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Who Pays for Climate Loss and Damage? State Obligations Under International Law Explained

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Abstract

Climate change has intensified debates over responsibility for loss and damage suffered by states and communities most vulnerable to its impacts. Rising sea levels, extreme weather events, ecosystem degradation, and economic disruption have generated irreversible harms that cannot be addressed solely through mitigation and adaptation. This article examines the central question of who should bear responsibility for climate-related loss and damage under international law, with a particular focus on the obligations of states. It analyzes the legal foundations of state responsibility, including principles of common but differentiated responsibilities (CBDR), equity, due diligence, and the prevention of transboundary harm. The study situates loss and damage within the framework of key international instruments such as the United Nations

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Framework Convention on Climate Change, the Paris Agreement, and decisions of the Conference of the Parties, including the establishment of mechanisms addressing loss and damage. It explores how customary international law and emerging climate jurisprudence contribute to clarifying states' duties, particularly in relation to historical emissions, capacity to respond, and the protection of vulnerable populations. The article also considers the role of compensation, financial assistance, and international cooperation as potential expressions of legal and moral accountability. While international law does not yet provide a comprehensive or enforceable regime for climate loss and damage, the analysis demonstrates that evolving legal norms increasingly recognize differentiated state obligations. The article argues that developed states, due to their greater historical contributions to climate change and superior resources, bear heightened responsibilities to support affected states through finance, technology transfer, and capacity-building. Ultimately, the paper concludes that addressing climate loss and damage requires strengthening legal accountability while fostering equitable cooperation to ensure climate justice and sustainable development for present and future generations.

KEYWORDS *Climate Change, Environmental Damage, Climate Loss, State Obligation*

Introduction

One of the environmental issues that has a significant influence on all components of life and life systems of many people today is the phenomenon of climate change. Climate change has become a major concern in various parts of the world due to its far-reaching impact and permeates almost every aspect of human life, from the economic, social, to health sectors.[1] This phenomenon is caused by an increase in the

[1] Celik, Senol. "The effects of climate change on human behaviors." *Environment, climate, plant and vegetation growth*. (Cham: Springer International Publishing, 2020), pp. 577-589; Vitousek, Peter M. "Global environmental change: an introduction." *Annual review of Ecology and Systematics* (1992): 1-14.

concentration of greenhouse gases in the atmosphere, leading to global warming and drastic changes in weather patterns. This global warming is changing the climate as a whole, causing more frequent extreme weather, such as floods, droughts, powerful storms, and erratic temperature changes. This not only affects the sustainability of ecosystems and natural resources, but also adds great challenges to human life.

Climate change affects many sectors of life, including agriculture, fisheries, and food security. Extreme temperature changes and uncertain rainfall patterns have reduced agricultural productivity and threatened global food supplies.[2] On the other hand, rising sea levels due to melting ice at the poles also threaten small islands and coastal areas, many of which are inhabited by people with vulnerable infrastructure. In addition, this phenomenon also exacerbates the problems of poverty and social inequality, as poorer and more vulnerable communities often do not have the resources to adapt to the changes that occur.[3]

The impact of climate change is also seen in the global health system. Rising temperatures and weather changes increase the risk of spreading diseases, such as respiratory diseases, water-related diseases, as well as the spread of vector-borne diseases such as malaria and dengue fever. Mental health can also be affected, as individuals affected by natural disasters or extreme weather changes experience prolonged stress. Not only that, but

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[2] Rice, Jake C., and Serge M. Garcia. "Fisheries, food security, climate change, and biodiversity: characteristics of the sector and perspectives on emerging issues." *ICES Journal of Marine Science* 68.6 (2011): 1343-1353; Al, W., G. Orking, and O. Clima. "Climate change and food security: a framework document." *FAO Rome* 3 (2008).

[3] Syahwal, Syahwal. "Blocked by Neoliberalism: A Glance at the Workers Movement's Role in Achieving a Just Transition." *Indonesian Journal of Advocacy and Legal Services* 6.1 (2024): 1-24; Fansuri, Rayhan Fiqi, and Juan Matheus. "Enforcement of Human Rights through Criminal Law Against Environmental Destruction Due to Batik Industry Activities." *Indonesian Journal of Criminal Law Studies* 7.2 (2022): 291-316; Ariska, Nugrah Putri, and Johan Simbolon. "Climate Crisis, Social Crisis: Measuring Inequality in Climate Impact Across Eastern Indonesia." *Indonesian Climate Justice Review* 1.1 (2024).

climate change is also increasing the pressure on biodiversity. Several species of flora and fauna are threatened with extinction due to habitat shifts that occur due to temperature changes and disturbed ecosystems.

