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Climate Change – A Pivotal Challenge for International Law

Abstract

This article aims to demonstrate the international community's growing interest in combating climate change by examining key legal solutions related to sustainable development and environmental protection. It also presents respective international legislative actors' strategies for climate neutrality through an analysis of selected legal measures within international, EU, American, and Chinese law frameworks. The article defines key sustainability terms such as *climate change*, *greenhouse gases*, and *sustainable development*.

Keywords: sustainable development, climate change, international law, European law, U.S. law, ESG, environment

Zmiana klimatu – kluczowe wyzwania prawa międzynarodowego

Streszczenie

Celem artykułu jest wykazanie rosnącego zainteresowania społeczności międzynarodowej przeciwdziałaniu zmianom klimatu poprzez badanie kluczowych rozwiązań prawnych dotyczących zrównoważonego rozwoju i ochrony środowiska oraz pokazanie różnych dróg obranych przez podmioty prawa międzynarodowego do osiągnięcia neutralności klimatycznej, poprzez analizę wybranych rozwiązań z: prawa międzynarodowego, wspólnotowego, amerykańskiego i chińskiego.

Słowa kluczowe: zrównoważony rozwój, zmiana klimatu, prawo międzynarodowe, prawo unijne, prawo amerykańskie, ESG, ochrona środowiska

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1. Climate change, global warming, greenhouse effect, greenhouse gases

Climate change, defined as the long-term alteration of temperature and typical weather patterns on Earth, has emerged as one of the most pressing global challenges of modern times. The decade from 2011 to 2020 was the warmest on record, with global average temperatures exceeding pre-industrial levels by 1.1°C and continuing to rise by approximately 0.2°C per decade. Each year brings us closer to potentially catastrophic changes in the global biosphere.¹ The causes of climate change can be divided into two distinct categories: natural processes, be it internal (e.g., volcanic eruptions) or external forcings (e.g., modulations of the solar cycles), and anthropogenic changes.² This article focuses on the second type, defined as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.”³ The UNFCCC thus distinguishes between “natural climate variability” and “climate change,” the latter specifically referring to human-induced changes. Driven by human activities such as the burning of fossil fuels, deforestation, and industrial processes, human-induced climate change threatens ecosystems, human health, and economic stability. The consequences are already apparent: rising sea levels, increased frequency and severity of natural disasters, greater weather volatility, and escalating disruptions to food and water security.

The threat posed by climate change extends beyond environmental degradation; it exacerbates social inequalities and jeopardizes the livelihoods of millions, particularly in vulnerable regions. If left unchecked, the deepening climate crisis could trigger irreversible damage, including the loss of biodiversity and the collapse of ecosystems vital for human survival.

As identified by scientific consensus and the international community, the primary driver of climate change is the greenhouse effect. Certain gases in our planet’s atmosphere—akin to the glass in a greenhouse—trap the sun’s heat, preventing its release into space, which leads to higher global temperatures, commonly known as global warming. While many of the aforementioned gases occur naturally, human activities result in their increased concentration in the atmosphere, breaking the delicate balance that has existed for billions of years. The six main chemical compounds defined and listed in the Kyoto Protocol are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃),⁴ of which human-produced carbon dioxide has been identified as the largest contributor.⁵

Acting on these risks, nations and international organizations have implemented a range of laws and policies to curb greenhouse gas (GHG) emissions, transition to renewable energy sources, and foster sustainable development—understood as continuous development at a state level, balancing social, economic, and environmental priorities.⁶ Such an equilibrium cannot be secured with a one-time legal

1 European Commission, *Causes of climate change*, https://climate.ec.europa.eu/climate-change/causes-climate-change_en

2 IPCC, 2018: Annex I: Glossary, ed. J.B.R. Matthews, [in:] *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, eds. V. Masson-Delmotte, P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield, Cambridge, UK–New York, NY, USA, pp. 541–562.

3 United Nations, *United Nations Framework Convention on Climate Change UNFCCC*, 1992, https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

4 United Nations, *Kyoto Protocol on the United Nations Framework Convention on Climate Change*, 1998, <https://unfccc.int/resource/docs/convkp/kpeng.pdf>

5 European Commission, *Causes of climate change...*

6 A. Krzywoń *Konstytucja RP a środowisko*, “Państwo i Prawo” 2012, no. 8.

solution⁷ and requires ongoing adjustments in response to constantly evolving socioeconomic and ecological factors.⁸ Furthermore, the green transition entails great socioeconomic costs. It not only consumes trillions of dollars annually⁹ but also alters labor markets by creating new jobs while rendering others obsolete. Ultimately, it seeks to redirect human behaviour toward a more environmentally conscious society and a net-zero, circular economy.

