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Sustainable Development in EU Law: Treaty Foundations, Legislative Framework, and Contemporary Challenges *(Enriched Edition 2025)*

Abstract

This article examines sustainable development as a constitutional objective and operational principle of EU law, and argues that—beyond public environmental regulation—it increasingly functions as a driver of EU private law. Drawing on treaty foundations, the European Green Deal acquis (2020–2025) and recent measures in consumer, product, corporate due diligence and digitalisation policy, it develops the thesis of a ‘sustainable market’: EU private law is being re-engineered so that contracts, products and corporate value chains become vehicles for achieving environmental and social objectives. The analysis maps the legal architecture (climate governance, ETS/CBAM, nature restoration) while showing how sustainability reshapes private-law concepts such as information duties, durability, remedies, allocation of risk and liability, and private enforcement. It concludes by identifying the key challenges of implementation, coherence and legitimacy as the Union moves from green regulation to sustainability-oriented private ordering.

Keywords: sustainable development, European Union law, EU private law, European consumer law, contract law, product sustainability, corporate sustainability due diligence, circular economy, green transition, intergenerational equity, just transition, private enforcement

Dimitrios Devetzis¹, Ioannis Voudouris² and Ioannis Giokaris³

¹ Dimitrios Devetzis (Dr. iur., LL.M., M.L.E.), Assistant Professor of Law, Department of Law, Frederick University Cyprus; EU Legal Expert in Private Law – Law & Technology; e-mail: law.dd@frederick.ac.cy

² Ioannis Voudouris (Dr.), Assistant Professor (Commercial & Maritime Law), Department of Law, Frederick University Cyprus; e-mail:

³ Ioannis Giokaris (Dr.), Lecturer, Department of Law, Frederick University Cyprus; e-mail: law.ig@frederick.ac.cy

1. Introduction: The Concept of Sustainable Development

The concept of *sustainable development* has become one of the most important guiding principles in contemporary legal, political, and social discourse. Its most influential and widely cited definition was introduced in the Brundtland Report of 1987, which described it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".⁴ This formulation captures the intergenerational responsibility central to sustainability, while also stressing the need for balance between economic progress, environmental protection, and social justice.

The importance of sustainable development lies in its multidimensional character. Scholars and policymakers alike emphasise that sustainability rests on three interrelated pillars: the economic, the social, and the environmental.⁵ Increasingly, commentators have also highlighted a fourth, ethical dimension, which reflects the moral obligations of current generations towards both the natural environment and future generations.⁶ As such, sustainable development functions both as a normative principle—a set of ethical and legal standards guiding states and societies as well as a practical policy framework for governance.

In the international legal order, sustainable development gained prominence following the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992. The resulting Rio Declaration on Environment and Development and Agenda 21 underlined the necessity of integrating economic growth with environmental protection and social equity.⁷ Later, the adoption of the 2030 Agenda for Sustainable Development by the United Nations General Assembly in 2015 reaffirmed these commitments, setting out 17 Sustainable Development Goals (SDGs) as a universal blueprint for peace, prosperity, and environmental integrity.⁸

The academic debate around sustainable development has expanded considerably in recent decades. Some scholars underline its potential as a transformative legal principle capable of reshaping governance structures at both national and international levels.⁹ Others criticise the concept for being too broad, arguing that its inherent vagueness risks making it a mere rhetorical tool rather than a binding principle of law.¹⁰ Nevertheless, the practical impact of sustainable development in shaping constitutional provisions, legislative instruments, and judicial reasoning across many jurisdictions—including the European Union—demonstrates that it has evolved into a genuine driver of change.

The European Union (EU) has played a leading role in institutionalising sustainable development. The principle has been progressively integrated into EU treaties, strategies, and secondary legislation, making it a cornerstone of European Union action. Article 3(3) of the Treaty on European Union explicitly states that the EU "shall work for the sustainable development of Europe," linking economic growth with high levels of environmental protection and social progress.¹¹ Furthermore, Article 21 TEU commits the Union to

⁴World Commission on Environment and Development, *Our Common Future* (Oxford University Press 1987).

⁵Jeffrey Sachs, *The Age of Sustainable Development* (Columbia University Press 2015), 220-225; Klaus Bosselmann, *The Principle of Sustainability: Transforming Law and Governance* (Ashgate 2008) 53-58.

⁶Edith Brown Weiss, *In Fairness to Future Generations: International Law, Common Patrimony, and Intergenerational Equity* (United Nations University 1989), 18-22.

⁷United Nations, *Rio Declaration on Environment and Development* (12 August 1992) A/CONF.151/26 (Vol I); Ved P. Nanda, 'Sustainable Development, International Trade and the Doha Agenda for Development' (2005) 8 *Chapman Law Review* 53.

⁸UN General Assembly, *Transforming Our World: The 2030 Agenda for Sustainable Development* A/RES/70/1 (21 October 2015).

⁹Klaus Bosselmann, *The Principle of Sustainability: Transforming Law and Governance* (Ashgate 2008), 63-68.