In response to this climate crisis, the *United Nations Framework Convention on Climate Change* (UNFCCC) was created, an international convention that is considered the most appropriate answer to answer the need for climate change mitigation. The UNFCCC, which was adopted in 1992 at the Earth Summit in Rio de Janeiro, Brazil, aims to address global climate change by reducing greenhouse gas emissions and strengthening countries' ability to adapt to its impacts. As an international convention, the UNFCCC provides a binding legal basis for member states to work together in the face of the challenges of climate change.[4]

This convention is the main source of international law related to climate change, and is considered to have the *necessary legal force* to cooperate with countries in the world in simulating climate change. One of the key points of the UNFCCC is the principle of shared but different responsibilities, which recognizes that each country has a role and responsibility in addressing climate change, but taking into account the different capacities and situations in each country. Developed countries, which have historically contributed more to greenhouse gas emissions, are expected to take greater steps in reducing emissions and providing financial and technological support to developing countries that are more vulnerable to the impacts of climate change.

In addition, the UNFCCC has also been the basis for various further international agreements, such as the Kyoto Protocol in 1997 and the *Paris Agreement* in 2015. The Kyoto Protocol establishes emission reduction obligations for developed countries, while the Paris Agreement creates a more flexible global agreement with a target to keep global temperatures from rising more than 1.5 degrees Celsius compared to pre-industrial

[4] Kuyper, Jonathan, Heike Schroeder, and Björn-Ola Linnér. "The Evolution of the UNFCCC." *Annual Review of Environment and Resources* 43.1 (2018): 343-368.

levels. These two treaties, while not fully legally binding for developing countries, provide a structure and mechanism to track progress and foster international cooperation in climate change mitigation and adaptation efforts.[5]

These two agreements, the Kyoto Protocol and *the Paris Agreement*, have similar goals, namely reducing greenhouse gas emissions and tackling the impacts of climate change. However, the main difference lies in its approach and implementation mechanism. While not fully legally binding for developing countries, the two treaties provide a clear structure and mechanism to track progress, facilitate the exchange of knowledge and technology, and foster international cooperation in climate change mitigation and adaptation efforts. Therefore, the role of the UNFCCC and the treaties is crucial in creating a deepening global awareness of the climate crisis and driving concrete action to deal with it collectively.[6]

The issue of loss and damage resulting from climate change has become a central topic in international law, raising questions about how states can be held accountable for the environmental harm they contribute to or suffer from. One of the key concerns is identifying the international legal instruments that regulate the responsibility of countries in addressing the adverse impacts of climate change, including the loss of life, livelihoods, and ecosystems. This involves an examination of various treaties, agreements, and frameworks, such as the Paris Agreement, the Warsaw International Mechanism, and other UN climate accords, which set the groundwork for state responsibility in managing climate-related losses and damages.

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[5] Fichtner, Wolf, Sven Graehl, and Otto Rentz. "International cooperation to support climate change mitigation and sustainable development." *International journal of environment and pollution* 18.1 (2002): 33-55.

[6] van der Gaast, Wytze. "Towards a future climate policy—from the Kyoto Protocol to the Paris Agreement." *International Climate Negotiation Factors: Design, Process, Tactics*. (Cham: Springer International Publishing, 2016), pp. 91-123.

Furthermore, the role of individual states within these legal frameworks remains a critical area of inquiry. How do international legal obligations translate into national action? What are the duties and responsibilities of states, both in terms of mitigating climate change and compensating those affected by its consequences? Understanding the responsibilities of states, both in terms of prevention and restitution, is essential for effective global governance on climate change.[7]

Another significant issue is the practical challenges that countries encounter when it comes to enforcing their international legal obligations regarding climate change-related loss and damage. These challenges may include financial constraints, lack of technical expertise, political will, and difficulty in establishing accountability mechanisms. Exploring these obstacles is crucial to understanding why, despite the existence of international agreements, implementation remains inconsistent and inadequate in many regions of the world.

