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Comparative Public Law and Water Crisis

Environmental Cost, Participation, and Alternative Dispute Resolution

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Abstract

Environmental degradation and anthropogenic climate change severely affect natural resources, thus fostering the need for effective tools to cope with multiple concerns. Within this scenario, the article aims to address public law policies and legislation in reference to water management, with a focus on three specific issues: 1) environmental cost, 2) participation and water management, 3) alternative dispute resolutions (ADRs) and water disputes. The first part is based on the analysis of environmental cost related to the degradation and exhaustion of water ecosystems as a result of an activity (e.g., as a result of withdrawal and/or pollution), as well as related to the supply scarcity. The second part deals with participation, co-participation and multi-level governance systems in the context of deliberative decision-making processes. The third part highlights the key role of participation and proximity in resolving disputes within local communities through the analysis of specific cases (i.e., the *Tribunal de las Aguas*, the *Sudovi za vodu*, and the *Médiateur de l'eau*).

Keywords

comparative public law – environmental cost – participation – ADR

1 Introduction

The legal tools rationalizing the general framework for the management of water resources aim to achieve a positive balance between environmental objectives and the fulfilment of public needs, also in the light of future scenarios resulting from environmental degradation and the anthropogenic climate change crisis. Against this background, it is crucial to fully involve all territorial/administrative authorities under a multi-level governance that fosters participation and the role of local authorities, also by applying the principle of proximity. To this end, the question of the burden of the environmental cost is of primary importance in the management of water resources and the resolution (also in advance) of disputes. Furthermore, proper tools to support participatory processes in managing equitable and shared resources develop suitable frameworks for conflict prevention and mediation.

With regard to the equitable use of water resources, the need to define strategic and effective multi-level governance approaches that meet the needs of different stakeholders could be addressed across three critical and interrelated areas: 1) environmental cost; 2) local governance within multi-level approaches to shared authority; 3) environmental alternative dispute resolution (ADR). The first paragraph addresses the issue of environmental cost, which is the economic measure of the damage caused to the environment and ecological systems as a – both direct or indirect – result of actors' activities. The second part focuses on local water management systems, presenting some paradigmatic European experiences to ascertain main guiding patterns and their characteristics in local management and participation. The third part of the article exposes participatory techniques and processes that ensure adequate involvement of local communities and civil society, with the aim of highlighting local management and planning as optimal organizational benchmarks for water protection as a common.

2 Water Scarcity, Public Management, Environmental Cost

Environmental cost can be defined as the cost of the damage caused to the environment and ecosystems through a direct or indirect impact triggered by actors' activities. Degradation occurs as a result of drawings, discharges, treatments, and affect both the resource itself and the quality of groundwater and soils, nurturing additional treatments' costs – also in reference to drinking water.

The analysis of the environmental cost leads to the distinction between two profiles: (a) the environmental cost in its narrow sense, arising from the damage caused by the degradation and depletion of water ecosystems in relation to an activity (e.g. as a result of withdrawal or pollutant activities); (b) the cost of the natural resource, related to the supply shortage in a specific time and place.¹ These definitions theoretically arise from the concept of “environmental damage” as provided by the European Union’s Directive on Environmental liability with regard to the prevention and remedying of environmental damage: “a measurable adverse change in a natural resource or measurable impairment of a natural resource service which may occur directly or indirectly”.² However, the concept of environmental cost is also closely related to the impact of consumption patterns, thus, European and domestic legislation seemingly merge both “environmental cost” and “resource cost”.

According to the prevailing academic scholarship,³ the definition of environmental damage should start from a cost-benefit analysis, classifying the amount of negative externalities within a timeframe,⁴ while internalizing their cost through “price signals”⁵ on the resource. Since 1960s, the aforementioned hypothesis have been proposed through literature in environmental and resource economics studies, which pursued the scope’s enlargement of neoclassical economics by developing methods to evaluate and internalize decision-making’s economic impacts on the environment.⁶ According to this novel approach in quantifying environmental costs, the services provided by natural capital would not be adequately measured in comparable terms

1 The focus of the PPP is predominantly on “costs” in the sense of protecting business and investment interests: SCHWARTZ, “The Polluter-Pays Principle”, in FAURE (ed.), *Elgar Encyclopaedia of Environmental Law*, Cheltenham, 2016, VI.20, p. 261.

2 Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on Environmental liability with regard to the prevention and remedying of environmental damage, Article 2.2.

3 There has been continuous progress in techniques for assessing impacts on the environment. The methods used have led to increasingly sophisticated application characterised by greater reliability, but in practice CBA sometimes leads to inconsistent environmental decisions: ATKINSON and MOURATO, “Environmental Cost-Benefit Analysis”, *Annual Review of Environment and Resources*, 2008, pp. 317–344.

4 O’MAHONY, “Cost-Benefit Analysis and the Environment: The time horizon is of the essence”, *Environmental Impact Assessment Review*, 2021, p. 1 ff. The OECD points out that the natural sciences can be the ideal support for this analysis: OECD, *Cost-Benefit Analysis and the Environment Organisation for Economic Cooperation and Development*, Paris, 2018.

5 BOWMAN and BOYLE, *Environmental Damage in International and Comparative Law: Problems of Definition and Valuation*, Oxford, 2002.

6 SCHWARTZ, *cit. supra* note 1, VI.20, p. 264.

with economic services and manufactured capital; therefore, the need of assessing external environmental costs and benefits (including costs incurred to prevent degradation of the resource) arises, in order to incorporate them into economic decision-making.⁷ Valuation techniques for estimating the costs challenge the water services' ability to maintain infrastructure but also to preserve and improve water quality to fully restore environment in the long run:⁸ in a complementary manner, environmental costs can, however, also be compensated through direct legislative interventions to impose appropriate conducts on operators, in order to achieve environmental standards, preventing the degradation and depletion of the resource.⁹

The aforementioned strategies to define water-related costs rely on the concept of ecosystem service,¹⁰ which provides a balance of the specific utilities of the resource (e.g. drinking water, minerals, fisheries, etc.) with the general concept of natural resources, conditions and processes that satisfy human needs. To this end, "ecosystem functions" have been identified in relation to them, theoretically outlining tasks that ecosystem goods carry out using organisms, human activities or devices that perform specific environmental tasks.¹¹ For instance, the purification of air and water, the mitigation of flood or drought risks, the detoxification and disposal of waste, the renewal of soil, pollination, the control of crop pests, the maintenance of biodiversity and the stabilization of the climate can be ascribed to the concept of ecosystem function.

