wetlands, or creating buffer zones along watercourses. The specific payment amounts and eligibility criteria vary depending on the region, the environmental objectives, and the available funding. Payments may be based on the area of land enrolled, the level of environmental commitment, or the delivery of measurable outcomes. The funds for PES programs in France are primarily allocated through regional or national agri-environmental policies and programs.						

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Vittel (Nestlé Waters) in France is a noteworthy example of best practices. In their efforts to enhance water quality, Vittel has negotiated with fellow farmers. These contracts aim to encourage the adoption of more sustainable dairy farming methods and the improvement of farm infrastructure (Perrot-Maître, 2006).		
Contribution to governance		
Investment leverage	**X**	Create economic opportunities and incentives for sustainable practices.
Sustainability of water systems	**X**	Payment for Ecosystem Services allows the recipient of an existing or potential watershed ecological service, whether they are a public or private entity, to offer financial compensation to economic users in exchange for safeguarding, enhancing, or restoring those services. This system incentivizes the conservation of natural resources and can lead to more sustainable practices in water management.
Other	Support equitable water governance	Can also help to address conflicts over water resources by providing a means for different stakeholders to negotiate and agree on how ecosystem services are used and compensated. By establishing clear and well-defined transactions, PES can create a framework for more effective and equitable water governance.
Pathways for implementation		
Requirements to implement the instrument	• Legal Framework: It is necessary to ensure that there are clear provisions and regulations that enable the establishment, operation, and enforcement of PES agreements. • Identified Ecosystem Services: This involves assessing the ecological, social, and economic value of these services and determining the specific actions or practices that contribute to their provision. • Stakeholder Engagement • Payment Mechanisms: This involves determining the source of funding, the payment rates or incentives, and the mechanisms for distributing payments to landowners or providers of ecosystem services. • Monitoring and Evaluation: This includes measuring the environmental outcomes, verifying compliance with agreed-upon actions, and assessing the socioeconomic impacts of the scheme.	

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	• Institutional Capacity: This involves providing training, technical support, and resources to ensure the smooth operation of the scheme. • Adequate Funding: This may involve securing financial resources from government budgets, public-private partnerships, international funding sources, or other mechanisms. • Clear Contracts and Agreements: These agreements should outline the responsibilities, obligations, and rights of each party involved. • Adaptive Management: The ability to review and adjust the scheme based on lessons learned, changing environmental conditions, or evolving stakeholder needs is essential for long-term success. • Knowledge Sharing and Learning: This includes sharing best practices, disseminating information on successful PES initiatives, and fostering collaborative learning platforms
Challenges to implement the instrument	• Inadequate funding (budgetary constraints): PES programs require significant investment in infrastructure, administration, and monitoring. • Unclear property rights: PES programs depend on clear property rights to function properly. When property rights are unclear, it can be difficult to identify who has the right to sell or buy ecosystem services, leading to conflicts and confusion. • Limited technical capacity: Successful PES programs require expertise in fields such as environmental science, economics, and policy development. In some cases, local communities and government agencies may lack the necessary skills to design and implement these programs. • Transaction costs: PES programs can be complex and involve multiple stakeholders, leading to high transaction costs. These costs can include legal fees, administrative costs, and transaction fees associated with buying and selling ecosystem services. • Lack of political support: PES programs may require political support to succeed, and in some cases, policymakers may be hesitant to invest in these programs due to competing priorities or political opposition. • Resistance from landowners: In some cases, landowners may be reluctant to participate in PES

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<table>
<tr><td></td><td colspan="3">programs, as they may view them as a threat to their livelihoods or traditional land-use practices.
• Willingness to pay among potential buyers (fairness)
• Crowding-out of intrinsic motivations to protect ecosystems: Potential displacement of an individual's internal drive or desire to protect ecosystems by the introduction of external incentives or rewards, such as payment for ecosystem services.
• Infringement of the polluter-pays principle: Insufficient pricing mechanisms that fail to accurately reflect the true cost of environmental damage caused by certain activities, leading to market failures and distortions. Additionally, some economic activities may be exempt from the polluter-pays principle, such as small-scale or traditional activities that are seen as socially or culturally valuable.</td></tr>
<tr><td rowspan="3">Degree of success</td><td>Low</td><td>Medium</td><td>High</td></tr>
<tr><td></td><td>X</td><td></td></tr>
<tr><td></td><td>While PES initiatives have gained some traction in France, the overall success and impact of these programs can vary. Factors such as the design of the PES schemes, stakeholder engagement, funding availability, and regulatory frameworks can influence the effectiveness and uptake of PES in any given region.</td><td></td></tr>
</table>

<table>
<tr><td colspan="8">Country: Spain</td></tr>
<tr><td>Type of instrument</td><td>Financial</td><td></td><td>Business</td><td></td><td>Economic</td><td>X</td></tr>
<tr><td colspan="8">Subtype: Payment for ecosystem services</td></tr>
<tr><td colspan="8">Implementation:
Spain is making considerable investments, amounting to €829.9 million from 2007-2027, to implement buyback schemes in the Upper Júcar River basin, Segura River basin, and Upper Guadiana River basin. These schemes have the purpose of restoring environmental flows while also compensating farmers for any potential negative effects through financial compensation. These examples showcase how Payment for Ecosystem Services (PES) adds value by identifying comprehensive solutions, generating additional funding opportunities for measures that are challenging to finance, and garnering broad support from the general public for management and policy.</td></tr>
<tr><td colspan="8">Contribution to governance</td></tr>
</table>

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Investment leverage	**X**	Create economic opportunities and incentives for sustainable practices.
Sustainability of water systems	**X**	Payment for Ecosystem Services allows the recipient of an existing or potential watershed ecological service, whether they are a public or private entity, to offer financial compensation to economic users in exchange for safeguarding, enhancing, or restoring those services. This system incentivizes the conservation of natural resources and can lead to more sustainable practices in water management.
Other	**Support equitable water governance**	Can also help to address conflicts over water resources by providing a means for different stakeholders to negotiate and agree on how ecosystem services are used and compensated. By establishing clear and well-defined transactions, PES can create a framework for more effective and equitable water governance.
Pathways for implementation		
Requirements to implement the instrument	• Well-defined framework on ecosystem services is essential, including clearly defined goals agreed upon by all participants. • Clearly defined initial property rights, with a clear understanding of who is selling and buying • Understand the objectives and financial capabilities of buyers and sellers • Robust system for monitoring and evaluation • Establish payments based on performance	
Challenges to implement the instrument	• Inadequate funding (budgetary constraints): PES programs require significant investment in infrastructure, administration, and monitoring. • Unclear property rights: PES programs depend on clear property rights to function properly. When property rights are unclear, it can be difficult to identify who has the right to sell or buy ecosystem services, leading to conflicts and confusion. • Limited technical capacity: Successful PES programs require expertise in fields such as environmental science, economics, and policy development. In some cases, local communities and government agencies may lack the necessary skills to design and implement these programs.	

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	• Transaction costs: PES programs can be complex and involve multiple stakeholders, leading to high transaction costs. These costs can include legal fees, administrative costs, and transaction fees associated with buying and selling ecosystem services. • Lack of political support: PES programs may require political support to succeed, and in some cases, policymakers may be hesitant to invest in these programs due to competing priorities or political opposition. • Resistance from landowners: In some cases, landowners may be reluctant to participate in PES programs, as they may view them as a threat to their livelihoods or traditional land-use practices. • Willingness to pay among potential buyers (fairness) • Crowding-out of intrinsic motivations to protect ecosystems: Potential displacement of an individual's internal drive or desire to protect ecosystems by the introduction of external incentives or rewards, such as payment for ecosystem services. • Infringement of the polluter-pays principle: Insufficient pricing mechanisms that fail to accurately reflect the true cost of environmental damage caused by certain activities, leading to market failures and distortions. Additionally, some economic activities may be exempt from the polluter-pays principle, such as small-scale or traditional activities that are seen as socially or culturally valuable.

4. Water charges

Water charges refer to fees imposed on the utilization of water, encompassing expenses associated with the transportation and storage of water, as well as the economic value of the resource. These charges can take the form of earmarked tariffs, where the fees are directly allocated for specific purposes, or they can be in the form of taxes, where the revenue is not specifically designated for any particular use.

In Europe, water charges are not determined through a market system. Instead, an administrative procedure is followed. This procedure often does not include the costs of maintaining the water infrastructure needed to provide the service, nor does it consider the environmental and resource costs. This is especially noticeable in the irrigation sector, where there are widespread implicit subsidies due to inadequate cost recovery. As a result, the

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charges imposed on water use are not enough to cover the costs of the negative effects on the environment and resources.

Country: Italy						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Water charges						
Implementation: In cases where the cost recovery is higher, it usually reflects the ability of users to pay rather than the impact on water withdrawals. In Italy, the situation is worsened by the fact that the revenue generated from water charges is directed towards purposes other than water policies aimed at reducing the negative impacts of over-allocation.						
Contribution to governance						
Sustainability of water systems	**X**	Water charges provide economic incentives for efficient water use. By reflecting the value of water as a limited and valuable resource, charges encourage users to consider their consumption patterns and adopt water-saving measures. This contributes to sustainable water management by reducing wasteful practices and promoting efficient allocation of water resources.				
Other	**X**	Financial sustainability and cost recovery: Water charges help ensure the financial sustainability of water management systems in France. By charging users for water services, the costs of water supply, treatment, distribution, and infrastructure maintenance can be recovered. This allows water service providers to operate effectively and invest in necessary infrastructure upgrades and maintenance.				
Pathways for implementation						
Requirements to implement the instrument	• Enhance institutional capacities • Ensure effective enforcement of regulations and metering systems • Supplement with decoupled subsidies to provide compensation for users who may experience negative effects					

Challenges to implement the instrument	• Resistance from groups of interest and related transaction costs
	• Willingness and ability to pay
	• Unintended consequences can arise, including:
	  • Adverse impacts on agricultural income
	  • Widespread effects throughout the economy					

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	• Redistribution of resources, potentially affecting different sectors or social groups.		
Degree of success	**Low**	**Medium**	**High**
			X
			The law of demand suggests that water charges are inherently effective. When implemented, higher charges can gradually decrease water usage and promote healthier environmental and ecological water flows. In situations where demand for water is less responsive to price changes (inelastic), charges can serve as efficient means of generating revenue, which can then be specifically allocated for the restoration of water bodies.

