COMPARING ENVIRONMENTAL LAW SYSTEMS

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This article revisits the overlooked field of comparative environmental law. It examines contributions to this field from the late 1960s to 2022, highlighting the methodologies proposed, their shortcomings, the main aspects and angles taken by the literature, and the curious lack of engagement by experts in comparative law proper with environmental law systems. On the basis of a structured examination of the literature, the article extracts four main aims or purposes that may guide this line of research: (i) clarifying the initial system by contrasting it with a foreign system, (ii) using the basic conceptual features of a known system to analyse and understand a foreign unknown system, (iii) evaluating and fine-tuning a system or an aspect thereof, and (iv) extracting analytical categories that can serve to map the entire field or areas of it.

I. OVERVIEW

The first attempts at developing a comparative analysis of environmental laws and policies are almost as old (or recent) as environmental laws and policies themselves. One can situate, without too much risk of inaccuracy, the origins of this endeavour half a century ago, around the late 1960s and the early 1970s. Notably, such comparison was not attempted by scholars specialised in comparative law as a discipline, but by those who were interested in the substance of environmental law and policy, increasingly called 'environmental lawyers'.

Half a century has elapsed, and this situation has barely changed. Major accounts of comparative law still pay limited attention, if any, to environmental law and policy.[1] From this perspective, this article is in part an invitation for

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1 Marginal references are made to it in R. David et al, *International Encyclopaedia of Comparative Law* (Paris/Tübingen: Mouton/J.C.B. Mohr, 1971ff), vol. 1-17, followed by instalments 18 to 42 (with some instalment gaps), edited by K. Zweigert and K. Drobnig. Environmental law is also omitted from the following more recent works: J. M. Smits (ed.), *Elgar Encyclopaedia of Comparative Law* (Cheltenham: Edward Elgar, 2nd edn. 2014); M. Reimann, R. Zimmermann (eds.), *The Oxford Handbook of Comparative*

comparative lawyers to bring their long and mature reflection on the methodology of comparing legal systems to bear on this complex and to some extent undefined area of law. It would be speculative, and probably uninteresting, to offer reasons why comparative lawyers have largely overlooked the subject, but this gap has consequences. A first consequence is that the methodologies developed for the comparative study of environmental laws and policies have been largely 'un-disciplined' – in the positive meaning of the word – and therefore given rise to conceptual categories such as that of 'transnational'[2] or 'global law'.[3] In the large majority of cases, there is no attempt to root such methodologies in the standard schools of comparative law methods.[4] A second consequence is that, to the extent that comparative environmental law has been examined in the literature, it has been so mainly within the circle of environmental lawyers. This is perhaps because part of the barrier to entry is precisely the perception of those external to the field that environmental law is a moving target or a field without a clear perimeter. This is a genuine problem, which transpires even in how environmental lawyers themselves approach the object of comparative analysis.

Among the work of environmental lawyers which does attempt to provide some comparative analysis, one finds indeed at least three broad categories. First, a large number of environmental law studies, whether on domestic, transnational or international legal matters, contain some occasional or in passing references to other legal systems or approaches.[5] Second, there is a strand of work which focuses specifically on the social and political dimensions of risk regulation, with a general vocation.[6] In most cases, although the scope of the work is of general relevance, in truth the analysis is based on an extrapolation of a single legal system, typically from the Anglo-American tradition. For all the value of these contributions, with some notable exceptions discussed later, genuine comparative legal analysis remains implicit or ancillary. Third, a rarer body of contributions have made the comparison of environmental laws and policies their specific object.[7] The number

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Law (Oxford University Press, 2nd edn. 2019); M. Bussani, U. Mattei (eds.), *Cambridge Companion to Comparative Law* (Cambridge University Press, 2012).

2 For a survey of the field see V. Heyvaert, L.-A. Duvic-Paoli (eds.), *Research Handbook on Transnational Environmental Law* (Cheltenham : Edward Elgar, 2020). This analytical lens has its own dedicated journal, *Transnational Environmental Law*, which publishes a variety of contributions, including – but not limited to – articles relying on this specific theoretical approach.

3 See e.g. E. Morgera, 'Global Environmental Law and Comparative Legal Methods' (2015) 24 *Special Issue: Review of European, Comparative Environmental Law* 254 [Morgera, *Global Environmental Law*], proposing the lenses of 'global environmental law'.

4 An exception is J. Darpö, A. Nilsson, 'On the Comparison of Environmental Law' (2010) 3 *Journal of Court Innovation* 315, who discuss the functionalist school as well as some of its shortcomings.

5 The literature to be reviewed in this regard would include a vast number of environmental law studies which contain brief comparative references. When such references are substantial enough to consider the work as one of comparative law, such studies are specifically addressed in this examination.