Services provided in support of ecosystems (nutrient cycle, soil formation and primary production), by way of supply (production of food, drinking water, materials or fuel), regulation (climate, water purification, pollination and pest control), as well as environment-related cultural values (aesthetic, spiritual, educational) might be considered "ecosystem services" on the basis

7 On measures to incorporate externalities (corrective taxes, pollution standards, tradable permits, etc.) with a view to achieving greater allocative efficiency: DING, HE and DENG, "Life Cycle Approach to Assessing Environmental Friendly Product Project with Internalizing Environmental Externality", *J Clean Prod*, 2014, pp. 128–138.

8 See European Environment Agency, Water management in Europe: price and non-price approaches to water conservation, no. 07/2017, available at: <https://www.eea.europa.eu/publications/water-management-in-europe-price>.

9 LABORATORIO REF, "Costi ambientali e della risorsa: la tariffa idrica nel XXI secolo", *Acqua*, 2020, p. 4.

10 On the notion of ecosystem service: COSTANZA et al., "The Value of the World's Ecosystem Services and Natural Capital", *Nature*, 1997, pp. 253–260.

11 *Millennium Ecosystem Assessment* (MEA), 2005. See also the 2021 and 2023 IPCC Reports available at <https://www.ipcc.ch/reports/>.

of three specific points: 1) pragmatism and/or political realism, 2) political and economic idealism, and 3) scientific empiricism.¹²

Specific compensation for ecologically compatible management would be possible for those services provided by owners; thus, tools like the “payment for ecosystem services” (hereinafter PES) are evolving, trying to define clear methodologies for gaining a voluntary additional provision of environmental services over – and above – existing benefits.¹³

Payment schemes for PES has so far outlined several models for a better integration of environmental cost evaluations; however, while PES schemes might be considered as voluntary transactions between buyers and sellers of the service, PES-like schemes involve a public actor to function as facilitator.¹⁴

As far as water pricing is concerned, environmental cost need to be precisely defined through the pricing policy¹⁵ provided by the European Environment Agency, a soft-law instrument deriving from the domestic implementation of

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- 12 SPASH, “How Much is that Ecosystem in the Window? The One with the Bio-diverse Trail”, *Environmental Values*, 2008, pp. 259–284. The economic approach is a pragmatic solution to reject natural scientists’ concerns about the loss of wilderness and biodiversity. It would therefore be a simplifying tool to communicate the value of biodiversity and ecosystem functioning, using a way of communicating that reflects prevailing political and economic views. Furthermore, Spash highlights that the expression of all values through the market is the true and only way the world should be, as the free market system is considered by the dominant ideology to be the most appropriate method of “capturing” the value of goods and services and determining their distribution. Scientific empiricism, finally, argues that market-determined values reflect the truths and preferences of individuals, whereby market payments would concretely express the value of satisfaction of a certain preference. As far as the concept of “ecosystem service” is concerned: COSTANZA et al., *cit. supra* note 10.
- 13 PAGIOLA, *Guidelines for “Pro-Poor” Payments for Environmental Services*, Washington, 2007. PES programmes can either be part of poverty reduction schemes or incorporate ordinary development mechanisms.
- 14 See GAGLIOPPA and MARINO, *Manuale per la valutazione dei servizi ecosistemici e l’implementazione dei PES nelle aree agroforestali – Applicazione del modello di governance “Making Good Natura” nei siti natura 2000 (e non solo)*, Rome, 2016.
- 15 On the implementation of the Water Framework Directive: BOEUF and FRITSCH, “Studying the Implementation of the Water Framework Directive in Europe: A Meta-Analysis of 89 Journal Articles”, *Ecology and Society*, 2016. For an assessment on the definition of the price of water with regard to the Italian case (where the system is segmented and characterised by a wide plurality of management systems and operators): MASSARUTTO, “Economic Regulation, Water Pricing, and Environmental and Resource Costs: The Difficult Marriage Between Financial Sustainability, Investment Requirements and Economic Efficiency”, in TURRINI et al. (eds.), *Water Law, Policy and Economics in Italy*, Cham, 2021.

the Water Framework Directive (WFD).¹⁶ Cost recovery offers tools for assessing in detail the system's aptitude to cover costs through the revenue arising from charges and concessions (i.e. the monetary fund essential to maintain the service). In reference to this point, statistics offer a rather heterogeneous sector-based picture between countries: the integrated water service is the only sector within which recovery levels are close to 100%.¹⁷ Moreover, farming activities are strictly connected to water-related issues. Within this specific areas of concern, the assessment carried out by the European Environment Agency questioned whether the demand for irrigation water is indeed responsive to price changes and, as a consequence, lower price levels foster over-consumption.¹⁸ According to this analysis, the arrangement of the water price (volumetric or flat-rate) promotes greater water use efficiency as farmers' water consumption paying a flat rate is 10–20% more than those paying a volumetric rate.¹⁹

In recent years, there have been a few attempts to internalize the environmental costs related to the withdrawal and negative externalities

16 EEA, *Assessment of cost recovery through water pricing, 2013; Managing Scarce Water Resources – Implementing the Pricing Policies of the Water Framework Directive, 2010; A guidance for assessing the recovery of Environmental and Resource Costs in the context of the Water Framework Directive*, 15 February 2015, Draft prepared by the ERC drafting group (2015).

17 In the WATECO guidance document for the implementation of the economic aspects of the WFD (European Commission 2003) and in the various working groups activated by the Common Implementation Strategy, environmental and resource costs have been divided into two distinct categories. Environmental costs are regularly defined as the costs resulting from the environmental damage that water use imposes on ecosystems, while resource costs are regularly defined as the costs resulting from the environmental damage that water use imposes on ecosystems, while resource costs are specified to represent the opportunity costs lost due to the depletion of the resource beyond its natural recharge or recovery. The most recent interpretation of the ECO2 working group, however, has emphasised, in defining resource costs, the difference between the economic value of current water use and the economic value of the best alternative use. Therefore, according to ECO2, resource costs only arise if there is another use of water that would generate a higher economic value than the current one.

