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Legal Implications for the BRICS Countries in the Carbon Trading System Through Carbon Exchanges: Perspective from the Precautionary Principle

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Abstract. The largest emitting countries in the world are predominantly developing countries, including the BRICS countries. The general principle of "climate justice" asserts that the largest emitting countries should take the lead in efforts to reduce greenhouse gas emissions. The legal implications for the implementation of climate change mitigation efforts play an active role in the implementation and establishment of the carbon exchange concept in the context of the carbon trading system. The urgency of listing on the carbon exchange is driven by the precautionary principle of global carbon accounting, which aims to avoid the risk of carbon leakage. The purpose of this research is to examine the obligation of emitting countries to make ambitious efforts towards reducing their greenhouse gas emissions while also upholding the basic principles of accountability and transparency. Offsetting the amount of carbon emitted by each country is largely calculated based on carbon credits purchased. In order to prevent double counting, carbon exchanges have the responsibility of recording the sale of carbon units with certificates issued under a "polluter pays" system.

Keywords: carbon exchange; carbon trading; carbon emissions; BRICS countries; climate change mitigation; double counting; Paris agreement.

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Introduction

Climate change has forced and encouraged international countries to make global agreements in order to prevent environmental collapse due to climate change. Prior to the agreement of the United Nations Framework Convention on Climate Change (UNFCCC), the Vienna Convention for the Protection of Ozone Layer (1985) served as the primary document of the parties in establishing state obligations. In adopting legislative measures and building contributions through co-operation, it is mandatory to align appropriate legal policies to limit, reduce, and control or prevent all negative impacts resulting from human activities.[1]

The current global conditions caused as a result of climate change do not appear to be responding to the objectives of the agreement aimed at preventing climate change from getting worse. Countries listed as parties to the Climate Change Convention have not shown ambitious efforts, such as through mitigating climate change with carbon trading and a corresponding carbon tax that can be monitored in aggregate by the Global Stocktake mechanism.[2]

Climate change mitigation efforts are currently driving countries to take ambitious action to reduce emissions. Carbon markets play a role in shaping mitigation that is inclusive of emitting activities. There are two types of carbon markets, mainly: (a) compliance markets, which are established by governments or multi-governmental

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[1] Gladun, E., & Ahsan, D. (2016) 'BRICS Countries' Political and Legal Participation in the Global Climate Change Agenda. *BRICS Law Journal, 3*(3), 8–42.

[2] Sun, R. Sh., et al. (2022). Is the Paris Rulebook Sufficient for Effective Implementation of Paris Agreement? *Advances in Climate Change Research, 13*(4), 600–611.

bodies to control the supply of credits and organise the flow of trade;[3] and (b) voluntary markets, which are markets that sell carbon credits through voluntary trading from private entities developing carbon projects or from governments developing programmes through certification by carbon standards that result in emissions reduction or elimination actions.[4]

As a general principle in "climate justice," emitting countries have an obligation to lead global efforts to reduce their greenhouse gas emissions (GHG).[5] The People's Republic of China was the first BRICS country to introduce carbon trading in 2021, which is the largest emissions coverage in the world. However, currently, at least 2,000 companies have been implemented, with the majority of them in the power sector. As a result, estimates for expanding to other sectors are needed in the future.[6] Carbon trading and cap-and-trade systems have been effective and economically helpful in curbing global emissions.[7] There are forty countries that have introduced carbon trading today, and more than twenty emission training system (ETS) programmes are in operation. Carbon trading covers nearly fifteen per cent of global carbon emissions.[8]

International environmental law has essentially accommodated and recognised the rules and theories of distributive justice between developed and poor countries. The climate response is often criticised as having many weaknesses that cannot inclusively reduce emissions. This is because there is a lack of clarity on how climate justice can be effectively implemented and addressed. Another problem is that implementing emission reduction solutions alone does not have a significant effect on the harmful effects of climate change. In addition, Annex I countries have done nothing to reduce their emissions, and other countries have been unable to make more ambitious efforts to curb the rise of the earth's temperature.[9]

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3 Understanding the Compliance and Voluntary Carbon Trading Markets. (n.d.). Deloitte. https://www2.deloitte.com/uk/en/blog/risk-powers-performance/2023/understanding-the-compliance-and-voluntary-carbon-trading-markets.html

4 Climate Promise. (2022, May 18). *What Are Carbon Markets and Why Are They Important?* https://climatepromise.undp.org/news-and-stories/what-are-carbon-markets-and-why-are-they-important

5 Cassegård, C., & Thörn, H. (2018). Climate Justice, Equity and Movement Mobilization. In H. Thörn, C. Cassegård, L. Soneryd & Å. Wettergren (Eds.), *Climate Action in a Globalizing World: Comparative Perspectives on Environmental Movements in the Global North* (pp. 32–56). Routledge.

