



Recht Studiosum Law Review

Journal homepage: <https://talenta.usu.ac.id/rslr>



Cross Border Carbon Trading and the Principle of Climate Justice: An Analysis of the Implementation of the Paris Agreement (A Comparative Study of Indonesia and India)

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ARTICLE INFO

Article history:

Received 12 April 2026

Revised 24 Mei 2026

Accepted 26 Mei 2026

Available online

E-ISSN: 2961-7812

P-ISSN: 2985-9867

How to cite:

Hasibuan, A.P., dkk. (2026). Cross Border Carbon Trading and the Principle of Climate Justice: An Analysis of the Implementation of the Paris Agreement (A Comparative Study of Indonesia and India). *Recht Studiosum Law Review*, 5(1), 28-35.

ABSTRACT

The climate crisis cannot be resolved simply by reducing global emissions, it must also be addressed equitably. The climate crisis is the result of economic development focused on growth without regard for the Earth's capacity. This article analyzes the implementation of the Paris Agreement on cross border carbon trading and the principles of climate justice between Indonesia and India, as well as the challenges of their enforcement. This research uses a normative juridical method with a library research approach, examining various international and national legal instruments such as the Paris Agreement, laws governing carbon emission use and equitable justice for both countries as well as their impacts. The results indicate that quantifying carbon emission reductions requires legal reform related to carbon trading regulations. The current regulation, Presidential Regulation Number 98 of 2021, lacks technical regulations. This makes it difficult to take progressive steps regarding carbon trading. The issue of legal certainty is also evident in the enactment of the Presidential Regulation. The legal form of the Presidential Regulation still only involves the Government in drafting the regulations, and this is very easy to change at any time. For the sake of legal certainty in regulating carbon trading in the future, consideration must be given to harmonizing and amending laws governing aspects of carbon trading, particularly the Environmental Law, the Forestry Law and the Regional Government Law, by incorporating aspects of justice for the community so that justice for the community, both inter and intra generational, can be realized. India's updated NDC represents the country's transition framework building requires to a path than that Western countries to achieve emission and the assistance advanced technology financing will need substantial its.

Keyword: Carbon Trading, Climate Change, Paris Agreement

ABSTRAK

Krisis iklim tidak dapat diselesaikan hanya dengan mengurangi emisi global semata, melainkan juga harus ditangani secara berkeadilan. Krisis iklim merupakan akibat dari pembangunan ekonomi yang berfokus pada pertumbuhan tanpa memperhatikan kapasitas atau daya dukung bumi. Artikel ini menganalisis implementasi Perjanjian Paris mengenai perdagangan karbon lintas batas dan prinsip-prinsip keadilan iklim antara Indonesia dan India, serta tantangan-tantangan dalam penerapannya. Penelitian ini menggunakan metode yuridis normatif dengan pendekatan studi kepustakaan, yang mengkaji berbagai instrumen hukum internasional dan nasional, seperti Perjanjian Paris, undang-undang yang mengatur penggunaan emisi karbon, serta keadilan yang merata bagi kedua negara beserta dampak-dampaknya. Hasil penelitian menunjukkan bahwa pengukuran pengurangan



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<http://doi.org/10.32734/rslr.v5i1.25188>

emisi karbon memerlukan reformasi hukum terkait regulasi perdagangan karbon. Regulasi yang berlaku saat ini, yaitu Peraturan Presiden Nomor 98 Tahun 2021, masih belum memiliki peraturan teknis yang memadai. Hal ini menyulitkan pengambilan langkah-langkah progresif terkait perdagangan karbon. Persoalan kepastian hukum juga terlihat dalam pemberlakuan Peraturan Presiden tersebut. Bentuk hukum Peraturan Presiden yang ada saat ini hanya melibatkan Pemerintah dalam penyusunan regulasinya, sehingga sangat mudah untuk diubah sewaktu-waktu. Demi kepastian hukum dalam pengaturan perdagangan karbon ke depan, perlu dipertimbangkan harmonisasi dan perubahan terhadap undang-undang yang mengatur aspek-aspek perdagangan karbon, khususnya Undang-Undang Lingkungan Hidup, Undang-Undang Kehutanan, dan Undang-Undang Pemerintahan Daerah, dengan memasukkan aspek-aspek keadilan bagi masyarakat agar keadilan bagi masyarakat, baik antargenerasi maupun intragenerasi, dapat terwujud. Pembaruan NDC India merepresentasikan kerangka transisi negara tersebut yang membutuhkan jalur pembangunan yang berbeda dari negara-negara Barat untuk mencapai pengurangan emisi, serta memerlukan bantuan teknologi canggih dan pembiayaan yang substansial.