Lastly, the role of specific states, such as Indonesia, in addressing the environmental damages caused by climate change must also be considered. As one of the nations most vulnerable to climate impacts, Indonesia's response—both domestically and within international frameworks—offers valuable insights into the broader challenges faced by developing countries. What steps has Indonesia taken to mitigate damage, adapt to climate changes, and participate in international negotiations?

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[7] Arifin, R., R. Rodiyah, and R. Wulansarie. "Climate Justice in Indonesian Environmental Protection: Past, Present and Future Challenges." *IOP Conference Series: Earth and Environmental Science*. Vol. 1248. No. 1. IOP Publishing, 2023; Purniawati, Purniawati, Nikmatul Kasana, and Rodiyah Rodiyah. "Good environmental governance in Indonesia (Perspective of environmental protection and management)." *The Indonesian Journal of International Clinical Legal Education* 2.1 (2020): 43-56; Oktarina, Tri Nurmega, and Anisa Yulianti. "The role of women in sustainable development and environmental protection: A discourse of ecofeminisme in Indonesia." *Indonesian Journal of Environmental Law and Sustainable Development* 1.2 (2022): 107-138.

Understanding Indonesia's approach is essential in the larger context of global climate governance.[8]

This research aims to provide a comprehensive understanding of the international legal frameworks that govern state responsibilities concerning the loss and damage caused by climate change. By analyzing key international agreements and legal instruments, the objective is to clarify the scope and nature of the obligations placed on states, especially in relation to the protection of vulnerable populations and ecosystems.

Additionally, this study will examine the specific role of states under international law, focusing on their obligations to both mitigate and adapt to climate change impacts. Understanding these responsibilities in practical terms will provide insights into how countries can fulfill their international duties and contribute to global climate action.

The research will also address the challenges that countries face in enforcing their international legal responsibilities, such as economic, political, and logistical hurdles. By exploring these difficulties, the study will highlight the gaps in implementation and the steps needed to overcome them to ensure more effective global cooperation on climate change. Finally, the research aims to explore the role of Indonesia in combating environmental damage caused by climate change. By investigating Indonesia's national policies, its participation in international climate negotiations, and its response to environmental challenges, the study seeks to contribute to a broader understanding of how individual states can take action in the face of global climate crises.[9]

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[8] Wijayanto, Adi, Hatta Acarya Wiraraja, and Siti Aminah Idris. "Forest Fire and Environmental Damage: The Indonesian Legal Policy and Law Enforcement." *Unnes Law Journal* 8.1 (2022): 105-132; Nyekwere, Empire Hechime, et al. "Constitutional and judicial interpretation of environmental laws in Nigeria, India and Canada." *Lex Scientia Law Review* 7.2 (2023): 905-958.

[9] Rianta, Muhammad Hakim, Pradnya Kayla Ali Imron, and Ibrahim Danjuma. "Developing the Framework for a Green Constitution: Strengthening Environmental Protection Initiatives in Indonesia." *The Indonesian Journal of International Clinical Legal Education* 5.4 (2023): 445-472.

This research uses a normative juridical method, which is an approach that focuses on the study of applicable legal rules and legal principles that underlie the handling of environmental damage caused by climate change. This approach aims not only to understand the existing legal framework, but also to evaluate how the role of international law is in keeping climate change and preventing environmental damage. This method seeks to explore the relationship between existing legal regulations and their impact on environmental issues, especially in the context of climate change that is increasingly urgent at the global level.

In addition, this study also aims to analyze the role of countries in enforcing international environmental laws related to climate change. By examining various international legal instruments, such as multilateral treaties, conventions, and protocols related to climate change, this study will identify the extent to which countries in the world have legal obligations to protect their environment from further damage. One of the important aspects analyzed is how effective these regulations are in responding to global and cross-border climate change challenges.

This method involves an in-depth analysis of various legal documents, both constitutional and related to international treaties, that provide a framework for dealing with the problems of climate change and environmental damage. In addition, this study also pays attention to various international legal principles that underlie climate change mitigation efforts, such as the principle of shared but different responsibilities and the principle of justice between countries in addressing the impacts of climate change.