6 International Carbon Action Partnership. (2021). *China National ETS*. https://icapcarbonaction.com/system/files/ets_pdfs/icap-etsmap-factsheet-55.pdf

7 Peng, H., Shen, N., Ying, H., & Wang, Q. (2021). Can Environmental Regulation Directly Promote Green Innovation Behavior? – Based on Situation of Industrial Agglomeration. *Journal of Cleaner Production, 314*, Article 128044.

8 Zhou, B., Zhang, C., Song, H., & Wang, Q. (2019). How Does Emission Trading Reduce China's Carbon Intensity? An Exploration Using a Decomposition and Difference-in-Differences Approach. *Science of the Total Environment, 676*, 514–523.

9 Fite, M. D. (2018). The International Responsibilities of Developed Countries in Adaptation to and Mitigation of Climate Change: An Ethical Mandate. *BRICS Law Journal, 5*(2), 100–111.

Parties to the UNFCCC that produce higher carbon emissions need to make more ambitious efforts to reduce their GHG emissions. The BRICS countries, which included Brazil, China, South Africa, India, and Russia, have expanded to include the United Arab Emirates, Egypt, Ethiopia, and Iran, most of which are developing nations and on average collectively have the largest population in the world. Accurately accounting for the emissions produced by each of these countries will be a major responsibility for attaining global success in reducing emissions. Global inventories influence the calculation of the amount of GHG emissions suppressed by each country. Hence, it is important to keep records of accounting practices and provide transparency regarding the amount of emissions produced. Consequently, the legal instrument for carbon markets that is established on the basis of the transfer of emission credits can serve as a reference for carbon trading activities in the BRICS countries.

On the other hand, a country like Brazil has enormous potential for carbon trading that could be realised through the use of a carbon exchange. Record-keeping and transparency practices in carbon trading based on "appropriate adjustment" reflect the BRICS countries' co-operation in the context of climate change, highlighting their awareness of the environmental damage caused due to the effects of increasing greenhouse gases. Meanwhile, Russia and China have embarked on a new chapter of "carbon neutral" and "low-carbon" energy, necessitating a need for technology and innovation in fostering low-carbon co-operation.[10] By forming other similar collaborative partnerships to establish a green economic system and accustom companies and other industries to use sources of low-carbon energy, a framework for joint emission accounting of carbon credits can be established in a transparent and accountable manner.

1. Legal Implications of Carbon Trading Policies Through Carbon Markets in the BRICS Countries

Carbon trading is a market mechanism used as one of the efforts to reduce greenhouse gas emissions by buying and selling carbon units. Carbon trading can be conducted through a carbon exchange, covering both domestic and foreign carbon trading transactions. It is a form of state effort through which the government aims to achieve effective targets in mitigating climate change.[11]

The process of implementing a carbon exchange includes: (a) determination of emission limits for which permits are granted based on national or international emission targets; (b) issuance of permits or carbon credits by the competent

[10] Steblyanskaya, A., et al. (2022). How Russia's Trade with China Influences Carbon Dioxide Emissions in Russian Regions. *BRICS Journal of Economics, 3*(4), 271–298.

[11] Prihatiningtyas, W., et al. (2023). Perspektif Keadilan dalam Kebijakan Perdagangan Karbon (Carbon Trading) di Indonesia Sebagai Upaya Mengatasi Perubahan Iklim. *Refleksi Hukum: Jurnal Ilmu Hukum*, 7(2), 163–186.

authority; (c) permit trading; (d) reporting and monitoring of emission permits; (e) verification of emission permits; and (f) implementation of appropriate adjustments to achieve emission reduction targets and efforts.

In order to address the challenge of how countries can manage funding and meet the needs of emissions reduction efforts, it is imperative to enforce a new model for carbon inventories. This guideline on community-scale GHG emission inventories is used as a tool to investigate and calculate the total amount of GHG emissions and the accuracy of the data. The role and active participation of governments of the countries that agreed to the Paris Agreement are critical to realising GHG emission rate control through climate change mitigation.[12] The management of funding sourced from carbon trading is an important component. This includes an analysis of the allocation of funding in accordance with the legal policy direction of the BRICS countries, with the aim of partially transitioning to new renewable energy as part of the BRICS cooperation to address climate change through energy collaboration. The BRICS Summit is also a significant aspect of the BRICS countries' commitment to multilateral energy cooperation. Similarly, collaborative efforts through the BRICS Energy Research Cooperation Platform (BRICS ERCP)[13] involve working together to establish carbon trading in the carbon market as a form of the BRICS commitment to utilise existing potential and turn it into green economic value.