The goal of this article is to illustrate the international community's growing interest in climate change prevention by exploring legal frameworks for sustainability, which are crucial for mitigating the effects of human-induced global warming—an existential threat that is severely underappreciated by the legal community—and ensuring a livable planet for future generations. In addition, the article compares and contrasts the key legislative measures enacted worldwide to both show different levels of commitment toward achieving climate neutrality and highlight the strengths, weaknesses, and likely success rates of each strategy.

2. United Nations Framework Convention on Climate Change

Climate change is a global issue, affecting the environment, economy, and everyday life, with its remediation requiring the concerted efforts of the international community¹⁰. Environmental law is therefore developed vertically—originating from international provisions, interpreted through EU regulations, and implemented at the member state level.¹¹ The foundation of international environmental law¹² was laid in the United Nations Framework Convention on Climate Change (UNFCCC), a multilateral environmental agreement signed in 1992 by 154 member states (198 parties as of 2025¹³), with its main objective explained in Article 2: “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic [i.e., human-caused] interference with the climate system.”¹⁴ The UNFCCC provisions have been further developed during annual sessions of the Conference of the Parties (COP), a decision-making body consisting of representatives of the respective states that are parties to the Convention, established to assess the UNFCCC signatories' progress and negotiate new environmental commitments.¹⁵ COP's two most significant achievements have been the Kyoto Protocol and the Paris Agreement—major treaties under the UNFCCC that have further advanced international environmental law.

7 J. Ciechanowicz-McLean, *Interes publiczny w prawie ochrony środowiska*, [in:] *Problemy współczesnego ustrojoznawstwa. Księga jubileuszowa profesora Bronisława Jastrzębskiego*, ed. J. Dobkowski, Olsztyn 2007, pp. 452–459.

8 S. Dubis, *Wpływ organów nadzoru budowlanego na zrównoważony rozwój samorządu terytorialnego*, [in:] *Wybrane aspekty realizacji zasady zrównoważonego rozwoju samorządu terytorialnego*, eds M. Sitek, P.B. Zientarski, Warszawa 2019, s. 65.

9 M. Krishnan, H. Samandari, J. Woetzel, S. Smit, D. Pachthod, D. Pinner, T. Naucclér, H. Tai, A. Farr, W. Wu, D. Imperato, *The net-zero transformation, What would it cost, what it could bring*, McKinsey Global Institute, January 2022, <https://www.mckinsey.com/~/media/mckinsey/business%20functions/sustainability/our%20insights/the%20net%20zero%20transition%20what%20it%20would%20cost%20what%20it%20could%20bring/the-net-zero-transition-executive-summary.pdf>

10 J. Ciechanowicz-McLean, *Konwencja Narodów Zjednoczonych w sprawie zmian klimatu*, [in:] *Wielka encyklopedia prawa*, t. 4, *Prawo międzynarodowe publiczne*, red. B. Hołyst, R. Hauser, J. Symonides, D. Pyć, Warszawa 2014, pp. 191–192.

11 J. Ciechanowicz-McLean, *Węzłowe problemy prawa ochrony klimatu*, „*Studia Prawnoustrojowe Uniwersytetu Warmińsko-Mazurskiego*” 2017, vol. 37.

12 M. Stoczkiewicz, *Prawo ochrony klimatu w kontekście praw człowieka*, Warszawa 2021.

13 UNFCCC, Status of Ratification of the Convention, [https://unfccc.int/process-and-meetings/the-convention/status-of-ratification-of-the-convention#:~:text=Currently%2C%20there%20are%20198%20Parties%20\(197%20States,United%20Nations%20Framework%20Convention%20on%20Climate%20Change](https://unfccc.int/process-and-meetings/the-convention/status-of-ratification-of-the-convention#:~:text=Currently%2C%20there%20are%20198%20Parties%20(197%20States,United%20Nations%20Framework%20Convention%20on%20Climate%20Change)

14 United Nations Framework Convention on Climate Change, 1992, https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

15 UNFCCC, Conference of the Parties (COP), <https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop>

3. The Kyoto Protocol

One of the most important instruments created under the aegis of the UNFCCC is the Kyoto Protocol, which was signed in 1997 by 192 UN members. It introduced further legal safeguards against global warming by reducing greenhouse gas emissions.¹⁶

The Protocol defines and lists greenhouse gases (GHG's)¹⁷ that “transmit most of the solar radiation reaching the Earth, while absorbing infrared radiation, reflected by the Earth’s surface. By absorbing infrared radiation, greenhouse gases contribute to the greenhouse effect. A quantity characterizing the greenhouse effect potential of a selected gas is the global warming potential (GWP). Changes in the concentration of greenhouse gases in the atmosphere can be caused by both natural factors and by human activities.¹⁸”

The Kyoto Protocol provides the groundwork for the carbon market system (also known as: Carbon Emission Trading, Emission Trading Scheme - ETS or cap and trade) using the Clean Development Mechanism (CDM). Its main focus is on compliance carbon markets.¹⁹