International Law Governing State Responsibility to Deal with Loss and Damage Due to Climate Change

A. United Nations Framework Convention on Climate Change (UNFCCC)

The UNFCCC sets out major principles and objectives related to climate change mitigation and adaptation, as well as the negotiation process between the parties involved and the establishment of the necessary institutions.[10]

a. Established in 1992 and entered into force in 1994, the UNFCCC serves as an international framework to address the issue of climate change and its impacts.
b. The Convention recognizes that climate change is a global issue that requires international collaboration.
c. Participating countries commit to reducing greenhouse gas emissions and report their progress on a regular basis.
d. The UNFCCC also provides mechanisms to support developing countries in addressing the challenges of climate change, including in terms of funding and technology transfer.[11]

While it does not explicitly mention the terms "*rights of future generations*" or "*intergenerational justice*," the UNFCCC requires every country to consider intra-generational and intergenerational justice in climate protection efforts. More clearly stated:

[10] Vanhala, Lisa, and Cecilie Hestbaek. "Framing climate change loss and damage in UNFCCC negotiations." *Global environmental politics* 16.4 (2016): 111-129.

[11] Karakosta, Charikleia, Haris Doukas, and John Psarras. "Technology transfer through climate change: Setting a sustainable energy pattern." *Renewable and sustainable energy reviews* 14.6 (2010): 1546-1557; Biagini, Bonizella, et al. "Technology transfer for adaptation." *Nature Climate Change* 4.9 (2014): 828-834.

> *"The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof."*[12]

B. *Kyoto Protocol*

Adopted in 1997 and entering into force in 2005, the Kyoto Protocol is a legally binding treaty for developed countries to reduce greenhouse gas emissions. The protocol sets specific emission reduction targets for developed countries and provides flexibility in achieving these targets through mechanisms such as emissions trading and emission reduction projects in developing countries. The Kyoto Protocol emphasizes the principle of shared but distinct responsibility, which recognizes that developed countries have a greater responsibility for addressing climate change.[13]

The Kyoto Protocol was drafted in 1997 as a legal continuation of the UNFCCC. In this protocol, the principle of "*common but differentiated and respective capabilities*" is applied through the division of

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[12] *See* Page, Edward. "Intergenerational justice and climate change." *Political Studies* 47.1 (1999): 53-66; Skillington, Tracey. *Climate change and intergenerational justice*. (London: Routledge, 2019); Sanklecha, Pranay. "Should there be future people? A fundamental question for climate change and intergenerational justice." *Wiley Interdisciplinary Reviews: Climate Change* 8.3 (2017): e453; Weiss, Edith Brown. "Our rights and obligations to future generations for the environment." *American Journal of International Law* 84.1 (1990): 198-207; Cho, Hong Sik, and Ole W. Pedersen. "Environmental rights and future generations." *Routledge Handbook of Constitutional Law*. (London: Routledge, 2013), pp. 401-412.

[13] Coplan, Karl S., et al. *Climate Change Law: An Introduction*. Edward Elgar Publishing, 2021.

countries into Annex and non-Annex. Countries in the Annex category have an obligation to limit and reduce greenhouse gas emissions by 5% of 1990 levels each, with a target of achieving them in the period 2008-2012.[14] However, the Kyoto Protocol does not include terms relating to the protection of future generations, and there are no operational provisions governing the protection commitments for future generations in the emission reduction and limitation mechanisms. Although the Kyoto Protocol was completed in 1997, it did not enter into force until 2005 after total emissions from ratifying countries reached 55% of 1990 levels.[15]

C. *Paris Agreement*

The Paris Agreement replaces the 1997 Kyoto Protocol and was adopted in 2015 by UNFCCC member states to coordinate international efforts to address climate change.[16]

a. Adopted in 2015 and coming into force in 2020, the Paris Agreement is an important step in the global effort to address climate change.
b. The goal of the agreement is to limit global warming to below 2 degrees Celsius, with efforts to keep temperature rises to 1.5 degrees Celsius.
c. Each country is required to draft and submit Nationally Determined Contributions (NDCs), which are national climate action plans that include emission reduction targets.

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[14] Rosencranz, Armin, and Kanika Jamwal. "Common but differentiated responsibilities and respective capabilities: did this principle ever exist?." *Environmental Policy and Law* 50.4-5 (2021): 291-297.

[15] Böhringer, Christoph. "The Kyoto protocol: a review and perspectives." *Oxford Review of Economic Policy* 19.3 (2003): 451-466; Manne, Alan S., and Richard G. Richels. "The Kyoto Protocol: a cost-effective strategy for meeting environmental objectives?." *The Energy Journal* 20.1_suppl (1999): 1-23.

