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Towards a Climate Resilient European Society: Objectives and Principles of EU Climate Adaptation Law

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Abstract

Unlike climate protection law the law governing climate adaptation remains underdeveloped and so-far has not attracted similar scholarly attention. Given the unfolding climate crisis and global mitigation efforts falling short of meeting the temperature goal agreed upon in the Paris Agreement this article focuses on a new subject of study: climate adaptation law. In particular, the article asks whether EU law is well-equipped to help the Union and its Member States in achieving a climate resilient society as stated in the EUs 2021 Climate Adaptation Strategy. Although the article finds that the central adaptation provision in Art. 5 EU-Climate Law is more concrete than the climate adaptation objective contained in Art. 7 Paris Agreement it also identifies several shortcomings. While several of these shortcomings can be addressed by applying established principles of EU law governing environmental policy, the article highlights the necessity to agree upon concrete indicators to evaluate the resilience of individual societies and ecosystems. Finally, the author identifies areas for reform in EU-secondary law and provides some insights how resilient laws should be crafted to strengthen overall EU efforts to achieve, if not a fully adapted society, but at least a society better capable of living under conditions of climate crisis.

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A. Introduction

“The long-term vision is that in 2050, the EU will be a climate-resilient society, fully adapted to the unavoidable impacts of climate change.”¹

This policy goal complements the new legal climate adaptation objective contained in Art. 5 of the new so-called “EU Climate Law”.² It complements, rather than substitutes, the climate mitigation goal of reaching net-neutrality in terms of greenhouse gas emissions by 2050. As such the adaptation objective and strategy represent the acknowledgement that global mitigation efforts currently are not on track to curtail climate change to stop global warming at the relatively safe 1.5°C average temperature increase level. After COP26, Nationally Determined Contributions, even if fully implemented will only stop global warming at around 2.4°C global average increase.³

According to the commission, more frequent climate-related extreme weather events already lead to costs of 12 billion EUR per year in Europe, and projected costs are rising steeply with rising temperatures.⁴ Who will pay for climate adaptation and costs going beyond (so-called “loss and damage”⁵) is one question where law could provide answers. In fact, numerous scholarly works exist on climate liability.⁶ Not to speak of climate mitigation law as such which has migrated from a niche area to one of the central topics for environmental lawyers.⁷ Going beyond these issues this article wants to shed light on the often-neglected role of law in guiding

¹ COM (2021) 82 final “Forging a climate-resilient Europe – the new EU Strategy on Adaptation to Climate Change”, at p. 3.

² Regulation (EU) 2021/1119 of 30 June 2021.

³ See for such estimates: <https://climateactiontracker.org/publications/glasgows-2030-credibility-gap-net-zeroslip-service-to-climate-action/> (last visited 7 Jan. 2022).

⁴ EU Climate Adaptation Strategy, p. 2; see on projected costs also: COACCH, *The Economic Cost of Climate Change in Europe: Synthesis Report on State of Knowledge and Key Research Gaps*.

⁵ See Article 8 PA.

⁶ For an overview see: *Weller and Kahl*, “Conclusions: Liability for Climate Damages – Synthesis and Future Prospects” in *Kahl and Weller* (Eds.), *Climate change litigation: A handbook* (2021), 535-558; for an early important study, see: *Verheyen*, *Climate Change Damage and International Law: Prevention Duties and State Responsibility* (Nijhoff, 2005).

⁷ To list but a few works of the fast growing literature predominantly focusing on climate mitigation law: *Bodansky et al.*, *International climate change law* (Oxford University Press, 2017); *Klein et al.* (Eds.), *The Paris Climate Agreement on Climate Change: Analysis and commentary*, Oxford scholarly authorities on international law (Oxford University Press, 2017); *Mayer and Zahar* (Eds.), *Debating Climate Law* (Cambridge University Press, 2021); with a particular focus on EU law: *Woerdman et al.* (Eds.), *Essential EU climate law* (Edward Elgar Publishing Ltd, 2015).

climate adaptation efforts.⁸

Since the beginnings of EU climate adaptation policy, which can be traced back to the 2007 green paper on adapting to climate,⁹ some legal mainstreaming of climate adaptation has already been achieved in several legal instruments. For example, the environmental impact assessment directive has been reformed in 2014 and now criteria for whether an EIA is required include the risks of major accidents and disasters caused by climate change affecting the project and requires impact assessments to contain information on the vulnerability of the project to climate change.¹⁰ Another example is the floods directive, which requires Member States to take account of increased likelihood of floods due to climate change when assessing flood risks and in review processes.¹¹ Aside from classical environmental law, the new EU taxonomy regulation covers climate adaptation and provides criteria as to which financing instruments support climate adaptation and as such can be qualified as environmentally sustainable to help private investors in their decision-making.¹²

These provisions on adaptation, albeit important on their own, remain scattered among a plethora of legal acts. Unlike with climate mitigation, which at the EU-level is regulated in several central interconnected regulations and directives,¹³ until recently there has been no central legal instrument addressing climate adaptation. This has changed to some extent with the enactment of the so-called European Climate Law in 2021.¹⁴

Thus, this paper primarily explores the content of the new adaptation provision in the EU Climate Law.¹⁵ It is argued that the adaptation provision to some degree effectuates the vaguer

⁸ See among limited comprehensive studies on climate adaptation: *Fischer*, Grundlagen und Grundstrukturen eines Klimawandelanpassungsrechts (Mohr Siebeck, 2013); *Verschuuren* (Ed.), Research handbook on climate change adaptation law, Research handbooks in environmental law (Edward Elgar, 2013); but see for the argument that legal obligations on adaptation are too limited and scattered among diverse legal regimes to speak of an area of law called “climate adaptation law”: *Mayer*, “Climate Change Adaptation Law: Is There Such a Thing?” in Mayer and Zahar (Eds.), *Debating Climate Law* (Cambridge University Press, 2021), 310-328.