6 See e.g. S. Jasanoff, *The Fifth Branch: Science Advisers as Policymakers* (Cambridge, MA: Harvard University Press, 1990); S. Jasanoff, *Science at the Bar: Law, Science, and Technology in America* (Cambridge, MA: Harvard University Press, 1995); E. Fisher, *Risk Regulation and Administrative Constitutionalism* (Oxford: Hart Publishing 2007); R. Macrory, *Regulation, Enforcement and Governance in Environmental Law* (Oxford: Hart Publishing 2nd edn 2014) (collection of previous articles and contributions)

7 This body of works dates back, for the most part – but not exclusively – to the 1970s and early 1980s. See M. Parks, 'Commentary' [comparative study of reports], in Woodrow Wilson International Centre for

of studies focusing on comparative environmental law as such is rare enough to attempt an overall examination, in the form of a structured review essay. This is why this article aims to provide.

This examination of the field does not cover all relevant works, as the boundaries between the first, second and third categories are not always clear and several considerations other than relevance, such as language (the bulk of the works reviewed are in English), are significant limiting factors. Yet, it endeavours to bring together a substantial part of the work in this field since the 1970s, in the hope that it may steer further interest, at a time when the importance of environmental law cannot be overstated. The works covered in this article represent, in my view, the core body of work on comparative environmental law that scholars interested in the subject, whether their background is environmental law or some other sub-discipline of legal studies, can rely on to expand the boundaries of the subject. Given the unsettled perimeter of environmental law as a field, the focus may come across as narrow to some, particularly to those who see comparison as part of a much wider set of contributions where comparison is not the specific focus on the work. Yet, I have endeavoured to include references to that much wider body of work, when comparison is a significant dimension of it. That being said, one of the reasons for the examination conducted in this article is to set a working perimeter

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Scholars (ed.), *The Human Environment, Vol II: Summary of National Reports submitted in preparation of the United Nations Conference on the Human Environment* (Washington D.C., 1972), 103–9; P. Sand, *Legal Systems for Environmental Protection: Japan, Sweden, United States* (Rome: FAO, 1972); N. Geigel Lope-Bello, *Cuatro Estudios de Casos sobre Protección Ambiental: Inglaterra, Suecia, Francia, Estados Unidos* (Caracas: Fondo Editorial Común, 1973); J. C. Juergensmeyer, *Comparative Materials of Land, Natural Resources and Environmental Law* (Gainesville: University of Florida, 1973); G. Amendola, *La normativa ambientale nei paesi della Comunità Europea* (Milano: Giuffré, 1975); R. E. Lutz, 'An Essay on Harmonizing National Environmental Laws and Policies' (1975) 1 *Environmental Policy and Law* 132; R. E. Lutz, 'Harmonizing National Environmental Laws and Policies (Part II)' (1976) 1 *Environmental Policy and Law* 162; J. Nowak (ed.), *Environmental law: International and Comparative Aspects. A Symposium. Papers presented at the Conference on International Environmental Law held in London on September 1–3, 1975* (London: BIICL, 1976); J. McLoughlin (ed.), *The Law and Practice Relating to Pollution Control in the Member States of the European Communities* (London: Graham & Trotman, 1976), vols. 1–9; a symposium which brought comparative environmental law within the radar of the *American Journal of Comparative Law*, including two contributions on foreign law (by E. Rehbinder and S. Bufford) and a wide-ranging comparative study, R. E. Lutz, 'The Laws of Environmental Management: A Comparative Study' (1976) 24 *American Journal of Comparative Law* 447 [Lutz, *Laws of Environmental Management*]; S. Ercman (ed.), *European Environmental Law: Legal and Economic Appraisal* (Bern: Bubenberg-Verlag, 1977); A. C. Gross and N. E. Scott. 'Comparative Environmental Legislation and Action' (1980) 29 *International and Comparative Law Quarterly* 619; M. Prieur (ed.), *Forêts et environnement en droit comparé et international* (Paris: PUF, 1984); M. Prieur (ed.), *Sites contaminés en droit comparé de l'environnement* (Limoges: PULIM, 1995); and a dossier coordinated by M. Hauterau-Boutonnet and E. Truilhe-Marengo for the *Revue juridique de l'environnement* (vol. 40(2), 2015, pp. 211-256) on 'Regards thématiques sur le droit comparé de l'environnement' (with detailed bibliographic references to key studies on the domestic environmental laws of different jurisdictions). There are also two comprehensive works. One is a loose-leaf compilation of studies on the environmental laws of over 60 countries and jurisdictions: E. Burleson, L. H. Lye, and N. Robinson (eds.), *Comparative Environmental Law and Regulation* (West Law, 2011–17), vols. I–III. The other is the more recent effort to provide a systematic overview of the field as a foundation for further study: E. Lees, J. E. Viñuales (eds.), *The Oxford Handbook of Comparative Environmental Law* (Oxford University Press, 2019) [Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law*]. For a detailed survey of the literature see J. E. Viñuales, 'Comparative Environmental Law: Structuring a Field', in E. Lees and J. E. Viñuales (eds.), *The Oxford Handbook of Comparative Environmental Law* (Oxford University Press, 2019), pp. 3-34 [Viñuales, *Comparative Environmental Law*], at 5-7 and 17-23.

not for environmental law as a field but for what can be specifically considered core work on 'comparative environmental law'.