The objective of carbon markets is to achieve sustainability goals by reducing greenhouse gas emissions and identifying the costs of environmentally harmful actions by corporations or states (carbon offsetting). This mechanism is based on carbon credits—greenhouse gas emission permits that entities can buy, sell, or generate, depending on the type of carbon market system.²⁰ In a voluntary carbon market system, carbon credits represent money investments in projects that aim to reduce, avoid, or remove carbon dioxide (CO₂) or its equivalent (CO₂e) from the atmosphere. One carbon credit (or carbon offset) corresponds to one cubic tonne of carbon dioxide (CO₂) or its equivalent (CO₂e) that has been reduced, eliminated, or removed as a result of carbon offsetting.²¹ Greenhouse gas emitters are legally bound to participate in compliance carbon markets (CCM), organized in a cap-and-trade system. A specific number of carbon credits is allocated, allowing a defined amount of GHGs to be emitted. If the allocated limit is exceeded, the entity is required to buy additional carbon credits from those emitters who have managed to reduce their emissions against their targets and have not fully used up their allocated limit. The examples include the EU Emissions Trading System (EU ETS), the Regional Greenhouse Gas Initiative (RGGI), or California Cap-and-Trade Program.²²

The treaty outlines a common goal with a differentiated distribution of responsibilities among countries—proportional to their level of development. It places the greatest burden on those states that have historically been the main contributors to climate change—referred to as Annex I countries²³—as opposed to the less developed, non-Annex I countries, which have received a more lenient treatment.²⁴ The Protocol legally binds signatories to reduce greenhouse gas emissions; develop appropriate national legislative measures to achieve the treaty’s objectives; establish funds minimizing the effects of climate change; set the highest standards for documenting, measuring, and evaluating actions aimed at

16 Protokół z Kioto do Ramowej konwencji Narodów Zjednoczonych w sprawie zmian klimatu, Dz.U., no. 203, <https://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20052031684/O/D20051684.pdf>

17 Kyoto Protocol...

18 Teraz Środowisko, Gazy cieplarniane - Słownik ochrony środowiska, <https://www.teraz-srodowisko.pl/slownik-ochrona-srodowiska/definicja/gazy-cieplarniane.html>

19 Kyoto Protocol...

20 UN environment programme, *Carbon Markets*, <https://www.unep.org/topics/climate-action/climate-finance/carbon-markets>

21 The Integrity Council for the Voluntary Carbon Market, *The Voluntary Carbon Market Explained*, <https://icvcm.org/voluntary-carbon-market-explained>

22 Senken, *Understanding the Compliance vs Voluntary Carbon Market (VCM)*, <https://www.senken.io/academy/understanding-the-compliance-vs-voluntary-carbon-market-vcm>

23 Kyoto Protocol...

24 Ibidem.

sustainable development; and report to a committee overseeing the agreement's implementation. Unlike its successor, the Paris Agreement, the Kyoto Protocol follows a top-down structure, imposing legally binding climate targets on the parties.

On 8 December 2012, at the 18th annual Conference of the Members of the United Nations Framework Convention on Climate Change (COP18) in Doha, an agreement was reached to extend the Kyoto Protocol until 2020 and to begin work on a successor treaty, later known as the Paris Agreement.²⁵

4. The Paris Agreement – a legislative cornerstone for achieving environmental neutrality

The Paris Agreement was the culmination of the 21st UN Climate Change Conference (COP21), held on 12 December 2015,²⁶ where it was adopted by all 195 conference participants. The treaty entered into force on 4 November 2016 and currently has 196 signatories,²⁷ accounting for 98% of global greenhouse gas emissions.²⁸ (The only significant GHG emitter not to join the Paris Agreement is Iran, responsible for about 1.8% of global emissions.²⁹) Due to its widespread adoption, the Agreement serves as a benchmark against which all other environmental frameworks are compared. Its primary objective is to encourage UN members to intensify efforts to reduce climate change risks in the context of sustainable development and the fight against poverty.³⁰

The Agreement's initial reception and effectiveness evaluation were mixed. Politically, opinions ranged from the fervent praise of then-French President Francois Hollande and UN Secretary-General Ban Ki-Moon to the adversarial stance of the U.S. President Donald Trump, under whose administration the U.S. withdrew from the Agreement in 2020. This decision was reversed following Joe Biden's presidential election, with the U.S. rejoining the treaty in 2021—only to rescind the treaty once again on 20 January 2025 through the presidential executive order of Donald Trump after his second inauguration.³¹

From a scientific perspective, the Paris Agreement has been judged inadequate to effectively and timely reverse climate change. Many of the introduced measures remain controversial due to their insufficiently demonstrated effect.³² Concerns have also been raised about the ability of the signatories to fulfill these commitments—already considered by numerous environmental organizations as lacking ambition—using expensive, complex, and scientifically attested solutions, without resorting to manipulation of environmental metrics or reliance on cost-efficient yet inadequate methods permitted under the Agreement.³³ The most widely criticized point is the continued authorization of fossil fuel use on a large scale on the condition of compensating the resulting emissions. While acceptable under the Paris Agreement, this offset policy may not lead to climate improvement from a scientific point of view. Rather, it approves of undisrupted environment pollution by oil-rich without imposing actual change.