¹⁰Niko Soininen, 'Vagueness of Sustainable Development as a Legal Concept' (2011) 13 *Environmental Law Review* 39, 40-42.

¹¹Consolidated Version of the Treaty on European Union [2016] OJ C202/13, art 3(3).

promoting sustainable development in its external action, thereby embedding sustainability into both its internal and external policies.¹²

The European Sustainable Development Strategy (2001, revised 2006) provided an initial framework for integrating sustainability across EU policies, while the more recent European Green Deal (2019) represents a comprehensive attempt to achieve climate neutrality by 2050. In December 2025, the EU reached a historic provisional agreement establishing a binding target of 90% net emissions reduction by 2040, representing the most ambitious climate commitment of any major economic bloc.¹³ These developments confirm that sustainable development is no longer a peripheral concept but a constitutional principle of the European Union, guiding legislative, judicial, and policy decisions.¹⁴

2. The Notion of Sustainable Development in Law and Legislation

A. Treaty Foundations

The concept of sustainable development did not feature in the original founding treaties of the European Communities. Early integration was focused primarily on economic union and the establishment of the common market. Environmental and social concerns entered the legal order only gradually, reflecting broader international developments in the late twentieth century, particularly the growing recognition of sustainability following the Brundtland Report (1987)¹⁵ and the Rio Earth Summit (1992).¹⁶ Against this background, the EU began to integrate sustainable development into its constitutional structure through successive treaty reforms.

The Treaty of Maastricht (1992) represented the first important milestone. Maastricht not only created the European Union as a political entity but also expanded the competences of the Community in the field of environmental protection. Article 2 of the Treaty on European Community (TEC) stated that the Community's task included "a harmonious and balanced development of economic activities" and "a high level of protection and improvement of the quality of the environment".¹⁷ This formulation reflected the emerging global consensus that environmental protection and economic growth must be considered together. As Krämer notes, Maastricht "introduced the idea that environmental protection was not an optional extra but a constitutive element of the European project".¹⁸

The Treaty of Amsterdam (1997) significantly deepened this integration by explicitly inserting sustainable development into the objectives of the Union. The new Article 2 TEC declared that the European Community should "promote ... a high level of employment and of social protection, equality between men and women, sustainable and non-inflationary growth respecting the environment".¹⁹ Moreover, the new Article 6 TEC (now Article 11 TFEU) required that environmental protection be integrated into all Union policies with a view to promoting sustainable development.²⁰ Today, this provision appears as Article 11 of the Treaty on the Functioning of the European Union (TFEU), which maintains that "environmental protection requirements must be integrated into the definition and

¹²Consolidated Version of the Treaty on European Union [2016] OJ C202/13, art 21.

¹³European Commission, The European Green Deal COM (2019) 640 final; European Council, 2040 Climate Target: Council and Parliament agree on 90% emissions reduction (10 December 2025).

¹⁴Ludwig Krämer, *EU Environmental Law* (8th edn, Sweet & Maxwell 2023) 41-46; Joanne Scott, 'Sustainable Development and EU Law: A Normative Reassessment' in Marise Cremona (ed), *New Governance and the European Union: Legal Perspectives* (OUP 2005) 211-214.

¹⁵World Commission on Environment and Development, *Our Common Future* (OUP 1987), 43.

¹⁶Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (4th edn, CUP 2018), 54-56.

¹⁷Treaty on European Union (Maastricht, 1992) [1992] OJ C191/1, art 2 TEC, 117.

¹⁸Ludwig Krämer, *EU Environmental Law* (8th edn, Sweet & Maxwell 2023), 49.

¹⁹Treaty of Amsterdam Amending the Treaty on European Union (1997) [1997] OJ C340/1, 88-89.

²⁰Treaty of Amsterdam [1997] OJ C340/1, art 6 TEC, 102.

implementation of the European Union's policies and activities, in particular with a view to promoting sustainable development".²¹ This integration principle—often described as the "green mainstreaming clause"—transformed sustainability from a policy aspiration into a legally binding consideration for EU decision-making.²²

The process of embedding sustainability within the realm of constitutionalism was consolidated in the Treaty of Lisbon (2007), which entered into force in 2009. Article 3(3) TEU now provides that the European Union "shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment".²³ The breadth of this provision shows how sustainable development functions as a bridging principle, reconciling economic, social, and environmental objectives. French highlights that the Lisbon formulation reflects the EU's ambition to treat sustainability as a constitutional metaprinciple, guiding the interpretation of competences across all policy areas.²⁴

In addition to the objectives set out in the TEU, the Lisbon Treaty reinforced the principle of integration by introducing Article 11 TFEU. This provision obliges the Union to ensure that environmental protection is not treated in isolation but is incorporated into the design and execution of all European Union policies and activities, with the overarching aim of advancing sustainable development.²⁵ This provision is particularly important because it requires policymakers to not only consider sustainability in environmental legislation but also to integrate it into other fields such as agriculture, transport, and energy. As Scott explains, Article 11 TFEU effectively enshrines a "horizontal legal duty" that obliges EU institutions to mainstream sustainability across the entire *acquis*.²⁶