Country: France						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Water charges						
Implementation: Water charges refer to fees imposed on the utilization of water, encompassing expenses associated with the transportation and storage of water, as well as the economic value of the resource. These charges can take the form of earmarked tariffs, where the fees are directly allocated for specific purposes, or they can be in the form of taxes, where the revenue is not specifically designated for any particular use.						
Contribution to governance						
Sustainability of water systems	X	Water charges provide economic incentives for efficient water use. By reflecting the value of water as a limited and valuable resource, charges encourage users to consider their consumption patterns and adopt water-saving measures. This contributes to sustainable water management by reducing wasteful practices and promoting efficient allocation of water resources.				
Other	**X**	Financial sustainability and cost recovery: Water charges help ensure the financial sustainability of water management systems in France. By charging users for water services, the costs of water supply, treatment,				

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<table>
<tr><td></td><td></td><td colspan="2">distribution, and infrastructure maintenance can be recovered. This allows water service providers to operate effectively and invest in necessary infrastructure upgrades and maintenance.</td></tr>
<tr><td colspan="4">Pathways for implementation</td></tr>
<tr><td>Requirements to implement the instrument</td><td colspan="3">• Enhance institutional capacities
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<tr><td>Challenges to implement the instrument</td><td colspan="3">• Resistance from groups of interest and related transaction costs
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• Unintended consequences can arise, including:
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<tr><td rowspan="2">Degree of success</td><td>Low</td><td>Medium</td><td>High</td></tr>
<tr><td></td><td></td><td>X</td></tr>
<tr><td></td><td></td><td colspan="2">The law of demand suggests that water charges are inherently effective. When implemented, higher charges can gradually decrease water usage and promote healthier environmental and ecological water flows. In situations where demand for water is less responsive to price changes (inelastic), charges can serve as efficient means of generating revenue, which can then be specifically allocated for the restoration of water bodies.</td></tr>
</table>

4.1. Tariffs

A water tariff is the pricing mechanism employed by a utility or government body to regulate the supply and consumption of water. It sets the charges that individuals or businesses must pay for their water usage. These tariffs can differ substantially based on factors such as the geographical location, consumer type (residential, commercial, industrial), the amount of water consumed, and the expenses incurred for water treatment and distribution.

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The primary aim of implementing a water tariff is to encompass the expenses involved in maintaining, running, and expanding water infrastructure while also encouraging sensible water use and conservation.

Country: Malta

Type of instrument	**Financial**	**X**	**Business**		**Economic**	

Subtype: Water- **Supply Tariffs**

Implementation:

Water Tariffs are the monetary payments charged for the supply and provision of water by the Water Services Corporation (WSC) - a State-Owned Enterprise (SOE) that is entrusted with the production, wastewater treatment, transfer, storage, and discharge services. Given that the WSC is by and large a natural monopoly such tariffs are regulated by REWS- the Regulator for Energy And Water Services (REWS. Water Tariffs are made up of a variable tariff component and a fixed charge component i.e. a nominal service fee. The variable component is volumetric-based, meaning that a tariff per cubic metre is charged such that the higher the consumption the higher the utility bill. Moreover, there are two other noteworthy features.

Firstly, there are three separate schedules (as shown in the tables below) for three different type of end users:

- Residential: Standard category for households
- Domestic: Additional category for water used in a secondary residence or for communal areas in apartments and other shared living buildings.
- Non- Residential: Category for all economic activities

Secondly – and perhaps most importantly – a rising block tariff is applied in line with the user and polluter pays principle, where at higher bands an additional "penalty" is applied in order to encourage sustainable water use and minimise wasteful practices[1]. Additionally, in line with this concept, it is important to note that residential rates are cheaper than domestic rates, thus ensuring that the right water conservation incentives are in place.

		Consumption Band	**Applicable Variable Tariff Component**
Residential Water Tariffs	1st Tier	< = 33 cubic metres per person/ year	€ 1.3965 / m3
	2nd Tier	> 33 cubic metres per person / year	€ 5.1395 / m3
		Service Charge	€59/ year
Domestic Water Tariffs	1st Tier	< = 33 cubic metres per person/ year	€ 2.1850 / m3
	2nd Tier	> 33 cubic metres per person / year	€ 5.1395 / m3
		Service Charge	€59/ year
	1st Tier	< = 168 cubic metres	€ 1.9950 / m3

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Non - Residential Water Tariffs	2nd Tier	> 168 cubic metres and <= 40,000 cubic metres	€ 2.3750 / m3
	3rd Tier	> 40,000 cubic metres	€ 1.6625 / m3
		Service Charge	€130/ year

Contribution to governance *(mark with an X and briefly describe how)*		
• **Effective valuation of water**		
• **Management of water-related risks**		
• **Investment leverage**		
• **Sustainability of water systems**	X	The rising block tariff encourages users to value water consumption at the margin, especially since beyond the water tariff the first tier, the rise in tariff is substantial in all categories.
• **Other**		

Pathways for implementation			
Requirements to implement the instrument	Subsidiary Legislation 543.03- Water Supply Regulations		
Challenges to implement the instrument	Non- applicable: Any legislative change is put forward by the Minister responsible for water policy and first discussed at cabinet level and is subsequently voted for in Parliament – the legislative side of government. Any changes approved by parliament are then implement by the executive side of government accordingly.		
Degree of success	**Low**	**Medium**	**High**
			X
			The lower tier of the household tariff shown above – the one that charges € 1.3965 / m^3 if consumption is less than 33m^3 per person per year- effectively means that a person is entitled to 90 litres per day (throughout a whole calendar year); beyond this amount, a higher rate which is around 3.7 times the lower tear for every cubic metre, applies. **On average** household consumption per individual (per day) hovers at around 110 litres which is a very good indication that – on the average and other things equal -the rising block tariff (for households) is reasonably successful.

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			Moreover, while the "sustainability of water systems" aim is being fulfilled, this is success is not being achieved at the cost of the social dimension, since as World Health Organization (WHO), states "between 50 and 100 litres of water per person per day are needed to ensure that most basic needs are met and few health concerns arise" (Source: UN)

Country: Netherlands						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Water tariffs						
Implementation: The national government levies a tax on tap water. This tax is €0.382 per cubic meter of water in 2023. The goal of the tax is to reduce the usage of drinking water. The tax is only levied up to a maximum of 300 cubic meters. It thereby puts no tax on the marginal water usage of heavy users.						
Contribution to governance						
Effective valuation of water	**X**					
Sustainability of water systems	**X**		Reduce pressure on the drinking water system by reducing demand.			
Pathways for implementation						
Requirements to implement the instrument	• Cost-benefit analysis to determine the optimal tax. • Metering • Pricing drinking water fairly while keeping firms competitive.					
Challenges to implement the instrument	If drinking water usage is not metered it is difficult to levy such a variable tariff. If estimations are used for the water use, the tax incentive is off. Also, taxing a necessary good like drinking water might be regressive. Similarly governments seem hesitant to tax firms as they fear relocation of firms. Exempting heavy users is a solution, but it drastically undermines the incentives from the tariff.					
Degree of success	**Low**		**Medium**		**High**	
			X			
	On the one hand such a tariff is in line with the idea of a Pigouvian tax. On the other hand, an average one-person household consuming 49 cubic meters of water a year will pay only €18.72 extra due to the tariff, which might be too little to ever be considered in the decision making. Exempting heavy users make that effectively only households are incentivized to					

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	reduce water via this tax. Heavy users are not incentivized to reduce water usage.
Sources used	Belastingdienst tax tables Belasting op leidingwater - Belastingdienst

Country: Portugal						
Type of instrument	**Financial (fiscal)**	**X**	**Business**		**Economic**	
Subtype: Water tariffs						

Implementation:

The tax system in Portugal is based on two fiscal instruments. The first instrument is the Tax on Water Resources (TRH), which was established in 2008 through Decreto-Lei no. 97/2008 (Diário da República 2008). This tax is applicable to all water services and covers various aspects such as water abstractions (including self-service and groundwater) throughout the country. The TRH also includes charges for pollution, occupation, extraction of inert aggregates, and non-consumptive use. The revenue generated from the TRH is currently divided equally between the National Environment Fund and the Portuguese Environment Agency.

The second fiscal instrument is the cost-recovery system for water regulation infrastructure. This is achieved through tariffs imposed on water usage, with the aim of increasing the rates of cost recovery.

In Portugal, irrigation farmers are charged for the water they use in irrigation starting from the beginning of the irrigation season, which typically occurs in March or April. However, they are only informed about the total amount of water they have used at the end of the calendar year, without any knowledge of the specific daily consumption in cubic meters.

Contribution to governance		
Sustainability of water systems	**X**	The irrigation water tariff serves as an incentive for users, particularly farmers, to be more mindful of their water usage. It encourages them to choose crops that are water-efficient, which is an important measure for adapting to climate change. By selecting crops that require less water, farmers can promote the efficient allocation of water resources. This, in turn, leads to reduced water consumption, lower operation and maintenance costs, and increased farm income.
Other	**X**	The TRH covers charges related to pollution and extraction of inert aggregates. This helps deter harmful practices and encourages responsible behavior
Pathways for implementation		

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Requirements to implement the instrument			
Challenges to implement the instrument	Currently, the measures implemented in Portugal have not had a significant impact on the decisions made by farmers. This situation needs to be rectified as it is not financially or environmentally sustainable in the long run.		
Degree of success	**Low**	**Medium**	**High**
			X

Country: Denmark						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Tariff						
Implementation: Denmark aims for full recovery of water usage costs. In doing so, drinking water users pay a tariff for drinking water, they pay a tariff for wastewater, and they pay taxes and VAT on both. As each utility charges a price corresponding to the costs incurred, there are large differences between prices for drinking water within Denmark. Also, utilities can choose to charge variable or fixed tariffs. On average two-thirds of the water bill is for wastewater treatment and one-third for drinking water. At an average €9.55/m3 in 2019 the price for drinking water in Denmark is relatively high. Heavy water users receive a discount on their water bills. The discount is 20% for usage between 500-20,000m3 per year and 60% for usage above 20,000m3. Cost-recovery means that the burden therefore is replaced to smaller users. And utilities serving many large firms have to shift the burden most, driving up prices for households.						
Contribution to governance						
Effective valuation of water	**X**		Cost-recovery for drinking water and sewage.			
Pathways for implementation						
Requirements to implement the instrument	• Monitoring abilities (metering) • Cost-benefit analyses					
Challenges to implement the instrument	The discount for heavy users shows how politicians struggle with taxing or charging (industrial and agricultural) firms. It also shows that much of the burden for cost-recovery can easily be shifted to smaller users and households. The decentralized context in Denmark makes that (small) water users across the country face vastly different prices. While it serves (local) cost-recovery, this might have adverse societal consequences.					
Degree of success	**Low**		**Medium**		**High**	