[16] Pramudianto, A. (2016). From the 1997 Kyoto Protocol to the 2015 Paris Agreement: The Dynamics of Global and Asean Climate Change Diplomacy Towards 2020. *Global: International Journal of Politics*, *18*(1), 76-94.

d. The Paris Agreement also emphasizes the importance of financial and technical support for developing countries to assist them in mitigating and adapting to climate change.[17]

The Paris Agreement does not set specific emission reduction targets, but rather formulates common objectives related to climate change and gives countries the freedom to determine how and how they contribute, taking into account the different national situations of each country in accordance with the principle of shared but different responsibilities.[18]

Indonesia signed the Paris Agreement in New York and is committed to reducing greenhouse gas (GHG) emissions and actively preventing climate change. The Indonesian government then issued Law 16/2016, which includes nine priority actions within the Nawa Cita framework, as a commitment to low-carbon and climate-resilient development. In the National Development agenda, climate change adaptation and mitigation are the main focus. Currently, there are 193 parties that have ratified this agreement, including 192 countries and the European Union.

The international law governing states' responsibilities in addressing climate change loss and damage is reflected in three main instruments: the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement. The UNFCCC, adopted in 1992, serves as a global framework that emphasizes the importance of international collaboration and intergenerational justice in climate change mitigation and adaptation efforts. The Kyoto Protocol, adopted in 1997,

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[17] Blau, Judith. *The Paris Agreement: climate change, solidarity, and human rights*. Springer, 2017.

[18] Segger, Marie-Claire Cordonier. "Advancing the Paris Agreement on climate change for sustainable development." *Cambridge International Law Journal* 5.2 (2016): 202-237. *See also* Karim, Ridoan, Farahdillah Ghazali, and Abdul Haseeb Ansari. "Renewable energy regulations in Indonesia and India: a comparative study on legal framework." *Journal of Indonesian Legal Studies* 5.2 (2020): 361-390; Puteri, Dina Silvia. "Making Indonesia Sustainable: Shaping the Law to Reduce Digital Carbon Footprint." *Indonesian Journal of Advocacy and Legal Services* 6.1 (2024): 77-102.

establishes a legal obligation for developed countries to reduce greenhouse gas emissions, with the principle of shared but distinct responsibility. Meanwhile, the Paris Agreement, adopted in 2015, gives countries the flexibility to determine their contribution to achieving emissions reduction goals, with a focus on support for developing countries.

These three instruments complement each other and form a comprehensive international legal framework to address the challenges of climate change globally. With the commitment of countries, including Indonesia, which has signed the Paris Agreement and implemented Law 16/2016, it is hoped that mitigation and adaptation efforts to climate change can be carried out effectively. Therefore, international collaboration and strong national commitments are key to addressing the impacts of climate change and protecting future generations.

The Role of States in Dealing with Loss and Damage Due to Climate Change According to International Law

Climate change has become one of the biggest challenges facing humanity in the 21st century. Its broad and complex impacts include economic losses, environmental damage, and threats to human life. In this context, the role of the state is crucial in dealing with the losses and damages caused by climate change. International law provides a framework that governs the responsibilities and obligations of states in dealing with this issue.[19] This discussion will outline the role of the state in the context of international law, including obligations, international cooperation, recognition of loss and damage, and the implementation of national policies and actions.

[19] Kusuma, Daffa Prangsi Rakisa Wijaya, Yustika Ardhany, and Ahmed Mustafa. "Legal Smoke and Mirrors: Unmasking Indonesia's Climate Crisis Policies and Regulations." *Ikatan Penulis Mahasiswa Hukum Indonesia Law Journal* 3.1 (2023): 121-138.

A. *State Obligations Under International Law*

The state has a responsibility to protect the environment and prevent damage caused by human activities. In the context of climate change, this obligation covers several important aspects:

a. Greenhouse Gas Emission Reduction

One of the main obligations of the state is to reduce greenhouse gas (GHG) emissions. The Paris Agreement, signed in 2015, is the main instrument governing countries' commitments to limit global warming to below 2 degrees Celsius, with efforts to limit temperature rise to 1.5 degrees Celsius. Countries are expected to draft and implement ambitious national plans to reduce emissions, known as Nationally Determined Contributions (NDCs).