18 Aspects of participation in price setting are often neglected. Concerning the agricultural sector, which is particularly impacted by resource pollution, see KASTENS and NEWIG, "Will Participation Foster the Successful Implementation of the Water Framework Directive? The Case of Agricultural Groundwater Protection in Northwest Germany", *Local Environment*, 2008, p. 27 ff.

19 According to the European Court of Auditors (ECA) Special report 20/2021, *Sustainable Water Use in Agriculture, CAP Funds More Likely to Promote Greater Rather than More Efficient Water Use*, EU policies are unable to ensure farmers use water sustainably.

generated by the consumption of the resource. In Spain, the so-called *Canon de Agua* is a tax that embraces both the environmental and resource costs in order to guarantee quantity and quality, and is calculated on the basis of the quantities withdrawn in the domestic and industrial sectors with a system of increasing block tariffs.²⁰ In France, reparation of ecological damage through the tariff is differentiated on the basis of several parameters (including quality and quantity). French environmental taxation is a form of implementation of the polluter pays principle, in both its preventive and restorative dimensions, as well as a direct outcome of the solidarity as referred in Article 4 of the *Charte de l'Environnement* (“Toute personne doit contribuer à la réparation des dommages qu'elle cause à l'environnement, dans les conditions définies par la loi”), which requires the allocation of the cost within citizens. However, the *Conseil constitutionnel* stated that the principle of equality does not prevent the legislator from regulating different situations in different ways, also on the bases of general interest.²¹ Furthermore, the *Agences de l'eau* – public administrative bodies formerly known as basin agencies – play a pivotal role regarding the implementation of ecological taxation, especially through the definition of water rates and promoting pollution control actions by local and private authorities.²²

Another suitable example is that provided by the Slovene Environmental Protection Act (*Zakon o varstvu okolja*) of 2004, aiming to adopt the polluter pays principle through a series of measures for financing environmental protection policies. The national program is primary based on 1) increasing economic resources for investments in environment-related projects, 2) accelerating the introduction of tax relief, and 3) introducing a deposit and

20 The effects of the calculation system is based on quantities withdrawn in the domestic and industrial sector through the system of increasing block tariffs: GARCÍA-RUBIO, RUIZ-VILLAVARDE and GONZÁLEZ-GÓMEZ, “Urban Water Tariffs in Spain: What Needs to Be Done?”, *Water*, 2015, pp. 1456–1479.

21 The effective implementation of the principle of equality, however, always requires a detailed understanding of situations of discrimination. Although according to the French *Conseil constitutionnel*, equality essentially means the uniform application of the rule of law, the generality of the rule does not necessarily imply uniformity and public authorities are free, within the aforementioned framework, to organise differentiated regimes that allow for a better understanding of the differences in situations: BARROIS DE SARIGNY, “Le principe d'égalité dans la jurisprudence du Conseil constitutionnel et du Conseil d'État”, *Titre VII*, 2020, pp. 18–25. The *Charte de l'Environnement* has constitutional value since it was incorporated into the *bloc de constitutionnalité* through the constitutional revision of 1 March 2005. On this aspect see Decisions n. 2008–564 DC of 19 June 2008 and 2014–394 QPC (*question prioritaire de constitutionnalité* of 7 May 2014).

22 CAUDAL, “Chronique de la fiscalité française de l'environnement en 2014”, *Revue juridique de l'environnement*, 2015, pp. 329–342.

refund system. Differently, the Netherlands and Scotland have implemented measures that aim to specify items within the tariffs that are closely linked to the environmental costs for the consumption and – in general – the use of the natural resource. With regard to the costs of water withdrawing, Scotland charges on extraction, while, until 2012, the Netherlands on groundwater withdrawal.²³

3 Proximity Governance as Anticipatory Measure: Managing Water Resources within Legal Spaces

With regard to the equitable use of water resources, the OECD has consistently emphasized the demand to improve strategic and effective multilevel governance approaches aimed at meeting the needs of different stakeholders, thereby resolving or even avoiding conflicts between private parties and between users and service providers.²⁴

Participation as a tool for effective governance can be addressed under its functional and subjective features. For this purpose, the term “participation” cannot be condensed to a mere involvement in the decision-making phase, as it represents a complex and dynamic case of different actors’ contribution (e.g. public actors, providers, and/or private individuals).²⁵ The aforementioned theoretical view offers a different concept of “participation” from principle to a multidisciplinary sharing process (i.e. social, political, economic and

23 BERBEL et al., “Analysis of Irrigation Water Tariffs and Taxes in Europe”, *Water Policy*, 2019, pp. 806–825. Water taxation in EU countries is adapted to local contexts and still largely depends on different institutional trajectories, differentiating taxes and tariffs that finance water services and push for more efficient use; the Mediterranean countries (France, Portugal, Italy and Spain) have mainly implemented taxation systems on agricultural water abstractions to recover the costs of regulation, storage and management of water services in accordance with the provisions of the Water Framework Directive. Northern European countries (including the Netherlands, Germany and Denmark) do not have taxation instruments for agricultural abstractions (neither for surface nor groundwater resources). Nevertheless, current taxation still remains very low in the European context, although the introduction of extraction taxes applied to any water source (surface and groundwater) appears to be the main instrument to induce water savings and internalise environmental and resource costs.

24 OECD, *OECD Principles on Water Governance*, Paris, 2015.

25 LOUVIN, *Aqua Aequa. Dispositivi giuridici, partecipazione e giustizia per l'elemento idrico*, Turin, 2018; ROLANDO, *Comunicazione, poteri e cittadini. Tra propaganda e partecipazione*, Milan, 2014.

legal), which could help to avoid litigation.²⁶ With regard to participation, co-participation and multilevel governance systems, trust and social cohesion can be developed at local level by stakeholders also through legal agreements, while risk management analysis has promoted participation in deliberative decision-making processes.²⁷ In addition, according to Julia Baird and Ryan Plummer, there are a number of specific and general resilience attributes of aquatic system management, as well as practices and activities, that enhance the resilience of governance:

Specified and general resilience attributes of aquatic system governance

- Participant diversity and equity (SR) and inclusive participation (GR)
- Effective (SR) and strong (GR) leadership
- Polycentric governance with boundary organizations (SR), decentralized governance (GR)
- Social memory (SR)
- Capacity for self-organization (SR)
- Adaptability, flexibility of planning processes (SR) and institutional flexibility (GR)
- Precautionary risk assessment and reduction strategies (SR)
- Planning strategies that include a wide range of ecosystem services (GR).