⁹ COM (2007) 354 “Adapting to Climate Change in Europe – Options for EU Action.”

¹⁰ See: Directive 2011/92/EU of 13 December 2011 (EIA Directive) Annex III No. 1 and Art. 3 EIA together with Annex IV and Art. 5 para. 4 and 5.

¹¹ Directive 2007/60/EC of 23 October 2007, Art. 4 para. 2 lit d), Art. 14 para. 4.

¹² Regulation (EU) 2020/852 of June 2020, Art. 2 para. 6; 9 lit. b) and 11.

¹³ See most notably: Directive 2003/87/EC of 13 October 2003 (“Emission Trading Directive”); Regulation (EU) 2018/842 of May 2018 (“Effort Sharing Regulation”).

¹⁴ Regulation (EU) 2021/1119 of 30 June 2021, Art. 5 (so-called “European Climate Law”).

¹⁵ *Ibid.* Art. 5.

adaptation provision contained in the Paris Agreement¹⁶ but also that in important regards the provision falls short of providing clear guidance to EU organs and Member States. The paper further shows that partially these shortcomings can be addressed by applying environmental principles established in EU primary law. Finally, some ideas are promoted of how to strengthen climate-resilience through law at the EU level.

B. EU Climate Adaptation Law

Article 5 of the EU-climate law in essence transforms public international law adaptation commitments stemming from Article 7 of the Paris Agreement into EU law. As often with such transformations this effectuates international law obligations, as they now benefit from stronger enforcement mechanisms and the primacy of application of EU law. In addition, Article 5 EU law is drafted in more obligatory language (“shall”) than its counterpart in the Paris Agreement and addresses both individual States (para. 1, 3 and 4) and the institutions of the Union departing from the “collective-obligation” approach of Article 7 PA.¹⁷ These findings, however, must not deflect that the adaptation objective (para. 1) and accompanying principles (para. 3) are much less concrete than quantitative mitigation targets.¹⁸

I. The Adaptation Objective

1. Continuous Progress on Adaptation and the Lack of Quantitative Elements

The EU adaptation objective requires addressees to ensure continuous progress in enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change. Albeit the provision uses the word “shall” which indicates legal bindingness, the goal is softened by the formulation that only “continuous progress” rather than absolute resilience is required. So, the legal objective somewhat lacks behind the goal set by the Commission in its Adaptation strategy to achieve a climate-resilient society by 2050. Also compared to EU targets on mitigation the objective is much less concrete. It does neither contain quantitative elements nor annual targets.

¹⁶ U.N. Doc. FCCC/CP/2015/L.9/Rev/1 (Dec. 12, 2015) (“Paris Agreement”) Art. 7.

¹⁷ See for the qualification of the adaptation goal in the Paris Agreement as a “non-obligation” and as a collective political goal: *Wenger*, “Article 7 Adaptation” in van Calster and Reins (Eds.), *The Paris Agreement on Climate Change: A Commentary* (Edward Elgar Publishing, 2021) 181 (MN 7.35).

¹⁸ See: Article 2 and 4 EU Climate Law and Art. 4 para. 1 in connection with Annex I EU Effort Sharing Regulation.

For monitoring purposes this certainly is problematic and in line with critique brought against the Paris Agreement's adaptation objective one could request for more concrete targets.¹⁹ Yet, one wonders how a quantitative adaptation target could look like. Within the context of the Paris Agreement the African Group forwarded a proposal to include a quantitative element. In essence this element was more of cost-bearing clause requiring developed countries to bear costs of adaptation in developing countries.²⁰ Such a proposal does not translate easily to the EU context albeit effects of climate crisis are expected to hit these States harder than those in the Northern parts.

Apart from this, scientists discuss a plethora of indicators to measure adaptive capacity.²¹ Yet, the complexity and sheer number of these indicators would have overloaded the adaptation objective. Thus, such indicators would better be developed in delegated acts by the Commission based on best-practices in Member States.²² Unfortunately, the delegated authority to develop "common principles and practices for the identification, classification and prudential management of material physical climate risks" contained in Article 5 para. 5 EU Climate law is limited to "planning, developing, executing and monitoring projects and programs for projects" and thus does not apply to adaptation planning in the wider sense.

Additionally, annual targets could add to concretizing the adaptation objective. Annual targets, however, only make sense in connection with clear quantitative targets. Also, adaptation is a continuing process which will require continuing efforts much beyond 2050 when hopefully climate-neutrality is reached in the EU. This is why the EU adaptation strategies' goal of a climate resilient "European society" by 2050 appears somewhat arbitrary. Even more so, as science is not capable of fully predicting the course of climate crisis.²³

¹⁹ *Sharma*, "Precaution and Post-caution in the Paris Agreement: Adaptation, Loss and Damage and Finance", 17 *Climate Policy* (2017), 33-47, at 44.

²⁰ Submission by Swaziland on behalf of the African Group on adaptation in the 2015 Agreement, Oct. 8, 2013, available at: http://unfccc.int/files/documentation/submissions_from_parties/adp/application/pdf/adp_african_group_workstreat_1_adaptation_20131008.pdf.

²¹ See for a discussion of possible indicators: *Magnan and Ribera*, "Global Adaptation after Paris", 352 *Science* (2016), 1280; *Arnott et al.*, "Evaluation that Counts: A Review of Climate Change Adaptation Indicators & Metrics Using Lessons from Effective Evaluation and Science-Practice Interaction", 66 *Environmental Science & Policy* (2016), 383-392; *Craft and Fisher*, "Measuring the Adaptation Goal in the Global Stocktake of the Paris Agreement", 18 *Climate Policy* (2018), 1203-1209.