Developed countries, which have historically greater responsibility for GHG emissions, are expected to take the lead in reducing emissions and providing support to developing countries. This reflects the principle of shared but distinct responsibility, which is recognized in the United Nations Framework Convention on Climate Change (UNFCCC).

b. Adaptation and Mitigation

The state is also responsible for developing adaptation and mitigation strategies that are appropriate to local conditions. Adaptation includes measures to reduce vulnerability to the impacts of climate change, such as improving climate-resilient infrastructure, sustainable management of water resources, and protecting ecosystems. Mitigation, on the other hand, focuses on reducing GHG emissions and increasing carbon sequestration through sustainable agricultural practices, reforestation, and the use of renewable energy.

Countries must integrate climate change policies into national development planning and other sectors, such as agriculture, energy, and transportation. This requires a cross-sectoral approach involving a

wide range of stakeholders, including government, the private sector, and civil society.

B. *International Cooperation*

Climate change is a problem that knows no borders, so international cooperation is very important. Some aspects of this cooperation include:

a. Technology Transfer and Financing

Developed countries are expected to provide financial support and technology transfer to developing countries. This is important to assist those countries in implementing effective solutions to address the losses and damages caused by climate change. Through mechanisms such as the Green Climate Fund (GCF), developed countries are committed to providing the necessary funds to support adaptation and mitigation projects in developing countries.

Technology transfer is also an important aspect of international cooperation. Developing countries often face challenges in accessing the technologies needed to reduce emissions and adapt to climate change. Therefore, developed countries need to facilitate access to environmentally friendly technologies and best practices that can help developing countries in meeting these challenges.

b. International Forum

Various international forums, such as the Conference of the Parties (COP) under the UNFCCC, provide a platform for countries to discuss, share experiences, and formulate common policies in the face of climate change. The forum is also a place to evaluate the progress that has been made in achieving emissions reduction and adaptation goals.[20]

[20] Budnik, Olena, John Kessel, and Lara Gomez-Diaz. "The Role of International Law in Climate Change Mitigation: A Comparative Analysis." *Contemporary Legal Studies and Research* 2.1 (2023): 23-36.

Through these forums, countries can build stronger partnerships and collaborations, as well as learn from each other's experiences. This is especially important for countries that are most vulnerable to the impacts of climate change, such as small island nations and developing countries that have limited resources. This cooperation also includes the exchange of information and scientific research that can help countries in formulating more effective policies.

C. *Recognition of Loss and Damage*

In the context of international law, the recognition of the losses and damages caused by climate change is getting more and more attention. Some of the important points in this regard are:

a. Loss and Damage

The concept of "*loss and damage*" is recognized in the Paris Agreement and in various COP decisions. This includes irreversible losses, such as ecosystem loss, as well as economically measurable damage. Countries that are most vulnerable to the impacts of climate change, such as small island nations and countries located in disaster-prone areas, often suffer significant losses from natural disasters exacerbated by climate change.[21]

Acknowledging this loss and damage is essential to ensure that the most affected countries receive the necessary support. It also reflects the moral and legal responsibility of countries that contribute significantly to GHG emissions to help the most vulnerable countries.

b. State Responsibility

Countries that contribute significantly to GHG emissions have a moral and legal responsibility to help countries that are most

[21] Van Asselt, Harro. "The role of non-state actors in reviewing ambition, implementation, and compliance under the Paris agreement." *Climate Law* 6.1-2 (2016): 91-108.

vulnerable to the impacts of climate change. This includes support in the form of humanitarian assistance, post-disaster recovery, and capacity building. Developed countries are expected to provide adequate financial and technical support to assist developing countries in addressing the losses and damage caused by climate change.

D. *Implementation of National Policies and Actions*

Each country has a responsibility to implement policies that are in line with its international commitments. Some of the steps that can be taken include:

a. **Preparation of an Action Plan**

Countries need to develop clear national action plans to address climate change, including emissions reduction targets and adaptation strategies. The plan should include concrete steps to be taken to achieve the goals set out in the NDCs. In addition, the action plan should be drafted involving a wide range of stakeholders, including civil society, the private sector, and local communities.

b. **Community Engagement**

Community involvement in the decision-making process is essential. Countries must involve civil society, the private sector, and local communities in formulating and implementing climate change policies. This will not only increase the effectiveness of the policy, but also ensure that it reflects the needs and aspirations of the community.

