



OPPORTUNITIES FOR CLIMATE PROTECTION: PROSPECTS FOR THE DEVELOPMENT OF ENVIRONMENTAL REGULATION FOR ACHIEVING PRINCIPLES OF SUSTAINABLE DEVELOPMENT

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ABSTRACT

Objective: Environment conservation encompasses the long-term shifts in predominant climate patterns, as well as the variability that includes extreme weather events such as droughts, storms, and floods. Some regions are projected to see a decrease in annual precipitation over time, while in others, fluctuations in temperature and rainfall significantly influence plant growing seasons. This study aims to elucidate the nuances of international legal regulations pertaining to environment conservation. Additionally, it seeks to propose an original framework for integrating international environment conservation norms into national legal instruments.

Methods: This integration is based on an examination of both global international legal documents and corresponding national legislation. The research employed a comparative legal methodology to contrast the assimilation of international climate norms across various national legal systems.

Results: This method illuminated not just the similarities and differences, but also gauged the universality and efficacy of international legal principles, standards, and institutions in practice.

Conclusion: Uniquely in the realm of international law research, this study offers a holistic concept for states to fulfil their climate obligations, bridging international legal considerations with domestic regulatory concerns. Furthermore, it pinpoints specific legal regulatory methods at the international forefront.

Keywords: Environment conservation; Climate change; Environmental protection; Land; International legal acts; International environmental law.





1 INTRODUCTION

1.1 SIGNIFICANCE OF THE RESEARCH

For the first time, the Community of States officially recognized the problem of the anthropogenic impact on climate change at the United Nations Conference on Environment and Development in 1992 in Rio de Janeiro. Scientists concluded that climate change resulted from increased concentrations of greenhouse gases in the atmosphere, including carbon dioxide, methane, and chlorofluorocarbons. As highlighted in the report from the Intergovernmental Panel at the Perth Conference of the Parties on Climate Change, there exists a consistent, almost linear relationship between total CO₂ emissions and projected global temperature changes (United Nations, 1992). The primary contributor is carbon dioxide emissions from the combustion of fuels and industrial greenhouse gas processes. The UN Secretary-General, in his report to the seventy-second session of the United Nations, observed that “climate change leads to proportional increases or decreases in final income due to shifts in expenditures on desertification, forced displacement of populations, meteorological disasters, and water scarcity. It also significantly amplifies the strain on other natural resources” (Bredemeier, 2022).

The current dynamics of the climate system clearly indicate a long-term trend towards rising average air temperatures. Precipitation is also undergoing complex changes. According to the recent AR5 report from the Intergovernmental Panel on Climate Change (IPCC, 2013), these trends are expected to continue or even intensify. One negative outcome of rising temperatures is the significant rise in average sea levels. Since the 1860s, the sea level has increased by about 0.2 m, and satellite data from the 1990s show that this trend is accelerating. Forecasts suggest that by the end of the 21st century, air temperature will rise by 1.0–3.7 °C, depending on the scenario. This could result in a further sea level rise, anticipated to range between 0.26 m to 0.82 m. Some recent studies suggest even higher figures.

Changes in average climatic conditions can lead to variations in the frequency, intensity, spatial coverage, duration, and timing of extreme weather events, which can subsequently impact future climate scenarios. These extreme events, such as hurricanes, storm surges, floods, droughts, and abnormal heatwaves, can, along with shifts in climatic systems like monsoons, influence transport networks more



significantly on localized scales than average parameter changes. One notable trend is the increasing frequency and intensity of heavy downpours. Climate models predict this trend will persist. By 2100, heavy rains, currently observed approximately once every 20 years, will occur every 4-15 years, varying by region. Clearly, river flooding is a significant threat, particularly in Central and Eastern Europe as well as Central Asia. Available data suggest that phenomena like abnormal heat and drought will also become more frequent and intense. A major factor behind observed warming is the rising concentration of greenhouse gases (GHGs) in the atmosphere. These gases absorb thermal radiation reflected by the Earth's surface, amplifying heat accumulation within our planet's system. Since the onset of the Industrial Revolution, atmospheric GHG content has been rising steadily, now surpassing levels seen for millions of years. Positive feedback loops, such as the release of carbon from currently dormant natural reservoirs (e.g., tropical peatlands and Arctic permafrost rich in CH₄) and swift reductions in Arctic Ocean ice cover, could further expedite global warming.

The dangers of uncontrolled alterations in the climate system, and the resulting threats to the existence of all living organisms, including humans, necessitate urgent protective measures and legal oversight (Bekezhanov et al, 2021; Matvienko, Zolkin, Suchkov, Shichkin, & Pomazanov, 2022; Mukataeva et al, 2023).