More specifically, my purpose in conducting this examination is three-fold. First, I would like to pay tribute to a handful of visionary scholars who already in the 1970s foresaw the need to compare approaches to tackle the growing challenges arising from environmental degradation. I should single out the names of Robert Lutz, Nick Robinson, Peter Sand and Dan Tarlock, who, as we shall see, proposed early on analytical grids for a comparative study of environmental law and/or specific studies of the systems that appeared as the most developed at the time. Second, a sufficient understanding of the range of approaches developed to respond to environmental challenges has never been as pressing as it is today. There have been suggestions, grounded in solid scientific work,[8] that the 2020-2030 decade is humanity's main window of opportunity to tackle environmental challenges with cascading repercussions for the planet, mainly climate change and ecosystems collapse. Understanding the overall social technology that humans have developed to organise, guide and govern efforts to combat environmental degradation is urgent, and comparative analysis seems a particularly promising technique to improve its effectiveness. Thirdly, our understanding of such technology, with its strengths and limitations, is only starting. Indeed, most of the analytical approaches proposed to undertake a comparative analysis of environmental law systems have remained at the level of proposal, i.e. they have not been effectively used to examine the entire field. Conceptual sophistication may well have turned into self-restraint, and clever critique into inaction, although, fortunately, not in every case.

In the following sections, I briefly review what the reader of this article can expect to find in the literature on comparative environmental law and explain some of the basic choices underpinning the organisation of the material (II). I then examine some of the most important contributions to the field of comparative environmental law (III), before taking a broader look at what may be the purposes of a comparative analysis of environmental law systems (IV). A brief word, before embarking on the analysis, on the expression 'environmental law systems'. I use it as synonymous of 'environmental laws and policies' of a given jurisdiction or other purely descriptive categories. The term 'system' is therefore non-technical. I do not claim that the environmental laws and policies of, say, the United Kingdom, Japan, South Africa or Brazil has any specific coherence or systematicity. It is a merely descriptive reference, although I acknowledge that part of the difficulties of comparing environmental law systems begin, as noted earlier, with the need to set a perimeter disentangling what is relevant from what is not.

II. THE STRUCTURE OF THE EXAMINATION

This article is based on a five-year research project aimed at identifying the main strands of past contributions, developing an analytical cartography and effectively applying it to the analysis of sixteen jurisdictions from all continents, ten commonly

[8] See D. I. Armstrong Mckay et al, 'Exceeding 1.5°C global warming could trigger multiple climate tipping points' (2022) 377 *Science* 1171.

faced issues (e.g. air pollution, water management, nature conservation, energy and climate change, waste, chemicals, etc.), eighteen infrastructural components (e.g. principles, regulatory organisation, property rights, etc.) and policy intervention techniques (e.g. environmental impact assessment techniques, environmental taxes, trading schemes, etc.), and five types of interactions with the wider body of domestic and international law (public, private and criminal law, and private and public international law).[9]

This substantial collective research effort revealed the pervasiveness, in environmental law research, of brief or marginal references to a range of 'others' (other domestic systems, international law, transnational approaches, 'global' approaches) – what I referred to in the introduction as the first category of studies – but also the scarcity of research specifically focussing on comparative analysis. Within the latter, attempts at general or comprehensive comparison are even rarer, likely because of the great obstacles (practical, e.g. language, and intellectual, e.g. knowledge of different traditions) involved in focussing on broader aspects. In those cases where such broader aspects have been analysed, the testing grounds have been nevertheless selective – what I referred to in the introduction as the second category of studies on risk regulation.

This may well be an unavoidable fact of comparative environmental law analysis, as the objects being compared are, for now, too numerous. The field is still at the early stages in which comparable constructs have not yet been distilled from the daunting diversity of reality. This is also what the above research project sought to provide, i.e. more manageable constructs capable of facilitating – without excessive distortion – a more detailed and deeper comparison. And this article discusses much of the literature – specifically on comparative environmental law and focussing on broader aspects – on which the research project relied, as a way of paying tribute to forerunners, and steer interest in and encourage further research on overcoming the limitations of the conceptual platform developed through our research project.

III. MAIN CONTRIBUTIONS

A. Foundational and methodological contributions

The analysis begins with a focus on foundational and methodological contributions. Given their birth beyond the circles of comparative law proper, the methodologies and approaches proposed are less coded and, indeed, less concerned with methodological debates. Unlike comparative lawyers, environmental lawyers do not see the question of methods and methodologies as existential,[10] hence the greater freedom – at its own perils of course – of this body of work. With these caveats in mind, a dozen or so contributions, spanning some fifty years of scholarship, address foundational and methodological matters.