25 BBC, *UN climate talks extend Kyoto Protocol, promise compensation*, 8.12.2012, <https://www.bbc.com/news/science-environment-20653018>

26 United Nations Framework Convention on Climate Change, *Paris Agreement*, https://unfccc.int/sites/default/files/resource/parisagreement_publication.pdf

27 United Nations Framework Convention on Climate Change, <https://unfccc.int/process-and-meetings/the-paris-agreement>

28 Union of Concerned Scientists, *Each Country's Share of CO2 Emissions*, 16.07.2008.

29 Al Jazeera, *Mapping the hottest temperatures around the world*, 5.07.2023, <https://www.aljazeera.com/news/2023/7/5/what-is-the-highest-temperature-ever-recorded-in-your-country-2>

30 United Nations Framework Convention on Climate Change, *Paris Agreement*...

31 Executive Order 14162 of January 20, *Putting America First in International Environmental Agreements*, <https://www.federalregister.gov/d/2025-02010>

32 NewClimate non-profit organization, *Climate Action Tracker*, <https://climateactiontracker.org/global/cat-thermometer/>

33 L. Maizland, *Global Climate Agreements: Successes and Failures*, Council on Foreign Relations, 12.06.2021.

5. The Paris Agreement – structure, main provisions

With only 29 articles, the Paris Agreement is a relatively short and ambiguous document, covering most types of greenhouse gas emissions (except for aviation and shipping, which are governed by other instruments: the International Civil Aviation Organization [ICAO]³⁴ and the International Maritime Organization [IMO],³⁵ respectively).

The mission statement of the Paris Agreement can be found in Article 2, which binds the international signatories to intensify climate change-mitigating efforts in the context of sustainable development and the fight against poverty.³⁶

The first goal is to contain global warming below 2°C—and preferably down to 1.5°C—relative to the pre-industrial era, with a view to an effective reduction of the risks and effects of climate change.³⁷ The second aim of the treaty is to build resilience to climate change and transition toward low-carbon economic development that does not negatively impact food production.³⁸ The final objective is to ensure adequate funding in pursuit of the above goals.³⁹

Similarly to the Kyoto Protocol, the Paris Agreement emphasizes measures that reflect the principle of common purpose. However, it also underscores the varying capabilities and responsibilities of the signatories.⁴⁰ The structure of the Paris Agreement can be described as bottom-up.⁴¹ Unlike its predecessor, however, the Paris Agreement refrains from imposing specific environmental targets, allowing signatories to submit five-year plans for the reduction in greenhouse gas emissions to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). These pledges—Nationally Determined Contributions (NDCs)—are subject to review by the international community.⁴²

Another difference is that the Paris Agreement does not distinguish between highly developed and less developed countries—all signatories to the treaty face equal commitments regarding NDCs, contrary to the provision in Article 2 of a “common goal with differentiated capacities and responsibilities.” However, this principle comes into play in Article 4, which acknowledges that it may take developing countries longer to achieve the desired GHG reductions.⁴³ In addition to issuing five-year NDCs, signatories should seek to formulate and communicate long-term goals for GHG reduction strategies (long-term low greenhouse gas emission development strategies), reflecting the objectives set in Article 2 in conjunction with Article 4.19 of the Agreement.⁴⁴

34 ICAO, *Resolution A41-21 Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change*, https://www.icao.int/environmental-protection/Documents/Assembly/Resolution_A41-21_Climate_change.pdf

35 International Maritime Organization, *2023 IMO Strategy on Reduction of GHG Emissions from Ships*, <https://www.imo.org/en/OurWork/Environment/Pages/2023-IMO-Strategy-on-Reduction-of-GHG-Emissions-from-Ships.aspx>

36 United Nations Framework Convention on Climate Change, *Paris Agreement*...

37 Ibidem.

38 Ibidem.

39 Ibidem.

40 Ibidem.

41 R. Falkner, *The Paris Agreement and the New Logic of International Climate Politics*, “International Affairs” 2016, vol. 92(5), pp. 1107–1125.