Practices and activities that enhance governance resilience

- Forums for participation
- Improved transparency of decision-making
- Planning processes that are participatory and deliberative.²⁸

In environmental governance, the concept of “overlapping participation” (i.e., when a stakeholder plays multiple roles within different networks, but

26 BOLOGNESI, SILVA PINTO and FARRELLY, *Routledge Handbook of Urban Water Governance*, London-New York, 2022; CONCA and WEINTHAL (eds.), *The Oxford Handbook of Water Politics and Policy*, Oxford, 2018; ALLEGRETTI (ed.), *Democrazia partecipativa: esperienze e prospettive in Italia e in Europa*, Florence, 2010; JEGOUZO, “Principe et idéologie de la participation”, *Pour un droit commun de l’environnement*, 2007, pp. 577–587; BOMBARDELLI (ed.), *Prendersi cura dei beni comuni per uscire dalla crisi. Nuove risorse e nuovi modelli di amministrazione*, Naples, 2016; VIOLA, *Climate Constitutionalism Momentum: Adaptive Legal Systems*, Cham, 2022; ID., “From the Principles of International Environmental Law to Environmental Constitutionalism: Competitive or Cooperative Influences?”, in AMIRANTE and BAGNI (eds.), *Environmental Constitutionalism in the Anthropocene: Values, Principles and Actions*, London-New York, 2022, pp. 127–147.

27 FISCHER and INGOLD (eds.), *Networks in Water Governance*, Basingstoke, 2020.

28 BAIRD and PLUMMER, “The Emergence of Water Resilience: An Introduction”, in ID. (eds.), *Water Resilience: Management and Governance in Times of Change*, Cham, 2021, p. 10.

with specific aptitudes, jurisdictions, and powers) highlights the intersections between different specific domains, which could include water issues within a broader natural resource management framework.²⁹

Some experiences in local water management are reasonably paradigmatic in showing different practices of participation in the context of multi-level governance, especially concerning two specific aspects, namely the decision-making process and risk management. In both cases, participation relies upon three coordinates: a) vertical (between levels of government); b) horizontal (between territorial units covering the same legal space, e.g. municipalities); c) transversal (i.e. between stakeholders and territorial units belonging to the same or different levels of government).

Starting from these assumptions, this section briefly reviews specific local governance experiences from Northern Europe (Denmark and Germany), Northwest Europe (United Kingdom and Ireland) and Scandinavia (Finland, Norway and Sweden).³⁰ Regarding the actors involved and the categories of users, the analysis is based on the four prevailing models defined by the European Federation of National Water Services Associations (EurEau), as follows:³¹ 1) “direct public management” (this model is currently on the wane); 2) “delegated public management” (the executive phase of water services is covered by a subject usually public or state-owned); 3) “delegated private management” (the state entrusts the implementation of certain tasks to a private party by means of a contract of assignment or a contract of lease;³²

29 PALONIITY, *Law, Ecology, and the Management of Complex Systems: The Case of Water Governance*, London-New York, 2022. The Alpine contexts represent a particular experience in terms of channelling and distribution of water. In reference to the management of water resources and the decision-making phase, mountain communities have generally rejected centralised, authoritarian, and top-down instruments. Instead, they have developed participatory systems close to the Elinor Ostrom’s model for commons (i.e., clear definition of the users, participation, monitoring, and multilevel governance). On this point see LOUVIN, *cit. supra* note 25; OSTROM, *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge, 1990; BARANYAI, *European Water Law and Hydropolitics: An Inquiry into the Resilience of Transboundary Water Governance in the European Union*, Cham, 2020.

30 With regard to boundaries, reference has been made to the classifications of the United Nations Statistics Division. However, due account must be taken of the morphological differences between territories – from island to continental, as well as in terms of size and population.

31 EurEau is the European Association of National Water Associations and represents national water and wastewater utilities, both private and public. See <https://www.eureau.org>.

32 According to the European Federation of National Water Services Associations, within countries sharing this model, municipalities outsource water services to private companies, although the infrastructure remains property of the state.

4) “direct private management” (water service infrastructures are privately owned, while the state only supervises and regulates).

The Danish public sector is largely decentralized, based on the principles of subsidiarity and proximity. Since 2007, many state and regional powers have been transferred to local authorities.³³ The aim of *Kommunernes Landsforening* is to establish co-operation between the public administration and citizens for the development of local communities and the management of economic resources within the local area. The new powers of local bodies include social welfare, healthcare, employment (the “flexicurity” model), integration, economic and industrial development. Water services follow a hybrid model of management that comprises both consumers or providers.³⁴ In Finland, local authorities are involved in the planning of River Basin Management Plans (RBMPs) and Flood Risk Management Plans (FRMPs). They also carry out water quality monitoring (for drinking water and bathing areas).³⁵ Depending on issues they are concerned with, municipalities can provide environmental permits and oversee related activities, while having responsibility for developing local water and sewerage services.³⁶ According to the German Water Management Act (*Wasserhaushaltsgesetz – WHG*), local authorities have powers with regard to the supply of drinking water, the monitoring of minor water bodies, and they can call on scientific experts to deal with local management issues. Local authorities are also accountable for operating and maintaining sewers and treating wastewater.³⁷ The Irish Local Authority Waters Programme (LAWPRO) provides a link between local authorities and national actors, mostly implementing RBMPs. The LAWPRO promotes both vertical and horizontal co-operation. It also provides for public participation, mitigation measure and scientific reports on the state of the

33 <https://www.eureau.org>.

34 <https://portal.cor.europa.eu/>.

35 <https://cor.europa.eu/en/>; <https://www.syke.fi/>. See, for instance, KETO and KOPONEN, “Earth Observation for the Arctic: The Tana River”, *Finnish Environment Institute* 39/2022, Syke, Helsinki, 2022.