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		X	
	Costs of drinking water and wastewater are fully recovered. The exemption for heavy users makes that not every user faces the right incentives.		
Sources used	https://www.eureau.org/resources/publications/members-reports/5482-danva-2020-water-in-figures/file		

Country: Luxembourg						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Tariffs for drinking water						
Implementation: Households pay for their water usage. Their water bill consists of two components. One variable tariff for the amount of water used, and a fixed component that is proportional to the water meter size.						
Contribution to governance						
• **Effective valuation of water**	**X**		Pay for use.			
Pathways for implementation						
Requirements to implement the instrument	• Cost-benefit analysis • Metering					
Challenges to implement the instrument	Paying for water usage is accepted by most households.					
Degree of success	**Low**		**Medium**		**High**	
			X			
	Such tariffs are fair and they provide the right incentives. Having a fixed component that scales up with the size of the water meter also is a fair way of allocating costs to the households that put most pressure on the drinking and waste water systems.					
Sources used	https://www.vdl.lu/en/living/your-home/water-connecting-your-home#pricing					

Country: Belgium						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Tariffs for drinking water						
Implementation: Households are charged with tariffs for consumed drinking water. These tariffs consist of the price for water and fees for collecting and cleaning wastewater.						
Contribution to governance						
Effective valuation of water	**X**		Pay for use			

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Pathways for implementation			
Requirements to implement the instrument	Cost-benefit analysis		
Challenges to implement the instrument	Few, although low-income households might need assistance with paying these bills, especially since clean drinking water is a basic need.		
Degree of success	**Low**	**Medium**	**High**
		X	
Sources used	An example of the costs charged by a water supplier: https://www.vmm.be/water/waterfactuur/prijzen-en-tarieven-gezinnen		

Country: Spain						
Type of instrument	**Financial**	**X**	**Business**		**Economic**	
Subtype: Tariffs						

Implementation:

Water tariff is a pricing system for the supply of water to consumers. It refers to the charges that water utilities or government agencies impose on users for the provision of water services, including the cost of treatment, distribution, and maintenance of water infrastructure. The General characteristics of Water tariffs in Spain are:

- Major part of the tariffs in regulated surface water
- There are no taxes associated with the use of groundwater
- No taxes or partial taxes for non-regulated water
- Tariffs based on land surface
- River Basin Authority sets the tariff
- Financial cost-recovery rate of 75%
- A 1:3 ratio of irrigation to urban expenses is taken into account when distributing the costs of control.
- Average tariff is 0.010EUR/m3

The main water tariffs in Spain are:

- **Ecotax:** It considers environmental and recovery cost
- **Water agency tariff (supply):** Operations and maintenance (i.e. storage, transport and control)
- **Regional government tariff:** Urban water taxes are used to pay for water facilities, primarily for the disposal of wastewater (WWT)
- **Utility Water tariff:** The price of water is used to recoup the expenses of providing urban services (supply, sanitation and WWT)

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<table>
<tr><td colspan="4">• Tariffs from water user associations (WUA): To support mechanisms of the WUA
• Water agency tariff (Discharge): instrument designated to assist the strategy and regulation of WWT discharges</td></tr>
<tr><td colspan="4">Contribution to governance</td></tr>
<tr><td>Sustainability of water systems</td><td>X</td><td colspan="2">To encourage the rational use of water resources, taking into account the principle of cost recovery for water-related services, including environmental and resource costs associated with damage or adverse effects on the environment.</td></tr>
<tr><td>Other</td><td>X</td><td colspan="2">Recover all or the desired portion of the costs of providing the water service (depending on the level of subsidy you have decided to grant).</td></tr>
<tr><td colspan="4">Pathways for implementation</td></tr>
<tr><td>Requirements to implement the instrument</td><td colspan="3">• Need to pre-define and agree on methodologies for estimating environmental costs
• Regional administrations must have the capacity to fix tariffs if the complexity and variety of the systems increase at the lower (local) scale.</td></tr>
<tr><td>Challenges to implement the instrument</td><td colspan="3">• Difficult to measure the environmental and recovery cost (Ecotax)
• In Spain, tariffs are mainly determined based on the irrigators' ability to pay and, secondarily, on the degree of water scarcity prevailing in each situation.
• Hard to harmonize at the national scale, normally decided by regional administrations, due to the variety and complexity of the management models.</td></tr>
<tr><td rowspan="2">Degree of success</td><td>Low</td><td>Medium</td><td>High</td></tr>
<tr><td></td><td>X</td><td></td></tr>
<tr><td></td><td colspan="2">The lack of existing mechanisms for estimating or recovering environmental costs. Lack of regulatory harmonization.</td><td></td></tr>
</table>

4.2. Groundwater tax

A Groundwater tax is a financial levy or fee imposed on the extraction or use of groundwater from wells or other sources. It is a form of economic instrument used by governments or regulatory authorities to manage and control the consumption of groundwater resources.

<table>
<tr><td colspan="7">Country: Denmark</td></tr>
<tr><td>Type of instrument</td><td>Financial</td><td></td><td>Business</td><td></td><td>Economic</td><td>X</td></tr>
<tr><td colspan="7">Subtype: Ground water abstraction charge/tax</td></tr>
</table>

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Implementation: With the 1994 green tax reform a groundwater abstraction tax was introduced. All users of water pay a tax per unit of water used. Agricultural users can get this tax deducted from other tax expenses.		
Contribution to governance		
Effective valuation of water	**X**	Incentivize water preservation through direct pricing of its usage.
Pathways for implementation		
Requirements to implement the instrument	• Determine the optimal tax • Monitoring abilities (metering)	
Challenges to implement the instrument	Monitoring is necessary in order to charge users per unit of water. Furthermore, water is a necessary good and therefore taxing it might be unpopular and regressive. Some household might need income support.	
Degree of success	**Low**	**Medium** / **High**
		X /
	While the tax charges users per unit, the question is how effective small taxes are.	
Sources used	https://www.oecd-ilibrary.org/sites/9789264281554-7-en/index.html?itemId=/content/component/9789264281554-7-en#note-e-000026	

Country: Netherlands						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Groundwater tax						
Implementation: A national groundwater tax was introduced in 1995 and abolished in 2011. The aim was to reduce groundwater usage and its negative effects on the environment. The tax was deemed ineffective and hence abolished.						
Contribution to governance						
Sustainability of water systems	**X**	Protect groundwater levels and their benefits to the broader environment.				
Pathways for implementation						
Requirements to implement the instrument	• Consultations • Cost-benefit analyses					
Challenges to implement the instrument	Determining the optimal tax amount and making sure the tax does not interfere with other regulations and initiatives.					
Degree of success	**Low**	**Medium**	**High**			
	X					

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	The groundwater tax did not achieve its intended purpose and seemed to interfere with other (policy) efforts to improve groundwater levels. It was abolished for these reasons.
Sources used	https://link-springer-com.vu-nl.idm.oclc.org/chapter/10.1007/978-3-319-16465-6_13 https://iwaponline.com/wp/article-abstract/15/6/1064/20083/The-life-and-death-of-Dutch-groundwater-tax

Country: Germany						
Type of instrument	**Financial**	**X**	**Business**		**Economic**	**X**
Subtype: Water Extraction Charge (Taxes, Tariffs and cost recovery schemes)						

Implementation:

Also known as 'Wasserpfennig' (water cent, formerly water penny), the water extraction charge is a fee for the extraction or comparable use of water sources. The specific regulations of the instrument (exemptions, size of the fee) vary across the different federal states. Currently 13 out of 16 states (exceptions are Bavaria, Hesse and Thuringia) have water-extraction levy systems in place.

The following items determine the characteristics of the water extraction charge:

- The fee varies by water source (surface water or groundwater).
- Charges vary for different water uses (agriculture, industry, electricity, and domestic uses-drinking water prices).
- Each federal state determines specific exceptions. For example,
    - Some states do not charge the levy to agricultural production.
    - Some states delete the levy charge if water is returned (discharged) with certain quality conditions.
    - Some states delete the levy under certain threshold of abstraction.
- Each states processes revenues in different manners. For some states, revenues go to the state budget, (tax). For other states, revenues are used to cover administrative costs and the remainder is saved to implement measures to improve the condition of water bodies (tariff).

The size of the fee varies considerably depending on the combination of the above characteristics but in general oscillates between 0.23 and 31 cents per extraction of cubic meter of water.

Contribution to governance		
Investment leverage	X	In some states, the fee is used to implement measures to improve the condition of water bodies.

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Sustainability of water systems	X	In general, the water extraction charge is a measure to protect the availability of water resources.
Other	X	In some states the fee constitutes a cost recovery measure for administrative costs.
Pathways for implementation		
Requirements to implement the instrument	• There is capacity at the state level to fix the level of the fee. • Strong administrative capacity at the state level.	
Challenges to implement the instrument	• Conflicts arising from the implementation of the fee on shared (interstate) basins. • Difficulty in monitoring water extractions.	
Degree of success	**Low** / **Medium** / **High**	
	Not known	
	Each case should be analysed on a individual basis. A more detailed analysis of the goals of each state would be needed to evaluate success of the instrument. However, for most states, the measures serves its purpose of complying with the cost recovery requirement of the EU Water Framework Directive.	

4.3. Fees and payements

Fees are charges levied on consumers or users for the supply and use of water. These fees are typically collected by water utilities, local governments, or relevant authorities responsible for managing water resources and infrastructure. The purpose of these fees is to cover the costs associated with providing clean and safe water, maintaining water infrastructure, and ensuring sustainable water management.