Kata Kunci: Perdagangan Karbon, Perubahan Iklim, Perjanjian Paris

1. Introduction

Carbon trading assigns an economic value to carbon allowing individuals, companies or countries to trade it. This value is based on the ability to store carbon and prevent it from entering the atmosphere. In this context, carbon trading creates financial incentives to buy and sell savings in generating a certain amount of gas energy through a market based mechanism, ultimately strengthening renewable energy trading and breakthroughs in energy efficiency.

While carbon trading has great potential, there are significant challenges in its implementation. The experience in the United States with the implementation of a pollution trading system argument that may not be the most effective solution to address climate change at the global level. This indicates that carbon trading cannot always be universally implemented.

The importance of constructing a carbon price in the carbon trading market cannot be overstated. Carbon prices reflect the scarcity of the right to emit greenhouse gases and also reflect the desire for a healthy environment. Appropriate prices encourage innovation, the development of low carbon technologies. Carbon trading can also help direct capital flows to more sustainable sectors contributing to sustainable economic growth.¹

Approach used control with the goal of mitigating climate change and promoting environmental sustainability. Through this mechanism carbon is assigned an economic value that can be traded by individuals, companies and countries. This allows us to understand the mechanisms underlying its economic impact, contribution to environmental sustainability, challenges limitations and the key principles of carbon trading.

The Indonesian government feels fully prepared having prepared a presidential regulation on the Economic Value of Carbon which regulates the carbon trading scheme. Indonesia is considered to have overlooked the impacts of climate change due to poor governance in the extractive industry. On the other hand Indonesia still has much work to do to reduce carbon emissions, such as curbing deforestation and forest and land fires.

Deforestation in Indonesia has actually increased from 1.1 million hectares per year (2009-2013) to 1.47 million hectares per year (2013-2017). Despite Indonesia's commitment to reducing deforestation despite claims of a decline in deforestation from the government in the past two years, this figure is rendered meaningless by the shift in deforested areas from the west to the east.

Claims of success in reducing deforestation rates become irrelevant if it turns out that large scale deforestation occurs only in a few locations so that in other places this deforestation decreases not because of government

¹ S. Baijwan and A. Dhyani, "A Smart Monitoring of Environmental Pollution using Internet of Things Model," in 2023 IEEE International Conference on Integrated Circuits and Communication Systems, ICICACS 2023, page 21-24

efforts but because forest resources have been depleted as well as forest and land fires in 2021 there were around 229 thousand ha, even two years earlier the area of forest and land burned was 1.6 million ha of which 1.3 million ha occurred on the islands of Sumatra and Kalimantan and ironically on the two islands also the extractive industry permits control forests and customary areas.

Besides that carbon trading does not only focus on reducing emissions but also promotes the development of alternative energy and the potential for carbon storage in neglected lands such as grasslands because this can provide additional solutions for environmental sustainability especially in countries with large land potential.²

Carbon trading schemes are a form of greenwashing. Any company announcing funds to protect forests through carbon offset schemes is simply greenwashing itself if it does not genuinely commit to reducing carbon emissions. It's time for Indonesia to immediately end deforestation supported by strict laws policies, recognize indigenous land rights, fully protect forests and eliminate deforestation throughout the land based industrial supply chain.

Carbon trading plays a crucial role in climate change mitigation. It supports green low carbon sustainable development and contributes to achieving carbon peak and carbon neutrality goals at a relatively low cost. Furthermore carbon trading encourages innovation in low carbon technologies and ecosystem restoration ultimately reducing emissions. Therefore, renewable and clean energy development can also be an important aspect of carbon trading where information on emissions related investments becomes more open and transparent.