36 <https://www.syke.fi/>; GRÖNROOS et al., “Drinking Water Analyses”, *Reports of the Finnish Environment Institute* 1/2023, Syke, Helsinki, 2023.

37 <https://cor.europa.eu/en/>; <https://www.bmu.de/>. See generally HELMECKE (ed.), *Water Resource Management in Germany: Fundamentals, pressures, measures*, Dessau-Roßlau, 2018; EMDE et al. (eds.), *National Water Strategy: Draft of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety*, Bonn, 2021; while for a qualitative assessment on water resources: SCHULTE and BLONDZIK (eds.), *Waters in Germany: Status and Assessment*, Dessau-Roßlau, 2017.

water.³⁸ The Norwegian system addresses national level participation through a “reference group” of national industrial stakeholders.³⁹ The National Water Plan can also be considered as a “multi-stage plan” in which a number of authorities have been involved. Specifically, the Regional Water Boards (RWBs) ensure the participation of private and public users in policy and decision-making processes. Committees are set up within the RWBs to work closely with private and collective representatives on water issues. The RWBs carry out tasks related to the implementation of national and regional regulations through the definition of specific action plans with the involvement of local authorities (proposals for the definition of management plans are submitted to local authorities prior to the approval by the Norwegian Environmental Protection Agency).⁴⁰ As far as organizational arrangements are concerned, local water areas ensure the participation of the various stakeholders through specific committees, and in some cases define operational institutional actors to mediate between local, regional and national actors. Local authorities are also accountable for services related to drinking water distribution, drainage, rainwater and remediation of contaminated sites, and for drawing up local management plans to implement regional and national laws.⁴¹ According to the Dutch management and participation system, although the management of water resources may be private, denationalization of drinking water services is prohibited by law, and the provinces carry out groundwater monitoring and impact analysis, coordinate public participation and, in some cases, own water companies.⁴² As far as UK water management is concerned, in England the Environment Agency harmonizes public participation and is accountable for the implementation of water legislation. In Scotland, at the sub-national

38 On LAWPRO: Local Authority Waters Programme, “Annual Report 2021”, available at <https://lawwaters.ie/>. See also UISCE ÉIREANN (Irish Water), *National Water Resources Plan – Framework Plan. Irish Water’s 25 Year Plan for Our Water Assets*, Dublin, 2021.

39 <https://cor.europa.eu/en/>.

40 <https://www.environmentagency.no>; <https://www.nve.no/english/>; <https://cor.europa.eu/en/>.

41 <https://cor.europa.eu/en/>. See generally BUGGE, *Environmental Law in Norway*, 4th ed., Alphen aan den Rijn, 2022; on transboundary issues: MCCAFFREY et al. (eds.), *Research Handbook on International Water Law*, Cheltenham, 2019.

42 <https://cor.europa.eu/en/>. In reference to International water management see <https://www.dutchwatersector.com>; regarding the management of major water basins and the sea: <https://www.rijkswaterstaat.nl/en/water>. About international cooperation through the Dutch Water Authorities, an international organization of the regional water authorities and their association (*Unie van Waterschappen*) aiming at providing expertise worldwide: <https://dutchwaterauthorities.com/>. See also BERGSMAN, *From Flood Safety to Spatial Management: Expert-Policy Interactions in Dutch and US Flood Governance*, Cham, 2019.

level, the 14 Local Plan Districts (LPDs) arrange local FRMPs and implement the RBMP. In Northern Ireland, the involvement of local authorities in water management is mainly achieved through the River Basin District Advisory Councils, mainly regarding the decision-making processes associated with the drafting of RBMP and FRMP.⁴³ The administrative tasks of the Swedish regions include the implementation of water resources legislation, monitoring, analyzing and evaluating groundwater and surface water, coordination activities, public participation, and the development of FRMPs. Local authorities carry out coordination activities, both vertically (regions) and horizontally (other local authorities).⁴⁴

In brief, although the abovementioned experiences appear rather heterogeneous, there are some converging elements, such as the predominant importance of the regional level for optimal resource management, in order to limit local fragmentation while recognizing and applying the proximity principle. Another crucial element is the balance between administrative division and rationality in the management of resources, since excessive fragmentation and/or disaggregation of decision-making poles would make it difficult to ensure the effectiveness and implementation of national policies.

4 ADR and Water Resources: Between Endogenous Claims and Quasi-Judicial Bodies

Participatory techniques and processes that ensure adequate involvement of local communities and civil society are phenomena considerably spreading within many legal systems.⁴⁵ Thus, local management and planning of adequate schemes for water resources foster optimal organizational benchmarks on water conservation as a common good.⁴⁶ According to these postulations, collective planning and alternative dispute resolution (ADR) both represent parts of the same device.

43 <https://cor.europa.eu/en/>.

44 <https://portal.cor.europa.eu/>.

45 UNITED NATIONS, DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS, *Participatory Dialogue: Towards a Stable, Just and Safe Society for All*, ST/ESA/310, New York, 2007 available at: <https://www.un.org/esa/socdev/publications/prtcprtry_dlg%28full_version%29.pdf>. DI GREGORIO, "Mediazione ambientale e democrazia partecipativa nel panorama comparato", in FUSCHI (ed.), *Liber Amicorum. Scritti in onore di Giovanni Cordini*, Naples, 2023, pp. 53–76.

46 LOUCKS and VAN BEEK, "Water Resources Planning and Management: An Overview", in ID. (eds.), *Water Resource System Planning and Management*, Cham, 2017, pp. 1–44.