Legislative actions and existing studies. Climate change is examined from various perspectives, spanning both the natural sciences and the humanities. The role of legal scholarship is to identify, justify, and integrate the most optimal strategies stemming from natural science research, such as efforts to reduce global greenhouse gas emissions. Law possesses tremendous regulatory capacity. It's imperative to stress that legal measures to combat climate change must operate at both international and domestic levels. Extended state negotiations on the development and adoption of a comprehensive international legal act to protect Earth's climate culminated in the Paris Agreement of September 2015, which took effect in 2016 (UNFCCC, 2016).

Table 1 Advantages of the Paris Agreement

N	Advantages of the Paris Agreement	Description
1	Clear objective	Keep global temperature increases below 2°C, aiming for a 1.5°C limit
2	Nationally determined contributions	Obligatory for all member states
3	Legally binding nature	Ensures commitment from member states
4	Flexibility in updating obligations	Based on specific circumstances
5	Financial mechanisms	Facilitates adaptation to climate change impacts

Furthermore, the broad participation in the Paris Agreement, with 195 countries agreeing to its terms and 163 states, including major emitters like China and the USA, submitting their contributions, stands as a significant accomplishment. As of mid-October, Syria and Nicaragua were the only two of 197 countries yet to sign the Agreement, though Nicaragua recently expressed its intent to do so. 168 of the 197 countries ratified it. Notable non-ratifiers include Russia, Turkey, Kyrgyzstan, Uzbekistan, Iran, and Iraq, with various reasons behind their decisions (Battakhov, Ovchinnikova, 2024).

1.2 EXISTING GAPS

However, the Paris Agreement does not address several challenging issues. It does not advocate for the complete discontinuation of fossil fuel use, and it does not set limits on total CO₂ emissions. The nationally determined contributions of some countries are ambiguously articulated, making it hard to quantify required GHG reductions relative to their status quo. As such, defining the exact obligations under the Paris Agreement can be challenging. While nations must present their contributions, the specifics of these contributions are not legally binding, leaving considerable discretion to individual parties. The Agreement largely hinges on the voluntary fulfillment of obligations. As history has shown, the contributions countries initially provided at the national level are insufficient to maintain the global climate targets outlined in the Paris Agreement's Article 2. More aggressive GHG emission reductions are imperative. In this context, the Paris Agreement should be viewed as an initial step in effectively addressing climate change, laying the groundwork for

nations to enact meaningful actions in the future.

In addition to the research, is the absence of a specific legal liability mechanism for violations, which is seen as a disadvantage of the Paris Agreement. Furthermore, the Agreement lacks concrete consequences for non-compliance with nationally determined contributions. The lack of a coercive mechanism, coupled with a relatively "soft" control system, is perhaps one of the treaty's primary shortcomings. Yet, the absence of sanction provisions might have encouraged a diverse group of countries, including developed, developing, and emerging market economies, to join the Agreement. The low risk of repercussions, aside from potential reputational damage, could have been a factor. Despite its limitations, the Paris Agreement has rekindled faith in the international community's capacity to achieve consensus on climate change. While not exhaustive, the treaty is a balanced compromise reflective of the circumstances at the time. The next steps hinge on a confluence of stakeholders: politicians, entrepreneurs, scientists, and activists. Every nation has a part to play in tackling climate change by advancing and enacting more ambitious policies and technologies.

Currently, 177 of the 195 signatories have ratified the Paris Agreement. On October 5, 2016, a critical threshold in Article 21 was reached, and the Agreement took effect on November 4, 2016, at an unprecedented pace.

Consequently, states confronted the challenge of assimilating this into their national legislation (Auganbai, Kalymbek, Shulanbekova, Urisbaeva, & Yerezhepkazy, 2019; Rzabay et al, 2018). Regulation regarding the openness of national legal systems to the integration of international climate change law predominantly occurs at the constitutional and sectoral (environmental, energy, etc.) levels. In this context, the Conference of the Parties has become instrumental in analyzing both pre-existing international legal instruments on climate and the recent comprehensive Paris Agreement (Shumin & Yinhao, 2022).

Consequently, the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement was scheduled in Marrakech (Morocco) alongside the Conference of the Parties to the Framework for Nationally Determined Contributions of the United Nations on Climate Change and the Kyoto Protocol (UNFCCC, n.d.).

1.3 STUDY RELEVANCE AND OBJECTIVES

The novelty of the study is determined by the assessment of the legal framework of foreign states required to identify the factors influencing the integration of international legal norms into the internal system of a specific country, in particular the Republic of Kazakhstan. The relevance of this topic lies firstly in understanding this new international legal act on climate and ensuring its implementation domestically. Secondly, there's an ongoing need to enhance the prevailing legal mechanisms for environment conservation at both international and domestic fronts.

Key tasks for this investigation include:

-Comparative Analysis: Delving into the legal frameworks of various countries to gauge their receptivity and adaptability to global climate standards.