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[9] For an explanation of this methodology see Viñuales, *Comparative Environmental Law*.

[10] See M. Reimann, 'The Progress and Failure of Comparative Law in the Second Half of the Twentieth Century' (2002) 50 *American Journal of Comparative Law* 671, at 683 (surveying the position of different scholars on this debate).

The most remarkable early contribution for the scope of the research effort remains the long, detailed and rarely cited article by Robert E. Lutz in the *American Journal of Comparative Law*.[11] This study was preceded by what could be seen as narrower preparatory 'sketches'.[12] If one is concerned with the doctrinal aspects examined in it, it is clearly outdated. But if one is in search of the 'architecture' or 'ontology' underpinning the organisation of environmental law systems at their inception, this contribution remains central, whether as a detailed snapshot of the approach at the time of publication or as a description of the lower sedimentary layers upon which our current systems still rest.

Aside from Lutz's study, all the other contributions have remained at the level of a theoretical proposal, with only three exceptions: Peter Sand's early comparative study of three systems;[13] Nick Robinson's analytical grid of how to approach the study of comparative environmental law,[14] which stems from an earlier project and led to a massive collection of country studies;[15] and the *Oxford Handbook of Comparative Environmental Law* edited by Emma Lees and Jorge Viñuales.[16] In all other studies, the plan was announced but the *passage à l'acte*, the actual application of the methodology to the data to extract insights from the comparison, did not or has not materialise(d). This observation must be nuanced, however. The first nuance concerns the development of several issue-specific comparative methodologies. One example is Swedlow et al's theorising of comparative nested analysis of representative case studies of risk regulation.[17] Another is Lees and Pedersen's methodology to conceptualise environmental adjudication.[18] In these and other cases, the methodology is effectively applied to the analysis of the topic, but there is no attempt, by design, to guide comparative analysis of the entire field. As for the second nuance, it is simply that the lack of application should in no way detract from the perspectives opened by these contributions.

Most notably, the contribution by Tarlock and Tarak, written in the early 1980s, reflects how much expectation was placed in the move from 'regulation' to 'market mechanisms' in the early days of environmental law.[19] That of Affolder,

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11 R. E. Lutz, 'The Laws of Environmental Management: A Comparative Study' (1976) 24 *American Journal of Comparative Law* 447.

12 R. E. Lutz, 'An Essay on Harmonizing National Environmental Laws and Policies' (1975) 1 *Environmental Policy and Law* 132; R. E. Lutz, 'Harmonizing National Environmental Laws and Policies (Part II)', (1975) 1 *Environmental Policy and Law* 162.

13 P. H. Sands, 'Legal Systems for Environment Protection: Japan, Sweden, United States', *Food and Agriculture of the United Nations* (1972) 1–60.

14 N. A. Robinson, 'Comparative Environmental Law: Evaluating How Legal Systems Address "Sustainable Development"' (1997) 27 *Environmental Policy and Law* 338.

15 E. Burleson, L. H. Lye, and N. Robinson (eds.), *Comparative Environmental Law and Regulation* (West Law, 2011–17), vols. I–III. The idea of this project was launched by Robinson in the early 1970s and received initial completion in 1996. The 1996 collection of country studies has been continued and extended by Robinson, Burleson and Lye through a loose-leaf collection which is regularly updated.

16 Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law.*

17 B. Swedlow et al, 'Theorizing and Generalizing about Risk Assessment and Regulation through Comparative Nested Analysis of Representative Cases' (2009) 31 *Law & Policy* 236.

18 E. Lees, O. Pedersen, *Environmental Adjudication* (Oxford : Hart Publishing, 2022) [Lees/Pedersen, *Environmental Adjudication*].

19 D. Tarlock, P. Tarak, 'An Overview of Comparative Environmental Law' (1983) 13 *Denver Journal of International Law and Policy* 85.

briefly illustrated by a discussion of the diffusion of environmental impact assessments, fleshes out much of what is implicit – and far from innocuous – in narratives about diffusion.[20] That of Morgera proposes the perspective of 'global law', applied to environmental law, as a possible methodological vantage point.[21] One can agree that the nation-based perspective has shaped the analytical perspectives and driven the 'international' and 'national' (and comparative) perspective. The 'global law' perspective is a useful attempt to abandon this Nation-State-based coding and ontology to encompass more phenomena (e.g. transnational environmental governance, aboriginal laws, etc) and more interactions. Yet, the organisation of legal authority remains anchored in territorial units, mainly States and, exceptionally, supranational organisations such as the European Union. This 'institutional fact', to use the terminology of philosopher J. Searle,[22] cannot simply be ignored, which places serious constraints on any attempts at conceptually 'overcoming' the limitations of Nation-State-centred accounts in comparative law analysis.