The concept “environmental mediation” encompasses all those “negotiations carried out in the fields of environment and spatial planning, and are embedded in consensus-building perspectives, understood as structured problem-solving processes in which the parties involved discover each other’s interests, question previously accepted assumptions and develop strategies aimed at maximizing mutual gains”.⁴⁷ Moreover, “mediation” might be considered as a formalized approach to dispute resolution avoiding litigation before courts and tribunals.⁴⁸

As far as water conflicts are concerned, the dimensions and circumstances vary considerably. According to the Pacific Institute,⁴⁹ there are different kinds of water conflicts and disputes arising from a variety of issues. Within the international space, the first classification divides between armed or unarmed conflicts. The armed (or international) water conflict includes three different categories: 1) conflicts over the control of water resources as a “cause” (e.g. India/Pakistan); 2) disputes regarding water as a military or political “tool” (e.g. Israel/Palestine); 3) water as a military “target” (e.g. USA/Iraq).⁵⁰ Differently, national and local water-related conflicts are sometimes related to other phenomena, such as ethnic and inter-religious conflicts.⁵¹ This overlap often occurs in countries suffering water shortage, as in the case of the Darfur conflict or in the case of African Sahel where growing conflicts between pastoralists and farmers are recorded in the last twenty years (in this case, water resources are also insufficient due to climate change).⁵² At a regional level, conflicts

47 SUSSKIND, VAN DER WANSEM and CICCARELLI, “Mediating Land Use Disputes in the United States: Pros and Cons”, *Environments. Journal of Interdisciplinary Studies*, 2003, pp. 39–58.

48 KHURANA and SINGH, *A Textbook of Legal Studies for Class XII*, New Delhi, 2021, pp. 119–151; JOWELL and OLIVER, *The Changing Constitution*, Oxford, 2007, p. 319 and 2217; BLAKE, BROWNE and SIME, *A Practical Approach to Alternative Dispute Resolution*, Oxford, 2016, pp. 298–299; LORRAINE et al., “Mediation”, in ROVINE (ed.), *Contemporary Issues in International Arbitration and Mediation: The Fordham Papers 2014*, Leiden, p. 216.

49 GLEICK, ICELAND and TRIVEDI, *Ending Conflicts Over Water: Solutions to Water and Security Challenges*, Pacific Institute, September 2020. In <https://pacinst.org/wp-content/uploads/2020/09/Ending-Conflicts-Over-Water-Pacific-Institute-Sept-2020.pdf>. For an updated water conflict chronology at global level see also: <https://www.worldwater.org/conflict/list/>.

50 GLEICK, ICELAND and TRIVEDI, *cit. supra* note 49, pp. 11–12; see also GLEICK, “Water and Conflict: Fresh Water Resources and International Security”, *International Security*, 1993, pp. 79–112.

51 GLEICK, ICELAND and TRIVEDI, *cit. supra* note 49, p. 12.

52 Concerning the case of the Sudan-Darfur conflict and its connections with water scarcity in the region see the final report of the 2012–2018 African Development Bank Group (ADB) funded project named *Sudan-Darfur water for conflict resolution and peace*

may arise in reference to river basins, high-altitude glaciers or transboundary groundwater, with outcomes that require diplomatic intervention.⁵³ Examples are those regarding the Nile, Mekong, Jordan, Euphrates-Tigris, Syr Darya and Amu Darya basins, as well as the glaciers of the Karakorum between India, China and Nepal, and the Andes between Chile and Argentina.⁵⁴ Due to its morphological characteristics and the broad correspondence of the political borders with the natural watershed, this phenomenon has so far only marginally affected the Alpine chain.⁵⁵

In general terms, there are two basic tools for solving water conflicts: 1) exogenous mechanisms based on institutionalized judicial bodies, which often lead to misunderstandings and do not meet the requirements of effectiveness, pacification and immediacy in resolution; 2) endogenous mechanisms of participatory justice and mediation over water disputes, such as those having deep historical and socio-economic roots within communities.⁵⁶

In reference to issues arising between individuals, ADR (or its more innovative version of “Amicable Dispute Resolution”) could be considered a movement as well and, at the same time, a quasi-judicial phenomenon providing considerable impetus to the dissemination of forms of resolution that are “other” and even “unconventional” in reference to state jurisdiction. In the initial phase (from the late 1970s onwards), ADR developed mainly in the United States, and has also spread to England and to some European countries (in France, such instruments have been defined as *Modes Alternatifs de Reglement des Conflits*).⁵⁷ With regard to alternative methods of dispute resolution, this article briefly addresses four paradigmatic experiences: the *Tribunal de las Aguas* (Valencia), the *Sudovi za vodu* in the Balkans, and the French *Médiateur de l'eau*.

building available at: <<https://projectsportal.afdb.org/dataportal/VProject/show/P-SD-EA0-002#home>> and SMITH, *The Water Scarcity-Conflict Nexus: The Case of Darfur*, 2017, available at: <<https://core.ac.uk/download/pdf/188221553.pdf>>. Regarding the Sahel water conflicts see GLEICK, ICELAND and TRIVEDI, *cit. supra* note 49, pp. 77–86.

53 VARADY et al., “Transboundary Water Governance Scholarship: A Critical Review”, *Environments*, 2023, pp. 1–27; GLEICK, *cit. supra* note 50, p. 82.

54 GLEICK, ICELAND and TRIVEDI, *cit. supra* note 49, pp. 37–65, pp. 87–95.

55 LOUVIN, *cit. supra* note 25, p. 75.

56 *Ibid.*, pp. 15–54 and 91–100.

57 TINDAL and BATES, “Brief history of the development of ADR in Canada and the United States”, in KURTZ (ed.), *Encyclopedia of Violence, Peace & Conflict*, 2nd ed., New York, 2008, pp. 2241–2244; MENKEL-MEADOW, “Mediation, Arbitration and Alternative Dispute Resolution (ADR)”, in SMELSER and BALTES (eds.), *International Encyclopedia of the Social & Behavioral Sciences*, Oxford, 2015, pp. 9507–9512; BAILEY, “ADR a Comparative Study in Common Law Jurisdiction – How Does North America Compare with the Rest of the World”, *Revista Derecho & Sociedad*, 2020, pp. 223–232; LOUVIN, *cit. supra* note 25, p. 97.

