INDIAN JOURNAL OF LEGAL REVIEW [IJLR – IF SCORE – 7.58]

VOLUME 6 AND ISSUE 3 OF 2026

APIS – 3920 - 0001 *(and)* ISSN - 2583-2344

Published by

Institute of Legal Education

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"STUDY OF STATE RESPONSIBILITY TO PROTECT ENVIRONMENT"

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BEST CITATION – MISS. DIPALI S. SHINDE, "STUDY OF STATE RESPONSIBILITY TO PROTECT ENVIRONMENT", *INDIAN JOURNAL OF LEGAL REVIEW (IJLR)*, 6 (3) OF 2026, PG. 865-875, APIS – 3920 – 0001 & ISSN - 2583-2344.

Abstract,

*The study of state responsibility to protect the envornment explores how nations are legally and ethically obligated to prevent envornment harm and uphold international conveservation commitments. The "**conventions on biological diversity"** is a legal agreement between countries to protect biodiversity. The Convention on Biological Diversity is an international treaty foucused on conserving biodiversity, promoting its sustainable use and ensuring fair sharing of benefits from genetic resources. The convention biological diversity applies globally, across all ecosystems, species and genetic resources, promoting collaboration among countries to address biodiversity loss.*

The Convention on Biological Diversity has 196 parties (countries and the European Union) as of now, making it one of the most widely ratified treaties in the world. The researchar will can turn Deforestation into Reforestation by planting tree's, restoring land and using sustainable practices. Investigate how the source of electricity for electric vehicle (renewables vs fossil fuels) affects their overall contribution to global warming. The research will provide insights into how change over to natural gas, hydrogen gas, and electric vehicle's can mitigate climate change and reduce global warming potential. This research will focused on the international state's environment to refer on convention on biological diversity. It will also include the focus on principal of state responsibility, environmental issues, legal framework, policy approaches and environmental challenges.

Key Words :- Principal of State Responsibility, Environmental issues, legal framework, Policy approaches, Environmental challenges.

Introduction.

The Environment refers to the surrounding conditions and factors that influence the life and activities of organisms or systems. In a natural sense, the environment includes all living and non-living elements such as air, water, plants, animals, and climate, forming ecosystems that support life on Earth. This natural environment is crucial for the survival and well-being of all species, providing the resources necessary for life. Beyond nature, the term also applies to human-made or built environments, which consist of structures like buildings, roads, and cities that enable human habitation and economic activity. The social environment, on the other hand, refers to the cultural, institutional, and relational settings in which people interact, shaping their behaviors, norms, and societal structures. In the business world, the environment consists of external factors like economic conditions, laws, and technology that affect how companies operate. Additionally, in computing, an environment refers to the specific setup of hardware and software that allows systems or programs to function. Across all its uses, the environment profoundly influences living organisms, human societies, and technological systems.

The Convention on Biological Diversity (CBD) is an international treaty established during the 1992 Earth Summit in Rio de Janeiro. It is a comprehensive agreement that seeks to

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address all aspects of biodiversity, including the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources. The CBD reflects the growing international recognition that biodiversity is crucial not only for the environment but also for sustainable development and human well-being. With almost universal participation, the CBD is one of the key global frameworks for environmental governance. It commits countries to develop national strategies for the conservation and sustainable use of biodiversity and provides mechanisms for cooperation between countries, including financial and technical support for developing nations. It also addresses issues related to indigenous rights and the equitable sharing of benefits from biodiversity, most notably through the Nagoya Protocol 2010, which deals with access to genetic resources and the fair distribution of the benefits from their use. The CBD has driven numerous global initiatives, such as the Aichi Biodiversity Targets and more recently, the Kunming-Montreal Global Biodiversity Framework, which aims to protect 30% of the world's ecosystems by 2030. The CBD has become a cornerstone in international efforts to combat biodiversity loss, promote sustainable development, and enhance global cooperation in environmental protection.

Under the Convention on Biological Diversity (CBD), state responsibilities have shifted to include several key changes in environmental protection. States are now required to adopt national biodiversity strategies and action plans that integrate biodiversity conservation with sustainable development goals. They must also ensure the fair and equitable sharing of benefits from genetic resources, promoting stronger legal frameworks to support these efforts. Additionally, there is an increased focus on habitat preservation, restoration of degraded ecosystems, and protection of endangered species. States are encouraged to collaborate globally and provide financial and technical support to developing countries, fostering a more comprehensive, cooperative approach to biodiversity protection.