One solution promoted by various countries is carbon trading or carbon offsets including Indonesia which has stated its readiness with all its policy infrastructure. Responding to this, the Indigenous Peoples of the Archipelago stated that allowing polluting corporations to continue operating as usual such as through offsetting schemes actually creates injustice. Given the unreliability of Indonesian law in recognizing and protecting Indigenous Peoples and their territories such schemes have the potential to become a new lever for those who seize their customary territories.

Other challenges include the institutional systems, regulations and verification of carbon emissions which remain incomplete in many countries. Unbalanced and dynamic markets, limited transaction entities, limited trade products and limited international participation also present obstacles. Furthermore carbon trading markets in developing countries are still immature and heavily influenced by government policies, leading to significant instability and uncertainty. This necessitates the exploration of new models such as blockchain that can provide greater transparency and security in carbon trading.

Countries and the global community should no longer rely solely on market mechanisms but should seriously discuss different support mechanisms for indigenous people initiatives and practices in maintaining and protecting their territories, managing their territories and utilizing resources that have directly contributed to reducing emissions and increasing carbon stocks. Offset schemes directly and indirectly create injustice for the wider community, vulnerable communities economically, physically or health wise as well as indigenous peoples.

The implementation of market mechanisms and natural resource licensing add to the long chain of conflict with communities as it represents a systemic land and forest grab under the guise of greening and climate recovery.

The government still has far more profitable options such as promoting non market climate financing so developed countries must fulfill their climate change financing promises such as the United States commitment to provide 1.415 trillion rupiah annually.³

² P. Yu and Z. Qin, "Using Carbon Trading to Seize the Commanding heights of Economic Development," in Energy Procedia, 2011, page 74-78

³ S. B. Singh, "Carbon Emission Trading," Biochem Cell Arch, vol. 16, 2016, page 345-350

Indigenous communities and sustainable natural resource management practices are the solution to the climate crisis. Indigenous communities are the ones who keep our forests standing and healthy forests are essential for a healthy climate. Therefore, community and local rights must be at the heart of all nature protection policies.

There is no point in talking about nature protection if we do not protect the rights of the people who preserve forests. Reject carbon trading schemes that marginalize and dispossess indigenous communities becoming a new form of colonialism through false solutions to climate change.

Overall carbon trading offers a promising solution in balancing economic growth with climate change mitigation efforts. However this mechanism carbon trading is not only an economic and environmental issue but also requires more incentivized international cooperation to address the challenges of global climate change.⁴

Carbon trading focuses on the trading of greenhouse gas emission rights, where a central authority sets a limit or cap on the amount of pollutants that can be emitted. These emission quotas are allocated and sold to companies in the form of emission permits allowing each company to buy or sell these permits based on its needs and emissions management strategy.⁵

2. Method

The research approach used is normative juridical. Normative juridical is a research conducted by examining library materials or secondary data as the basis for research by conducting searches of regulations and literature related to the problem being studied. This research is descriptive analytical in nature. Descriptive analytical means describing as it is, then analyzing the data based on relevant rules.⁶

This descriptive analytical study aims to provide a clear and comprehensive picture of the provisions of the implementation of the Paris Agreement relating to cross border carbon trading and climate justice for both countries even the side of India and Indonesia as well as the responsibilities given in determining climate change and justice because carbon trading provides economic value to carbon itself making it possible for individuals, companies or countries to trade it, this is based on the ability to store carbon and prevent it from entering the atmosphere, which can be implemented by Indonesia and India.

3. Results and Discussion

3.1 Climate Justice Challenges in Indonesia's Carbon Trading Policy: A Critical Analysis of Presidential Regulation No. 110 of 2025 from Intergenerational and Intragenerational Justice Perspectives

The government can now set carbon emission limits or quotas and trade carbon units across sectors and regions, in accordance with Presidential Regulation No. 110 of 2025. This expands the mechanisms of Presidential Regulation No. 98 of 2021 by adding new instruments such as carbon allocation and a carbon unit registry system.