B. Topical aspects

1. General observations

Beyond these studies on the foundations and methodologies of comparative environmental law, a larger number of contributions focus on what I call, for mere convenience, 'topical aspects'. These contributions are closer to the first and second categories of work referred to in the introduction, in that they concentrate on certain specific issues. However, they are addressed in this examination for their significant, and sometimes highly sophisticated, treatment of the comparative dimension.

Importantly, in order to compare, these contributions generally craft a 'comparable' construct, which varies greatly in scope (from something as general as 'constitutionalism'[23] or the management of 'scientific uncertainty'[24] to

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20 N. Affolder, 'Contagious Environmental Lawmaking' (2019) 31 *Journal of Environmental Law* 187 [Affolder, *Contagious Environmental Lawmaking*]

21 See Morgera, *Global Environmental Law.*

22 J. Searle, *Making the Social World* (Oxford University Press, 2011), chapter 1.

23 See J. R. May, E. Daly, *Global Environmental Constitutionalism* (Cambridge University Press, 2014); R. O'Gorman, 'Environmental Constitutionalism: A Comparative Study' (2017) 6 *Transnational Environmental Law* 435; O. Pedersen, 'Environmental Law and Constitutional and Public Law', in Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law* pp. 173-190.

24 See Huanghong Li et al., 'Comparing Environmental Risk Regulations in China and the United States' (2022) 42 *Risk Analysis* 730 [Li et al, *Comparing Environmental Risk Regulation*]; E. Fisher, 'Sciences, Environmental Laws and Legal Cultures: Fostering Collective Epistemic Responsibilities', in Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law* pp. 749-768; J. Wiener et al (eds.), *The Reality of Precaution: Comparing Risk Regulation in the United States and Europe* (London: Routledge, 2011) [Wiener et al, *The Reality of Precaution*]; J. Jones, 'Regulatory Design for Scientific Uncertainty: Acknowledging the Diversity of Approaches in Environmental Regulation and Public Administration' (2007) 19 *Journal of Environmental Law* 347; J. Hammitt et al, 'Precautionary Regulation in Europe and the United States: A Quantitative Comparison' (2005) 25 *Risk Analysis* 1215-1228 [Hammit et al, *Precautionary Regulation*]; M. Eliantonio, E. Lees, T. Paloniitty (eds.), *EU environmental principles and scientific uncertainty before national courts : the case of the Habitats Directive* (London: Hart Publishing, 2022)

something as specific as 'environmental impact assessment'[25] or 'oversight bodies'[26]) and angle (e.g. 'political systems',[27] 'regulatory organisation',[28] 'property rights',[29] scientific-policy interfaces, courts,[30] liability,[31] planning[32]). No 'meta' cartography capable of placing these 'sub-sets' within a broader 'set' (or series thereof) is offered. But this work provides, and it has effectively provided, an important foundation for the development of such a cartography in the more recent work.[33]

The main consideration in structuring such studies – and the broader cartography – is the identification/construction of comparable constructs or concepts. 'Topical' constructs, to use a broad heading, can be contrasted with other types of constructs. In comparative law, the most frequent construct used has been the 'national' or 'jurisdictional' one. Environmental lawyers have kept this broad focus overall. This is not an arbitrary decision because, as noted earlier, the organisation of legal authority remains structured around States, with the main exception of the EU legal order, which relies nevertheless on States for implementation. Jurisdiction or State-based constructs are therefore important, even pivotal. Yet, they also have limitations, including the tendency to confine comparison to a similar 'chapter structure' in what are otherwise summaries of domestic legal systems, or the marginalisation of important phenomena such as transnational networks, private self-regulation, aboriginal law, among others. 'Geographical' constructs are a variation of national constructs of particular relevance when there is a certain level of real integration or harmonisation, such as in EU law.

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25 See N. Craik, 'The Assessment of Environmental Impact', in Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law* pp. 876-899; N. A. Robinson, 'International Trends in Environmental Impact Assessment' (1992) 19 *Boston College Environmental Affairs Law Review* 591 [Robinson, *International Trends*]

26 See J. Wiener, 'Comparing Regulatory Oversight Bodies: The US Office of Information and Regulatory Affairs and the EU Regulatory Scrutiny Board', in S. Rose-Ackerman, P. Lindseth, B. Emersion (eds.), *Comparative Administrative Law* (Cheltenham: Edward Elgar, 2nd edn 2017), pp. 333-351.

27 See S. Graben, E. Biber, 'Presidents, Parliaments and Legal Change: Quantifying the Effects of Political Systems in Comparative Environmental Law' (2017) 35 *Virginia Environmental Law Journal* 357.

28 See B. Preston, 'Regulatory Organization', in Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law* pp. 719-748; N. Gunningham, 'Environment Law, Regulation and Governance: Shifting Architectures' (2009) 21 *Journal of Environmental Law* 179; J. Wiener, 'The Diffusion of Regulatory Oversight', in M. A. Livermore, R. L. Revesz (eds.), *Globalization of Cost-Benefit Analysis in Environmental Policy* (Oxford University Press, 2013), pp. 123-141.