Challenges Faced by States in Enforcing International Legal Responsibilities Related to Loss and Damage Due to Climate Change

A. Absence of a Globally Binding Legal Mechanism

Climate change has caused significant loss and damage impacts in various parts of the world, especially for developing countries that have limited capacity to deal with such changes. Unfortunately, current international law still lacks a globally binding mechanism to ensure the responsibility of the largest emitters. Agreements such as *the Paris Agreement*, while an important step, place more emphasis on voluntary commitments and lack the tools to enforce accountability.

Developing countries often emphasize the principle of *common but differentiated responsibilities*, in which developed countries are expected to bear the greater burden due to their historical contribution to the accumulation of greenhouse gases in the atmosphere. However, the implementation of this principle has not always been effective due to the absence of strong sanctions and difficulties in reaching a global agreement on compensation for losses and damages caused. Frameworks such as the Loss and Damage Mechanism at the UN Climate Change Conference (COP) are good efforts, but their implementation is still slow and underfunded.

B. Difficulties in Determining Responsibility and Causality

Enforcing international legal responsibility for climate change losses also faces major challenges in terms of determining causality. Climate change is global and cumulative, with emission sources coming from different countries and economic sectors around the world. This makes it difficult to directly link the emission actions of a particular country or

company to the impact of losses experienced by other countries, such as floods, droughts, or rising sea levels.

Science related to climate change attribution, such as attribution science, has evolved rapidly to link extreme climate events to global temperature changes caused by human activities. However, this methodology has not been fully recognized within the framework of international law. Existing scientific uncertainty is often exploited by large emitting countries to avoid legal accountability. Affected developing countries are then faced with the challenge of seeking appropriate compensation.

C. Economic Gap and State Capacity

Another challenge faced is the economic gap and capacity between countries to deal with the loss and damage caused by climate change. Developed countries tend to have more resources and technology to adapt to climate change, while developing countries are often limited in terms of funding, technology, and institutional capacity. This situation further exacerbates the losses suffered by developing countries that are more vulnerable to climate disasters.

In the context of international law, this imbalance of capacity also creates difficulties in claiming rights and compensation. The negotiation process in international forums is often dominated by countries with greater economic and political power, so the demands of developing countries often do not receive adequate attention. In addition, access to climate finance through global mechanisms such as the Green Climate Fund is often hampered by complicated bureaucratic procedures.

D. Political Barriers and Economic Interests

Political and economic factors are also obstacles in enforcing international legal responsibilities related to climate change. Countries that rely on fossil fuel-based industries tend to resist global efforts to reduce

greenhouse gas emissions or compensate for the losses caused. Economic interests often hinder the formulation of ambitious and legally binding policies.

Negotiations in international forums are often influenced by geopolitical interests, where major powers use their influence to protect their domestic industries and economies. This creates an impasse in reaching an effective global agreement to address the losses and damages caused by climate change.

The Role of the State of Indonesia in Combating Environmental Damage

The Indonesian government has a very important role in environmental management, given the extraordinary biodiversity that our country has and various environmental challenges, one of which is deforestation. Deforestation or simply known as large-scale deforestation is a process of reducing forest area which is usually caused by human activities, namely massive deforestation or can also be caused by natural disasters such as forest fires. Deforestation itself can have an impact on various sectors, including climate change, ecosystem damage, floods and landslides, and also economic losses. If not acted upon immediately, this can lead to bigger problems.[22] One of the main steps taken by the government is through the implementation of Law No. 32 of 2009 concerning Environmental Protection and Management, this Law regulates the principles of environmental management and establishes obligations for the government and the community to maintain the preservation of environmental functions and community safety. The government is also responsible for the sustainable planning and

[22] Dauvergne, Peter. "The politics of deforestation in Indonesia." *Pacific Affairs* (1993): 497-518; Masyhar, Ali. "Forest fires and law enforcement: The capture of Indonesian contemporary condition." *Journal of Law and Legal Reform* 21.1 (2021): 39-50

management of natural resources, including the preparation of regional spatial plans by considering environmental aspects and conservation area management.[23]