42 United Nations Framework Convention on Climate Change, *Paris Agreement*...

43 Ibidem.

44 Ibidem.

6. Further provisions of the Paris Agreement

Under Article 3 of the Agreement, NDCs must indicate ambitious efforts to achieve the treaty's objectives, as set out in Article 2. Treaty members should seek close collaboration over time, and developing states may rely on international support to address economic disparities and progress toward climate neutrality.⁴⁵

Article 4 opens by stating that it is not possible to accomplish the main objective of the Paris Agreement, as laid down in Article 2, without reducing global emissions of greenhouse gases into the atmosphere. Emissions should be decreased as soon as possible, in a manner that is “consistent with the best available science, on the basis of equity and in the context of sustainable development and efforts to eradicate poverty.”⁴⁶ The same article stipulates that signatories should raise the standards in successive declarations. These declarations are publicly registered with the UNFCCC Secretariat and reviewed as part of a “global stocktake” (described in more detail in Article 14 of the Agreement), which assesses whether the respective states act on their pledges and submit increasingly ambitious plans from cycle to cycle.⁴⁷ The five-year NDC reviews also include audits of adaptation measures, pro-environmental funding, and the development and promotion of green technologies.⁴⁸

As specified in the Agreement, developed countries should lead the fight for sustainable development, assisting developing states in these efforts, in accordance with Articles 9, 10, and 11. The least developed countries and small island developing states have been assigned a distinct status, entitling them to communicate and achieve climate goals in line with their “special circumstances.”⁴⁹

Article 5 expresses the necessity to maintain, enhance, and protect natural methods of recovering greenhouse gases from the atmosphere (“sinks and reservoirs of greenhouse gases”), including forests.⁵⁰

7. Further refinement of carbon markets under the Paris Agreement

Article 6 represents one of the most consequential and, at the same time, controversial points of the Paris Agreement in its attempt to establish a UN-wide carbon market by permitting the international transfer of carbon offsets (International Transfer of Mitigation Outcomes, or ITMOs).⁵¹

This remains the only unresolved treaty provision, demanding ongoing debate—most recently at COP26 in Glasgow (2021) and at COP28 in Dubai (2023).

COP26 sought to prevent double counting in carbon offsetting. States should not count an offset tonne of CO₂ or CO₂e toward both treaty and other (compliance market) obligation fulfillment, reporting the same ITMOs for themselves and for another party to whom the outcomes were transferred to meet climate targets, as outlined in Articles 6.2 and 6.3. This voluntary cooperation (“engaging on a voluntary basis in cooperative approaches...”⁵²) should promote of sustainable development in an atmosphere of transparency, fairness, and accuracy in recording activities and the results of a green transformation.

However, carbon markets have not been scientifically demonstrated to affect greenhouse gas emissions. According to many experts in the field, there is not enough high-quality data to draw unequivocal

45 Ibidem.

46 Ibidem.

47 Ibidem.

48 Ibidem.

49 Ibidem.

50 Ibidem.

51 Ibidem.

52 Ibidem.

conclusions. This concern was corroborated by the author of this article in a paper addressing the Science Based Targets Initiative's unwarranted acceptance of carbon markets as an effective method of greenhouse gas emissions mitigation—without consulting qualified academics and advisors—thereby triggering criticism.⁵³ Moreover, in the case of ITMOs, developed countries inevitably opt for outsourcing GHG offsets to developing countries due to lower costs, inferior standards, and less stringent scrutiny. For example, it is incomparably easier for Switzerland (the first signatory to the Paris Agreement to express interest in purchasing ITMOs) to replace cookers in a developing country—where effectiveness in reducing emissions has been shown to be overestimated by up to a factor of ten⁵⁴—than to invest domestically in renewable energy or energy storage systems. Switzerland has already signed agreements with countries including Peru,⁵⁵ Ghana,⁵⁶ Senegal,⁵⁷ Georgia, Dominica, Vanuatu, Thailand, and Ukraine.⁵⁸

8. Evaluation of the Paris Agreement

The Paris Agreement is a bold attempt at a hardly achievable compromise between countries with radically different economic interests, outlooks on sustainable development, and disproportionate capacities to address climate change—making its outcome difficult to assess. The Agreement deserves to be lauded as a demonstration of the international community's joint effort to protect the future of the global ecosystem. However, the treaty's numerous loopholes and understatements allow the continuation of pollution and burning of fossil fuels, despite apparent compliance. Given the treaty's weak enforcement mechanisms, the obligation to periodically submit increasingly ambitious five-year climate plans (NDCs) stands out as one of its most significant provisions.

Unfortunately, scholars warn that this compromise, unlikely to ever fully come into effect, is insufficient to reverse the climate crisis.

In particular, Article 6 has raised concerns. It has introduced global carbon markets and ITMOs, which may potentially relieve rich countries from the obligation to undertake difficult yet necessary changes to their energy systems, economies, or habits, as long as they offset their emissions in poorer countries at a much lower effort and cost, stunting both the buildup of their own bio-resilience and the economic growth of the least developed states.

To conclude, if pursued in good faith, the generality and flexibility of the Paris Agreement could become an effective tool to reduce climate change if each signatory adopts the most ambitious yet feasible climate reduction targets within a framework of international cooperation. Despite well-intentioned efforts, however, it is likely that poverty, greed, or other particular issues drive the members of the treaty to exploit its vagueness and avoid the costs of the green transition under false pretenses.