29 See C. P. Rodgers, 'Property Systems and Environmental Regulation', in Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law* pp. 703-718; D. H. Cole (ed.), *Pollution and Property: Comparing Ownership Institutions for Environmental Protection* (Cambridge University Press, 2003).

30 Lees/Pedersen, *Environmental Adjudication*; Lord Carnwarth, 'Judges and the Common Laws of the Environment – At Home and Abroad' (2014) 26 *Journal of Environmental Law* 177; B. Preston, 'Characteristics of Successful Environmental Courts and Tribunals' (2014) 26 *Journal of Environmental Law* 365.

31 A. Monti, 'Environmental Risk: A Comparative Law and Economics Approach to Liability and Insurance' (2001) 9 *European of Private Law* 51; M. Hinteregger (ed.), *Environmental Liability and Ecological Damage in European Law* (Cambridge University Press, 2008); E. Orlando, 'From Domestic to Global? Recent Trends in Environmental Liability from a Multi-level and Comparative Law Perspective' (2015) 24 *RECIEL* 289; M. Hinteregger, 'Environmental Liability', in Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law* pp. 1025-1043.

32 See Wang Jin, 'Environmental Planning', in Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law* pp. 815-833.

33 Viñuales, *Comparative Environmental Law*, at 26-28.

'Problem'- or 'sector'-based constructs have also been used, mainly on the reasonable grounds, reminiscent of functionalism in comparative law methodology, that environmental law systems have to tackle common problems. Even then, there are many normative and conceptual implications in the definition of the boundaries of a 'sector'. For example, should 'climate change law', as a sector, include 'air pollution laws' or 'energy laws' or, still, 'forestry laws'? Unity based on common problems tends indeed to project conceptual boundaries onto a reality which is much more fluid and interconnected, particularly when, as in most systems, there are overarching sector-neutral environmental statutes applicable to most or all activities indistinctly.

Last but not least, the criteria defining constructs can be combined to compare, for example, carbon taxation in EU countries (i.e. a topic within a sector within a region) or the judicial treatment in EU countries of scientific information on nature conservation. This is a trite observation, but it becomes much more complex when the combination involves more aggregate constructs, such as 'risk regulation' in the United States and 'Europe'. Conceptual aggregations may have a stronger basis at given points in time (e.g. as the European Union-level regulation becomes more consolidated and occupies the essence of the legal space in the analytical unit 'Europe'). But environmental lawyers tend to use these aggregate categories as shortcuts, with less methodological scruples than comparative lawyers, who have long grappled with the complexities of identifying the right constructs for comparison.

All these analytical approaches have advantages and limitations. As I will discuss later in this article, a major consideration in selecting an approach is therefore the purpose pursued by the analysis. For now, this discussion facilitates the presentation of the 'topical' contributions.

2. Contributions with a sectorial focus

Several contributions adopt the problem-based or sectorial focus explained earlier. Some of these contributions take a broad look at the structure of the law concerning a resource, such as water,[34] or an environmental challenge, such as climate change[35] or fisheries management,[36] taken as a whole. More frequently, however, the focus is 'topical' within a 'sector', such as 'adaptation policies' within climate change law,[37] wind energy regulation within the law of renewable energies,[38] or

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[34] P. Cullet, 'Water Law in a Globalised World: The Need for a New Conceptual Framework' (2011) 23 *Journal of Environmental Law* 233; D. Tarlock, 'Environmental Regulation of Freshwater', in Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law* pp. 418-437.

[35] M. Mehling, 'The Comparative Law of Climate Change: A Research Agenda' (2015) 24 *RECIEL* 341; E. Scotford, S. Minas, 'Probing the Hidden Depths of Climate Law: Analysing National Climate Change Legislation' (2018) 28 *RECIEL* 67; J. Gundlach, M. Gerrard, 'Climate Change and Energy Transition Policies', in Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law* pp. 531-577.

[36] G. Winter (ed.) *Towards Sustainable Fisheries Law: A Comparative Analysis* (Maryland, MD, USA: INUC, 2009); T. Markus, 'Regulation of Marine Capture Fisheries' in Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law* pp. 489-508.

[37] D. A. Farber, 'The Challenge of Climate Change Adaptation: Learning From National Planning Efforts in Britain, China and the USA' (2011) 23 *Journal of Environmental Law* 359.

[38] H. Tegner Anker, B. Egelund Olsen, A. Ronne (eds) *Wind Energy and Legal Systems. A Comparative Perspective* (Alphen aan den Rijn: Wolters Kluwer, 2008).

accountability mechanisms for markets for ecosystem services,[39] which can be seen as part of the broader law of nature conservation.