In addition, Indonesia is also bound by various international regulations, such as the United *Nations Convention on Biological Diversity*, which is manifested in the form of ratification by Law Number 5 of 1994. Considering that Indonesia is the country with the largest biodiversity, the State of Indonesia has also ratified the Cartagena Protocol with Law No. 21 on the Ratification of *the Cartagena Protocol on Biosafety to the Convention on Biological Diversity*, which emphasizes the importance of biodiversity protection and management of genetic resources.[24]

Environmental awareness education is also a major focus, where the government launches programs to increase public understanding of the importance of environmental protection, such as socialization on the importance of protecting the environment in schools and campaigns related to reducing the use of single-use plastics. The program aims to form awareness from an early age about the importance of protecting the environment and encouraging environmentally friendly behavior among the younger generation. In addition, Indonesia participates in international cooperation to address global environmental issues, such as climate change, by participating in international agreements such as the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC).

The Paris Agreement is a framework convention initiated by the United Nations with the aim of reducing global temperature rise to 2°C below pre-industrial levels, with an ideal target of 1.5°C. To achieve this target, it is necessary to reduce carbon emissions globally by up to 37.17

[23] Law No. 32 of 2009 concerning Environmental Protection and Management Statute Book No. 140, Supplement to Statute Book No. 5059.

[24] Secretariat of the Convention on Biological Diversity. (2000). *Cartagena Protocol on Biosafety to the Convention on Biological Diversity: Text and annexes.*

Gt CO2eq. In Indonesia, the emissions generated reached 0.554 Gt CO2eq, which contributed 1.49% to global emissions, and the country is committed to reducing emissions by 29% from the business as usual scenario. This agreement aims to protect the Indonesian people from the impacts of climate change and actively contribute to related global issues. The ratification of the Paris Agreement also aims to meet legal needs in its implementation at the international and national levels, in accordance with Law No. 24 of 2000 concerning International Agreements.[25]

Along with education efforts and environmental awareness that continue to be improved, Indonesia is also committed to taking concrete steps in the face of climate change through international cooperation and mechanisms such as REDD+. With the adoption of the 13th *Conference of Parties* of the UNFCCC in Bali in 2007. Indonesia also ratified the UNFCCC and has ratified the convention in the form of Law No. 6 of 1994, which states that countries have the responsibility to take steps to deal with climate change. One of the steps that can be taken is to implement the REDD+ program in Indonesia. REDD+ is a mechanism that aims to protect and manage forests by providing incentives to developing countries for their contributions to the fight against climate change. Within this framework, advanced industrialized countries are required to reduce their emissions through mitigation measures and technology transfer towards low-carbon development. On the other hand, developing countries that do not yet have an obligation to reduce emissions can take advantage of various funding and technology support to shift their economic development paths towards more environmentally friendly development models.[26] Through these initiatives, Indonesia

[25] National Legal Development Agency. (n.d.). *Academic paper on the ratification of the Paris Agreement.* Retrieved from https://bphn.go.id/data/documents/na_ruu_ratifikasi_paris_agreement.pdf

[26] Harris, Nancy L., et al. "Identifying optimal areas for REDD intervention: East Kalimantan, Indonesia as a casestudy." *Environmental Research Letters* 3.3 (2008): 035006.

strives not only to protect its biodiversity and natural resources, but also to contribute significantly to global efforts to face the challenges of climate change, for a more sustainable future for all of humanity.

Conclusion

Climate change is a global problem that causes significant loss and damage in various countries, especially developing countries that are vulnerable to its impacts. Under international law, the role of states in dealing with loss and damage due to climate change is realized through obligations regulated in various international agreements, such as the UNFCCC, the Kyoto Protocol, and the 2015 Paris Agreement. Countries have a responsibility to take mitigation and adaptation measures aimed at reducing greenhouse gas emissions and building resilience to the impacts of climate change. In addition, the principle of *common but differentiated responsibilities* (CBDR) emphasizes that developed countries have a greater obligation to provide financial, technological, and capacity-building support to developing countries. In the context of loss and damage management, mechanisms such as *the Loss and Damage Mechanism* introduced in the Paris Agreement, are important instruments to assist affected countries. However, the effectiveness of the implementation of this policy still depends on political commitment, transparency, and international cooperation. Therefore, the role of the state is crucial in ensuring that the handling of loss and damage due to climate change can run effectively through national policies that are aligned with international law and more intensive collaboration at the global level.

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