Country: Czech Republic

Type of instrument	**Financial**	X	**Business**		**Economic**	

Subtype: Fees

Implementation:

Fees apply if there is abstraction of water or discharge of wastewater into water bodies. Fees for:

a. Abstraction of groundwater: the fee depends on the amount of groundwater taken and on the purpose. If the water is taken for drinking water supply, the rate is 2 CZK/m3. If the water is taken for other purposes, the rate is 3 CZK/m3. Fees are paid by the entity that abstracts groundwater, the fee does not apply if the amount

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of groundwater taken is less or equal to 6000 m3 per year. 50% of fees for groundwater abstraction are an income for the region (higher-level territorial unit) where groundwater abstraction takes place, the rest is an income for the Czech State Environmental Fund. Regions are obliged to use the fees to support the construction and renewal of water management infrastructure, especially for the particular municipality in whose territory groundwater abstraction takes place.

b. Discharge of wastewater into surface waters: a natural or legal person (a polluter) has to pay a fee for discharging wastewater into surface waters based on the level of water pollution and on the volume of discharged wastewater. Fees are an income for the Czech State Environmental Fund.
c. Discharge of wastewater into groundwater: the fee applies to wastewater treatment facilities. Basic rate is 350 CZK per 1 equivalent inhabitant and depends on the capacity of the wastewater treatment facility. The fee is paid to the municipality in whose cadastral territory the discharge takes place.
d. Abstraction of surface water: an entity abstracting surface water is obliged to pay a fee for watercourse management and for watershed management. The fee depends on the amount of surface water taken and on the purpose (cooling of steam turbines, agricultural irrigation, flooding of artificial terrain depressions after mining of minerals, other purpose). The fee for the abstraction of surface water does not apply if the amount of surface water abstracted is less than or equal to 6000 m3 per year. The fee is paid to the relevant administrator of the watercourse/watershed.

Final water users (households, businesses) connected to water supply and sanitation infrastructure pay charges that reflect fees levied on water abstraction and discharge of wastewater.
There are exceptions applied for distinct water usage (e.i. for fish hatches, for filling up the ponds, for flooding of artificial terrain depression resulting from surface minery, for fire brigades, for im-pounding swimming pools, etc.). Water abstractions are reviewed within a fixed period and permit is reassessed.

Contribution to governance		
Effective valuation of water	**X**	
Sustainability of water systems	**X**	
Pathways for implementation		
Requirements to implement the instrument		
Challenges to implement the instrument	Fees for discharge of wastewater into groundwater are set as a fixed rate per inhabitant, the amount of wastewater discharged is derived from the capacity of the wastewater treatment facility, the level of pollution is not reflected in the fee,	

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	however discharged water cannot exceed maximum permissible pollution.		
Degree of success *(mark with an X and explain)*	**Low**	**Medium**	**High**

Country: Hungary						
Type of instrument	**Financial**	X	**Business**		**Economic**	
Subtype: Fees						

Implementation:

a) Abstraction Fees are imposed on water users who extract water from rivers, lakes, or groundwater sources. These fees are typically based on the volume of water abstracted and aim to cover the costs of water resource management and conservation. The specific fee rates and tariffs for water abstraction in Hungary may vary depending on the region, water source, and purpose of use. Different rates may be applied to different sectors, such as agriculture, industry, and households. The rates are typically determined by the relevant water management authorities or agencies responsible for water resource management.

b) Fees for water services are determined at national level, by water service provider or water system and by water service sector, using economic comparative analyses of costs, prices and charges, taking into account the following aspects:

- fees must support a safe and lowest-priced water supply service, improvement of management efficiency, effective use of capacities, continuous improvement of service quality and enforcement of the principle of saving natural resources;
- it is necessary to take into account the authorized costs for a continuous and safe water supply service, as well as the authorized costs for the fulfilment of environmental protection obligations, which include in particular the authorized costs for the protection of the water supply base.

The fee for water services is established as a two-factor fee consisting of a basic fee and a fee proportional to consumption.

In the case of combined rainwater and wastewater drainage systems, the fee for sewage drainage and cleaning covers the costs of rainwater drainage.

c) Non-residential users pay also a contribution to the water supply service provider for the development of water supply services. By paying a contribution for the development of water management services, a non-residential user is entitled to use the service up to the amount of the purchased quota.

d) In 2017, water abstraction charges were extended to all uses, including agriculture. a New “pressure multiplier” was introduced for groundwater bodies where the quantitative status is at risk or already at bad condition, and quantitatively poorer status or potentially less than “good” for surface water bodies. In those cases, users have to pay 20% higher water resource fee, because of using the pressure multiplier.

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If a user makes a water saving investment on a water body at risk or less than "good" quantitative conditions, they are exempted from the extra 20% payment for three years. Detailed rules for determining the fee for the water supply service are determined by a government regulation.		
Contribution to governance		
Effective valuation of water	X	
Sustainability of water systems	X	
Pathways for implementation		
Requirements to implement the instrument	Implementing water fees requires careful planning, stakeholder collaboration, and robust administrative systems. Invoices for water services in Hungary can only be issued using an IT system that ensures the confidentiality of system elements that correctly calculate fees and prevents unauthorized access to the invoicing system and undetected changes to invoicing data. The invoicing system must also meet general information security confidentiality requirements. For this purpose, the water management service provider must ensure compliance with the general confidentiality requirements for information security.	
Challenges to implement the instrument	According to the latest country report (from 2023) Hungary's water-supply and sanitation system are still not fully compliant with the Drinking Water and the Urban Wastewater Directives, with specific challenges in access to drinking water for vulnerable groups and investment in existing systems is lagging due to the cap on public utility bills. Faulty urban planning led to capacity problems when utility companies cannot properly maintain their systems or increase capacity. The other issue is that not all water abstractions are registered, metered, and monitored.	
Degree of success	**Low**	**Medium** / **High**

Country: Poland						
Type of instrument	**Financial**	X	**Business**		**Economic**	
Subtype: Fees						

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Implementation:
Poland imposes water fees to ensure sustainable financing for water management. The fees vary based on the purpose and quantity of water use, and they contribute to the funding of water infrastructure, monitoring programs, and environmental protection measures. The 2017 Water Act introduced a new definition of water services including water abstractions for agricultural purposes and a variable fee for water abstraction for human and livestock supplies and for irrigation of land and crops. Fees specified in the Water Act include various payments for water management services or water use, for example:

- Fees for water management services are paid for: 1) abstraction of underground or surface water; 2) discharge of wastewater into water or soil; 3) discharge of rainwater or meltwater into sewage systems; 4) abstraction of underground and surface water for the purposes of breeding and reproduction of fish and other aquatic organisms; 5) discharge of wastewater from fish and other aquatic organisms into water or soil. The fee for water services is also paid for: 1) reduction of natural soil retention due to the implementation of works or constructions permanently connected to the ground on a plot of land with an area of more than 3,500 m²; 2) extraction of stone, gravel, sand and other materials from surface waters, including internal sea waters, including internal waters of the Bay of Gdańsk and waters of the territorial sea, as well as cutting plants from waters or the coast. The fee for water services consists of a fixed fee and a variable fee depending on the amount of water withdrawn. The amount of the fee for water services depends on the amount of water taken and on whether surface water or groundwater was taken, on the purpose of the water, on its multi-year average low flow. The amount of the flat fee is determined by The Polish Waters State Water Holding (Polish Waters) and provided in the form of annual information, including the method of calculating this fee. For example, the fixed fee for the water abstraction of underground waters – PLN 500 per day for 1 m3/s for the maximum water withdrawal specified in the water permit or in the integrated permit, if water withdrawal is not greater than 10% of the available groundwater resources, – PLN 1,000 per day for 1 m3/s if water withdrawal is greater than 10% and is not greater than 30% of the available groundwater resources, or – PLN 2,000 per day for 1 m3/s if the water abstraction is greater than 30% of the available groundwater resources. The variable fee is PLN 0.70 for 1 m3 of extracted groundwater, or PLN 0.35 for 1 m3 of collected surface water, in case of agricultural or forestry purposes for irrigation of land and crops, it is PLN 0.15 per 1 m3 of the groundwater.
- Fees for permitting the construction of waterworks facilities: The unit rate of the fee is PLN 4,757.52 for the permit for the construction of water supply facilities. A decision on the legalization of a water supply facility may be issued if the provisions of the basin management plan and relevant legislative regulations are not violated by the location of this facility. The fee represents the income of Polish Waters.
- Fees for the use of inland waterways and their sections and state-owned water facilities located on inland surface waters are charged for: 1) passenger and

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<table>
<tr><td colspan="4">excursion boat transport; 2) transportation of goods by cargo ships; 3) navigation of empty cargo ships; 4) draft or floating wood; 5) use of sluice gates or chutes.
• Other fees, like e.g. fees for implementing equipment for land melioration. The fee is collected in 15 equal annual instalments until October 30 of each year, while the reclamation fee of less than PLN 1,000 is collected in 3 equal annual instalments. The maximum rate of the annual fee for the use of 1 m2 of land may not be higher than 10 times the upper limit of the property tax rate valid in a given year. The Council of Ministers shall determine the unit rates of the annual fee for the use of 1 m2 of land by regulation.
• Fees for farmers not implementing the Nitrates Action Programme. The regulation apply to all farmers throughout the country with the aim to increase the quality of water. The whole country has been designated a 'Nitrate Vulnerable Zone' and nitrates from agriculture have been identified as the main pollutants.</td></tr>
<tr><td colspan="4">Contribution to governance</td></tr>
<tr><td>Effective valuation of water</td><td colspan="2">X</td><td></td></tr>
<tr><td>Sustainability of water systems</td><td colspan="2">X</td><td></td></tr>
<tr><td colspan="4">Pathways for implementation</td></tr>
<tr><td>Requirements to implement the instrument</td><td colspan="3">It is necessary to implement an integrated approach towards the water management at the local, the river basin and the national level, taking into consideration a wider participation of stakeholders in the decision-making process.</td></tr>
<tr><td>Challenges to implement the instrument</td><td colspan="3">The data indicate that the total available water resources in Poland are close to the current total demand for water. Moreover, there is high variability of the available water resources volume in time, as well as in space. This underlines the necessity to save water and constantly strive to limit its abstraction. In case of public utilities, it can be achieved mainly by limiting losses in the municipal water distribution network, installation of water meters and increase of water prices for households. The basic method of saving water in industry is the use of water-saving technologies in all water using processes and closing water circuits. Losses in agriculture are small and for the future it will be necessary to construct irrigation systems to cope with the climate change.
The main challenge of water management system in Poland is the lack of coordination and cooperation between administrative units, compliant with the Water Framework Directive, as well as economic, financial and legal implementation instruments.</td></tr>
<tr><td rowspan="2">Degree of success</td><td>Low</td><td>Medium</td><td>High</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

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Country: Slovakia						
Type of instrument	**Financial**	X	**Business**		**Economic**	
Subtype: Payments and fees						

Implementation:

Payments and fees are financial compensations for water management services.