Dan Wei's research provides insights into the potential for co-operation among BRICS countries on local governance and the role of law in this context, particularly in regard to co-operation on fulfilling their legal responsibilities for the environment.[14] However, one of the differences between Chinese and Brazilian legal systems that affect green governance, for example, the scope of legal responsibility.[15]

Incorporating merely simple measures to reduce greenhouse gas emissions cannot prevent vulnerability to climate change. Moreover, carbon funds in the international market for countries that are the most vulnerable to climate change, especially poor countries, have not yet received clarity and effective realisation. This situation shows that developed countries are unable to fulfil their obligations under the Kyoto Protocol. In order to effectively help in reducing global emissions in an equitable manner, steps need to be taken to transition to a green economy both in the form of renewable energy transition and funding for climate change adaptation efforts, such as expanding forestry projects in green areas in the form of forests and

[12] Kongboon, R., Gheewala, S. H., & Sampattagul, S. (2022). Greenhouse Gas Emissions Inventory Data Acquisition and Analytics for Low Carbon Cities. *Journal of Cleaner Production, 343*, Article 130711.

[13] Oliveira, I., Panova, V., & Silva Barros, P. (2020). *BRICS: Ten Years and New Challenges* (Presentation). https://doi.org/10.38116/rtm22pre

[14] Wei, D., & Rafael, A. P. (2023). Influencing Companies' Green Governance Through the System of Legal Liability for Environmental Infractions in China and Brazil: Lighting the Way Toward BRICS Cooperation. *BRICS Law Journal, 10*(2), 37–67.

[15] *Id.* p. 39.

national parks, which can help significantly absorb carbon emissions generated from industrial activities to help produce net zero emissions.[16]

Carbon trading is conducted through transactions in the carbon market in accordance with a country's efforts to mitigate climate change. Proceeds from carbon sales can be allocated to redirect activities towards low carbon alternatives through green finance and incentives that promote a green economy.[17] The carbon trading system, which is commonly known as Cap and Trade, has a carbon price that changes more frequently. It refers to the maximum level of pollution determined, and producers are required to have a licence to emit greenhouse gases. The cost of a licence under a carbon trading system is contingent upon the proximity of the emissions to the cap.

Carbon exchanges are an important tool for achieving global climate goals in the short or medium term. Carbon exchanges incentivise activities that allow parties to trade carbon credits earned for efforts to reduce GHG emissions. Such efforts can encourage an energy transition from fossil fuels to renewable energy or increase carbon stocks, especially in forestry ecosystems. According to the Worldbank, carbon credit trading could reduce the costs associated with the implementation processes of the participating countries' Nationally Determined Contribution (NDC) by as much as $250 billion by 2030, thereby facilitating 50% of the effort.[18]

Commitments to the Climate Change Convention do not impose legally binding conditions on the states parties to it. However, the Kyoto Protocol does provide specific legal requirements as a key feature, including the requirement that developed countries must reduce greenhouse gas emissions by 5% below 1990 levels. Furthermore, according to an International Performance Computing and Communications (IPCCC) report, developed countries needed to achieve aggregate emission reductions of 25%–40% by 2020 in order to make any considerable contribution to limit global warming.

The BRICS countries are all developing countries but possess immense potential for global energy security. Economic development in many of these countries depends on the energy sector.[19] In addition, the BRICS countries are actively engaged in addressing climate change globally. Climate change mitigation and adaptation are steps that must be taken together by countries that are parties to the UNFCCC agreement, including the BRICS countries. Some of the BRICS countries, such as

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16 Sulistiawati, L. Y., & Buana, L. (2023). Legal Analysis on President Regulation on Carbon Pricing in Indonesia. *SSRN Electronic Journal*.

17 McLaughlin, M. (2022, May 12). *Green Economy* (Report). Volonteurope. https://volonteurope.eu/wp-content/uploads/2022/05/Turkey-Europe-Civil-Society-Forum-Program_10-12-May.pdf

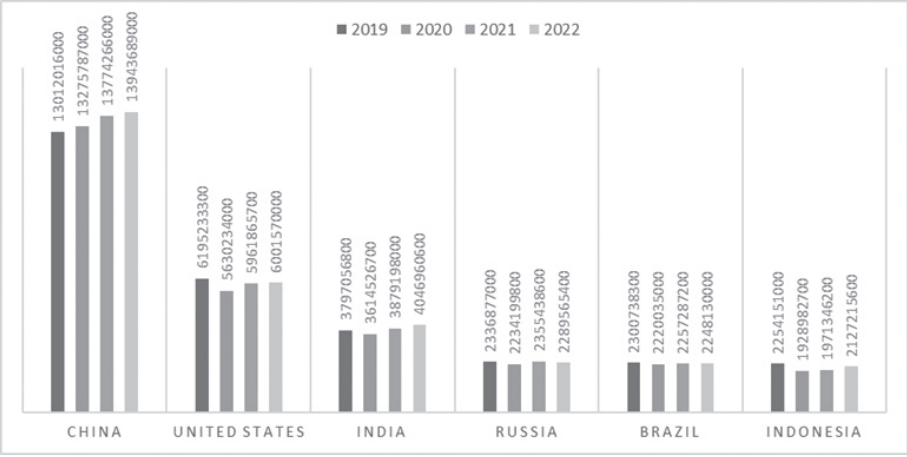
18 World Bank Group. (2022, May 24). *Countries on the Cusp of Carbon Markets*. https://www.worldbank.org/en/news/feature/2022/05/24/countries-on-the-cusp-of-carbon-markets