-Integration Challenges: Understanding the hurdles and procedures countries encounter when assimilating international climate accords, such as the Paris Agreement, into their national laws.

-Legislative Roles: Examining the significance of both constitutional and sector-specific laws in guiding this integration.

Drawing from an exhaustive analysis, the study aims to articulate recommendations that enhance and fine-tune climate-related legislation. These insights are intended to equip international entities and individual nations with strategies to bolster their legislative pursuits in environment conservation.

2 METHODOLOGY

In the course of this research, a comprehensive methodology was employed, drawing upon the principles of dialectical cognition inherent to general scientific inquiry and utilizing systematic analysis. The exposition of the material adhered to a meticulously structured logical sequence. Within the legal dimension, specific methodologies were adopted. Notably, a comparative legal approach was instrumental, encompassing a detailed analysis of both international and national regulatory statutes pertaining to climate change. To trace the trajectory of evolving norms in national and international legislation centered on environment conservation, the historical-legal method was extensively invoked.

3 RESULTS

Addressing climate change is a universal challenge necessitating coordinated international legal responses. However, the adoption of international legal standards must be prudently executed at the domestic level. The fight against climate change fundamentally revolves around two pivotal aspects: adapting to the detrimental effects of climate change and mitigating human-induced impacts on the climate. Both these facets—adaptation and mitigation—are crucial pathways that nations should pursue to effectively combat climate change.

Numerous countries, in compliance with their international legal commitments, have instituted, and continue to institute, regulations at the domestic front. This article seeks to examine the national regulatory frameworks of major carbon dioxide-emitting nations, including the United States, China, and Japan. Yet, before diving into an analysis of these regulations, it's essential to clearly differentiate between the two aforementioned concepts: adaptation and mitigation of human impact. As defined by the Intergovernmental Panel on Climate Change, adaptation refers to the "adjustment in natural or human systems in response to actual or anticipated climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities." Practical examples encompass the judicious use of limited water resources or the development of drought-resistant crops. It's worth emphasizing that for many developing nations, particularly small island states vulnerable to sea-level rise, adapting to climate change is becoming a survival necessity. While adaptation can curtail climate change-related risks, its efficiency is capped, especially when faced with accelerated climate shifts. Consequently, addressing the root causes of climate change is just as crucial. Mitigation, or more aptly termed, metization, pertains to actions aimed at diminishing emission sources or augmenting greenhouse gas sinks. In essence, "mitigation" signifies reducing the human imprint on the climate ecosystem. As highlighted by Mario Gervasi (2019, p. 777), "mitigation of climate change effects" and "mitigation of human influence on the climate" aren't synonymous, with the former being analogous to climate adaptation.

Actions that exemplify mitigation efforts include the promotion of renewable energy sources or expanding forest cover, given that trees naturally lower atmospheric carbon dioxide concentrations. Broadly, adaptation and mitigation strategies are complementary. Effective mitigation strategies can lessen the number of climate-

induced challenges that require adaptation.

Furthermore, the incorporation of international law into national jurisdictions encompasses two domains: appropriate legal actions (integrating international legal norms into national statutes) and organizational-legal initiatives, like the establishment of institutional mechanisms for enforcement. The intricate nature of such institutional mechanisms for upholding international environment conservation commitments justifies treating it as a distinct area of research. As alluded to in the introductory section, this study will focus on analyzing the legal integration of international environment conservation standards within specific nations, sidestepping the topic of institutional mechanisms.

Tackling climate change can bolster a country's economic transformation and offer developmental advantages. Such efforts can boost economic growth, enhance air quality, improve urban living standards, fortify the economy against climatic events, and set a path for long-term decarbonization. The authors suggest the following strategies to address climate change:

Initiative 1: Decarbonization of Energy Production and Consumption

Description:

- Prioritize decarbonization of energy systems, including electricity and heat generation, transport, and industry
- Focus on initiatives in the electric power sector
- Electrification of transport, innovation in industrial processes, and boosting energy efficiency

Initiative 2: Climate-Optimized Development of Water, Agriculture, and Pasture Farming

Description:

- Adopt sustainable measures in water management, climate-responsive agricultural practices, and sustainable land management
- Increase carbon uptake from pasture soils for potential carbon net flow
- Mitigate negative impacts of climate change and enhance climate resilience

Initiative 3: Fair Transition

Description:

- Assistance needed for individuals employed in coal mining due to drop in domestic demand
- Support required for urban dwellers reliant on coal and impacted by shift

- Aid necessary for low-income households with rising energy prices and introduction of tariffs

Initiative 4: Creating Favorable Conditions

Description:

- Implement sweeping structural reforms for a climate-resilient economy
- Eliminate enterprise barriers, establish market incentives, and ensure equitable conditions for all stakeholders
 - Enhance private sector activity and productivity for sustainable growth

In the MSW drafted for global nations, immediate actions for this transition are recommended, accompanied by an investment requirement assessment. These guidelines can shape global strategies, fostering economic diversification, competitiveness, and resilience, all while curtailing climate change risks and broader mitigation efforts.