Payments apply if there is:

a. Withdrawal of surface water from water streams in the amount of more than 15,000 m3 per year; or withdrawal of surface water from water streams for irrigation of agricultural land in the amount of more than 50,000 m3 per year,
b. Utilization of the hydropower potential of water streams,
c. Withdrawal of energetic water from water streams,
d. Use of waters for shipping and cruising and for services in public interest,
e. Provision of flood protection services, management of water constructions and of state entrusted property.

Payments for the use of surface waters according to points a) to c) are paid by the entity that uses surface water. Payments for the use of water according to points d) and e) are paid by the state. Payments are a revenue for the water management authority. Payment amounts for points a) to c) are set by a national regulatory authority (except for withdrawal of surface water for irrigation in agriculture, which is subject to a governmental regulation), amounts for points d) and e) are set by a separate regulation.

Fees for the use of water apply if there is:

a. Groundwater abstraction in an amount over 15,000 m3 per calendar year; or withdrawal of groundwater for irrigation of agricultural land in the amount of more than 50,000 m3 per year,
b. Discharge of wastewater or special waters into surface waters,
c. Discharge of wastewater or special waters into groundwater,
d. Discharge of geothermal waters into surface waters.

Fees for the abstraction/discharge of (ground)water are paid by the entity that abstracts groundwater or discharges waters. Fees are a revenue for the national environmental fund. Fee amounts for the use of water are set by the competent water management authority. Payments/fees vary depending on the purpose water is abstracted for. Withdrawal for public water supply is charged at 0.1250 Eur/m3 from surface waters and at 0.0332 Eur/m3 from underground water if the quantity exceeds 15,000 m3 (2019). Withdrawal for irrigation in agriculture is charged at 0.0010 Eur/m3 from both surface and underground water if the quantity exceeds 50,000 m3.

Contribution to governance

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Effective valuation of water	X	Payments and fees should indicate the value of water for its users respecting the different sources of water and the different purposes water can be used for.
• **Sustainability of water systems**	X	To encourage rational use of water and to prevent excess use of water as a scarce resource.
Pathways for implementation		
Requirements to implement the instrument	• Clearly defined roles, rights and responsibilities of actors in the water sector and water users • Solid system for reporting, monitoring and evaluation • For better implementation payments/fees should be based on scientific, technical and professional decisions • Payments/fees are further reflected in final prices for end-users: production, distribution and supply of drinking water by public water supply and also wastewater and sewage treatment are industries regulated by a national regulatory authority	
Challenges to implement the instrument	• Low willingness to pay among water users • Insufficient mechanisms to control permits and limits for water withdrawal • Different payments/fees for surface water and for groundwater, in general groundwater is cheaper although it is a more valuable resource (abstraction for irrigation purposes is charged equally) • Payments and fees do not raise sufficient revenues to cover all costs and to enable investment in the water sector • Inadequate management of rainwater, lack of rainwater capture, collection and retention, so rainwater (mainly in urban areas) goes into sewer and becomes wastewater	
Degree of success	**Low**	**Medium** / **High**
		X
		Although control mechanisms exist, some entities underreport the amount of withdrawn/ abstracted water to avoid the payments/fees. In particular, for the agricultural sector quantitative limits for water withdrawal are high and payments/fees are very low

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		(compared to neighbouring countries).	

Country: Germany						
Type of instrument	**Financial**	**X**	**Business**		**Economic**	
Subtype: Drinking Water Prices						
Implementation: At the national level, drinking water prices are set to recover the cost of water supply (including capital costs). These costs vary from each context depending on settlement density, geographical characteristics and hydrological conditions. The prices are set based on a flat rate plus a variable charge dependent on consumption ($/m3) and they vary considerably across municipalities. As of 2013, at the national level, prices averaged 1.69 €/ m³, plus an annual basic charge of 70.98 €. This is equivalent to water drinking costs of 103.09 €/person/year.						
Contribution to governance						
Other	X	Cost Recovery measure				
Pathways for implementation						
Requirements to implement the instrument	Strong administrative capacity at the municipality level.					
Challenges to implement the instrument	Water suppliers may include special precautionary expenses for environmental protection. However, the need for these expenses must be proven by the supplier in order to justify its higher prices compared to other suppliers. In practice, it is challenging to set the criteria for eligible expenses and the requirements to provide proof of environmental expenses.					
Degree of success	**Low**		**Medium**		**High**	
	Not known				X	

4.4. Fines

Monetary penalty or punishment imposed on individuals, businesses, or organizations for violating water-related regulations, laws, or conservation measures. These fines are typically levied by local governments, water authorities, or regulatory agencies responsible for managing water resources and ensuring compliance with water-related rules.

Country: Czech Republic

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Type of instrument	Financial	X	Business		Economic	

Subtype: Fines

Implementation:

Fines are levied on physical or legal persons who break the law. Relevant legislation sets the framework for fines.

- A fine of up to CZK 500,000 can be imposed for a violation of obligations in the use of groundwater or surface water. If it is not possible to determine the amount of surface or underground water taken without a water management permit or in violation of it, the authority imposing the fine determines the amount of water taken according to the guidelines for the annual water demand according to the decree that implements the Water Supply and Sewerage Act. If it is not possible to determine the amount of water taken by such a procedure, the authority imposing the fine shall determine it by estimation; at the same time, it is based on the purpose of use of the extracted water and local conditions.
- Violation of the obligations of owners and builders of waterworks is punishable by up to 1,000,000 CZK.
- A fine of up to CZK 5,000,000 can be imposed for breach of obligations when handling harmful substances.
- The rate of the fine for an offense is doubled, but not more than CZK 2,000,000, if the same offense is committed repeatedly. The offense is committed repeatedly, if 1 year has not passed since the day when the decision to impose a fine for the same offense took effect.
- Fines imposed by the Czech Environmental Inspection on municipalities and the State Navigation Administration are income of the State Environmental Fund. 50% of other fines imposed by the Czech Environmental Inspection are income of the municipality in whose territorial district the offense was committed, and 50% is an income of the State Environmental Fund of the Czech Republic.

Contribution to governance		
Sustainability of water systems	X	
Other	X	

Pathways for implementation			
Requirements to implement the instrument			
Challenges to implement the instrument			
Degree of success	**Low**	**Medium**	**High**

Country: Hungary

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Type of instrument	Financial	X	Business		Economic	
Subtype: Fines						
Implementation: Various fines and penalties are implemented for water-related offenses to enforce compliance with water management regulations and promote responsible water use. Violation of the water management regulation is punished by a water management fine of no more than HUF 1,000,000. The fine imposed on a natural person cannot exceed HUF 300,000. The collected water management fine is the income of the central budget.						
Contribution to governance						
Sustainability of water systems	X					
Other	X					
Pathways for implementation						
Requirements to implement the instrument						
Challenges to implement the instrument	Monitoring, detection and enforcement mechanisms poses the main challenge. Continuous efforts of the government, water management authorities, and enforcement agencies is needed to address violations in order to protect water resources and ensure the sustainable management of Hungary's water systems.					
Degree of success	**Low**		**Medium**		**High**	

Country: Poland						
Type of instrument	**Financial**	X	**Business**		**Economic**	
Subtype: Fines						
Implementation: Various types of fines and penalties can be imposed for water-related offenses and violations, e.g. fines for water pollution, fines for unauthorized water abstraction, fines for non-compliance with permit requirements, fines for damaging water infrastructure etc. According to the Water Act, an administrative fine is imposed on anyone who: does not provide a report to The Polish Waters State Water Holding (Polish Waters) on the implementation of the national municipal wastewater treatment program within 7 days from the date of the request or does not provide a survey for the purpose of updating the national municipal wastewater treatment program. The amount of the administrative fine is up to PLN 10,000. An administrative fine of up to PLN 200 is paid for each equivalent number of inhabitants corresponding to the pollutant load from the agglomeration area: which is not collected by						

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the sewage network of this agglomeration and a) which exceeds 2% of the pollutant load from the agglomeration area; b) exceeds 2000 population equivalent, or c) it is not treated in sewage systems ensuring the same level of environmental protection as for the entire agglomeration. A fine, penalty of restriction of freedom or imprisonment is also threatened for preventing the use of water to deal with major accidents, natural disasters, fires or other local threats; who destroys or damages the banks of inland surface waters, the banks of sea waters; or who uses water without the necessary water authority permit.

Contribution to governance		
Sustainability of water systems	**X**	
Other	**X**	
Pathways for implementation		
Requirements to implement the instrument	The requirements to implement water-related fines are defined by national legislation, primarily the Water Act and associated regulations. These requirements ensure the proper implementation and enforcement of fines for water-related offenses.	
Challenges to implement the instrument	Identifying the offenses and violations can be challenging, specifically when they involve activities that occur over a wide area or are difficult to detect. Collecting sufficient evidence to support the imposition of fines requires tough investigative actions. This can be costly, requiring expertise, and the need for collaboration between different authorities. Engaging with various stakeholders, including industries, local communities, and water users, can be challenging, requiring efforts to communicate and collaborate effectively.	
Degree of success	**Low**	**Medium** / **High**

Country: Slovakia						
Type of instrument	**Financial**	X	**Business**		**Economic**	
Subtype: Fines						
Implementation: Fines are levied on physical or legal persons who break the law. Water law mainly distinguishes the following offences that can be fined: a. Withdrawal of surface water or groundwater without permission b. Wsage of hydropower potential of water streams without permission						

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<table>
<tr><td colspan="4">c. Discharge of waste water, special water, industrial water into water streams, groundwater or public sewers without permission
d. Pollution of surface or underground water
e. Operating of water-related business activities (e.g. commercial fish farming) without permission
f. Carrying out activities that may affect water quantity, quality or other conditions without permission
g. Operating of water constructions without or not in accordance with permission
h. Exports of water from Slovak water bodies abroad without permission
i. Other violation of the law and non-fulfilment of obligations imposed by authorities.</td></tr>
<tr><td colspan="4">Contribution to governance</td></tr>
<tr><td>Other</td><td colspan="2">X</td><td>Fines ensure that water users act in line with the legislative framework, policy priorities and other regulations.</td></tr>
<tr><td colspan="4">Pathways for implementation</td></tr>
<tr><td>Requirements to implement the instrument</td><td colspan="3">• Regular monitoring
• Functioning law enforcement mechanisms</td></tr>
<tr><td>Challenges to implement the instrument</td><td colspan="3">• Enhancing capacities of state authorities
• Changing/new legislation, rules and conditions
• Aspiration to increase awareness on requirements</td></tr>
<tr><td rowspan="2">Degree of success</td><td>Low</td><td>Medium</td><td>High</td></tr>
<tr><td></td><td>X</td><td></td></tr>
<tr><td></td><td></td><td>State authorities have limited capacities, so their control is not exhaustive.</td><td></td></tr>
</table>

5. Subsidie

Water subsidies are financial aid that aim to promote positive externalities, such as ecological flows, and improve access to water while encouraging responsible usage. Explicit subsidies include price supports, direct payments, and subsidized loans, while implicit subsidies involve reduced regulation, tax/charges relief, and insufficient cost recovery at various levels.