The Charter of Fundamental Rights of the European Union, which became legally binding through the Lisbon Treaty, further consolidates sustainability at the constitutional level. Article 37 of the Charter provides: "A high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development".²⁷ While the Charter is primarily concerned with fundamental rights, the inclusion of sustainability demonstrates its normative weight in the EU constitutional order. As Lee observes, the Charter gives sustainability a "rights-adjacent character," situating it alongside human dignity, equality, and solidarity.²⁸

B. Secondary Legislation and the Operationalisation of Sustainable Development

The constitutional provisions enshrining sustainable development in the Treaties would remain abstract if not for the extensive body of secondary legislation that translates them into binding rules. Through directives, regulations, and decisions, the European Union has operationalised sustainability across multiple sectors of policy. As Krämer notes, "the backbone of EU environmental and sustainability law lies in the dense network of secondary legislation, which has given real substance to treaty principles".²⁹

²¹Consolidated Version of the Treaty on the Functioning of the European Union [2016] OJ C202/47, art 11.

²²Maria Lee, *EU Environmental Law, Governance and Decision-Making* (2nd edn, Hart Publishing 2014), 221-223.

²³Consolidated Version of the Treaty on European Union [2016] OJ C202/13, art 3(3).

²⁴Duncan French, *International Law and Policy of Sustainable Development* (Manchester UP 2005) 39-40.

²⁵Consolidated Version of TFEU [2016] OJ C202/47, art 11.

²⁶Joanne Scott, 'Sustainable Development and EU Law' in Cremona (ed), *New Governance and the European Union* (OUP 2005) 214-216.

²⁷Charter of Fundamental Rights of the European Union [2012] OJ C326/391, art 37.

²⁸Maria Lee, *EU Environmental Law* (2nd edn, Hart 2014), 38.

²⁹Ludwig Krämer, *EU Environmental Law* (8th edn, Sweet & Maxwell 2023), 112.

A central example is the Environmental Impact Assessment (EIA) Directive, first adopted in 1985 and later codified in Directive 2011/92/EU³⁰, as amended by Directive 2014/52/EU.³¹ The directive requires that projects likely to have significant environmental effects—such as motorways, power plants, or airports—be subject to prior environmental assessment. Its purpose is not to prevent development but to ensure that environmental considerations are integrated into planning decisions.³² Another cornerstone is the Strategic Environmental Assessment (SEA) Directive 2001/42/EC, which extends assessment obligations to plans and programmes. Lee has argued that the EIA and SEA together form "the procedural constitution of European sustainability".³³

Beyond environmental procedure, energy law has become a flagship area for embedding sustainability. The Renewable Energy Directive (EU) 2018/2001 obliges Member States to increase their share of renewables in the energy mix. As Peeters points out, EU renewable energy law "translates the abstract commitment to sustainability into concrete market-shaping rules," forcing Member States and private actors to invest in greener technologies.³⁴

C. The European Climate Law and the 2040 Target

Sustainability has become a defining feature of the European Union's climate policy framework, most prominently through the European Climate Law (Regulation (EU) 2021/1119). This landmark Regulation sets in legally binding terms the EU's objective of achieving climate neutrality by 2050 and codifies the interim target of reducing net greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels.³⁵

The Climate Law must be read together with earlier climate and energy instruments. Directive 2009/29/EC amended the EU Emissions Trading System (ETS) to strengthen carbon pricing mechanisms,³⁶ while the Renewable Energy Directive (2018/2001/EU) requires Member States to achieve binding renewable energy targets.³⁷ Scholars such as Morgera and Kulovesi observe that by embedding long-term climate goals in a binding regulation, the EU has elevated sustainability to the level of a normative backbone of its legal order.³⁸ Peeters similarly argues that the Climate Law "locks in" the decarbonisation trajectory of the Union by reducing political discretion.³⁹

The Regulation also has important procedural dimensions. Article 6 requires the Commission to assess Union and Member State measures every five years to ensure consistency with the climate neutrality objective, while Article 7 mandates the establishment of a European Scientific Advisory Board on Climate Change.⁴⁰ As Kulovesi notes, these mechanisms "institutionalise accountability" by embedding scientific expertise and regular

³⁰Directive 2011/92/EU on environmental impact assessment [2012] OJ L26/1.

³¹Directive 2014/52/EU [2014] OJ L124/1.

³²Ludwig Krämer, *EU Environmental Law* (8th edn, 2023), 57.

³³Maria Lee, *EU Environmental Law* (2nd edn, 2014), 97-99.

³⁴Marjan Peeters, 'Legislation on Renewable Energy and the EU Internal Market' (2010) 19 *European Energy and Environmental Law Review* 406.

³⁵Regulation (EU) 2021/1119 establishing the framework for achieving climate neutrality ('European Climate Law') [2021] OJ L243/1, arts 1-4.

³⁶Directive 2009/29/EC amending Directive 2003/87/EC on greenhouse gas emission allowance trading [2009] OJ L140/63.