In theory this step sounds ideal but in practice, the carbon allocation stipulated in Articles 20-24 can transform into a legal permit to pollute without a transparent verification system, large companies can continue producing high emissions under the pretext of purchasing carbon credits from other parties. This opens up the opportunity for greenwashing a practice where corporations appear environmentally friendly on paper while in fact not changing their carbon intensive production methods.

The Presidential Regulation sends a significant message to business actors in carbon trading. Corporations can buy and sell carbon credits across sectors and even across countries and from one perspective, the state's role appears more like a regulator of the exchange than an emissions controller. The primary goal of climate policy should be to reduce emissions at the source not facilitate transactions.

⁴ Bodansky D, 2008, *International Environmental Law*, Oxford University Press, page 66-67

⁵ B. Liu, C. J. Ding, J. Hu, Y. Su, and C. Qin, "Carbon Trading and Regional Carbon Productivity", *J Clean Prod*, Vol. 420, 2023

⁶ Soerjono Soekanto and Sri Mamuji. 2006. "Normative Legal Research: A Brief Review", Jakarta: Raja Grafindo Pustaka, page 66

Carbon markets can indeed mobilize green funds but without firm emission limits, this mechanism only delays the transition from fossil fuels to clean energy. The carbon unit registry system is designed to be a national database for recording and reporting carbon activities. However the presidential regulation unfortunately does not stipulate a requirement for public data disclosure without transparency, the carbon market is easily infiltrated by business interests and could become a new source of inequality in the green economy.

Another criticism arises from the aspect of climate justice. The forestry and land sector, Indonesia's largest carbon sink is located largely in customary and rural areas. However this presidential regulation fails to ensure equitable benefit sharing, if not properly regulated local communities who have long protected forests will become spectators amidst the massive revenue generated by carbon trading because their environmental economic value will be expropriated without adequate compensation.

The economic value of carbon should be a tool to strengthen climate action not a substitute for commitments to reduce emissions and should not even be a mere token value. The government needs to ensure three things to ensure this policy is not misguided full transparency in the Regional Carbon Market Plan including the publication of emissions data, carbon allocation and transaction values independent verification not controlled by industry players and climate justice which ensures the economic benefits of carbon are felt by local communities.

The carbon market can indeed be a bridge to a green economy but without a strong ethical foundation and governance, it could become a numbers game where the planet remains warm while profits increase in the hands of a few.⁷ On Indonesia a strategic is began with the ratification through Law Number 6 of 1994 concerning from a contribution more Minister Regulation.

Boundaries has led to being based two main concepts and justice within a generation. Two important themes of relevance to as within which they exist. The creation of within framework a primary foundation. Therefore discussions of intergenerational justice are not limited to protecting future generation rights decent address proportional condition the fundamental principle.⁸

The concept of intergenerational justice in the development of international environmental law in particular began to be discussed during the preparation of the Stockholm Conference on the Human Environment in 1972 as the first international meeting to discuss human existence and the environment. In the opening sentence of the convention, it was explicitly emphasized several times that the goal to be achieved in this convention was to create a suitable environmental condition for the present and the future.

Furthermore the concept of intergenerational justice was included in the report of the U.N. World Commission on Environment and Development known as the Brundtland Commission Report on Our Common Future which provides a concrete and real definition of intergenerational justice. In the formulation of the Brundtland Report intergenerational justice emphasized the concept of meeting current needs without neglecting the needs of future generations. This issue of intergenerational justice continued until the Earth Summit in 1992 which produced the Rio Declaration and Agenda 21 which placed the existence of current and future generations as a top priority.⁹ Intragenerational justice is defined as the understanding that everyone within a single generation has equal rights and access to benefit from existing natural resources and a healthy and positive environment.

The concept of intragenerational justice can be interpreted broadly in both national and international contexts. Nationally this concept seeks to provide equal access to all citizens to natural resources including clean water, air and marine resources. Internationally this concept emphasizes the equal allocation of air, water and biodiversity throughout the world ensuring that all parties can obtain equal benefits and utilize them according to their needs and the Earth's life support system.