Subsidies play a critical role in enhancing the provision of positive externalities, reducing production costs, and increasing the number of goods traded, which can lead to a shift in supply downwards, lower prices, and related externalities. However, during water shortages, over-allocation can cause negative externalities. Despite their dubious contribution to achieving water policy objectives, subsidies remain Europe's most widely used economic instrument for water management.

To be specific, explicit subsidies involve direct financial assistance, while implicit subsidies are manifested in insufficient cost recovery of resource and opportunity costs, leading to environmental harm. The lack of monitoring and enforcement of allocations further exacerbates the situation.

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In summary, subsidies are crucial for promoting positive externalities and increasing access to water. Still, their implementation must be carefully monitored to ensure that they do not lead to negative externalities or environmental harm.

Country: Spain						
Type of instrument	**Financial**		**Business**		**Economic**	**X**
Subtype: Subsidies						
Implementation: In Spain, the levels of cost recovery for water works differ between households and irrigation, ranging from 60% to 80% and approximately 50%, respectively. The issue of poor monitoring and enforcement contributes to the affordability of illegal withdrawals, which can exacerbate water scarcity problems and constitute a form of subsidy. For instance, in the Segura River basin, one of the most over-exploited basins in Europe, the area of irrigated land increased by 6,500 hectares per year between 1990 and 2000, a surprising fact given that new concessions had been prohibited by law since 1986 due to ongoing problems of over-exploitation, as highlighted by WWF in 2006. Subsidized loans are an explicit form of subsidy that have played a significant role in Europe and other parts of the world, particularly in engaging farmers in irrigation modernization programs. Spain executed the largest irrigation modernization initiative in Europe, which involved a total investment of € 7368 million between 2002 and 2008, with 60.1% of the funding from public and private sources. The goal was to decrease water withdrawals by 3,662 hm3 annually and save water. Despite this investment and other irrigation programs, the evidence indicates that they have failed to alleviate pressures on water bodies.						
Contribution to governance						
Sustainability of water systems	**X**	Loans with lower interest rates for the adoption of more efficient water infrastructure can help achieve water allocation reform goals. This can happen by improving the quality of water, restoring valuable services, and collecting non-recoverable water. Governments have also provided financial aid, known as price support, to encourage collective water management and adjust water usage to available resources. By separating direct payments from crop yields, it has reduced the need for water-intensive agriculture.				
Pathways for implementation						
Requirements to implement the instrument	• Add effective tools such as charges to limit usage. • Separate from water consumption • Design explicit subsidies					

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Challenges to implement the instrument	• Some subsidies, such as low-cost-recovery levels, have negative effects on the environment and the quality of water bodies. • Infringement of the polluter-pays principle: failure to hold polluters responsible for the costs of pollution they cause • Budgetary constraints: limitations on available funds or resources due to financial concerns • The use of dichotomic design may lead to an increase in withdrawals. • There may be issues with low effectiveness and cost-effectiveness.		
Degree of success	**Low**	**Medium**	**High**
			X
			CAP subsidies have been implemented at EU-level

Country: Czech Republic						
Type of instrument	**Financial**		**Business**		**Economic**	X
Subtype: Subsidies						
Implementation: Subsidies are provided by individual ministries from national sources, international sources or from EU sources via grant programmes. Main ministries providing financial support for water management are the Ministry of Agriculture, Ministry of Environment and Ministry of Transport of the Czech Republic. Subsidised measures include: flood prevention, water retention in landscape, agricultural irrigations, competitive aquaculture and fishery including extra-production functions, construction and technical betterment of water supply and sewerage system infrastructure, reduction of chemicals in agriculture, reduction of pollution discharged into surface and ground water, support of natural landscape functions and other. Financial support is provided also to help farmers cope with results of extreme drought events, covering part of the losses. The Ministry of Agriculture supports a range of farming practices (reducing soil erosion, helping slow water flows across farmlands) to remedy flood damage.						
Contribution to governance						
Management of water-related risks	**X**					
Investment leverage	**X**					
Sustainability of water systems	**X**					
Pathways for implementation						

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Requirements to implement the instrument	Land consolidation is necessary for the improvement of the environment, soil protection, water management and flood control.		
Challenges to implement the instrument	The incidence and severity of droughts and floods incurs an increasing cost for agriculture and water infrastructure.		
Degree of success	**Low**	**Medium**	**High**

Country: Czech Republic						
Type of instrument	**Financial**		**Business**		**Economic**	X
Subtype: Reimbursement for measures in the public interest						

Implementation:

The state can provide financial resources to cover expenses for measures in the public interest. There is no legal claim to the funds. Every year, the rules for the provision of these resources are set by the government and are annexed to the state budget. Supported measures can include:

a. Watershed management activities
b. Management of small watercourses
c. Detection and evaluation of the state of surface and underground waters, including quantity and quality control (also of polluted water)
d. Planning in the area of water, analysis of runoff conditions, determination of floodplains and study of preventive flood measures
e. Restoration of water constructions and watercourse beds
f. Establishment, restoration and operation of water constructions and facilities for protection against floods and drought
g. Modification and capacity adaptation of watercourse beds and improvement of drainage conditions in the landscape
h. Establishment and renovation of meliorations and improved irrigation of land
i. Restoration, desilting and reconstruction of ponds
j. Restoration and operation of waterway
k. Absorption, retention and drainage of rainwater
l. Other measures according to approved programs.

Contribution to governance		
Management of water-related risks	X	
Sustainability of water systems	X	
Other	X	
Pathways for implementation		

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Requirements to implement the instrument			
Challenges to implement the instrument	As the funds and supported measures are set by the State on an annual basis, it means uncertainty for potentially entitled beneficiaries (river basin managing authorities, Czech Environmental Inspectorate, watercourse managers, owners of water constructions, authorized professional entities, other natural and legal persons).		
Degree of success	**Low**	**Medium**	**High**

Country: Hungary						
Type of instrument	**Financial**		**Business**		**Economic**	X
Subtype: Subsidies						

Implementation:

In Hungary, there are several subsidies provided related to water use and water management. These subsidies aim to support various aspects of water conservation, pollution reduction, and sustainable water management practices.

- Agri-environment measures provide payments to farmers who subscribe to environmental commitments related to the preservation of the environment and maintaining the countryside.
- Farmers may apply for investment support for irrigation development projects. Subsidies for construction and renewal of irrigation infrastructure are conditional on meeting water and energy saving criteria.
- Support is provided also for flood water storage reservoirs on low value agricultural land; and support for wetland eco-farming and extensive pasture in the flood plain area.
- National programme for developing infrastructure works for flood prevention, affecting agriculture and others implicated by flood risks.
- In case of significant damages, farmers may receive damage mitigation compensation in the agricultural risk management system.
- The Hungarian government provides subsidies for the development, renovation, and maintenance of water infrastructure. These subsidies may be directed towards projects such as the construction of water supply systems, wastewater treatment plants, flood protection measures, and the improvement of water distribution networks.
- EU Funds and Grants: Hungary has access to various European Union funds and grants that can be utilized for water-related projects. These funds provide financial support for initiatives that enhance water resource management, improve water infrastructure, and promote sustainable agricultural practices.

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Contribution to governance		
Management of water-related risks	X	
Investment leverage	X	
Sustainability of water systems	X	
Pathways for implementation		
Requirements to implement the instrument	Implementing subsidies requires ensuring effective implementation and proper utilization of the subsidies e.g. determining the eligibility criteria for accessing the subsidies, clear and transparent application process, requirements for financial management and reporting of the subsidies etc.	
Challenges to implement the instrument	Hungary is extremely dependent on the inflow of water from the surrounding countries. As a result of climate change, flow levels in the country's rivers are decreasing and droughts are increasing. The country urgently needs to address water retention, restoration of natural hydrology, soil drainage during times of higher rainfall, and adaptation of agricultural practices. This may require not only providing subsidies but also providing support through training programs, workshops, or guidance. Ensuring the long-term sustainability of projects beyond the subsidy period is another challenge.	
Degree of success	**Low**	**Medium** / **High**

Country: Poland						
Type of instrument	**Financial**		**Business**		**Economic**	X
Subtype: Subsidies						
Implementation: Various subsidies and financial support mechanisms are available to promote sustainable water management practices. These subsidies aim to incentivize activities that enhance water conservation, improve water quality, and support efficient water use. Special purpose subsidy is intended for financing public services such as maintenance, reconstruction, extension, and dismantling of the basic measurement and observation network of the state hydrological and meteorological service and the data collection, developing and publishing warnings, general forecasts and hydrological and meteorological bulletins and yearbooks; hydrological and meteorological protection for maritime navigation, fishing and inland navigation; hydrological and meteorological protection of agriculture; testing the hydrological and morphological elements of surface waters for the purpose of water management planning; testing of groundwater in terms of						