19 Sahu, M. K. (2016). Energy Revolution Under the Brics Nations. *BRICS Law Journal, 3*(1), 34–41.

China, are among the largest carbon emitters in the world. This country is particularly obliged to make utmost efforts to neutralise their carbon emissions through the implementation of inclusive measures, namely building carbon markets, increasing renewable energy efficiency, and developing green energy.[20] Additionally, India, the world's third-largest carbon emitter, is undertaking mitigation efforts by making large-scale investments in renewable energy in an effort to reduce its reliance on fossil fuels.[21] Similarly, Russia, the world's fourth largest emitter, is also focusing on the development of clean energy to replace fossil fuels.[22]

Figure 1

Countries Producing Greenhouse Gas Emissions, 2019–2022 (in MtCO2e)



Source: Climate Watch Data.

According to the data presented above, three of the BRICS countries are among the top five of the world's largest emitters. Mitigation actions without accountability and transparency will lead to the failure of climate change mitigation and the targets of each country's Nationally Determined Contribution (NDC). The legal implications of successfully reducing emissions to net zero carbon by 2050 in the BRICS countries can only be achieved through more ambitious measures. These countries' dependence on fossil fuels, forest clearance, and various agriculture AFOLU (Agriculture Forestry and

[20] Zhang, F., et al. (2023). Carbon Trading in BRICS Countries: Challenges and Recommendations. *Journal of Economics and Public Finance, 9*(3), 127–139.

[21] *Id.*

[22] *Id.*

Other Land Use) projects has a sensitive effect on carbon market fluctuations.[23] Of all the BRICS countries China is leading the carbon trading system at the moment. The carbon market in China is modelled on the auction carbon market in Guangdon, China. This system is having a positive impact as well as a significant effect on mitigation efforts in reducing GHG emissions in China. On the other hand, the development of the pilot auction mechanism in China's carbon market has been found to be flawed and inadequate. This is based on two reasons, namely:[24] (a) the constraints placed on management and the allocation of funds in the form of integrated management of financial revenues and expenditures, which allows for feedback that regulates the market; (b) government agencies that have authority over this particular field of activity do not have a strong incentive to carry out quota auctions. This is because it will drive up the production costs of local companies and weaken their market competitiveness if the allocation of carbon market funding does not adequately provide some breathing space for them.

Carbon trading is a market mechanism that brings together sellers and buyers of carbon emission allowances, with the basic principle underlying this system being to set emission reduction targets that are subsequently sold to companies or countries, who are then responsible for ensuring that their emissions do not exceed those targets. If the company buying the emission allowances does not exceed the target and there are leftovers, then the company can sell the remaining emission allowances to other companies that need more emission allowances than the set target. As a result, this condition will encourage companies to use technologies that help reduce the amount of emissions released. In the research conducted by Ildar Begishev, a sandbox model of regulation for the field of digital innovation is considered and examined. It is noted that this can encourage businesses in the BRICS countries to experiment with innovations that are environmentally friendly, minimize the risk of causing any harm to consumers, and make it easier for regulatory agencies to assess potential risks.[25]

At the moment, China is the only BRICS country to have set up a carbon trading market system. Furthermore, in this initial stage, only power generation companies are part of the carbon market target. China is in the process of preparing the carbon trading mechanism, which includes an offsetting mechanism, carbon quota allocation, and government penalties to attract interest and participation from the point of view of companies targeted by the carbon market.[26] The Chinese government leads carbon

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[23] Chapungu, L., et al. (2022). BRICS and the Race to Net-Zero Emissions by 2050: Is COVID-19 a Barrier or an Opportunity? *Journal of Open Innovation: Technology, Market, and Complexity, 8*(4), 172.

[24] Wang, W., et al. (2022). Auction Mechanism Design of the Chinese National Carbon Market for Carbon Neutralization. *Chinese Journal of Population Resources and Environment, 20*(2), 115–124.

[25] Begishev, I. (2023). Review of the Monograph "Law of the Digital Environment" (Tikhon Podshivalov et al. (eds.), 2022). *BRICS Law Journal, 10*(1), 186–194.