53 T. Kaczmarek, *SBTi Board Statement reaction – Carbon markets and their effectiveness*, 23.04.2024, <https://eaasglobal.medium.com/sbti-board-statement-reaction-carbon-markets-and-their-effectiveness-6161349425a3>

54 P. Greenfield, *Cookstove carbon offsets overstate climate benefit by 1,000%, study finds*, The Guardian, 23.01.2024, <https://www.theguardian.com/environment/2024/jan/23/clean-cookstove-carbon-offsets-overstate-climate-benefit-by-1000-percent>

55 Federal Department of Foreign Affairs FDFA, *Bilateral relations Switzerland–Peru*, <https://www.eda.admin.ch/eda/en/fdfa/representations-and-travel-advice/peru/switzerland-peru.html>

56 Federal Department of Foreign Affairs FDFA, *Switzerland and Ghana sign an agreement on climate protection*, 23.11.2020, <https://www.eda.admin.ch/countries/ghana/en/home/news/news.html/content/countries/ghana/en/meta/news/2020/11/switzerland-ghana-climate-agreement>

57 Swissinfo.ch, *Switzerland and Senegal sign climate deal*, 06.07.2021, <https://www.swissinfo.ch/eng/politics/switzerland-and-senegal-sign-climate-deal/46764460>

58 Federal Office for the Environment FOEN, *Bilateral agreements on emission reductions and carbon storage abroad*, <https://www.bafu.admin.ch/bafu/en/home/topics/climate/info-specialists/climate--international-affairs/staatsvertraege-umsetzung-klimauebereinkommen-von-paris-artikel6.html>

9. European legal framework for a sustainable future

For decades, the European Union (EU) has been at the forefront of the green transformation, enshrining environmental improvement in multiple international treaties. In fact, this transformation has become one of the primary goals of the EU.⁵⁹ Since the Lisbon Treaty, EU authorities have shared climate protection efforts with its Member States,⁶⁰ as guaranteed by Article 4(2) of the Treaty on the Functioning of the European Union⁶¹ and further strengthened by Article 191 of the Treaty which describes the EU's objectives verbatim as “preserving, protecting, and improving the quality of the environment; protecting human health, prudent and rational utilization of natural resources,”⁶² as well as “promoting measures at international level to deal with regional or worldwide biosphere problems, and in particular combating climate change.”⁶³ The concept of sustainable development permeates European law and can be found in treaties, secondary law, and soft law—standards, decisions, and recommendations.⁶⁴

In an attempt to effectively realize the European environmental policies without hampering the economic growth of EU member states, a strategy called the European Green Deal was introduced. It is a set of policies with an overarching aim of achieving climate neutrality by the year 2050,⁶⁵ while remaining “... a prime destination for investments that bring stable, future-proof quality jobs, with a strong industrial base”.⁶⁶

The European Green Deal's targets are specified in the European Climate Law. Climate neutrality is to be achieved by 2050, with an intermediate goal of reducing the GHG emissions by at least 55% compared to the 1990 level by the year 2030 (“Fit for 55” package).⁶⁷ Furthermore, the Green Deal emphasizes the need to strengthen natural carbon sinks in the EU by revising the Forestry Regulation. It also outlines the establishment of a Scientific Advisory Board on Climate Change and requires the member states to update their progress toward achieving these goals through National Energy and Climate Plans (NECPs).⁶⁸ The European Climate Law was published in the Official Journal on 9 July 2021 and entered into force on 29 July 2021.⁶⁹ In February 2024, drawing on the EU Climate Law, the Commission proposed a supplementary intermediate goal of reducing GHG emissions by at least 90% compared to 1990 levels.⁷⁰

59 M.M. Kenig-Witkowska, *Międzynarodowe prawo środowiska. Wybrane zagadnienia systemowe*, LEX/el., Warszawa 2011.

60 K. Hermanowski, *Zasada zrównoważonego rozwoju a prawna ochrona drzew i krzewów*, “Journal of Modern Science” 2023, vol. 50(1), pp. 292–316.

61 European Union, *Consolidated version of the Treaty on the Functioning of the European Union*, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12012E/TXT>

62 Ibidem.

63 Ibidem.

64 M. Sitek, *Polityka ochrony środowiska w sektorze usług turystycznych w świetle prawa Unii Europejskiej*, Olsztyn 2007, pp. 61–69.