³⁷Directive (EU) 2018/2001 on the promotion of renewable energy [2018] OJ L328/82, art 3.

³⁸Elisa Morgera and Kati Kulovesi, 'The EU and International Climate Change Law' in Cremona and Scott (eds), *EU Law Beyond EU Borders* (OUP 2019) 225.

³⁹Marjan Peeters, 'The European Climate Law: Institutionalising the Decarbonisation Trajectory' (2021) 30 *European Energy and Environmental Law Review* 110.

⁴⁰Regulation (EU) 2021/1119 [2021] OJ L243/1, arts 6-7.

monitoring into the legal architecture of sustainability.⁴¹ At the same time, Oberthür warns that while the Climate Law represents a major step, its effectiveness ultimately depends on the robustness of implementing measures.⁴²

3. The December 2025 Agreement on the 2040 Climate Target

On 10 December 2025, the Council and the European Parliament reached a provisional political agreement to amend the European Climate Law by setting a 2040 EU-wide climate target of a 90% net reduction of greenhouse gas emissions compared with 1990 levels. The agreement also envisages limited use of high-quality international credits (up to 5%) from 2036 and stronger governance provisions, while preserving the binding 2030 and 2050 trajectories. Because the deal is provisional, it still requires formal adoption and may remain politically contested.⁴³

Even as a provisional agreement, the 2040 target matters for private law. It reshapes the regulatory baseline for investment, product design and consumer markets, and it strengthens the case for reading sustainability-related duties in consumer and corporate directives as part of an integrated transition strategy. At the same time, the parallel ‘simplification’ agenda illustrates the tension between competitiveness and sustainability, suggesting that EU private law will remain a site of contestation over how far market actors should be mobilised to deliver climate objectives.⁴⁴

4. The Expansion of Emissions Trading and the Carbon Border Adjustment Mechanism

The EU Emissions Trading System has undergone its most significant structural changes since inception. The revised ETS (Directive (EU) 2023/959) now operates with an annual cap reduction of 4.3% through 2027, increasing to 4.4% from 2028-2030, targeting 62% reduction by 2030 versus 2005 levels. The December 2025 Carbon Market Report confirmed that ETS-covered emissions are now approximately 50% below 2005 levels, with power sector emissions falling 11% in 2024 alone. Revenue generation reached €38.8 billion in 2024, bringing cumulative ETS revenues above €250 billion.^{45,46}

Maritime transport integration represents the most significant sectoral expansion. From 1 January 2024, ships of 5,000 gross tonnage or more entering EU ports face coverage requirements, with first allowance surrender due 30 September 2025. The greater than 99% compliance rate in the first year demonstrates successful implementation despite industry concerns.

The Carbon Border Adjustment Mechanism concluded its transitional reporting phase on 31 December 2025. Beginning 1 January 2026, only authorised CBAM declarants may import covered goods, with certificate purchases commencing February 2027.⁴⁷ The October 2025 simplification introduced a *de minimis* threshold exempting importers of fewer than 50 tonnes annually, reducing administrative burden for approximately 182,000 small importers

⁴¹Kati Kulovesi, 'A New Era of EU Climate Law: The European Climate Law in Context' (2021) 10 *Transnational Environmental Law* 111, 119.

⁴²Sebastian Oberthür, 'Hard or Soft Governance? The EU Climate Law in International and Domestic Context' (2022) 31 *European Energy and Environmental Law Review* 338.

⁴³Council and European Parliament provisional agreement (10 December 2025) on an amendment to the European Climate Law setting a 2040 EU climate target of 90% net greenhouse-gas reductions compared with 1990, including limited use of international credits.

⁴⁴Directive (EU) 2024/1760 on corporate sustainability due diligence (CSDDD/CS3D) and the 2025 ‘Omnibus’ simplification agenda affecting sustainability reporting and due diligence timetables and scope.

⁴⁵European Commission, 2025 Carbon Market Report: EU ETS lowers power sector emissions and expands to maritime transport (3 December 2025).

⁴⁶European Commission, Carbon Market Report 2025 (COM(2025) 735 final, 3 December 2025) and related Commission communications on ETS performance and revenues.

⁴⁷Regulation (EU) 2023/956 establishing a carbon border adjustment mechanism [2023] OJ L130/52.

while capturing over 99% of embedded emissions.⁴⁸ This mechanism represents an innovative approach to preventing carbon leakage while maintaining the integrity of the EU's climate ambition.

5. Corporate Sustainability Due Diligence: Ambition Meets Political Reality

The trajectory of the Corporate Sustainability Due Diligence Directive (CSDDD) exemplifies the tensions between sustainability ambition and business competitiveness concerns. Directive (EU) 2024/1760, adopted in April-May 2024, established mandatory human rights and environmental due diligence across value chains.⁴⁹ However, the implementation timeline has been substantially extended through the 'Stop-the-Clock' Directive and the December 2025 Omnibus package, which restructured the Directive's fundamentals: scope thresholds increased to 5,000 employees and €1.5 billion turnover; transposition deadline extended to July 2028; and, most significantly, the climate transition plan obligation (Article 22) was eliminated entirely.⁵⁰

The removal of the climate transition plan obligation is particularly significant, as it eliminates the Directive's primary climate governance mechanism. This development illustrates an important tension within EU sustainability law: while the legal architecture has become increasingly sophisticated, political pressures—particularly those framed in terms of competitiveness and administrative burden—can substantially dilute implementation. The broader harmonisation principle in the revised Directive also limits Member States' ability to maintain more stringent national requirements, affecting existing legislation like Germany's Lieferkettensorgfaltspflichtengesetz.