[26] Zha, D.-S., Feng, T.-T., & Kong, J.-J. (2022). Effects of Enterprise Carbon Trading Mechanism Design on Willingness to Participate – Evidence from China. *Frontiers in Environmental Science, 10*, 1–22.

trading through an approach enforced by rules and policies.[27] The legal system in China is based on the existence of proven fault indications regarding environmental pollution. A strict liability system is enforced in Chinese jurisdictions.[28]

Depending on the system that is adopted, there needs to be a mechanism that allows for the successful operation of carbon trading, one which can be adjusted by establishing coordination among interested parties regarding relevant policies. Spontaneous over-aggressive action will only lead to rejection of over-emitting carbon market targets.[29] Therefore, the government is likely to lose out on the success of the carbon market. Meanwhile, policies that are too lenient will have implications for companies' neglect of efforts to reduce their greenhouse gas emissions.[30] The value of investment in carbon trading certification is indicated to have positive implications for developing a green economy. For example, a hydropower project, if certified by an international body established by the Kyoto Protocol under the Clean Development Mechanism (CDM), would sell carbon credits representing millions of metric tonnes of CO2 emissions per year.[31]

The climate crisis needs to be addressed with an equitable system and cannot only be solved by carbon trading. Understanding the complexity of carbon trading by involving stakeholders is necessary to effectively address the climate issue. The trend towards establishing carbon trading markets is now recognised as an important tool in the international community's response to the climate change crisis. In addition, the carbon trading market plays a crucial role in environmental governance and the development of an environmentally friendly green economy.[32]

The current carbon trading market system has not actively contributed to the implementation of carbon trading due to several factors, such as inadequate institutional systems, minimal comparative scale of implementation, and poor carbon trading mechanisms.[33] The carbon market mechanism needs to be well-developed in order to allow for the integration of policy implementation into climate change mitigation and adaptation efforts. A successful carbon trading policy needs to be

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27 Zha, Feng & Kong, 2022.

28 Wei & Rafael, 2023.

29 Zha, Feng & Kong, 2022.

30 Yifei, Z., et al. (2020). The Effect of Emission Trading Policy on Carbon Emission Reduction: Evidence from an Integrated Study of Pilot Regions in China. *Journal of Cleaner Production, 265*, Article 121843.

31 Kerr, B. P. (2022). Mitigating the Risk of Failure: Legal Accountability for International Carbon Markets. *Utrecht Law Review, 18*(2), 145–161.

32 Yu, X., et al. (2022). Carbon Trading Market Policies and Corporate Environmental Performance in China. *Journal of Cleaner Production, 371*, Article 133683.

33 Zhao, X. G., et al. (2016). How to Improve the Market Efficiency of Carbon Trading: A Perspective of China. *Renewable and Sustainable Energy Reviews, 59*, 1229–1245.

analysed on the basis of its implementation system. Learning from existing carbon market policies in countries such as the United States, New Zealand, Canada, the EU, Switzerland, and China and their effectiveness in operation will indicate the difficulties associated with their full implementation without first studying these institutions. There is a need for implementation of the precautionary principle in its administration, followed by the subsequent appropriate management of carbon trading revenues, as well as stakeholder engagement.[34]

The BRICS countries, such as China, Russia, Brazil, India, and South Africa, are among the world's largest countries and possess enormous potential for carbon trading. Although China is still in the early stages, based on Zhang's (2020) opinion, there remain a series of initial problems, namely the vulnerable and weak market mechanism, inadequate laws and regulations, an imperfect trading system and an overall ineffectiveness of carbon trading, which has not significantly highlighted numbers that demonstrate reduced pollutants and emissions.[35]

Brazil's progress on financing carbon capture projects through reforestation is one of this country's measures towards generating carbon credits. Brazil has received widespread support from exporters, who believe that a regulated carbon market is necessary to maintain key overseas consumer markets and attract investments. Home to 60% of the Amazon rainforest, Brazil has an important role to play in global efforts to significantly reduce emissions and slow global warming. Brazil is responsible for 1.3% of global CO2 emissions according to the Global Carbon Atlas and is expected to continue to increase and fall further short of the 2015 Paris Agreement target, necessitating a carbon trading market. Brazil has been identified as having the potential to supply 28% of global regulated market demand, which accounts for 5% of the global voluntary market demand by 2020; this figure is expected to increase to 48.7% by 2030. The estimated revenue from carbon trading is US$120 billion.[36] Brazil uses a carbon trading method called carbon capture and storage (CCS) to reduce greenhouse gas emissions, the costs, and the most appropriate policies to commercially develop the technology.[37]

The aspect of morality and sense of responsibility built by countries in the BRICS region in relation to sustainable development and climate change is directed at building a common concept in an effort to reduce emissions. The scope of this

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[34] Narassimhan, E., Gallagher, K. S., Koester, S., & Rivera Alejo, J. (2018). Carbon Pricing in Practice: A Review of Existing Emissions Trading Systems. *Climate Policy, 18*(8), 967–991.

[35] Zhang, Sh., et al. (2020). Do the Performance and Efficiency of China's Carbon Emission Trading Market Change over Time? *Environmental Science and Pollution Research, 27*(26), 33140–33160.