²² See for a similar model: Art. 8 para. 4 Taxonomy Regulation.

²³ See on uncertainties related to tipping points: IPCC, *Climate Change 2021: The Physical Science Basis*, IPCC AR6 WG, Technical Summary, at 36 ("Establishing links between specific GWLs with tipping points and irreversible behaviour is challenging due to model uncertainties and lack of observations, but their occurrence

Finally, concretization could be achieved by tying the adaptation objective to mitigating objectives. The level of adaptation necessary is clearly connected to global mitigation efforts. However, this does not mean that the adaptation objective should be linked to mitigation targets, what Art. 7 para. 1 PA unfortunately somewhat vaguely does by requiring “an adequate adaptation response in the context of the temperature goal referred to in Article 2.” Whereas some commentators argued that this reference was not meant to limit adaptation efforts to the climate change scenario with the lowest risk (e.g., 1.5°C global average temperature increase)²⁴ it could at least be read in that direction. Yet, such a limitation would not be compatible with the obligation to base adaptation policies on best available science.²⁵ Thus it must be welcomed that the EU-Climate Law avoids such a stare reference. A more concrete but at the same time sufficiently flexibly formulation would have been a reference to current trajectories possibly even requiring some precaution or safety margin. In that regard the EU adaptation objective could have required an “adequate adaptation response in the context of current global trajectories for climate change based on best available science and the principle of precaution”.

2. Climate Resilience as the Overarching Objective

The EU adaptation objective at first sight contains three sub-objectives, namely to “ensure continuous progress in enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change.” A closer analysis reveals that these three goals boil down to one overarching goal: climate resilience. According to an often-cited definition, stemming from resilience theory in natural and social sciences, resilience can be defined as:

“The capacity of a system to experience shocks while retaining essentially the same function, structure, feedbacks, and therefore identity.”²⁶

Shocks in that sense must not necessarily be immediate events such as floods but can also be slow-onset developments such as rising sea-levels.²⁷ Key features of a resilient system are that

cannot be excluded, and their likelihood of occurrence generally increases at greater warming levels.”).

²⁴ Wenger, op. cit. *supra* note 17, at 180 (para. 7.27).

²⁵ Ibid. at 180 (para. 7.27).

²⁶ Walker et al., “Resilience, Adaptability and Transformability in Social-ecological Systems”, 9 Ecology and Society (2004), 5-14, at 7.

²⁷ Folke et al., “Resilience Thinking: Integrating Resilience, Adaptability and Transformability”, 15 Ecology and Society (2010), 20-29, at 25.

it is resistant, has a strong ability to recover, and is able to transform, if needs be, without fundamentally changing its basic structure and functions.²⁸

Now under that definition the first sub-objective (enhanced adaptive capacity) is but one quality of a resilient system. Although some systems are simply very resistant and robust (often referred to as *engineering resilience*²⁹) and thereby cope with shocks, the capability to adapt and transform is one key feature of many *ecologically resilient systems*.³⁰ Thus, adaptive capacity can be understood as one quality of a resilient system rather than an objective of its own.

The objective to strengthen resilience also covers reducing vulnerability. In fact, vulnerability can be viewed as an antonym of resilience in this context. Albeit nuances in definitions exist, and a focus on vulnerability is important to leave no one behind and to take into account social-political dimensions of climate change,³¹ such considerations are better addressed by how resilience is to be achieved, namely in a just manner, which is addressed by principles contained in para. 2 of the provision.

3. Whose Resilience?

The Commissions climate adaptation strategy seeks to strengthen the resilience of the “European Society” ostensibly taking an anthropocentric perspective. Art. 7 EU Climate Law avoids such a reference. Rather, the drafters opted for not concretizing whether resilience should focus on society, ecosystems, infrastructure, or something completely different. This omission brings up the question of the subject of the resilience objective. In other words, whose resilience is to be strengthened.

As the EU-Climate law is based on Art. 191 TFEU, the environmental competence, one could think that only the environment is meant by Art. 5 para. 1 EU Climate Law. Yet, as Art. 191

²⁸ *Holling and Gunderson*, “Resilience and Adaptive Cycles” in Gunderson and Holling (Eds.), *Panarchy: Understanding Transformations in Human and Natural Systems* (Island Press, 2002), 25-62, at 25; for an overview with further references see: *Ruhl*, “General Design Principles for Resilience and Adaptive Capacity in Legal Systems – With Applications to Climate Change Adaptation”, 89 *North Carolina Law Review* (2011), 1373-1403, at 1385.

²⁹ See e.g.: *Holling and Gunderson*, op. cit. *supra* note 28, at 25.

³⁰ *Gunderson*, “Ecological Resilience – In Theory and Application”, 31 *Annual Review of Ecology and Systematics* (2000), 425-439.