4 DISCUSSIONS

The insights of leading academics in international environmental law are crucial for a comprehensive understanding of the topic. These scholars delve into various facets of Earth's climate preservation laws, both on international and national fronts (Desai, 2022; Rybak, Kryanev, Shichkin, & Livson, 2023; Ydryrys, Ibrayeva, Abugaliyeva, Zhaskairat, & Uvaliyeva, 2023; Yerezhepkazy, Karatayeva, Kuanalieva, Konysbai, & Azhinurina, 2017). They incorporate views from researchers who have exhaustively analyzed international climatic legal mandates. This vast legal potential has paved the way for the formulation of an international climate protection regime, the ratification of conventions, climate discussions, and the endorsement of national regulatory frameworks dedicated to Earth's climate preservation (Antonova, 2023; Grigoryan, 2024).

As Kehinde and Abifarin (2022) astutely point out, humanity's survival hinges on addressing environmental challenges, including climatic ones. Success in this endeavor can only stem from robust state cooperation. Given that local environmental components merge into a unified global ecological framework, safeguarding this system ought to be a principal objective of international collaboration. Kerr (2021) observes that over recent years, EU legislation has significantly evolved, refining legal

structures and entities related to Earth's environment conservation—introducing new mandates, stringent guidelines, and varied constraints.

For example, a robust system to monitor, report, and verify greenhouse gas emissions across EU member states and diverse economic sectors has been set up and is operational. Reliable statistical data remains a cornerstone of the EU's climate strategy (Weko, 2022).

Consequently, the EU boasts an expansive legislative and regulatory repertoire concerning Earth's climate preservation. As Rietig and Perkins (2018, p. 487) note, this led authors to highlight the inception of a distinct legal realm within the EU - termed "climate protection law" or EU climate law.

5 CONCLUSION

The conducted research allowed us to highlight the following conclusions:

1. Anthropogenic Influences on Climate: The prevailing evidence suggests that climate change is largely driven by human actions, despite varied opinions on its causes. Failing to objectively recognize the scale and threats of this issue could lead to dire consequences. Given the mandates of the United Nations General Assembly and the subsequent international climate agreements—namely the 1992 United Nations Framework Convention on Climate Change, the 1997 Kyoto Protocol (UNFCCC, 1998), and the 2015 Paris Climate Agreement—it is imperative for nations to address the risks linked to global warming.

2. Evolution of Climate Negotiation Participants: Tracing back from the 1972 Stockholm Conference to the Twenty-third Conference of the Parties in Bonn, there has been a notable shift in the participant landscape. Initially dominated by states, the climate dialogue has expanded to include other actors. International institutions, like the United Nations Environment Programme and the World Health Organization, have become pivotal, as have non-governmental organizations such as Greenpeace and the Wildlife Fund. These entities influence the formulation of international legal regulations and the adoption of climate protection initiatives.

3. Significance of the United Nations Framework: The United Nations Framework Convention on Climate Change is a cornerstone in international climate law, outlining the primary directions of global climate policy and the roles of varied stakeholders. However, its overarching nature led to the necessity for an auxiliary

protocol, agreed upon at the 1998 Kyoto Conference of the Parties. This framework has faced criticisms—like the divisive categorization of countries into developed and developing, and its consensual decision-making approach.

4. The Kyoto Protocol: This treaty further defined the general stipulations of the United Nations Framework Convention on Climate Change, laying down concrete emission reduction targets for states. Representing a landmark, the protocol imposed the first-ever legally binding objectives. Yet, disparities in responsibilities between developed and developing countries necessitated subsequent negotiations.

5. The Paris Agreement's Role and Limitations: The Paris Agreement, while crucial, largely operates as a framework act that demands further refinement. This process began with the 2016 Conference of the Parties in Marrakech and continued until 2020. Despite its imperfections, the Paris Agreement has reignited confidence in international collaboration on climate change. While it is not exhaustive, it epitomizes a balanced compromise, given the then prevailing circumstances. Notably, a "soft" legislative approach dominates the environment conservation realm, with declarations rather than legally binding mandates. This trend is evident even in the legal framework of the People's Republic of China, where strategic, non-binding documents guide climate change initiatives.

In sum, addressing the global climate challenge requires international cohesion, informed policy-making, and adaptive strategies that evolve with emerging knowledge and circumstances. In particular, the promotion and implementation of technologies for capturing carbon dioxide are a promising solution to the global climate problem. Further research and development, combined with supportive policies and international cooperation, will be key to realizing their full potential.

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