[36] ICC Brasil. (2021). *Opportunities for Brazil in Carbon Markets*. https://www.iccbrasil.org/wp-content/uploads/2022/10/RELATORIO_ICCBR_2022_IN_22.10.21.pdf

[37] Machado, P. G., Hawkes, A., & de Oliveira Ribeiro, C. (2021). What Is the Future Potential of CCS in Brazil? An Expert Elicitation Study on the Role of CCS in the Country. *International Journal of Greenhouse Gas Control, 112*, Article 103503.

research is limited to examining the central and important role of the BRICS contribution to sensitising climate change mitigation. This form of awareness is developed through partnerships, which encourage the establishment of legal policies that compel entities in their countries to minimise carbon-emitting activities and generate benefits for a sustainable green economy. Despite sceptical views among some of the BRICS countries regarding the state of their emission profiles and positions in climate negotiations, this should not serve as the basis or reason influencing their sense of morality and collective responsibility to increase their ambitious efforts in reducing GHG emissions.[38]

As an EIT (economies in transition) party to the Global Agreement on Climate Change, the Russian Federation, as a member of BRICS, has a special obligation to take all possible actions to reduce emissions. Meanwhile, China, India, Brazil, and South Africa as Annex I Parties to the Global Agreement on Climate Change can strategically align themselves with the most relevant actions as pledged national contributions.[39]

Basically, carbon trading that is not systematised and accumulated properly will also have implications for carbon leakage. This clouds policy makers' anticipation of fraud and leads to inappropriate accounting practices; for example, the emissions generated by international trade in its activities. In this regard, who is obliged to bear the financial burden of the resulting emissions. Although climate change and trade are intertwined in international law, these two topics should be discussed separately, each with its own urgency. Doing otherwise would only impede any progress that could be made at the intersection of trade and climate change policy through ambitious efforts towards global climate mitigation.[40] Emissions leakage is the process of emissions outsourcing, i.e. the reduction of emissions in countries with stringent climate policies to countries with less stringent climate policies.[41] International trade activities are also part of the implications of mandatory legal policies for clear emissions accounting. International agreements on climate change often only focus on climate action and responsibility-sharing between countries while paying little attention to documents that address international trade in emissions accounting, particularly in the context of emissions outsourcing.

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[38] Kiprizli, G. (2022). Through the Lenses of Morality and Responsibility: BRICS, Climate Change and Sustainable Development. *Uluslararasi Iliskiler, 19*(75), 65–82.

[39] Gladun & Ahsan, 2016.

[40] Nielsen, T., Baumert, N., Kander, A., Jiborn, M., & Kulionis, V. (2021). The Risk of Carbon Leakage in Global Climate Agreements. *International Environmental Agreements: Politics, Law and Economics, 21*(2), 147–163.

[41] *Id.*

2. Precautionary Principles to Prevent the Occurrence of Double Counting in Carbon Trading through Carbon Exchanges in the BRICS Countries

The agreement of countries in the Paris Agreement provides the basis for ambitious efforts to reduce emissions. Through the international market, it reinforces international goals and targets, and demonstrates the accountability of parties to the UNFCCC. The basis for an international carbon market is implied in Article 6 of the Paris Agreement, which allows parties to:[42] (a) conduct and use international carbon trading of emission allowances to contribute to achieving emission reduction targets; (b) establish a framework of strong common accounting rules; and (c) create mechanisms for a more ambitious carbon market.

Offsetting in calculating the amount of carbon emitted by a country must be adjusted in accordance with the Paris Agreement. This in turn creates a dilemma for cross-border carbon offsets. The purchase of carbon credits may pose a risk of bi-lateral claims.[43] This means there is double counting in emission reduction efforts. This is stated in Article 6, paragraph 2:[44]

> (2) Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement.

Failure to reduce emissions resulting from double counting could affect and weaken the integrity of the carbon market. Therefore, double counting in emissions calculations must be prevented to mitigate the risk of actual GHG emissions being greater than the aggregate achievements reported by countries participating in carbon markets. The credibility of the Paris Agreement regime is at stake in the effort to reduce greenhouse gas emissions by preventing double counting in a transparent manner.[45]

Carbon trading among countries necessitates making "appropriate adjustments," whereby pairwise accounting is used to calculate emissions with an accounting framework in accordance with Article 6.2 of the Paris Agreement.[46] This means that

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42 International Carbon Market. (n.d.). Climate Action – European Commission. https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/international-carbon-market_en

43 Cullenward, D., Grayson, B., & Freya, C. (2023). Carbon Offsets Are Incompatible with the Paris Agreement. *One Earth, 6*(9), 1085–1088.