³¹ *Miller et al.*, “Resilience and Vulnerability: Complementary or Conflicting Concepts?”, 15 *Ecology and Society* (2010), at 11.

para. 1 TFEU also covers the protection of human health, it is argued here that a socio-environmental holistic perspective should be taken. This is also in line with what the drafters of the Paris Agreement had in mind, as the text of the adaptation provision recognizes that adaptation is crucial to “protect people, livelihoods and ecosystems.”³² In that regard it also bears mention that the Art. 37 of the EU-Charter of Fundamental Rights and Art. 11 TFEU require EU organs – and arguably also Member States when implementing EU policies and legislation – to integrate an high level of environmental protection into all policies.³³

As regards people, Member States face fundamental rights obligations regarding climate adaptation. To quote the German Constitutional Court’s recent climate decision: “where climate change is not preventable or has already taken place, Art. 2(2) first sentence GG [right to life and protection of bodily integrity] also obliges the state to address the risks by implementing positive measures aimed at alleviating the consequences of climate change.”³⁴

In a similar direction one could argue that positive obligations stemming from the EU Charter on Fundamental Rights oblige the Union to strengthen resilience. Only positive obligations in the context of the EU are more limited given that many aspects of climate adaptation fall outside the competence of the EU (e.g., limited cooperative competences in the context of civil protection – Art. 196 TFEU), that the principle of subsidiarity further constrains EU competences, and the EU generally obtains much discretion.³⁵

Nonetheless, when EU organs enact secondary legislation, addressees applying these laws must interpret these in the light of positive obligations.³⁶ Taking into account positive obligations, stemming from environmental objectives (Article 11, 191 TFEU and Art. 37 EU-Charter of Fundamental Right) and fundamental rights (e.g., right to life = Art. 2, physical integrity = Art. 3, and property = Art. 17) supports a socio-environmental holistic approach for the

³² Article 7 para. 2 Paris Agreement.

³³ But see for the rather limited conceptualization of Art. 37 EU Charter of Fundamental Rights as not going beyond already established environmental provisions in the treaties (notably Art. 191 TFEU): CJEU: Case C-444/15, *Associazione Italia Nostra Onlus*, ECLI:EU:C:2016:978, para 62.

³⁴ BVerfG, Order of the First Senate of 24 March 2021 – 1 BvR 2656/18 –, para. 151.

³⁵ See on these structural limitations e.g.: *Suerbaum*, “Die Schutzpflichtdimension der Gemeinschaftsgrundrechte”, 38 *Europarecht* (2003), 390-417, at 413, 416.

³⁶ See e.g.: *Jarass*, “Der neue Grundsatz des Umweltschutzes im primären EU-Recht”, 32 *Zeitschrift für Umweltrecht* (2011), 563-616, at 563; *Schwerdtfeger*, “Artikel 37 Umweltschutz” in Meyer and Hölscheid (Eds.), *Charta der Grundrechte der Europäischen Union* (2019), para. 19.

adaptation objective.

4. What Kind of Resilience?

The ability of societies and ecosystems to face shocks can be strengthened in many ways. We could for example imagine some sort of giant glass bubble shielding cities from climate change's effect, or some form of permanent lock-down combined with state-backed resettlement for those living in coastal areas.³⁷ All these measures could in principle be adopted by States to increase resilience. Yet, other objectives within the context of EU law, argue for more sustainable solutions.

Although Art. 5 of the Climate Law does not say so, there is an intrinsic connection between resilience and sustainability. The Paris Agreement captures this by establishing the adaptation goal “with a view” to contributing to sustainable development.³⁸ It also bears notice that within resilience theory efficient use of resources is highlighted as one quality of resilient systems.³⁹ The resilience of a system is only durable if resources are used in a sustainable manner. At least if working under conditions of resource scarcity. As societies, including the European one, are bound to this planet, at least for a while to come, resource scarcity is becoming increasingly prevalent.

Such an intrinsic connection between sustainability and resilience is also acknowledged by the 13th UN sustainable development goal and even more pronouncedly in the EU regulation on the establishment of the new so-called Recovery and Resilience Facility. This regulation defines resilience as “the ability to face economic, social and environmental shocks or persistent structural changes in a fair, sustainable and inclusive way”.⁴⁰ Thus, a strong connection exists between the objective of the adaptation clause, with the objective of achieving sustainable

³⁷ In a similar direction point geoengineering proposals such as solar radiation management, for a discussion of geoengineering from a legal point of view: *Mayer*, *The International Law on Climate Change* (Cambridge University Press, 2018), chapter 9.

³⁸ See on this connection in the PA also: *Wenger*, *op. cit. supra* note 17, at 179 (MN 7.23); *Cordonier Segger*, “Advancing the Paris Agreement on Climate Change for Sustainable Development”, 5 *Cambridge Journal of International and Comparative Law* (2016), 203, at 224.

³⁹ *Alderson and Doyle*, “Contrasting Views of Complexity and Their Implications For Network-Centric Infrastructures”, 40 *IEEE Transactions on Systems, Man, and Cybernetics* (2010), 839-852, at 840, 846, and 850; *Ruhl*, *op. cit. supra* note 28, at 1385; see on the connection between resilience and sustainability also: *Folke and Gunderson*, “Resilience and Global Sustainability”, 15 *Ecology and Society* (2010), 43-44.

⁴⁰ Regulation (EU) 2021/241 of 12 February 2021, Article 2 para. 5.

development which is covered by Art. 3 TEU, and the sustainability principle addressed in Art. 191 para. 1 TFEU and Art. 37 of the EU Charter on Fundamental Rights.

A question following this assessment is whether resilience can thus be conceived of as part of the objective of sustainable development. This would elevate the resilience objective to the status of primary law.

In resilience theory, efficient and sustainable use of resources is but one element that increases a system's ability to resist external shocks. Thus, sustainability can be qualified as an element of resilience rather than the other way round. Still, I think sustainable development as defined in the Brundtland Report⁴¹ can also be conceived of to include development towards a resilient society. Preparing to adapt to unavoidable consequences of climate change early, must be one strategy to safeguard the ability of future generations to meet their own needs.