65 European Commission, *European Green Deal*, <https://ec.europa.eu/stories/european-green-deal/>

66 Ibidem.

67 European Commission, *European Climate Law*, https://climate.ec.europa.eu/eu-action/european-climate-law_en

68 European Commission, *National Energy and Climate Plans*, https://commission.europa.eu/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en#final-necps

69 European Commission, *European Climate Law...*

70 European Commission, *European Green Deal...*

10. Fit for 55 Package

The Fit for 55 Package is a comprehensive set of climate and energy proposals introduced in July 2021. Its primary aim is to reduce the EU's greenhouse gas emissions by **55%** by the year 2030 (compared to 1990 levels) and to put the EU on a path to **climate neutrality by 2050**. The package includes various legislative and regulatory measures designed to transform the EU's economy, energy systems, and transport infrastructure, while promoting sustainable growth, clean energy, and environmentally sustainable transport, and maintaining the EU's economic competitiveness.⁷¹ Key provisions of the Fit for 55 Package include the revision of the EU Emissions Trading System (ETS) and the creation of the Carbon Border Adjustment Mechanism (CBAM). The package also aims to prevent the outsourcing of corporate production to non-EU countries to escape stringent environmental policies regarding GHG emissions.⁷² The package also promotes carbon removal by sustainable forestry and agricultural practices, which serve as carbon sinks, and establishes the Social Climate Fund to help alleviate the financial burden of the green transformation.

11. European regulation of corporate sustainability

The European Union attaches great importance to increasing the level of scrutiny applied to corporations operating within its jurisdiction by means of two directives—the Corporate Sustainability Reporting Directive (CSRD) and the Corporate Sustainability Due Diligence Directive (CSDDD)—and one regulation—the Sustainable Finance Disclosure Regulation (SFDR). The framework applies to all large companies operating within the EU, including those established outside the EU, and requires them to conduct due diligence across their value chains, covering ESG issues such as forced labour, environmental harm, and corruption.

The CSRD is a European Union initiative aimed at enhancing transparency in corporate sustainability efforts. It requires large companies and listed entities to disclose detailed information concerning their environmental, social, and governance (ESG) practices alongside financial performance. The directive, which builds on the Non-Financial Reporting Directive (NFRD),⁷³ aims to standardize sustainability reporting, making it easier for stakeholders—including investors, consumers, and regulators—to assess the sustainability impact of a given company. It also ensures alignment with broader EU sustainability goals including the European Green Deal.⁷⁴ EU member states were expected to transpose the CSRD into national law by July 6, 2024. New requirements become binding in corporate reporting this year (2025) and apply to the financial year 2024.⁷⁵

71 European Commission, *Fit for 55*, <https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55/>

72 European Commission, *Carbon Border Adjustment Mechanism*, https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en

73 European Parliament and the Council, *Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups*.

74 European Parliament and the Council, *Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting*.

75 European Commission, *Corporate sustainability reporting*, https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en

The goals described in CSRD shall be further supported by the SFDR,⁷⁶ a key component of the EU's efforts to promote sustainable investing by increasing transparency in financial markets. The regulation requires financial institutions—such as asset managers, insurance companies, and pension funds—to disclose how they integrate environmental, social, and governance (ESG) factors into their investment decisions. The regulation aims to combat greenwashing by classifying financial products based on their sustainability characteristics, thereby helping investors make more informed choices. The SFDR also aligns with the EU's broader sustainability goals, supporting the transition to a low-carbon economy.⁷⁷

The new corporate sustainability obligations are to be enforced by the CSDDD, which is designed to ensure that companies identify, prevent, and mitigate adverse impacts on human rights and the environment within their supply chains,⁷⁸ under the threat of civil liability and fines of up to 5% of companies' net worldwide turnover.⁷⁹ EU member states have to transpose the Directive by 26 July 2026 as prescribed in Article 37 of the CSDDD.⁸⁰

12. Evaluation of the European sustainability regulations

Compared to the Paris Agreement, the EU has created a more ambitious and stringent system that does not shy away from penalizing member states and business entities for failing to comply with its provisions. Sustainability is a responsibility shared among the EU as an organization, its member states, and private companies. A major strength of the European plan is that it sets both a final goal of achieving climate neutrality by 2050 and an intermediate milestone for 2030, requiring member states to reach results in a timely manner. Additionally, by using directives as the main tool for environmental target fulfillment, the EU grants member states a degree of flexibility in their implementation.⁸¹

However, EU lawmaker's ambitions may prove challenging to deliver, as the socioeconomic burden increases with a broader scope of transformation. In order to comply with the far-reaching European regulations, companies—regardless of size—will be forced to cover the expenses of corporate sustainability reporting, transition into renewable energy, and other more sustainable business choices. As a result, the prices of all European-sourced products and services are expected to increase, negatively impacting European business' competitiveness and raising the costs of living within the EU.

13. U.S. and Chinese environmental measures – a different approach

Previously discussed legal measures for environmental protection are highly systemic, with a clear top-down structure. However, there is an alternative approach, and some countries promote sustainable transformation through investments, tax cuts, and other financial incentives. Two notable bottom-up initiatives have been launched by the U.S and China, respectively. The U.S. mostly focuses on tax cuts

⁷⁶ European Parliament and the Council, *Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector*, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019R2088>

⁷⁷ European Parliament and the Council, *Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector*.