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physicochemical elements; information provided for the purposes of state defence; maintenance of special measurement and observation networks.
Specific subsidies for water companies are: 1. Water companies can use state financial aid provided in the form of a subsidy from the state budget intended for co-financing of ordinary activities in the scope of tasks connected with the maintenance of water and water facilities, with the exception of tasks for which another subsidy is available. 2. Water companies can use financial assistance from the budgets of territorial self-governing units for ongoing maintenance of water and water facilities and for financing or subsidizing investments.
Financial support for operations of the type of "Investments to protect waters against pollution by nitrates from agricultural sources" under the sub-measure "Support for investments in agricultural holdings" was included in the Rural Development Programme for 2014-2020. Support for farmers was provided for building manure storage facilities to reduce the risk of nitrate leaching into water.
Eco-scheme for water retention on permanent grassland under the CAP Strategic Plan 2023-2027 provides a new form of support for farmers. The aim of the eco-scheme is to promote water retention which improves water management and reduces carbon dioxide emissions into the atmosphere. The payment will be awarded to farmers making their permanent grassland available for water retention purposes, when it is situated on sites where in the growing period in a given year there are actually flooding and inundation events. This intervention provides an opportunity for compensation for possible losses caused by flooding and/or inundation of permanent grassland.
Support is provided also for farmers for investments in irrigation (construction of new irrigation systems, upgrading of existing irrigation facilities to provide water savings). In the previous period 2014-20; support was in a form of reimbursement of a part of the eligible project cost (50% or 60%).
The development of water and wastewater management is included in programmes for water and wastewater management which aim to reduce the quantity of untreated wastewater and the amounts of pollutant loads, in particular, those of nutrients, discharged together with treated wastewater into the natural environment. The implementation of the programmes is financed with the national and EU resources.
A group of measures for the development of inland waterway transport focused on the development of the infrastructure of inland water transport, the infrastructure of harbours and ports, and on their connection and improved access to the TEN-T network and was implemented by the Ministry of Infrastructure in the period 2014-2020.
In the period from 2014 to 2020, as part of the Norway and EEA Grants, more than PLN 100 million was allocated to co-finance blue-green infrastructure in cities and to raise the awareness of adaptation in schools. The measures in this scope will continue to be funded in the third edition of the "Environment, Energy, Climate Change" Programme.
Similarly, urban projects on sustainable development and adaptation in rainwater management in the period from 2014 to 2020 were funded with grants from the Operational Programme Infrastructure and Environment in an amount of about PLN 1.1 billion. Similar resources will finance the continuation of this Programme under the new EU financial perspective 2021-2027.

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Support is provided also for afforestation and restoration of wetlands to slow water flows across agricultural land. The aim of this measure is to cope with more frequently occurring floods and extreme climate events.		
Contribution to governance		
Management of water-related risks	X	
Investment leverage	X	
Sustainability of water systems	X	
Pathways for implementation		
Requirements to implement the instrument		
Challenges to implement the instrument	Some of the sources consider lack of finances as the main challenge in supporting sustainable water management. Other sources refer to low level of cooperation and wrong structure of water management, agricultural and environmental policies need to be aligned and training and consulting for farmers should be more supported.	

Degree of success	**Low**	**Medium**	**High**

Country: Slovakia					
Type of instrument	**Financial**	**Business**		**Economic**	X
Subtype: Subsidies					

Implementation:

Subsidies are financial aid for the water sector, they mainly target investments in water infrastructure and environmental measures. Subsidies are closely related to EU funds, although concrete projects have to be co-financed also from the national budget and from own financial resources of the beneficiary. Main sources of financing are:

a. Structural Funds of the EU: subsidies and grants supporting infrastructure building (public water supply, sewage, treatment facilities), improved access to water, water retention in urban and rural areas, ecological and adaptation measures,
b. Slovak Recovery and Resilience Plan: subsidies and investments to revitalise and renature water bodies, to reduce the impact of natural disasters, to improve landscape structures and ecological stability under climate change, to enhance the ability to retain water, and also to reform management of water bodies,
c. Common Agricultural Policy: modernisation, renovation, expansion and building of new irrigation systems, water retention measures in agricultural and forest landscape, land ownership consolidation and establishment of common water-

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related facilities, precise agriculture minimising the use of potential land or water pollutants,

d. National environmental fund (offers subsidies and loans repayable in the future): water protection and use, extension of public water supply and sewerage services, water retention measures in landscape and in settlements, removal of environmental burdens, water-related monitoring, research and development.

Contribution to governance		
Management of water-related risks	X	Subsidies aim to reduce the risk of floods through improved water retention capacity.
Investment leverage	X	Investments and modernisation of the water sector contribute to its efficiency and widen access to water and sanitation services.
Sustainability of water systems	X	Support to a sustainable water infrastructure and a revitalised landscape.

Pathways for implementation			
Requirements to implement the instrument	• Clear conditions for applicants and transparent selection processes of projects to be subsidised • Effective management of EU and national funds		
Challenges to implement the instrument	• Limited budgets for subsidies and grants • Complicated administration and bureaucracy, low effectiveness in drawing funds from grant schemes • Problems with land ownership (unknown owners, ownership fragmentation, incomplete land consolidation) decelerate investments in water retention measures and water infrastructure • Better coordination of supporting schemes to prevent possible opposite effects of measures on WEFE components • Implemented measures may have the character of an immediate solution, not a system solution in the long term		
Degree of success	**Low**	**Medium**	**High**
			X
			Schemes for subsidies are well monitored and on the whole, funded projects are successful.

Country: Luxembourg						
Type of instrument	**Financial**	**X**	**Business**		**Economic**	
Subtype: Rainwater collection subsidy						
Implementation:						

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Since 2003 individuals can get a subsidy for installing a rainwater collection system. The subsidy recovers 25% of the investment amount, but is capped at 1,000EUR maximum.			
Contribution to governance			
• **Sustainability of water systems**	X	Water retention replaces tap water usage with rainwater usage.	
Pathways for implementation			
Requirements to implement the instrument	Cost-benefit analysis		
Challenges to implement the instrument	There might be technical difficulties with the implementation of rainwater retention systems, as not every building is fit for such a system. Such subsidies mostly benefit homeowners who own properties with a large enough roof to collect rainwater. The subsidy could therefore be regressive.		
Degree of success	**Low**	**Medium**	**High**
	X		
	The impact is not entirely known. Installation of rain water retention systems might not be widespread in a country in which most people live in urban areas.		
Sources used	https://legilux.public.lu/eli/etat/leg/rgd/2003/05/14/n2/jo		

Country: Luxembourg						
Type of instrument	**Financial**	**X**	**Business**		**Economic**	
Subtype: Rainwater collection subsidy						
Implementation: Since 2003 individuals can get a subsidy for installing a rainwater collection system. The subsidy recovers 25% of the investment amount, but is capped at 1,000EUR maximum.						
Contribution to governance						
• **Sustainability of water systems**	X	Water retention replaces tap water usage with rainwater usage.				
Pathways for implementation						
Requirements to implement the instrument	Cost-benefit analysis					
Challenges to implement the instrument	There might be technical difficulties with the implementation of rainwater retention systems, as not every building is fit for such a system. Such subsidies mostly benefit homeowners who own properties with a large enough roof to collect rainwater. The subsidy could therefore be regressive.					
Degree of success	**Low**	**Medium**	**High**			
	X					

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	The impact is not entirely known. Installation of rain water retention systems might not be widespread in a country in which most people live in urban areas.
Sources used	https://legilux.public.lu/eli/etat/leg/rgd/2003/05/14/n2/jo

Country: France					
Type of instrument	**Financial**		**Business**	**Economic**	**X**
Subtype: Subsidies					
Implementation:					
Contribution to governance					
Sustainability of water systems	X	Loans with lower interest rates for the adoption of more efficient water infrastructure can help achieve water allocation reform goals. This can happen by improving the quality of water, restoring valuable services, and collecting non-recoverable water. Governments have also provided financial aid, known as price support, to encourage collective water management and adjust water usage to available resources. By separating direct payments from crop yields, it has reduced the need for water-intensive agriculture.			
Pathways for implementation					
Requirements to implement the instrument	• Add effective tools such as charges to limit usage. • Separate from water consumption • Design explicit subsidies				
Challenges to implement the instrument	• Some subsidies, such as low-cost-recovery levels, have negative effects on the environment and the quality of water bodies. • Infringement of the polluter-pays principle: failure to hold polluters responsible for the costs of pollution they cause • Budgetary constraints: limitations on available funds or resources due to financial concerns • The use of dichotomic design may lead to an increase in withdrawals. • There may be issues with low effectiveness and cost-effectiveness.				
Degree of success	**Low**	**Medium**	**High**		
			X		
			CAP subsidies have been implemented at EU-level		

Country: Italy					
Type of instrument	**Financial**		**Business**	**Economic**	**X**
Subtype: Subsidies					

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<table>
<tr><td colspan="4">Implementation:
In Italy, the cost recovery rates for water infrastructure vary depending on the sector. For households, the cost recovery levels range from 60% to 80%. In the case of irrigation, the cost recovery rate is approximately 50%. These figures indicate the proportion of costs that are covered by users in relation to the total expenses associated with water works (EEA, 2013).</td></tr>
<tr><td colspan="4">Contribution to governance</td></tr>
<tr><td>Sustainability of water systems</td><td>X</td><td colspan="2">Loans with lower interest rates for the adoption of more efficient water infrastructure can help achieve water allocation reform goals. This can happen by improving the quality of water, restoring valuable services, and collecting non-recoverable water. Governments have also provided financial aid, known as price support, to encourage collective water management and adjust water usage to available resources. By separating direct payments from crop yields, it has reduced the need for water-intensive agriculture.</td></tr>
<tr><td colspan="4">Pathways for implementation</td></tr>
<tr><td>Requirements to implement the instrument</td><td colspan="3">• Add effective tools such as charges to limit usage.
• Separate from water consumption
• Design explicit subsidies</td></tr>
<tr><td>Challenges to implement the instrument</td><td colspan="3">• Some subsidies, such as low-cost-recovery levels, have negative effects on the environment and the quality of water bodies.
• Infringement of the polluter-pays principle: failure to hold polluters responsible for the costs of pollution they cause
• Budgetary constraints: limitations on available funds or resources due to financial concerns
• The use of dichotomic design may lead to an increase in withdrawals.
• There may be issues with low effectiveness and cost-effectiveness.</td></tr>
<tr><td rowspan="3">Degree of success</td><td>Low</td><td>Medium</td><td>High</td></tr>
<tr><td></td><td></td><td>X</td></tr>
<tr><td></td><td></td><td>CAP subsidies have been implemented at EU-level</td></tr>
</table>

6. Non-monetary voluntary agreements

To solve water allocation issues, voluntary agreements are often negotiated between parties. These agreements rely on truly voluntary participation, without the use of rewards, penalties, or other forms of regulated obligations, and on non-monetary incentives, unlike Payments for Ecosystem Services (PES). By taking individual actions or adopting practices that benefit them

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while also contributing to the solution, the parties involved can resolve the water allocation problems. In Europe, where markets are uncommon and monetary compensation is impractical in most cases, voluntary agreements are a popular approach to follow the polluter-pays principle (Lindhout & Van den Broek, 2014).