In practice this also means that climate adaptation should not contravene climate mitigation efforts. Rather to the opposite, the EU and Member States should aim at increasing synergies and prioritize what is called eco-system adaptation.⁴² Thus, Art. 5 para. 4 foresees Member States to promote nature-based solutions and eco-system-based adaptation, such as reforestation, the greening of roofs, or the protection of swamps as natural flood barriers. This could also be read to support the continuing demand to “green” EU agricultural policy to increase its resilience to climate related effects.

II. Adaptation Principles

Aside from the resilience objective established in para. 1, Art. 5 of the EU Climate Law also promotes several principles that are meant to guide Member States and EU institution in their adaptation efforts (para. 3). Additionally, it is argued here that these principles must be complemented by established (environmental) principles under EU primary law.

⁴¹ World Commission on Environment and Development, “Our Common Future” (1987) Transmitted to the General Assembly as an Annex to document A/42/427, at para. 27.

⁴² See on synergies between mitigation and adaptation in the agricultural sector also: *Verschuuren*, “The Paris Agreement on Climate Change: Agriculture and Food Security”, 7 (2016), 54-57, at 54.

1. EU Climate Law: Coherence, Integration, Justice, Public Participation

According to Art. 5 para. 3 EU Climate Law, adaptation policies should be coherent, mutually supportive, provide co-benefits for sectoral policies, work towards better integration of adaptation in all policy areas and to focus on the most vulnerable and impacted populations and sectors and identify shortcomings in that regard in consultation with civil society. Some of these principles are further set out in other parts of the EU-Climate Law, such as the requirement to consult civil society. As only through participation can local knowledge feed into decision-making,⁴³ it is to be welcomed that Art. 9 of the EU-Climate law further lays out public participation requirements, including through the so-called Climate Pact.

At first glance surprisingly, some principles contained in the Paris agreement's adaptation clause are missing here, notably that adaptation action should be country-driven, gender-responsive and transparent.⁴⁴ Probably drafters found it dispensable to reiterate well established principles of EU primary law. Notably, the requirement of country-driven approaches is comparable to the principle of subsidiarity (Art. 5 TEU), gender equality is a provision of central application for the EU in Art. 8 TFEU, and transparency is required by Art. 11 TEU.

One shortcoming is that drafters kept the requirement to integrate adaptation in all policy areas, in soft-law language, as the Union and Member States must integrate adaptation concerns only "where appropriate".⁴⁵ However, this should not be read as an abandonment of the integration principle which is firmly established by Art. 11 TFEU and Art. 37 of the EU-Charter on Fundamental Rights. This principle requires environmental and sustainability concerns to be taken into account in defining and implementing all EU policies and activities, including legislation.⁴⁶ Thus EU organs and Member States do not obtain discretion as to when integrating adaptation concerns. Only where adaptation concerns are clearly irrelevant, e.g., in the field of family law or data privacy, the integration of adaptation is not "appropriate".

⁴³ See on the importance of public participation for climate policies also: *Bäumler* and *Schomerus*, "Article 12 Education and Training" in van Calster and Reins (Eds.), *The Paris Agreement on Climate Change: A Commentary* (Edward Elgar Publishing, 2021), 284-301, at 294-298.

⁴⁴ The transparency requirement in Art. 7 PA is complemented by Art. 13 PA which establishes an enhanced transparency framework for action and support.

⁴⁵ Article 5 para. 3 EU Climate Law; for a similarly vague amendment proposal see: EP, "European Climate Law", P9_TA (2020)0253, Amendment 78 ("integrate adaptation into *relevant* socioeconomic and environmental policies and actions" highlighting by the author).

⁴⁶ *Calliess*, "Artikel 11 AEUV" in *Calliess and Ruffert* (Eds.), *EUV/AEUV Kommentar* (Beck, 2016), at para. 8.

2. Environmental Principles of Primary Law

The collection of principles contained in Art. 5 para. 2 EU-Climate law provides some guidance as to how resilience is to be achieved but principles governing climate adaptation at the EU level are not limited to this provision. Other principles that apply to climate adaptation are those contained in Art. 191 para. 2 TFEU.

a) Principle of Precaution

One central principle here is the principle of precaution.⁴⁷ The precautionary principle justifies⁴⁸ but also requires⁴⁹ the adoption of policies and measures to manage risks for the environment and health associated with cases of uncertainty and to act before a harmful event takes place.⁵⁰ In line with the precautionary principle, Art. 5 para. 4 EU-Climate Law requires Member States to consider best available and most recent scientific evidence as guidance for their national adaptation strategies.

To help Member States in assessing and evaluating scientific evidence the EU Commission in partnership with the European Environment Agency (EEA) installed the European Climate Adaptation Platform.⁵¹ This platform helps EU organs, Member States but also individuals in accessing and sharing data related to climate adaptation to inform decision-making. Improving knowledge about climate effects is an important first step in achieving a climate resilient society.

An issue where the precautionary principle could also provide guidance is on the relationship between climate adaptation and climate mitigation. Generally speaking, the precautionary principle allows but also requires States to minimize risks to the extent possible (with quite some discretion⁵²). As climate change entails many risks, some of which are not predictable entirely

⁴⁷ Art. 191 para. 2 TFEU.

⁴⁸ See on this dimension e.g.: Case C-157/96 *National Farmers' Union and others*, ECR I-2211 (1998), para. 63; Case C-180/96 *UK v Commission*, ECR I-2265 (1998), para. 99; Case C-333/08 *Commission v France* (2010) ECR I-757, para. 91.

⁴⁹ See in that direction e.g.: Case C-127/02 *Waddenzee*, ECR I-7405 (2004), para. 44; Case C-528/16, *Confédération paysanne et al.*, ECLI:EU:C:2018:583, at para. 53; Case C-121/21 R, *Czech Republic v Poland (Mine de Turów)*, ECLI:EU:C:2021:420, at para. 71, 82.