These pieces have an implicit or explicit jurisdictional or geographical focus. For example, Joanne Scott's intriguing article on the influence of REACH, a key EU Regulation in the chemical sector, explores the relations between the EU and the US.[40] Broader constructs such as risk regulation also rely on an implicit or explicit geographical focus. When they go beyond a single jurisdiction – however general the stated purport of the analysis – they typically compare the US to Europe[41] or, more recently, to China.[42] Again, the reliance on complex legal constructs circumscribed by topic, sector, jurisdictional/geographical considerations as well as by broader analytical angles that capture transnational phenomena, illustrates the importance of defining the appropriate construct, which will *enable and limit* comparison.

3. Contributions with a jurisdictional or geographical focus

Other contributions focus on a 'jurisdictional' or 'geographical' construct or rely on them to explore a broader phenomenon, such as the increasing permeation of environmental law in a given continent. In most cases, the jurisdictional or geographical focus is further refined by reference to topical or sectorial angles. In some cases, the definition of the 'construct' is made more complex by reference to distinctions such as branches of law, e.g. 'public law', 'private law', 'criminal law', or cultural traditions, such as the tradition of 'Islam'.

These contributions thus include jurisdictional pieces, e.g. on China,[43] Kenya[44] or the USSR,[45] studies of regional patterns[46] or with a focus on regions,[47] and

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39 R. L. Glicksman, T. Kaime, 'A Comparative Analysis of Accountability Mechanisms for Ecosystem Services Markets in the United States and the European Union' (2013) 2 *Transnational Environmental Law* 259.

40 J. Scott, 'From Brussels with Love: The Transatlantic Travels of European Law and the Chemistry of Regulatory Attraction' (2009) 57 *American Journal of Comparative Law* 897.

41 D. Vogel, *The Politics of Precaution: Regulating Health, Safety, and Environmental Risks in Europe and the United States* (Princeton University Press, 2012); Wiener et al, *The Reality of Precaution*; Hammit et al, *Precautionary Regulation*.

42 Li et al, *Comparing Environmental Risk Regulation.*

43 A. L. Wang, 'The Search for Sustainable Legitimacy: Environmental Law and bureaucracy in China' (2013) 37 *Harvard Environmental Law Review* 365; Wang Xi, 'People's Republic of China', in Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law* pp. 128-148.

44 C. B. Soyapi, 'Environmental Protection in Kenya's Environment and Land Court' (2019) 31 *Journal of Environmental Law* 151.

45 Nicholas Robinson (1988),'Soviet Environmental Law and Perestroika', *Environmental Policy and Law*, 18 (6), 224–27.

46 W. Scholtz, J. Verschuuren (eds) *Regional Environmental Law. Transregional Comparative Lessons in Pursuit of Sustainable Development* (Cheltenham: Edward Elgar, 2015).

47 B. Boer, 'The Rise of Environmental Law in the Asian Region' (1998) 32 *University of Richmond Law Review* 1503; M. T. Cirelli, E. Morgera, 'Wildlife Law and the Legal Empowerment of the Poor in Sub-Saharan Africa', *FAO Legal Papers Online*, May 2009, 1–88; N. Kimani, 'A Collaborative Approach to Environmental Governance in East Africa' (2009) 22 *Journal of Environmental Law* 27.

studies with a 'branch',[48] 'topical'[49] and/or 'cultural' dimension.[50] I organised these studies under the same heading to emphasise that there is work in the English language on a wide range of geographical areas, which can help the researcher to familiarise themselves with the broader context of a given country, topic or moment in history. That is no substitute for specialised contextual knowledge, but it is certainly useful as a springboard to acquire such knowledge or identify the main sources from which it can be derived.

Given that the jurisdictional and geographical focus is by far the most researched, essentially in studies and textbooks of domestic environmental law, only a handful are mentioned here. Those with a purely jurisdictional focus are not comparative law studies proper but 'foreign' law ones. Yet, the studies selected examine the target jurisdiction with an external eye, which seeks to derive lessons from its object to conduct a broader inquiry. Similarly, certain works which address a specific issue in general terms but, in earnest, rely mainly on extrapolation from a single legal system, with only implicit or ancillary reliance on comparative analysis, are not clearly works of comparative law. This is what I referred to, in the introduction, as the second category of works. Their lack of specific engagement with comparative legal analysis must not detract, however, from their potential to guide comparison. By providing an analytical grid, even if extrapolated from a single jurisdiction, they can help build analytical constructs for comparison, particularly of complex constructs such as risk regulation.

These different facets of the body of work reviewed here, taken together, provide a solid foundation for conducting research in comparative environmental law. They are also a stark reminder of the complexities involved in such enterprise, particularly in the crafting of suitable comparable constructs. One key aspect of the process of crafting such constructs is the purpose pursued by the research. I will conclude my examination with some considerations regarding purpose.

IV. THE PURPOSE OF COMPARING ENVIRONMENTAL LAW SYSTEMS

Efforts at comparing two or more realities may pursue a wide variety of purposes. More often than not, they seek to understand one of the two compared realities by achieving an external perspective enabled by the other one. In such cases, comparison is a detour to better understand the features of the initial object. For example, an investigation of public interest litigation systems in a foreign

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48 M. Faure (2017),'The Development of Environmental Criminal Law in the EU and its Member States' (2017) 26 *RECIEL* 139.