6. The Nature Restoration Regulation: A Landmark Achievement

The Nature Restoration Regulation (Regulation (EU) 2024/1991), which entered into force on 18 August 2024, represents one of the most significant achievements of EU environmental law in recent years. Following one of the most contentious adoption processes in EU environmental law history—secured only by a minimum qualified majority after Austria's Environment Minister controversially broke with her coalition partner—this directly applicable Regulation establishes the EU's first legally binding nature restoration targets.⁵¹

The Regulation requires 30% of degraded habitats to be restored by 2030, rising to 60% by 2040 and 90% by 2050. Additional targets include restoration of at least 25,000 km of rivers to free-flowing state by 2030, no net loss of urban green space and tree canopy cover compared to 2024 baseline, reversal of pollinator population decline by 2030, and agricultural peatland rewetting targets.⁵² Member States must submit National Restoration Plans by mid-2026, covering restoration needs, timelines, and financing mechanisms. This Regulation demonstrates that, despite political resistance, the EU remains capable of adopting ambitious environmental legislation with binding, measurable targets.

7. Evolving Climate Jurisprudence

Recent judicial developments have significantly strengthened the enforceability of EU environmental law. The most consequential judgment came in *ClientEarth & Collectif Nourrir v. European Commission* (October 2025), where the Court ruled the Commission was wrong to approve France's CAP Strategic Plan, finding France breached conditionality requirements regarding crop rotation. This marks the first time civil society organisations won a case

⁴⁸European Commission, Officially published: Simplifications for CBAM (20 October 2025).

⁴⁹Directive (EU) 2024/1760 on corporate sustainability due diligence [2024] OJ L2024/1760.

⁵⁰Greenberg Traurig LLP, 'EU Omnibus Package Trilogue Agreement on EU CSRD and CSDDD' (December 2025).

⁵¹Regulation (EU) 2024/1991 on nature restoration [2024] OJ L2024/1991.

⁵²IUCN Briefing, EU Nature Restoration Regulation (August 2024).

establishing that an EU institution failed to comply with environmental law—a precedent with significant implications for future enforcement actions.⁵³

Beyond EU law, the European Court of Human Rights' *KlimaSeniorinnen v. Switzerland* ruling (April 2024) found positive obligations under Article 8 ECHR to protect citizens from climate change impacts.⁵⁴ While not EU law, this precedent intersects with EU Member State obligations and may influence future CJEU reasoning on the fundamental rights dimensions of climate policy. The Committee of Ministers found Switzerland has not demonstrated compliance as of March 2025, underscoring the practical enforceability of climate-related human rights obligations.

8. The Implementation Gap: Progress and Challenges

The quantitative picture presents both achievement and concern. The European Environment Agency's November 2025 Trends and Projections report confirms 37% net emissions reduction from 1990 levels by 2024, with year-on-year decline of approximately 2.5%.⁵⁵ However, the trajectory toward 2030 targets shows strain: achieving the 55% reduction target requires nearly double the historical annual reduction rate. The gap between current status (37%) and target (55%) represents 18 percentage points to be achieved in approximately five years.

Sectoral analysis reveals stark disparities. The energy supply sector delivered 9% emissions reductions in 2024, driven by renewable expansion—electricity generation reached 47% renewable in 2024, with first-half figures exceeding 50% for the first time.⁵⁶ Conversely, transport emissions increased 0.7%, buildings showed stagnation, and the LULUCF carbon sink remained well below the 2030 target. The EEA projects 54% reduction by 2030 with additional measures versus 47% with existing measures—leaving the 55% target achievable but demanding accelerated implementation.⁵⁷

9. Sustainable Development and EU Private Law: From Market Integration to a 'Sustainable Market'

Sustainable development now operates as a horizontal corrective of EU private law: market integration is increasingly conditioned on sustainability outcomes, and private-law instruments are drafted to allocate transition risks and costs across value chains. The result is a shift from a purely autonomy-and-efficiency narrative to a governance narrative, where contracts, products and consumer choices become regulatory interfaces for climate and biodiversity objectives.

This hybridisation is visible in three moves. First, sustainability is translated into mandatory information duties and a ban on misleading green claims, coupled with substantive rights to durability and repair. Second, product conformity is recalibrated towards sustainability by design—embedding circularity, reparability and traceability (including product passports) into the notion of a conforming good or service. Third, enforcement is progressively decentralised: collective redress, representative actions and tort-style claims operate as compliance multipliers alongside public supervision.