⁵⁰ For an overview and analysis of further case law see: *Sadeleer*, EU Environmental Law and the Internal Market (Oxford University Press, 2014) at 76 et seqq.

⁵¹ <https://climate-adapt.eea.europa.eu/> (last visited 13 January 2022).

⁵² See: *Sadeleer*, EU Environmental Law and the Internal Market (Oxford University Press, 2014), at 80.

– such as tipping points – the precautionary principle favors mitigation over adaptation. This finding is also supported by the principle of origin contained in Art. 191 para. 2 TFEU, which in principle requires EU environmental policy to focus on sources of environmental pollution. Yet, this focus may increasingly give way to accepting partial defeat, requiring the EU and Members to put at least equal emphasis on the need to adapt.

b) Polluter Pays

Another principle that could be invoked when addressing climate adaptation is the polluter pays principle. Ideally, climate adaptation costs would be born predominantly by those that contributed most to climate change. Here we get into difficult waters. The Global South has long argued for coverage of climate adaptation costs by the North with limited success.⁵³ Whereas the Paris agreement supports cooperation and technology transfer no legal mechanism was incorporated which would provide Southern States with any right or entitlement for the North to cover adaptation costs and damages going beyond.

More general principles and institutions may step in. Scholars have discussed a diverse set of other legal instruments to establish liability of both State and private actors, such as the law of state responsibility, national torts law, or environmental liability laws, but much remains unsettled.⁵⁴ Notably, the polluter pays principle predominantly is applied only within States rather than between them.⁵⁵ More promising is the no harm rule which applies between States and by now is well established in international customary law.⁵⁶ So far, applying the no harm rule to prevent future damages in a situation of complex causality chains has not been tested in practice. For the Global South only voluntary funding is available through instruments such as the

⁵³ See for an historical overview: *Siegele*, “Loss and Damage (Article 8)” in Klein et al. (Eds.), *The Paris Climate Agreement on Climate Change: Analysis and commentary* (Oxford University Press, 2017), 224-238, 225.

⁵⁴ See e.g. the debate between: *Maljean-Dubois*, “The No-Harm Principle as the Foundation of International Climate Law” in Mayer and Zahar (Eds.), *Debating Climate Law* (Cambridge University Press, 2021), 15-28, and *Campbell-Durufle*, “The Significant Transboundary Harm Prevention Rule and Climate Change: One-Size-Fits-All or One-Size-Fits-None?” in Mayer and Zahar (Eds.), *Debating Climate Law* (Cambridge University Press, 2021), 29-39.

⁵⁵ *Boyle*, “Polluter Pays” in Peters and Wolfrum (Eds.), *The Max Planck Encyclopedia of International Law* (Oxford University Press, 2008), at para. 14; *Verheyen*, op. cit. *supra* note 6, at 72 and Chapter IV; see for the application within the EU context requiring private polluters (but not Member States) to pay for environmental pollution: *Sadeleer*, op. cit. *supra* note 50, at 56 et seqq.; notably the EU Environmental Liability Directive (Directive 2004/35/EC of 21 April 2004) only foresees “cooperation” between States if several States are affected (Article 15) but does not impose liability between them.

⁵⁶ *Nuclear Weapons*, 1996 ICJ Rep. 241, para 29; *Case concerning the Gabčíkovo-Nagymaros Project* (Hungary v. Slovakia) 1997 ICJ Rep. 7, para. 41; see for its application in the context of climate damage: *Verheyen*, op. cit. *supra* note 6 at 146 et seqq.

Climate Adaptation Fund established under the Kyoto Protocol.⁵⁷

Given that an individual fund has been installed to compensate those regions negatively affected by the transition towards a net-zero economy because of their dependence on fossil fuel industries, it could also make sense to install a just adaptation fund to compensate those particularly affected by the climate crisis within the EU. This particularly so, as research shows that within the EU the greatest burden of climate change's effect will be felt in the South, with extreme heat, droughts, agricultural losses, water scarcity and forest fires.⁵⁸ So far funding for adaptation is available through several other financial programs and funds, such as the European Structural and Investment Fund, the Common Agricultural Policy, the LIFE Program, and the newly established Recovery and Resilience Facility.⁵⁹

An additional idea would be some form of mandatory payment by bigger polluters into a newly established adaptation fund, for which the polluter pays principle could provide justification.⁶⁰ The emission certificate trading directive already requires member States to use at least 50% of the income from auctioning greenhouse gas emissions certificates for climate mitigation and adaptation purposes.⁶¹ More ambitious proposals, such as a climate adaptation tax, bring up difficult legal questions relating to budget sovereignty and the legal regime governing the financing of the EU but are not inconceivable.⁶²

c) Regional Differentiation

Finally, another EU environmental principle that applies to climate adaptation is the principle of regional differentiation. Art. 191 para. 2 TFEU requires EU environmental policies to take

⁵⁷ <https://unfccc.int/Adaptation-Fund> (last visited 13 January 2022).

⁵⁸ Feyen et al. (Eds.), *Climate change impacts and adaptation in Europe: JRC PESETA IV final report*, JRC science for policy report (Publications Office of the European Union, 2020), at 4 and 5.

⁵⁹ For an overview see: COM(2021) 82 final “Forging a climate-resilient Europe – the new EU Strategy on Adaptation to Climate Change”, at 2; beyond these instruments addressing finance for climate protection purposes could also be seen as part of the mandate of EU financial advisory bodies, see: *Arriba-Sellier*, “Turning Gold Into Green: Green Finance In The Mandate Of European Financial Supervision”, 58 *Common Market Law Review*, 1097-1140.