The *Tribunal de las Aguas* of Valencia is essential for understanding the functioning of an endogenous system of water justice administration in reference to *acequias* (deriving from the Arabic *as-sāqiya*, a traditional and communal masonry irrigation canals). This institution directly derives from ancestral organizations and customary law, and then developed into an organized and official body.⁵⁸ The centuries-long institutionalization of the Valencian system led to the creation of various irrigation canals (*acequias de la huerta*) for separate *comunidades de regantes* governed by *cequiers* (today called *sindicós*). In the historical *regadío*, the farmers and the consortium bear the costs for the administration and maintenance of the canals, while administration is based on participatory local bodies with strong coercive powers.⁵⁹ The initial model suffered from the crisis caused by the expulsion of the *moriscos* (1609–1614), but it managed to remain active till nowadays.⁶⁰ The autonomy of the *regantes* (i.e. users of water for irrigation purposes) is the result of democratic adoption of management rules and the election of the governing bodies, administering justice through the *Tribunal de las Aguas*, based on the guiding principles of orality, concentration, rapidity and economy.⁶¹ The *Tribunal de las Aguas* is an “organic and social” judicial body in the form of a jury appointed to assert on water conflicts; magistrates are not professional but selected amongst the *regantes* because of their authority and competence. One of the main features of this body regards decisions, considering they are immediately and spontaneously implemented (and only eventually legally enforced).⁶² Currently, the Spanish legal system has formally integrated this *sui generis* judicial system through the *Ley de Aguas*, which states that the jury is responsible for judging the conflicts that arise between the users of the community within the framework of the ordinances and for applying the regulatory sanctions to offenders, as well as for fixing the compensation that may result from the infringement.⁶³

Another interesting and relevant example is that of the *Sudovi za vodu* (Water Courts) within the Balkan area. The *Sudovi za vodu* is a non-institutionalised system of conflict management and resolution, based on a communal and customary dimension. Although the origin of this participatory management

58 GLICK, *Regadío y sociedad en la Valencia medieval*, Valencia, 1988; ID, *Irrigation and Society in medieval Valencia*, Cambridge, 1970; GINER, NAVARRO and TARÍN LÓPEZ, *El Tribunal de las Aguas de Valencia*, Valencia, 2002; LOUVIN, *cit. supra* note 25, pp. 92–94.

59 LOUVIN, *cit. supra* note 25, p. 93.

60 GINER, NAVARRO and TARÍN LÓPEZ, *cit. supra* note 58; LOUVIN, *cit. supra* note 25, p. 94.

61 LOUVIN, *cit. supra* note 25, p. 94.

62 *Ibid.*, p. 93; GLICK, *cit. supra* note 58, p. 113.

63 TrLag, Article 84, c. 6.

and water dispute resolution model is traced back to the 17th century, recently it has once again implemented.⁶⁴ The *Sudovi za vodu* functioning is based on three actors directly elected by the community (at least 24 years old, who are landowners, merchants and farmers) from a list of eligible individuals reviewed periodically by the community (towns or villages with at least 1,500 inhabitants). In detail, the three subjects are the “water wise man” (*mudrac za vode*), the “water mediator” (*posrednik za vodu*) and the “water judge” (*sudija za vodu*).⁶⁵ The work of the sage and the technical decisions are often the result of mediation and dialogue between different communities that nonetheless refer to the same water resource. In other words, the sage has to mediate between different communities in order to sustainably manage water, which is jointly used by different populations and groups and mainly performs two functions. The first one is related to the management, since he intervenes to mediate different interests and positions within two or more communities insisting on the same water resource (and cannot agree on the technical solutions to be adopted, or on how to share obligations). The second function is of a preliminary nature: the water judge is the system’s supreme local authority that mediates only if the mediator’s action is unsuccessful. Rulings are oral, immediately enforceable and cannot be referred to a higher

64 SMILOVIĆ and ADIĆ, *Sudovi za vodu na Balkanu: nove ideje i stari modeli za zaštitu i pravedno upravljanje vodama i okolišem*. Sarajevo, 2019. It is interesting to note that the Water Authority of the Ministry of Agriculture, Forestry and Water Management of the Federal Government Bosnia and Herzegovina, which is responsible for implementing the provisions of the Law on Waters (Official Gazette of RS No. 50/06, 92/09, 121/12) even if it did not recognize any legal validity to the ADR system described above, adopted a decision on April 2023, according to which “water wise men”, “water mediators” and “water judges” can be regularly heard by the Water Authority itself about ongoing and closed mediations of the *Sudovi za vodu* system. This innovation approach should be effective, according to the decision, through a regular three-months hearing. Moreover, the decision states that these subjects are entitled to be called as experts and consultants by prosecutors and judges on trials related to the misuse of water resources or during controversies among private subjects on the use of water resources. See the Decision 22/2022 of the Federal Minister published in the Official Gazette of FBiH no. 223/23, which amended Articles 44 and 45(2) of the Law on Waters of FBiH, Official Gazette of FB iH no. 70/06 and Article 54(3) of the Act Law on Waters of RS- Official Gazette of RS no. 50/06 and 92/09, 121/12. It is also notable that, due to the complex and often overlapping competence related and policy making system of BiH, which foresees the co-existence of the Federal level of government with that of the three entities (Republika Srpska, Croatian and Muslim Confederation) and the cantonal one, as provided by the Dayton Agreements in 1995, the Republika Srpska entity did not accept and does not apply this provision, which effect, is, thus, limited only to the Croatian and Muslim entities of the BiH Federation.

65 *Ibid.*, pp. 45–47.

court or tribunal for review.⁶⁶ During centuries, this endogenous system of ADR has been neglected due to the formation of the Balkan nation-states between 1880 and 1918, and was definitely abandoned in the years following the First World War.⁶⁷ In recent times, however, especially in some rural areas of Western Herzegovina and Macedonia, the system seems to have found new life again, having spread to the area around the cities of Mostar and Strumica, where approx. 20,000 people are contributing since 2016 to the definition of lists and the periodic elections (every two years).⁶⁸ Unlike the case of the *Tribunal de las Aguas*, there is, however, a lack of formal institutionalization or legal recognition of the model by the Bosnian or Macedonian authorities: it remains an informally functioning system that has filled a gap between individuals, communities and public administration on water issues.⁶⁹

Different from the aforementioned experiences, the French *Médiateur de l'eau* does not represent a proper endogenous ADR, nor an alternative model of community quasi-judicial body, but rather “one of the many forms of cooling and preventing disputes between users and the public administration (or private managers of a public service)” in contemporary European societies.⁷⁰ Briefly, the French legal system, through the recognition of this body, aimed at providing citizens with a new tool capable to solve water disputes without forcing the intervention of courts and tribunals. Specifically, the role of the *Médiateur de l'eau* primarily regard conflicts arising between users and management authorities regarding the performance of water services.⁷¹ The functions performed by the *Médiateur de l'eau* are now conducted under the Consumer Code and follow more specifically the principles established through the *Charte des Médiateurs de Services au Public*.⁷² Specifically, before turning to the ombudsman, a written complaint must be submitted to the managing authority, which has two months to propose a solution. In case of

66 *Ibid.*, p. 66 ff.