A. Sustainable development as a horizontal corrective in EU private law. EU private law was originally built to remove barriers to trade and to approximate national contract and consumer rules for the functioning of the internal market. In the Green Deal era, sustainable

⁵³ClientEarth & Collectif Nourrir v. European Commission (General Court, October 2025).

⁵⁴*KlimaSeniorinnen v. Switzerland* (ECtHR, April 2024) Application no. 53600/20.

⁵⁵European Environment Agency, Total net greenhouse gas emission trends and projections in Europe (November 2025).

⁵⁶Ember, European Electricity Review 2025 (January 2025).

⁵⁷Ember, European Electricity Review 2025 (data on the EU electricity mix, including the renewable share in 2024).

development operates as a horizontal corrective: it supplies an additional normative parameter for interpreting harmonised private-law instruments and for designing new default rules. The resulting shift is not merely thematic ('more green rules'), but structural: sustainability becomes a criterion for allocating private-law risks and duties across the supply chain.⁵⁸

10. Consumer law and the green transition: information duties, durability and remedies

The EU has moved from a pure 'information paradigm' to a combined model of information, durability and repairability. The Directive on empowering consumers for the green transition strengthens rules against greenwashing and introduces sustainability-related information duties, while the right-to-repair framework reinforces remedies that keep products in use longer. Read together with the Sale of Goods and Digital Content directives, the emerging consumer acquis links sustainability to core private-law concepts: conformity, updates, remedies, and the burden of proof for defects.⁵⁹

11. Product sustainability, safety and liability: from design obligations to market accountability

The Ecodesign for Sustainable Products framework exemplifies 'sustainability by design': it pushes sustainability requirements upstream to product design and data (e.g., product passports), but its effectiveness ultimately depends on downstream private-law enforcement. This is where product safety and liability regimes interact with sustainability objectives. The new EU Product Liability Directive and the General Product Safety Regulation, together with sectoral ecodesign duties, support a model in which sustainability failures may translate into legal responsibility—especially where misleading environmental claims, premature obsolescence or unsafe 'green' design choices cause damage.⁶⁰

12. Corporate sustainability due diligence and supply chains: private governance through contracts

Corporate sustainability due diligence and sustainability reporting rules institutionalise a 'contractual cascade'. Companies translate public-law due diligence duties into private instruments—supplier codes, warranties, audit rights, termination clauses and indemnities—thereby turning contracts into compliance vectors. This contractualisation of sustainability raises classical private-law questions (good faith, control of standard terms, allocation of verification costs, and third-party beneficiary effects) and will likely shape litigation strategies in cross-border value chains.⁶¹

13. Digitalisation, AI and 'green-by-code' private ordering

Digital regulation increasingly intersects with sustainability. Smart contracting and AI-enabled compliance tools can reduce transaction costs of traceability, reporting and verification, but they also risk entrenching opacity and asymmetries if 'code' substitutes legal

⁵⁸Treaty foundations: Treaty on European Union (Art 3(3) TEU); Treaty on the Functioning of the European Union (notably Arts 11, 114 and 169 TFEU); and the Charter of Fundamental Rights of the EU (Art 37). These provisions allow sustainable development to function not only as a policy goal, but as an interpretative principle with spill-over effects in harmonised private law.

⁵⁹Directive (EU) 2024/825 on empowering consumers for the green transition (amending the Unfair Commercial Practices Directive 2005/29/EC and the Consumer Rights Directive 2011/83/EU).

⁶⁰Regulation (EU) 2024/1781 establishing a framework for setting ecodesign requirements for sustainable products (Ecodesign for Sustainable Products Regulation – ESPR).

⁶¹Directive (EU) 2024/1760 of the European Parliament and of the Council of 13 June 2024 on corporate sustainability due diligence and amending Directive (EU) 2019/1937 and Regulation (EU) 2023/2859 (OJ L, 5 July 2024). European Commission, COM(2025)81, 26 February 2025 (Omnibus I simplification package revising CSRD/CSDDD). See also Dimitrios Devetzis, 'The Role of Private Law in Sustainable Development: Improving Sustainability Through an Effective Anagnosis of U.S. Contract Law' (Sustainable Development, Culture, Traditions (SDCT), vol 5A/2024) 66–71 (DOI: 10.26341/issn.2241-4002-2024-5a-6-T02068).

interpretation and human accountability. The EU's AI and data governance agenda therefore becomes indirectly relevant to sustainable private ordering, particularly in consumer markets and supply-chain contracting.⁶²

14. Private enforcement: collective redress, green claims and climate-related tort

Sustainability-oriented private law is incomplete without enforceable remedies. Representative actions, consumer injunctions and damages claims for misleading environmental practices, as well as climate-related tort litigation, function as complementary enforcement channels. In this sense, EU private law does not simply 'follow' sustainability regulation—it actively co-produces compliance by enabling private actors (consumers, NGOs, competitors and affected communities) to police sustainability commitments.⁶³ A complementary route is personality-based private-law protection, which has been used to safeguard the cultural environment through right-to-personality claims and thereby widens sustainability enforcement beyond classic consumer redress.⁶⁴