⁶⁰ Cf. for such solutions with regard to complex environmental causality chains: *Calliess*, “Art. 191 AEUV” in *Calliess and Ruffert* (Eds.), *EUV/AEUV Kommentar* (Beck, 2016), at para. 42; in the context of German environmental law: *Reiter*, *Entschädigungslösungen für durch Luftverunreinigungen verursachte Distanz- und Summationsschäden* (Erich Schmidt, 1998), at 189 ff., 224 ff.

⁶¹ Directive 2003/87/EC of 13 October 2003, Art. 10 para. 3 lit. j).

⁶² See on limits and possibilities to adopt so-called EU taxes: *Buser*, “Die Finanzierung der EU: Möglichkeiten und Grenzen einer EU-Steuer nach Europarecht und Grundgesetz”, 17 *Zeitschrift für Europarechtliche Studien* (2014), 91-115.

into account the diversity of situations in the various regions of the Union. More precisely, Art. 7 of the Paris Agreement acknowledges that there is no one size fits all solution for societies to adapt to climate change. Some regions get dryer, some suffer from too much water.⁶³ Thus, limited concrete obligations, to which we shall now turn, are not only a result of limited legal ambition by States but also an acknowledgement that adaptation law at the international level must primarily provide an adaptation framework.

III. Concrete Obligations

In line with predominant thinking at the national⁶⁴ and international level⁶⁵, climate adaptation is legally conceived of in Art. 5 para. 4 EU-Climate Law as a planning issue (1.). Yet, more concrete obligations are not limited to planning but also contain what could be termed a “climate proofing” requirement (2.).

1. Planning Requirements

Art. 5 para. 4 addresses Member States alone and requires them (“shall”) to adopt and implement national adaptation strategies and plans. Again, this departs from softer requirements under the Paris Agreement, where Parties “should, as appropriate” submit and update adaptation communications.⁶⁶ Importantly, the wording does not only require States to have strategies and plans but also to implement them. This could allow the Commission to hold Member States accountable for fulfilling their plans and strategies. Yet, accountability is hampered by the fact that only limited guidance is provided as to the content of such instruments. Some guidance can be drawn from the Energy and Climate Governance-Regulation which requires adaptation plans to include inter alia, projections about climate change’s effects, including an assessment of vulnerability, capacity to adapt, progress made and concrete strategies and plans as well as monitoring mechanisms.⁶⁷ Still, what is lacking here is any guidance as to the indicators used to assess vulnerability and capacity to adapt.

⁶³ See generally: IPCC, 2014: Summary for policymakers, in: Climate Change 2014: Impacts, Adaptation, and Vulnerability, 1-32.

⁶⁴ On the importance of planning in German “climate adaptation law”: Reese et al., Adapting Environmental Law to the Impacts of Climate Change, UBA Project FKZ 3708 41 100/01, Project Z 6 – 90 111/8 https://www.ufz.de/export/data/2/79867_Reese_Moeckel_Bovet_Koeck_AdaptingEnvironmenta.pdf, at 2; Fischer, op. cit. *supra* note 8, 134-191 and chapters 6-7.

⁶⁵ See Article 7 para. 9 Paris Agreement.

⁶⁶ See Article 7 para. 9; this wording encourages the submission of such proposals but does not establish a legal obligation to do so: Wenger, op. cit. *supra* note 17, at 197 (MN 7.124).

⁶⁷ Regulation (EU) 2018/1999 of 11 December 2018, Article 19, and Annex VIII.

Whereas the EU climate law requires plans to be based on best available science and to include progress reports and indicators, no guidance is provided as to which indicators must be adopted. It must be acknowledged that no consensus exists in natural sciences as to which indicators are adequate. As the European Environmental Agency has put it in a recent report (2020):

*“Unlike climate change mitigation, there is no universal unit of measurement for adaptation.”*⁶⁸

Yet, at least at the regional level it would be helpful to agree on common indicators even if only as some form of a minimum standard. So far, the requirement to use indicators at all allows the Commission to assess individual progress, but not necessarily whether the “European Society”, here to be taken as the community of member States, is resilient to a degree foreseen in its strategy.

The lack of clear indicators also makes enforcement of the EU adaptation objective difficult if not impossible. In principle Art. 5 is subject to the assessment process foreseen in Art. 6 and 7 EU-Climate Law. Explicitly Art. 7 para. 1 lit. b) requires an assessment of the consistency of national adaptation measures with the goal of ensuring progress on adaptation. Such review clearly goes beyond soft-law requirements under the Paris Agreement. In particular, it deviates from the Katowice Decision (known as Paris Rulebook) where it was stated that adaptation communications are not meant as a “basis for comparison and not subject to review”.⁶⁹

Yet, in case the COM finds that national strategies are inconsistent with the adaptation objective, it can only issue a recommendation to the Member States, which the Member can decide not to follow with only an procedural requirement to provide reasoning for this decision.⁷⁰ Whereas the Commission might initiate an infringement procedure under Art. 258 TFEU, within which the ECJ can require Members to pay lumpsum and penalty payments, it remains to be seen whether the Commission is willing to initiate such proceedings. Given the lack of clear indicators for plans and strategies and the following discretion of Member States such

⁶⁸ European Environment Agency, Monitoring and Evaluation of National Adaptation Policies Throughout the Policy Cycle, EEA report No. 06 (Publications Office of the European Union, 2020), at 76.

⁶⁹ Decision 19/CMA 1, para. 23 (b) and 36 (c).

⁷⁰ Article 7 para. 3 lit. b) EU Climate Law.

proceedings may succeed only in cases where non-compliance is evident, e.g., no strategies and plans are adopted at all.