67 *Ibid.*, pp. 69–78.

68 *Ibid.*, p. 90 ff.

69 SMILOVIĆ and ADIĆ, *cit. supra* note 64, p. 115. Authors also mention another endogenous model of water conflict management within Lappish communities of Finland: an unstructured ADR, through which village/community leaders affected by a possible dispute between two or more farmers over the use of water resources meet to define a compromise acceptable to all parties involved. The system operates on a customary and oral basis. The terms of the agreements reached by parties are orally conveyed to all members of the communities involved in the dispute, are binding in all their parts, and immediately enforceable.

70 LOUVIN, *cit. supra* note 25, p. 97.

71 *Ibid.*, p. 98.

72 *Ibid.*, p. 97 ff.

rejection by the petitioner, the Ombudsman can be involved in the ADR. The appeal is free of charge and the *Médiateur de l'eau* has three months from the receipt of the petition by the consumer to provide its opinion. At this stage of the procedure, the consumer and the water service provider may accept or reject the mediator's proposal. If the dispute cannot be resolved, subjects might file a petition to the court, so the opinion is only binding if all parties to the dispute accept it.⁷³ In brief, the French ADR appears to be neither a judicial mechanism nor an endogenous one to communities, but rather an institutionalized and formal pre-judicial mechanism aimed at reducing the weight and number of water cases pending before tribunals.

5 Conclusion

There is still no EU-wide strategy for implementing the Water Framework Directive (WFD),⁷⁴ which is often not correctly applied or enforced through effective cost-recovery structures. Therefore, WFD's scheme seems to be based on the sustainability analysis carried out by the EU Member States, assessing the economic convenience of the measure (cost-benefit balance), but also the financial sustainability, thus sharing the costs equally amongst actors and sectors in general. To this end, there is room for outlining a possible assessment of "disproportionality" if the costs exceed the benefits, by means of clear and reliable data.⁷⁵ However, considering the assessment of the economic and financial sustainability as an outcome of the analysis based on environmental and economic strategies, cooperation agreements and the introduction of PES might tackle pollution and promote sound water management.⁷⁶

⁷³ *Ibid.*, p. 98.

⁷⁴ Water Directors and Strategic Coordination Group are addressing WFD-related economic issues for a better implementation of Article 9 of the Directive, especially regarding cost recovery, the polluter pays principle, efficient water use, and the investments for achieving the WFD and FD objectives). See the "Common Implementation Strategy: EU Water Law, Work Programme 2022–2024" available at: https://www.minzp.sk/files/sekcia-vod/spolocna-implementationacna-strategia-2022-2024_eng.pdf.

⁷⁵ New diagnostic tools are emerging: based on existing WFD monitoring data, they also include new statistical approaches to determine the cause of deterioration, with the aim of providing solutions for decisions that suit the specific needs of river basins: CARVALHO et al., "Protecting and Restoring Europe's Waters: An Analysis of the Future Development Needs of the Water Framework Directive", *Science of the Total Environment*, 2019, pp. 1228–1238.

⁷⁶ EEA, *Assessment of Cost Recovery through Water Pricing*, Technical report 16/2013, 6.2.3 'Most promising options for the EU context'.

In addition to the already-mentioned phenomenon of overlapping participation, the spread of the multi-level approach nurtures the making and implementation of participatory forums and techniques to facilitate transparency in decision-making (through participatory and deliberative planning). These phenomena, also highlighted in the Baird and Plummer's model, embraces a series of elements such as inclusive participation, polycentric and decentralized governance systems, the aptitude for self-regulation, adaptation and flexibility (the latter also in terms of institutional design), and the application of the precautionary principle in risk management.

In reference to water-related disputes, the dissemination of ADR techniques has affected various spaces, falling within the set of participatory practices that have contributed to extending the lexical range of the term "participation".⁷⁷ Regarding environmental mediation (under a specific focus on water resources), currently there are "multiple hybrid strategies" based on different techniques and approaches for negotiated and assisted dispute resolution.⁷⁸ A proper appraisal on the opportunities offered by environmental ADR techniques also fosters the need of assessing the extent of the general interest and the effective protection of the environment, far from a mere "compromise between the parties". Indeed, under these circumstances the environment may ultimately prove to be "le parent pauvre de la médiation".⁷⁹ Environmental and general interest can easily conflict with individual ones, although they should be secured *ex se* from the negative externalities of the ADR. In other words, environmental protection should be clearly recognized *a priori* and constrain the autonomy of parties involved in the ADR.⁸⁰ Therefore, in order of respecting general and ecosystems' interests, as well as needs and values associated with environmental conservation and the defense of the rights of future generations, ADR mechanisms should be implemented through a wide participation scheme in terms of subjects (both public and private) involved in the procedures.⁸¹

77 UNITED NATIONS, DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS, *cit. supra* note 45.

78 HOFFMAN and VENTRESCA (eds.), *Organizations, Policy, and the Natural Environment: Institutional and Strategic Perspectives*, Stanford, 2022.

79 BONAFE-SCHMITT, "Editorial", *La Lettre des médiations*, 2020, p. 1; BEN-MRAD, "Les médiations à l'épreuve des problématiques environnementales", *La Lettre des médiations*, 2020, p. 28.

80 LOUVIN, *cit. supra* note 25, p. 91 ff.

81 *Ibid.* See also BILLET, *L'animal, prétexte d'une analyse renouvelée des relations juridiques entre l'homme et l'environnement*, 2019, pp. 695–704; AMIRANTE and BAGNI, *cit. supra* note 26; MORIZOT, *Les Diplomates: Cohabiter avec les loups sur une nouvelle carte du vivant*, Marseille, 2017.

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