15. The Social Dimension of Sustainable Development

Sustainable development generates profound social implications, as it is not limited to environmental protection or economic growth but also concerns the well-being, rights, and opportunities of people. For sustainability to succeed, vulnerable groups within societies must be protected, and equitable access to resources must be ensured. Governments, intergovernmental organisations, and civil society actors are therefore required to design and implement programmes that enable large segments of the population to escape poverty, overcome exclusion, and participate meaningfully in development processes.⁶⁵

The social pillar of sustainability is operationalised through distributional choices: who bears the costs of decarbonisation, who enjoys the benefits of cleaner technologies, and which groups receive protection against energy poverty, exclusion and labour-market displacement. A 'just transition' is therefore not a political slogan but a legal requirement for the durability of climate and sustainability reforms.

Without a just-transition logic, sustainability measures become politically brittle: regulatory costs that intensify inequality trigger resistance, strategic litigation, and compliance avoidance, undermining both effectiveness and legitimacy. EU social policy instruments and private-law protections (eg consumer safeguards against energy poverty) therefore function as enabling conditions for environmental ambition.

⁶²Dimitrios Devetzis, 'AI, Sustainability Law and EU AI Act' (JRSEI, vol 14, issue 3, September 2024) 18–26; Dimitrios Devetzis, 'Internet of Things (IoT) and its Impact on the Development of Environmentally Sustainable Cities: Assuring Data Privacy while Developing Eco-Healthy Living' in Roido Mitoula (ed), 1st Open-Air Cities International Conference "Local and Regional Sustainable Development and Urban Reconstruction" (Harokopio University of Athens, 16–18 February 2024): Book of Abstracts (Open-Air Cities Institute, Athens 2024) 154.

⁶³Directive (EU) 2020/1828 on representative actions for the protection of the collective interests of consumers provides a procedural backbone for collective enforcement of sustainability-related consumer rights (including green claims).

⁶⁴Dimitrios Devetzis, 'Implementing the Protection of Cultural Environment in the Scope of Application of the Right to Personality' in Roido Mitoula (ed), 1st Open-Air Cities International Conference "Local and Regional Sustainable Development and Urban Reconstruction" (Harokopio University of Athens, 16–18 February 2024): Book of Abstracts (Open-Air Cities Institute, Athens 2024) 84; Dimitrios Devetzis, 'Η προβληματική της προστασίας του πολιτιστικού περιβάλλοντος ως αυτοτελώς προστατευόμενου εννόμου αγαθού στο πλαίσιο της ΑΚ 57: Εισαγωγικοί προβληματισμοί' in Eliza Alexandridou, Evgenia Alexandropoulou-Aigyriadiou and Petros Alikakos (eds), Τμητικός Τόμος για την Καθηγήτρια Γιάννα Καρύμπαλη-Τσίπτσιου (Sakkoulas, Athens–Thessaloniki–Komotini 2022) 337 ff; Dimitrios Devetzis, 'Ίδιωτικό δίκαιο και προστασία πολιτιστικού περιβάλλοντος: Όψεις της προβληματικής, στη νομολογία των πολιτικών δικαστηρίων' in Despoina I Klavanidou, Evaggelia Koutoura-Regkakou and Dimitrios Kostopoulos, Ζητήματα νομικής προστασίας του περιβάλλοντος (Athanasios G Georgiadis (scientific ed), Etairia Nomikon Boreiou Ellados series 66, Sakkoulas, Athens 2011).

⁶⁵UN General Assembly, Transforming Our World: The 2030 Agenda A/RES/70/1 (21 October 2015) 17-19.

A further dimension concerns social justice and equality. Sustainable development requires fair distribution of the benefits of economic growth, addressing both intra-generational and inter-generational equity.⁶⁶ The EU has increasingly framed sustainability in terms of a "just transition", ensuring that climate policies do not disproportionately harm vulnerable workers or regions. The European Just Transition Mechanism (2020) provides financial assistance to communities most affected by the transition to a low-carbon economy.⁶⁷

Public health is another crucial social implication. Scholars such as Gostin and Friedman have stressed that sustainable development cannot be pursued in isolation from health policy, since resilience requires an integrated approach.⁶⁸ Education and awareness also form part of the social dimension. As Nasibulina points out, creating a "noosphere person"—an individual aware of humanity's ecological limits—is one of the most ambitious yet necessary social tasks of our time.⁶⁹

16. Ethical Dimension of Sustainable Development

One of the most fundamental aspects of sustainable development is its ethical dimension. Sustainability, as expressed in the Brundtland Report, emphasised that development must take into consideration all people who will be born after us. Each citizen needs to share the belief that he/she is an active member of a global community, and his/her actions can consequently affect the rights and well-being of future generations.⁷⁰

The ethical principles of sustainability prescribe that when tensions exist between pillars of sustainable development—such as economics and society, or ethics and economy—decision-makers must consider both competing concepts and adopt solutions that optimise across both areas. Consider the example of automation: airports worldwide are now equipped with automated machines for passenger identification, causing employee dismissals as companies reduce costs. Using only economic principles, such behaviour is easily justified. However, if we take into consideration both ethical and economic principles, legislators might impose limits on automation to maintain meaningful employment alongside efficiency gains.