44 World Bank Group. (May 17, 2022). *What You Need to Know About Article 6 of the Paris Agreement*. https://www.worldbank.org/en/news/feature/2022/05/17/what-you-need-to-know-about-article-6-of-the-paris-agreement

45 Schneider, L., et al. (2019). Double Counting and the Paris Agreement Rulebook. *Science, 366*(6462), 180–183.

46 *Id.*

the selling country must increase its climate mitigation efforts for every unit of carbon offsets transferred out of the country. However, Article 6.4 of the Paris Agreement does not require the seller's host country to make adjustments for trades between private parties. This can result in private buyers claiming international offsets without adjustments. The identical benefits reported by the seller's host country under the Paris Agreement will thus be counted twice.

Previously, the Kyoto Protocol, in an effort to transition away from emissions reductions and the Paris Agreement, needed to reconsider the role of carbon offsets. In implementing climate change mitigation, there are five overlapping issues that require immediate response, including:[47] (a) carbon offsets often do not deliver the promised benefits. Furthermore, emission offsetting through the Clean Development Mechanism (CDM) was widely criticised in the past for generating non-additive carbon credits rather than new, actual emission reductions. Then there are several projects that can provide credit issuance for carbon offsets, each of which is equivalent to one tonne of CO2, including REDD+, IFM, and reforestation; (b) some carbon offsets make claims that aim to avoid emissions, such as only making efforts to develop renewable energy electricity rather than trying to eliminate CO2 in the atmosphere; (c) addressing the need for permanent carbon storage in order to truly reduce the impact of global warming because the current efforts of the state mostly only store carbon temporarily; (d) dealing with the issue of unsystematic carbon purchases that lead to unsubstantiated claims. This is done by using offsetting to report net CO2 emissions with lower claims on the basis of equality between the adverse effects of CO2 and the benefits of carbon credits; (e) tackling double counting in carbon offsetting, which is the most serious issue.

Considering the risks associated with double counting, it is imperative to promote colonial meetings in the carbon market system in order to avoid errors that could occur as a result of double counting, as stated in Article 6 of the Paris Agreement.[48] Carbon exchange is a system that regulates the flow of carbon trading and the records-keeping of the ownership of carbon units. The carbon exchange needs to be implemented based on the precautionary principle so that efficiency and accurate calculation of emissions can be implemented. The precautionary principle in international environmental law applies if: (a) a condition or situation (such as the use of a substance or a behaviour) poses a threat to the environment; (b) in addition, it poses a threat to human health; and (c) serious impacts are certain to occur.[49]

The main challenges in implementing voluntary carbon trading are the establishment of a clear standardisation system, the integrity of implementation, and

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47 Cullenward, Grayson & Freya, 2023.

48 Silbert, N. (2021). Making International Law, Making Carbon Markets. *Alternative Law Journal, 46*(4), 263–267.

49 Boutillon, S. (2002). The Precautionary Principle: Development of an International Standard. *Michigan Journal of International Law, 23*(2), 429–470.

a transparency in results. If the three components of the system are not clear on a clear carbon credit standard, it will be difficult to determine how companies have actually reduced their emissions. Since any occurrence of double counting would refer to carbon credits claimed by more than one entity, the implementation of carbon trading must be done in a precautionary manner in order to avoid errors in calculating the emissions suppressed by a country.

The precautionary principle is at the heart of scientific uncertainty. According to Gintanjali Gill, an esteemed professor of environmental law, the precautionary principle is part of the fundamental tools that give impetus to sustainable development and functions at both international and national levels.[50] The precautionary principle is the 15th principle of international environmental law in the Rio Declaration on Environment and Development which states that: "Where the threat of serious or irreversible damage is indicated, the lack of scientific certainty should not be used as a basis for postponing cost-effective measures to prevent environmental degradation."[51] This principle is particularly relevant to companies' estimates of emissions due to steady emissions reductions and is vital to complying with climate benchmarking requirements where most companies do not disclose emissions data.[52] The precautionary principle has been widely applied by several countries, such as Germany, France, and several other countries in Europe, in certain laws regarding environmental law policies. For example, the French law (Barnier Act of 1995) stipulates the formulation of the precautionary principle.[53]

Regarding carbon exchanges, several countries have organised carbon exchanges for carbon credit buying and selling activities, such as Australia and China. In Australia, for example, the Australian Carbon Credit Unit (ACCU) scheme is the issuing body for carbon credits and credits are issued on the basis of the Emission Reduction Fund. Companies, and other legal entities have the right to participate in the Emission Reduction Fund purchase and crediting mechanism. Double counting may occur if a safeguard facility is able to receive ACCUs as a means to reduce its emissions and subsequently surrender the same ACCUs to reduce its net emissions through the safeguard mechanism.[54] To prevent double counting under the Emission Reduction

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50 Gill, G. N. (2019). Precautionary Principle, its Interpretation and Application by the Indian Judiciary: 'When I Use a Word It Means Just What I Choose It to Mean-Neither More nor Less' Humpty Dumpty. *Environmental Law Review, 21*(4), 292–308.

51 Peel, J. (2004). Precaution – A Matter of Principle, Approach or Process? *Melbourne Journal of International Law, 5*(2), 483–501.