Country: Italy						
Type of instrument	**Financial**		**Business**	**X**	**Economic**	
Subtype: Non-monetary voluntary agreements						
Implementation: Italy has successfully completed a 12-year experiment in the Po River Basin District, which has led to the validation of voluntary agreements as an effective approach. As a result, Italy is now shifting from the traditional command-and-control method to a mixed approach in all of its river basins.						
Contribution to governance						
Investment leverage	**X**	Green infrastructure can provide significant opportunities for individuals to benefit without the need for monetary exchanges. This approach can be adopted voluntarily.				
Other	Reallocation of water resources	Cost-effective approach to comply with temporary or permanent water reallocation.				
Pathways for implementation						
Requirements to implement the instrument	• expand evidence base • Build institutional and legal security • public monitoring • clear, predefined rules					
Challenges to implement the instrument	• low performance if incentives not properly defined • limited to win-win situations • technological, institutional and/or legal barriers					
Degree of success	**Low**	**Medium**	**High**			
			X			
			The use of voluntary and participatory reallocation processes is becoming more prevalent at both local (such as users' associations) and basin scales (such as drought steering committees)			

Country: France						
Type of instrument	**Financial**		**Business**	**X**	**Economic**	
Subtype: Non-monetary voluntary agreements						
Implementation: During dry periods, these agreements allow irrigators to collectively negotiate and reallocate water, providing them with additional flexibility and the ability to minimize losses without resorting to						

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proportional reductions in water allocations. A notable example of such an agreement is the French Single Collective Water Management Association. This association establishes rules for redistributing water among its members, within the limits defined by local water committees or public institutions, based on a mutual consensus. In areas where there is a structural deficit of water, regulations mandate the creation of a Single Collective Water Management Association to regulate irrigation water withdrawals. However, this requirement also paves the way for voluntary agreements negotiated among farmers, granting them the freedom to decide on the allocation and management rules of the association. Moreover, these associations receive incentives from local authorities in the form of reduced water charges, further encouraging their participation and cooperation.

Contribution to governance		
Investment leverage	**X**	Green infrastructure can provide significant opportunities for individuals to benefit without the need for monetary exchanges. This approach can be adopted voluntarily.
Other	Reallocation of water resources	Cost-effective approach to comply with temporary or permanent water reallocation.

Pathways for implementation			
Requirements to implement the instrument	• expand evidence base • Build institutional and legal security • public monitoring • clear, predefined rules		
Challenges to implement the instrument	• low performance if incentives not properly defined • limited to win-win situations • technological, institutional and/or legal barriers		
Degree of success	**Low**	**Medium**	**High**
			X
			The use of voluntary and participatory reallocation processes is becoming more prevalent at both local (such as users' associations) and basin scales (such as drought steering committees)

Country: Spain

Type of instrument	**Financial**		**Business**	**X**	**Economic**	

Subtype: **Non-monetary voluntary agreements**

In Spain, during drought events, users and institutions that are part of the drought commission of a river basin authority can voluntarily negotiate and agree on measures and restrictions to address the situation. This approach can be effective in achieving compliance with predefined minimum ecological thresholds. However, if the board fails to reach this goal, a conventional command-and-control approach is often used. This approach tends to be less efficient and can result in higher losses due to a less optimal allocation of the resource.

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Contribution to governance		
Investment leverage	**X**	Green infrastructure can provide significant opportunities for individuals to benefit without the need for monetary exchanges. This approach can be adopted voluntarily.
Other	Reallocation of water resources	Cost-effective approach to comply with temporary or permanent water reallocation.

Pathways for implementation			
Requirements to implement the instrument	• expand evidence base • Build institutional and legal security • public monitoring • clear, predefined rules		
Challenges to implement the instrument	• low performance if incentives not properly defined • limited to win-win situations • technological, institutional and/or legal barriers		
Degree of success	**Low**	**Medium**	**High**
			X
			The use of voluntary and participatory reallocation processes is becoming more prevalent at both local (such as users' associations) and basin scales (such as drought steering committees)

7. Public-Private Partnerships

Public-private partnerships (PPPs) can be an effective means for governments to achieve better value for money and fund infrastructure investments and public service management. These strategic alliances are typically characterized by long-term contracts between public and private partners, with the private partner taking on responsibilities such as design, financing, construction, and operation of the infrastructure or service. PPPs can enhance efficiency and risk management by combining competitive tendering and negotiation processes, making them particularly suited for large and complex infrastructure projects.

PPPs offer a unique opportunity to attract investment for public infrastructure, with the financial burden mainly assumed by the private sponsor, and public expenses spread out over the project's lifespan. By leveraging PPP's whole-life cost management and payment linked to service delivery, not asset provision, authorities can overcome short-term budget constraints.

Country: Spain						
Type of instrument	**Financial**		**Business**	**X**	**Economic**	
Subtype: Public-private partnerships (PPP)						

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<table>
<tr><td colspan="3">Implementation:
In Spain, PPPs are gaining attention as a means to comply with European legislation on urban wastewater treatment, highlighting the country's insufficient water infrastructure. In the wake of the COVID-19 pandemic, the Spanish Recovery and Resilience Plan has identified PPPs as a key element to channel investments funded by the European Recovery and Resilience Facility to address pandemic-related challenges.

The Spanish government has implemented measures to modernize public administration and facilitate the procurement of PPP projects, recognizing public-private cooperation as an effective way to achieve economic, environmental, and digital objectives. Royal Decree-Law 36/2020 establishes rules to distribute and manage projects benefiting from NextGenerationEU through the Spanish Recovery Plan.</td></tr>
<tr><td colspan="3">Contribution to governance</td></tr>
<tr><td>Investment leverage</td><td>X</td><td>Public-private partnerships (PPPs) provide a distinctive chance to draw in investment for public infrastructure, where the primary financial responsibility rests with the private sponsor, and public costs are distributed over the duration of the project.</td></tr>
<tr><td colspan="3">Pathways for implementation</td></tr>
<tr><td>Requirements to implement the instrument</td><td colspan="2">• Stablish regulatory frameworks that specifies the roles and responsibilities of the public and private partners, as well as the relevant procurement and contract management processes.
• Strong political support and institutional capacity
• Clear lines of authority and communication channels between public and private sector partners.
• Stakeholder engagement and participation
• Effective contractual arrangements to ensure that the rights and obligations of each partner are clearly defined.</td></tr>
<tr><td>Challenges to implement the instrument</td><td colspan="2">• Political and institutional factors: Changes in political power, public opinion, and institutional capacity can significantly impact the stability and sustainability of PPP projects.
• Funding and financing challenges
• Complex contractual arrangements and coordination between public and private sector entities, which can be difficult to manage.
• Risk allocation between the public and private sector partners can be a contentious issue, as different parties have different risk preferences, which can lead to difficulties in determining the allocation of risk.
• Managing and monitoring the performance of PPP projects can be challenging, particularly in areas with weak institutional capacity or limited regulatory oversight.</td></tr>
</table>

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	• Public resistance: Public resistance to PPP projects can occur due to concerns over potential private sector profit motives, increased costs for users, and a lack of transparency and accountability in project management.		
Degree of success	**Low**	**Medium**	**High**
		X	
		While there are several examples of PPP in Spain, this model of public-private partnership still faces significant resistance from the public	

Country: France						
Type of instrument	**Financial**		**Business**	**X**	**Economic**	
Subtype: Public-private partnerships (PPP)						
Implementation: In France, the responsibility for water services lies solely with local public authorities. They are tasked with defining the general principles governing the service and selecting the operator, which can be either private or public. The country has adopted various models for water provision, including direct public management, management contracts, leases, and concessions. Many French cities have privatized their water services for more than a century due to limited public resources. Local authorities in France have the flexibility to tailor their chosen Public-Private Partnership (PPP) contract to meet specific needs. This has led to various contract types and characteristics in PPP models, each with distinct responsibilities and periods of involvement. The management contract, for instance, typically spans 3-5 years with a fixed, amendable fee. The private party is responsible for investing in infrastructure and maintenance, while the public party oversees water utilities. Another model, "Affermage," extends for 8-15 years, with fees dependent on tariffs. The private party handles investment in infrastructure, as well as maintenance and management, making it a medium-involved partnership. The "French Model" allows municipalities the freedom to delegate water management to private operators, leading the World Bank to advocate for other countries to follow this approach for many years						
Contribution to governance						
Investment leverage	**X**	Public-private partnerships (PPPs) provide a distinctive chance to draw in investment for public				

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		infrastructure, where the primary financial responsibility rests with the private sponsor, and public costs are distributed over the duration of the project.
Pathways for implementation		
Requirements to implement the instrument		• Stablish regulatory frameworks that specifies the roles and responsibilities of the public and private partners, as well as the relevant procurement and contract management processes. • Strong political support and institutional capacity • Clear lines of authority and communication channels between public and private sector partners. • Stakeholder engagement and participation • Effective contractual arrangements to ensure that the rights and obligations of each partner are clearly defined.
Challenges to implement the instrument		• Political and institutional factors: Changes in political power, public opinion, and institutional capacity can significantly impact the stability and sustainability of PPP projects. • Funding and financing challenges • Complex contractual arrangements and coordination between public and private sector entities, which can be difficult to manage. • Risk allocation between the public and private sector partners can be a contentious issue, as different parties have different risk preferences, which can lead to difficulties in determining the allocation of risk. • Managing and monitoring the performance of PPP projects can be challenging, particularly in areas with weak institutional capacity or limited regulatory oversight. • Public resistance: Public resistance to PPP projects can occur due to concerns over potential private sector profit motives, increased costs for users, and a lack of transparency and accountability in project management.
Degree of success	**Low**	**Medium** / **High**
		X

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