The moral dimension also encompasses the stance that all human beings must have towards the environment. All humans need to proceed to actions that take into consideration the environment and decrease harmful effects such as greenhouse emissions, air and water pollution, and depletion of natural resources.⁷¹ The goal of modern education should be to create individuals who adhere to good moral values, understand deeply the harmful environmental effects of human activities, and are able to find viable and sustainable solutions.

17. Environmental Aspects of Sustainable Development

One of the main dangers that the environment has faced in recent decades is that various industries use oil, natural gas, and other fuels to produce energy, releasing greenhouse gases such as carbon dioxide that increase global temperatures and cause climate change.⁷² For sustainable development to occur and better protect the environment, industries and states need to use alternative forms of energy such as solar and wind energy.

⁶⁶Edith Brown Weiss, 'Intergenerational Equity: A Legal Framework' (1990) 81 AJIL 21-23.

⁶⁷European Commission, The Just Transition Mechanism COM (2020) 22 final.

⁶⁸Lawrence O Gostin and Eric A Friedman, 'UN Sustainable Development Goals' (2015) 15 Global Health Law Journal 134.

⁶⁹Anastasia Nasibulina, 'Education for Sustainable Development' (2015) 7 Journal of Education and Practice 14.

⁷⁰Liene Amantova-Salmane, 'Ethical Aspects of Sustainability' Journal of Social Sciences 1(7), 5-15.

⁷¹Ashok Kumar Verma, 'Sustainable Development and Environmental Ethics' (2019) 10 International Journal on Environmental Sciences 1.

⁷²Abdeen Mustafa Omer, 'Energy Efficiency Improvement' (2014) IJRSB 2(1), 11-38.

An important study showed that direct investment in 27 European States helped reduce gas emissions to a significant extent, with major investments focusing on renewable sources of energy and technological advancements aimed at advancing industries while protecting the environment.⁷³ The European Union, through various initiatives, envisages offering comprehensive environmental protection to European citizens, with measures serving multiple purposes such as combating pollution and promoting protective legislation.⁷⁴

A close cooperation between the various actors of the global community—from civic movements, international and European organisations, national governments, multinational companies to Non-Governmental Organisations and environmental associations—is necessary to achieve the desired outcomes. We have reached a critical point, and sustainable and urgent solutions must be adopted if we want to see actual and concrete results.

18. Conclusions

The 2024–2025 period consolidated the European Green Deal’s legislative architecture, from climate governance and carbon pricing to nature restoration, but it also marked a qualitative turn: sustainability is now embedded in private relationships through consumer, product and corporate due diligence instruments. The emerging ‘sustainable market’ model uses private law—contracts, liability and remedies—as a delivery system for public sustainability objectives. Yet the Omnibus simplification agenda and divergent implementation across Member States show that this embedding remains politically and legally contested.⁷⁵

For scholarship, three dynamics deserve attention. First, the interaction between macro-level public targets (2030/2050 trajectories and carbon pricing) and micro-level private-law rules (durability, repair, green claims and supply-chain contracting) creates a new problem of coherence: how to prevent fragmentation and ‘tick-box’ compliance. Second, enforcement is becoming hybrid: administrative supervision is complemented by private enforcement (collective redress, consumer injunctions and climate-related tort litigation). Third, digitalisation—AI tools, data and smart contracting—can facilitate traceability and compliance, but it also raises issues of transparency, accountability and distributive justice.⁷⁶

Ultimately, the Union’s ability to deliver sustainable development will depend not only on ambitious targets, but on whether EU private law can translate those targets into credible incentives and remedies for market actors. If sustainability remains an external ‘public’ constraint, the implementation gap will persist; if it is internalised as a normative standard of private ordering, EU private law may become one of the strongest levers of the transition.⁷⁷

⁷³Onofrei et al., 'The Impact of Environmental Effects of Sustainable Development' (2023) *Scientific Annals of Economics and Business* 70, 33-42.

⁷⁴Lucretia Dogaru, 'The Importance of Environmental Protection and Sustainable Development' (2013) *Procedia - Social and Behavioral Sciences* 93, 1344-1348.

⁷⁵Directive (EU) 2024/1760 on corporate sustainability due diligence (CSDDD/CS3D) and the 2025 ‘Omnibus’ simplification agenda affecting sustainability reporting and due diligence timetables and scope.

⁷⁶Directive (EU) 2020/1828 on representative actions for the protection of the collective interests of consumers provides a procedural backbone for collective enforcement of sustainability-related consumer rights (including green claims).

⁷⁷Treaty foundations: Treaty on European Union (Art 3(3) TEU); Treaty on the Functioning of the European Union (notably Arts 11, 114 and 169 TFEU); and the Charter of Fundamental Rights of the EU (Art 37). These provisions allow sustainable development to function not only as a policy goal, but as an interpretative principle with spill-over effects in harmonised private law.

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