⁷⁸ European Parliament and the Council, *The Corporate Sustainability Due Diligence Directive (CSDDD) – Directive (EU) 2024/1760*, <https://www.corporate-sustainability-due-diligence-directive.com/>

⁷⁹ European Parliament and the Council, *The Corporate Sustainability Due Diligence Directive (CSDDD) – Directive (EU) 2024/1760...*

⁸⁰ European Parliament and the Council, *Directive (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*.

⁸¹ J. Barcz *Prawo Unii Europejskiej. Zagadnienia systemowe. Prawo materialne i polityki*, Warszawa 2006.

and subsidies for businesses, aiming for a 40% reduction in greenhouse gas emissions by 2030.⁸² This support is delivered through a federal investment of USD 369 billion for clean energy development, electric vehicles, and emission reduction projects such as the Inflation Reduction Act (IRA).⁸³ Apart from providing economic incentives, the U.S. seeks to enforce environmental justice, nature conservation and climate adaptation through the Executive Order on Tackling the Climate Crisis at Home and Abroad (EO 14008), signed by President Biden in 2021.⁸⁴ The goals adopted by the U.S. align with the requirements set for Western developed countries under the Paris Agreement, but they are more modest than the EU's aspirations. Nonetheless, the American approach can be described as a bitter pill that is made more palatable by financial incentives and more lenient standards. Progress may be threatened with the re-election of Donald Trump as the U.S. president, given his past record of withdrawal from the Paris Agreement and prioritization of the U.S. economic interests over environmental issues.

Taking advantage of its sizeable population, China has created the world's broadest array of programs incentivizing consumers to reduce emissions, collectively referred to as Tanpuhui.⁸⁵ Within this framework, citizens are rewarded for everyday activities that lead to lower CO₂ emissions, such as taking public transport, car sharing, purchasing digital alternatives, and recirculating reusable goods.⁸⁶ Tanpuhui is expected to transform into a systematic, nationwide program, integrating both compliance and voluntary carbon markets.⁸⁷ China follows a stimulus-based approach with the highest rewards for individual citizens. However, it remains to be seen if these motivational instruments will develop into a unified national solution that adequately measures and decreases the environmental impact of this populous country. Irrespective of its strategy, China is most criticized for retaining the status of a developing country—a classification held in 1992 when it signed the UNFCCC. China—"the world's biggest greenhouse gas emitter and second biggest economy"⁸⁸—is under no real obligation to decrease its output, using the extenuating circumstances of being a developing country.⁸⁹ It is also eligible to receive climate aid⁹⁰ on par with the least developed African nations!

14. Fighting climate change – different approaches, ambitions, structures

With Europe leading the charge and the rest of the world finally realizing the importance of sustainable transformation, the international community is closer than ever to reaching the "all hands on deck" approach to climate action—albeit with different levels of commitment, structures, frameworks, and ideas on how to legally tackle the issues of climate change.

82 U.S. Environmental Protection Agency, *Inflation Reduction Act Overview*, https://www.epa.gov/system/files/documents/2022-12/12%2009%202022_OAR%20IRA%20Overview_vPublic.pdf

83 U.S. Congress, *Inflation Reduction Act (IRA), H.R.5376 – Inflation Reduction Act of 2022*, <https://www.congress.gov/bills/117th-congress/house-bill/5376/text>

84 The White House, *Executive Order on Tackling the Climate Crisis at Home and Abroad*, <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>

85 Tanpuhui official website, *Tanpuhui*, <https://www.tanph.cn/>

86 S&P Global, *The rise of China's carbon reduction incentive programs called "Tanpuhui"*, 24.06.2024, <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/062424-the-rise-of-chinas-carbon-reduction-incentive-programs-called-tanpuhui>

87 United Nations Conference on Trade and Development, *Development and Practices of China's Carbon Inclusion (Tanpuhui)*, https://unctad.org/system/files/official-document/gds2023d6_en.pdf

88 P. Greenfield, F. Harvey, *China and India should not be called developing countries, several Cop29 delegates say*, The Guardian, 19.11.2024, <https://www.theguardian.com/environment/2024/nov/19/china-india-developing-countries-cop29-climate-talks>

89 United Nations Framework Convention on Climate Change, *Paris Agreement...*

90 Ibidem.

Sustainability-specific legal frameworks can be categorized along two axes: structure and scope of changes pursued to mitigate climate change. In terms of structure, the highly organized, top-down European system—followed by the framework set up by the Paris Agreement—contrasts with the bottom-up systems adopted in the U.S. and China, which are based on incentivization and decentralization. These systems employ a “see what works” attitude. Notably, China has yet to unify its different emissions-reduction programs. In terms of scope, the European Green Deal exceeds the obligations for Western developed countries under the Paris Agreement. The U.S. solution focuses on minimal compliance with the Paris Agreement, while China leverages its status of a developing country under the treaty to maintain low environmental benchmarks.

Nonetheless, climate change has undoubtedly become one of the most pressing challenges for our civilization, impacting politics, law, and everyday life.

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