52 FTSE Russell. (2022). *Mind the Gaps: Clarifying Corporate Carbon*. Asia-Pacific Research Exchange. https://www.arx.cfa/en/research/2022/05/soc300522-mind-the-gaps-clarifying-corporate-carbon

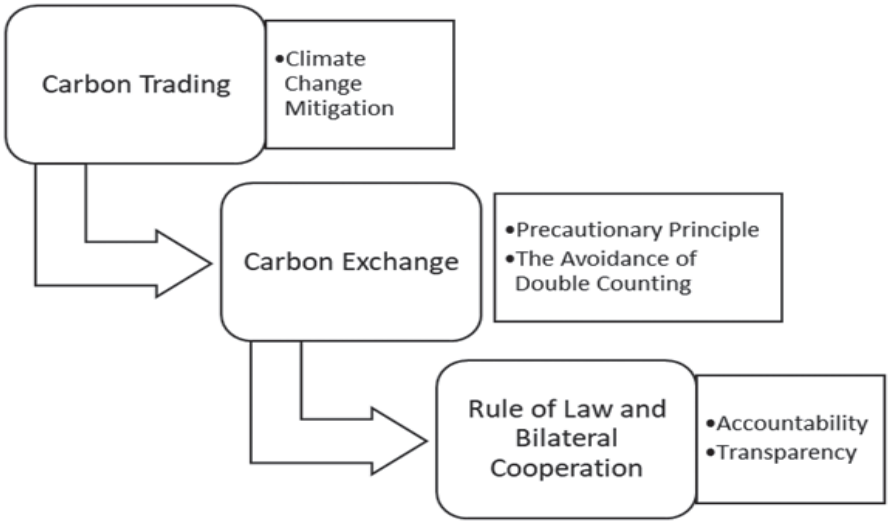
53 Rodrigue, M. (2023). The Precautionary Principle in Environmental Law. *Open Journal of Social Sciences, 11*(12), 548–567.

54 Australian Government. (2015). *The Safeguard Mechanism: Carbon Offsets and Avoiding Double Counting of Emissions Reductions Using Carbon Offsets to Manage Emissions*. Department of Climate Change,

Fund legislation, which ensures that net emissions are not counted more than once, if a facility uses ACCUs to offset emissions under the safeguard mechanism, the net emissions counted will be solely for that facility. The ACCUs that have been issued are then added to the emissions figure for the relevant financial year.[55]

The findings of this research, thus, indicate that there is a need for a concept of "accountable emissions trading," which links public trust to transparent processes and outcomes through carbon exchanges in the BRICS countries.

Figure 2
Carbon Trading Mechanism Through the Carbon Market in the BRICS Countries in a Bilateral Context



As illustrated in the flowchart above, this study takes into account the novel concept of establishing a carbon exchange through the implementation of bilateral cooperation between the BRICS countries. The purpose of this cooperation is to achieve each country's NDC target. It is likely that this achievement will lead to bilateral expansion of the BRICS membership with the inclusion of the United Arab Emirates, Iran, Ethiopia, and Egypt in early 2024. Carbon exchanges are expected to be one of the steps that can be taken to realise the NDC targets. Given that the BRICS countries are among the largest emission contributors in the world, these nations need to

Energy, the Environment and Water. https://www.dcceew.gov.au/sites/default/files/documents/fact-sheet-safeguard-mechanism-avoiding-double-counting.pdf

[55] Australian Government, 2015.

make immediate decarbonisation efforts. The success of reducing global emissions will depend on the BRICS countries taking ambitious actions aimed at achieving net zero carbon by 2050. The decarbonisation process will ultimately follow the system and influence structures created by each country. However, one form of cooperation that can be done is through carbon trading with the carbon exchange in an effort to prevent double counting while adhering to the precautionary principle.

Conclusion

Global commitment to tackling climate change is critical to successfully reducing emissions by 2030. Climate change mitigation efforts of the BRICS countries through carbon trading can have a significant impact on global efforts to reduce emissions. This is because the majority of global greenhouse gas emissions come from countries such as China, Russia, India, and Brazil. Climate change mitigation through carbon trading can be implemented with both voluntary and compliance carbon markets. Given the potential for carbon sequestration in the BRICS countries, there is tremendous opportunity to generate funding from voluntary trading. Since the majority of these countries are still dependent on fossil energy, the funding generated from carbon trading activities can be allocated as part of the BRICS countries' funding efforts towards a new renewable energy transition as well as providing funding for forest land and biodiversity conservation activities. These efforts will fulfil the targets specified in the Nationally Determined Contributions (NDC), thereby influencing the legal policies adopted by each country. Carbon accounting that is carried out with both transparency and accountability can be achieved with the application of the precautionary principle. The carbon exchange, as a place to buy and sell carbon, will prevent the occurrence of double counting, which in turn will prevent the worsening of the global increase in greenhouse gas emissions.

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