2. Towards Comprehensive Climate Proofing?

The term climate proofing has been around in policy circles since some time and essentially means considering climate mitigation and adaptation concerns across all policy and administrative fields.⁷¹ Legally speaking this translates to some sort of climate impact assessment, but on a larger scale, going beyond concrete projects and plans and potentially covering legislative procedures as well as financing decisions.

Within the EU-Climate Law such climate proofing is to some extent foreseen in Art. 6 para. 4. The provision is crafted in obligatory language (“shall assess”) and addresses all “draft measures, legislative proposals, including budgetary proposals of the European Union”.

One initial shortcoming is that such climate proofing must not be conducted for established legislation. Moreover, this adaptation proofing is only some sort of a best-efforts requirement, as it states that the Commission “shall endeavor to align” legislative proposals and draft measures with the objective of adaptation progress. In case of “non-alignment” the Commission must provide the reasons for the decision not to seek alignment but that’s it. In essence thus, climate adaptation remains but one concern among many in complex balancing decisions. Rather, than requiring the Commission to achieve practical concordance, other concerns may trump climate concerns. Such non-alignment is not compatible with the integration principle of Art. 11 TFEU and Art. 37 EU-Charter.⁷²

C. Outlook: The Future of Climate Adaptation within the EU

Where does the EU stand in achieving climate resilience and what is the future of climate adaptation law at the EU? Most of EU climate adaptation law at present focuses on planning. Planning is a well-established instrument of administrative law, and it certainly helps to prepare

⁷¹ On the legal meaning of climate proofing and ways to incorporate it into (strategical) environmental impact assessment: *Schönthaler* et al., “Grundlagen der Berücksichtigung des Klimawandels in UVP und SUP”, (2018) Climate Change, at 38-53 (available at: https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2018-02-12_climate-change_04-2018_politikempfehlungen-anhang-4.pdf); see for a practical example: COM, “Commission Notice – Technical Guidance on the Climate Proofing of Infrastructure in the Period 2021-2027”, 2021/C371/01.

⁷² *Calliess*, op. cit. *supra* note 46, para. 8.

societies. At the same time, it must be warned that conceptualizing adaptation merely as a planning issue could underestimate the complexity of climatic changes and adaptation planning as a social process and lead to overestimating the capacity of planning to deliver the intended outcome.⁷³

Additional substantive legislative reform could cover areas as diverse as occupational safety regulations, insurance law, environmental law (e.g., dynamic Flora-Fauna-Habitat-areas), agricultural law, animal welfare law, standards for the construction and renovation of buildings⁷⁴ and critical infrastructure, or disaster relief law. As mentioned above several legislative acts already address climate adaptation concerns but there is surely more room for improvement. Finally, overcoming the implementation and enforcement deficit of environmental law remains a pressing issue.⁷⁵

Going beyond these more limited reform ideas much discussion is currently ongoing on how to improve the resilience of law as such, a debate which could be made fruitful for the question how law can strengthen the resilience of societies and eco-systems.⁷⁶ The perception that we currently face several crises of unusual proportions,⁷⁷ including the unfolding climate crisis, may require scholars to think more deeply about the resilience of society and ecosystems but also of law as such. Climate change adaptation may require not just some minor reforms but a more systematic evolution towards a more adaptive and resilient law. Increasingly environmental law could become less about preventing crisis but about dealing with crisis.

⁷³ *Field et al.*, *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Climate change 2014 No. Part A (Cambridge University Press, 2014), 874 with further references.

⁷⁴ E.g., Regulation (EU) No 305/2011 of 9 March 2011, containing common criteria for the marketing of construction products.

⁷⁵ See e.g.: COM/2012/095, “Improving the Delivery of Benefits from EU Environment Measures: Building Confidence Through Better Knowledge and Responsiveness”.

⁷⁶ See e.g.: *Ruhl*, op. cit. *supra* note 28; *Fischman*, “Letting Go of Stability: Resilience and Environmental Law”, 94 *Indiana Law Journal* (2019); *Baranyai*, *European Water Law and Hydropolitics* (Springer, 2020); and contributions in: *Lewinski* (Ed.), *Resilienz des Rechts* (Nomos, 2016).

⁷⁷ See on crisis narratives: *Geiger*, “Die Europäische Union – Wege aus der Krise?” in *Folz and Lorenzmeier* (Eds.), *Recht und Realität* (Nomos, 2017), 112-131; *Krieger and Nolte*, “The International Rule of Law - Rise or Decline? Approaching Current Foundational Challenges” in *Krieger et al.* (Eds.), *The International Rule of Law: Rise or Decline?: Foundational Challenges* (Oxford University Press, 2019), 1-25.

Here I suppose that lawyers can learn from social and natural sciences and resilience theory and seek to increase the resilience of law itself to increase its adaptive capacity under stress. Such resilient law could require more adaptive and reflective governance, continuous review, and more discretion in applying rules to permanently changing circumstances.⁷⁸ For some areas of environmental law it could also require a move from protecting the status quo towards allowing for change where stability is infeasible.⁷⁹

⁷⁸ E.g.: *Kment*, “Anpassung an den Klimawandel: Internationaler Rahmen, europäische Strategische Adaptionsprüfung und Fortentwicklung des nationalen Verwaltungsrechts”, 65 (*Juristen Zeitung*), 62-72; *Fischer*, op. cit. *supra* note 8, 352 et seqq.; *Reese*, “Rechtliche Aspekte der Klimaanpassung” in Marx (Ed.), *Klimaanpassung in Forschung und Politik* (Springer Fachmedien, 2016), 73-90, 87; *Ruhl*, op. cit. *supra* note 28.

⁷⁹ *Fischman*, op. cit. *supra* note 76, at 724.