49 H. Tegner Anker et al 'Coping with EU Environmental Legislation – Transposition Principles and Practices' (2015) 27 *Journal of Environmental Law* 17; H. Tegner Anker et al (2009),'The Role of Courts in Environmental Law – a Nordic Comparative Study' (2009) *Nordic Environmental Law Journal* 9; E. Fasoli, 'The Possibilities for Nongovernmental Organizations Promoting Environmental Protection to Claim Damages in Relation to the Environment in France, Italy, the Netherlands and Portugal' (2017) 26 *RECIEL* 30; A. Anisimov, J. Kayushnikova, 'Trends and Prospects for Legislative Regulation of Legal Responsibility for Environmental Offences in BRICS Countries: Comparative Law' (2019) 6 *BRICS Law Journal* 82.

50 G. E. Roughton, 'The Ancient and the Modern: Environmental Law and Governance in Islam' (2007) 32 *Columbia Journal of Environmental Law* 99.

jurisdiction may aim to understand the shortcomings observed, but not fully understood, in the initial jurisdiction, with the end goal of reforming it.

Another related purpose is to rely on the conceptual categories of a known initial object to understand an external object. This purpose of comparative analysis is seldom a choice, as comparatists are 'situated', i.e. their perspective is shaped by certain categories (an ontology) which they consciously or unconsciously project onto the external object, whether this is a contemporary object or a past object. In the latter case, such projection, if not careful, runs the risk of incurring in blatant anachronisms. Such would be the case, for example, of studying the 'environmental law' of the nineteenth century. The same excess of projection can occur if we project our ontology onto realities that are coded differently (e.g. projecting the right to private property onto certain forms of aboriginal land tenure/management). Even when great care is taken to let the target object 'speak' for itself, our interpretation of the phenomena will be shaped by our own categories, hence the need for confrontation with others whose views are initially coded in the terms of the target reality. The purpose, in these cases, is to understand the target reality, although such understanding will often be illuminating for a re-appropriation of the initial – framing – object.

A third purpose is to identify and evaluate the performance of legal institutions or mechanisms borrowed or, in other words, 'transplanted' into other legal systems. Certain legal mechanisms were first developed in a specific jurisdiction (a frequently given example is the technique of 'environmental impact assessment', which was introduced in the National Environmental Policy Act of the United States[51]) and subsequently taken up, usually with some adjustments, in other jurisdictions. Such analysis can be an intermediary step to evaluate performance (or lack thereof) or incremental refinements and change. At a granular level, it provides the basis for two alternative policy guidance approaches, namely 'best practices' and 'best fit'. The former has lost some ground in favour of the latter, precisely because straight transplants may not work in a different context.

A fourth purpose of comparative analysis is to understand neither the initial nor the target reality but the conceptual categories that we project, as such. Such an investigation focuses on the realisation and spelling out of the very ontology that we consciously or unconsciously project. Such realisation and formulation may be a goal in itself, as with critical and deconstructionist approaches, or a stepping-stone for unmasking a network of power relations. It may also pursue a further objective which is to contrast or 'test' the formulation of the ontology in order to refine it. The end goal of such conceptual investigation may be the conscious elaboration of 'comparable' constructs (to subsequently pursue one of the other purposes discussed so far) or the understanding of what is common to all the realities studied. The latter goal, the understanding of the 'architecture' of environmental law by

[51] The diffusion of EIAs has received significant attention, as well as some criticism of the discourse underpinning it. See e.g. Robinson, *International Trends*; J. Wiener, D. L. Ribeiro, 'Impact Assessment: Diffusion and Integration', in F. Bignami, D. Zaring (eds.), Comparative Law and Regulation (Cheltenham: Edward Elgar, 2018), pp. 159-189; Affolder, *Contagious Environmental Lawmaking*.

means of comparative analysis, was the main purpose of the aforementioned five-year research project on comparative environmental law.[52]

This examination of the most relevant literature is one of the outcomes of that broader project. My intention is not to persuade the reader to use the knowledge and analysis gathered in this body of work for any specific purpose. I shall only note why, in my view, despite the many obstacles it faces, such a purpose deserves consideration. Humanity faces a truly unprecedented challenge, historically and even pre-historically. Human activity has turned into a disruptive force of geological proportions threatening the very conditions under which humanity has thrived in the last 11700 years. As noted earlier, there are indications that action is needed within a closing window of a decade, i.e. an infinitely small time period in geological or even historical terms. And the main technology humanity has developed so far to organise, guide and govern our response to environmental degradation is environmental law, taken as a whole. Understanding this overall technology, with its shortcomings but also its potential, has never been as critical as it is today.

[52] See Lees/Viñuales, *Oxford Handbook of Comparative Environmental Law*.