⁷ Westra L, 2006, *Environmental Justice and the Rights of Unborn and Future Generations*, Earthscan, page 101

⁸ Dobson A, Justice and The Environment, 1998, *Conceptions of Environmental Sustainability and Dimensions of Social Justice*, Oxford University, page 87-89

⁹ Mitchell R, 1994, *Intentional Oil Pollution at Sea: Environmental Policy and Treaty Compliance*, MIT Press, page 75

The concept of intragenerational justice whether consciously is closely linked to political and economic commitments in its implementation. Therefore a genuine commitment from the international community is needed to implement the concept of intragenerational justice particularly in changing the perspectives of states and international stakeholders.

The concepts of justice that touch on intergenerational justice are complementary to each other in order to present a hypothesis that is interrelated with each other. There are at least three main hypotheses that describe the correlation between intergenerational justice and intragenerational justice is independence, facilitation and competition. The correlation of independence between intergenerational justice and intragenerational justice is interpreted as a form of independence of each concept in achieving its respective goals. The implementation of intragenerational justice at this time does not eliminate the obligation or failure to realize the desired goals of intergenerational justice.

3.2 *Climate Change Vulnerability and Policy Response in India: Impacts on Monsoon Variability, Regional Disasters, and Socioeconomic Systems*

India recognizes that global warming exceeding 1.5°C will cause significant social, environmental, and economic disruption, including intensified extreme weather events, rising sea levels, and broader societal vulnerability. These impacts are closely linked to regulatory responses in India through key legal instruments such as the Environment (Protection) Act, 1986, the Energy Conservation Act, 2001, the National Action Plan on Climate Change (NAPCC), 2008, the Forest Conservation Act, 1980, the Disaster Management Act, 2005, and the Coastal Regulation Zone (CRZ) Notification, 2019, which collectively address greenhouse gas emissions, land-use change, disaster risk management, and coastal protection in response to climate change.¹⁰

India has distinct geographical entities including the Indo Gangetic Plain, the Himalayas adjacent regional and local world's most geoclimatic. India world's with vulnerable to cyclones and 5% vulnerable to watershed flooding. Furthermore it relies such as their which causes temperature changes, rainfall, cyclones exacerbates wide disasters increasing while.

India also experiences significant geographic example 2025 had a 58% deficit, Jharkhand a 51% deficit, Bihar from 29% to 19%. Therefore, this variation in monsoon rainfall in India has significantly increased the frequency and extent of droughts 2024. Regions of decrease around 10-35% and even an increase in the intensity of droughts across India will significantly impact food security, water security, agricultural production and livelihoods. Furthermore extreme weather events and sea level rise are likely to continue to be major risk factors for India coastal cities, home to a third of the population of nearly 170 million. India's coastline is home to settlements. Continues in line temperatures future projections on climate models indicate mid 21st century even small sea level rises exacerbate cyclones. Negatively impact such as mangroves which essential furthermore saltwater rise threatens. Adverse coordinated in addressing this from outset differences and perspectives global is countries the majority accumulated.

Than countries the come rapidly emerging, developing very lack the full these broad in addressing positioning defender interests climate change also impacts the Indian Himalayan region. A canary rate temperatures changing rainfall patterns as well as region. Hindu Kush Himalayan reach 21st such a rate. Major those focused establishing on measuring the emission reduction targets of Annex I member countries namely developed countries. A key supported contribute little leading establish post 2012 promoted through the impacts contribution individual implementing was Indian.¹¹

India environmental policy is based on the Indian Constitution, where Article 48A states that the state shall strive to protect and enhance the environment and to safeguard the country's forests and wildlife. India to make established Policy 2006 which promotes sustainable development while respecting reaffirms harness shared while address key addressing various aspects of sustainable development, natural ecosystem conservation has

¹⁰ Dubash, N. K., & Jogesh, A. (2014). *From margins to mainstream? Climate change, development and governance in India*. Wiley Interdisciplinary Reviews: Climate Change, 5(2), page 147–160.

¹¹ IPCC, 2007: Summary for Policymakers: Climate Change 2007: *Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press: Cambridge, (2007), page 7-22.

undergone to take into account have been in terms of mission, objectives and implementation status develop herefore 2018 have developed. The SAPCC serves subnational and therefore placed a greenhouse gas emission for related more than union territories to date several programs specifically focused for agricultural. Programs by organizations although has series emissions trend by announcing a net zero emissions needs finance combat pace currently achieve domestic in including a subsidy reductions increasing the levy tonne.

4. Conclusion

Carbon emission reductions must be quantifiable so that Indonesia has a system to assess the level and status of GHG emissions through a simple, easy, accurate, concise and transparent by National GHG Information System. Meanwhile data collection on climate change mitigation actions has been carried out by various parties both Parties Stakeholders and Non Parties Stakeholders by recorded in the National Climate Change Control Registry System. However none of these systems have recorded the activities of indigenous communities as actor control.

Quantifying carbon emission reductions, legal reforms related to carbon trading regulations are needed. The current regulation lacks looking steps validity this which still only involves the government in formulating regulations making it highly susceptible to change. For the sake of legal certainty in future carbon trading regulations, consideration must be given to harmonizing and amending laws governing aspects of carbon trading particularly the environmental law, the forestry law and the regional government law to incorporate aspects of justice for the community ensuring both inter and intra generational justice.

Justice in the context of carbon trading must be interpreted as a balance between ecological, social and economic aspects. Justice here extends beyond current conditions, it must also ensure that carbon trading mechanisms are fair for future generations. The primary object of trade is carbon which is highly dependent on numerous factors including the existence of forests, the use of environmentally friendly energy sources and technologies that can control carbon release into the environment.

Ironically uncontrolled forest exploitation and the continued widespread use of fossil fuels are actually leading to carbon release into the environment. This is partly due to the lack of synchronization and continuity of policies between government regimes regarding the distribution of carbon emissions.

India approach is fragmented, multifaceted, interconnected and systemic climate crisis. The COVID-19 outbreak has been exacerbated an increasingly interdependent and connected society then disasters been widespread multiple this has been cyclones, rainfall have hit. The unparalleled multiplier effect of multiple risks on each other immediately impacts response capacity and exacerbates the risks. Furthermore resource constraints, poor governance, accountability and inadequate assessment of uncertainties in climate change projections their implications simultaneously crucial even across separately is essential more effectively the climate risks.

National Development Plannings represent the country's transition framework building requires to a path than Western countries to balance and achieving carbon neutrality is difficult without assistance in scientific development, advanced technology and climate finance from developed countries of India will need substantial its of Environment need approximately USD 1 trillion in climate finance targets. Although technology transfer and the provision are among commitments and obligations agreed. Progress in this area has been slow and the developed countries' target of mobilizing achieved. Outlining countries making the crucial for progress on loss and damage financing.

Indonesia has focused primarily on establishing a regulatory framework for carbon trading through policies such as Presidential Regulation No. 110 of 2025 and the development of a national carbon registry system. However, its implementation continues to encounter several obstacles, including weak legal certainty, limited transparency, the potential for greenwashing practices, and insufficient protection of indigenous communities as well as intergenerational and intragenerational justice principles. In contrast, India adopts a broader and more systemic approach to climate change governance through various national legal instruments that integrate environmental protection, energy policy, disaster management, and sustainable development. Nevertheless, India also faces substantial challenges, particularly geographical vulnerability, monsoon variability, threats to food and coastal security, and limitations in climate finance and technological capacity to achieve its net-zero

emission targets. The comparison between the two countries demonstrates that Indonesia places greater emphasis on carbon market governance and regulatory reform, while India prioritizes climate adaptation and national resilience against climate-related impacts. Therefore, both countries require stronger international cooperation, enhanced domestic regulatory frameworks, policy transparency, and the effective application of climate justice principles to ensure that carbon trading functions not only as an economic mechanism but also as a means of achieving environmental protection and sustainable social welfare.

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