The Convention on Biological Diversity (CBD) in Today's Era

In the face of escalating environmental crises, such as climate change and biodiversity loss, the international community has emphasized state responsibility to protect the environment. The Convention on Biological Diversity (CBD), established in 1992, plays a pivotal role in guiding global efforts to conserve biodiversity, promote sustainable use of resources, and ensure equitable benefit-sharing. Today's era, marked by unprecedented biodiversity decline and increasing environmental pressures, has seen a renewed focus on state obligations to fulfill these responsibilities. The recent adoption of the Kunming-Montreal Global Biodiversity Framework (KMGBF) in 2022 underlines the urgency of reversing biodiversity loss by 2030. This paper explores state responsibility under the CBD in light of recent global developments, emphasizing the importance of legal, financial, and social commitments to safeguarding the planet's biodiversity.[2002]

Historical Overview of the CBD

The CBD, as one of the foundational international environmental treaties, was established to address the rapid loss of biological diversity driven by human activities such as deforestation, pollution, and industrial agriculture. With its three primary objectives conservation of biodiversity, sustainable use of biological resources, and equitable benefit-sharing the CBD sought to create a comprehensive framework for countries to follow in their biodiversity conservation efforts. States that are party to the CBD are obligated to take steps at the national level to protect biodiversity, incorporating these objectives into their domestic policies and practices.

[2002] https://unctad.org/meeting/trade-day-convention-biological-diversity-cop16

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In the 21st century, however, the urgency of these obligations has increased. Biodiversity continues to decline at an alarming rate, with reports showing that one million species are at risk of extinction. As a result, state responsibility in the current era extends beyond initial commitments to more actionable, immediate strategies aimed at addressing these crises.[2003]

State Obligations under the CBD in Today's Era

1. Strengthened Conservation Efforts

States are responsible for taking concrete actions to halt biodiversity loss and protect ecosystems within their territories. This includes establishing and effectively managing protected areas, promoting ecosystem restoration, and ensuring the conservation of endangered species. Article 8 of the CBD outlines the obligations for in-situ conservation, requiring parties to create national biodiversity strategies and action plans (NBSAPs). In recent years, the focus has shifted towards increasing the proportion of land and marine areas under protection. The KMGBF, adopted at COP15 in Montreal, set a target of conserving at least 30% of the world's terrestrial and marine areas by 2030, an ambitious goal referred to as the "30x30" target.[2004]

However, despite these global targets, many states are struggling to meet their conservation commitments. For instance, the rapid deforestation of the Amazon rainforest highlights the challenges states face in balancing economic interests with environmental protection. Brazil, as a signatory to the CBD, is tasked with protecting its critical ecosystems, yet deforestation for agricultural purposes remains a significant issue. The CBD framework mandates that states must address these challenges by enforcing stricter conservation policies, ensuring better monitoring, and collaborating with local communities and international organizations to protect biodiversity hotspots.

2. Sustainable Use of Biodiversity

Another critical responsibility of states under the CBD is to promote the sustainable use of biodiversity. This involves regulating the exploitation of natural resources, such as forestry, fishing, and agriculture, to ensure that ecosystems are not degraded and that biodiversity is preserved for future generations. The KMGBF emphasizes the need to shift to sustainable production and consumption patterns, with a focus on reducing waste, minimizing pollution, and promoting circular economies.[2005]

In today's era, unsustainable practices continue to pose significant threats to biodiversity. Overfishing, illegal wildlife trade, and habitat destruction remain pervasive, driven by the demands of global markets. States are required to implement policies that address these issues by enforcing regulations, promoting sustainable industries, and supporting innovation in resource management. Additionally, states must ensure that local and indigenous communities, who often rely on biodiversity for their livelihoods, are included in decision-making processes related to sustainable use.

3. Benefit-Sharing and Protection of Indigenous Rights

The equitable sharing of benefits arising from the utilization of genetic resources is a key element of the CBD, particularly through the Nagoya Protocol 2010[2006]. States are responsible for ensuring that the benefits of biodiversity, such as those derived from pharmaceutical research or biotechnology, are shared fairly with the countries and communities that provide these resources. This includes both monetary benefits and non-monetary contributions, such as technology transfer and capacity building.

[2003] "Convention on Biological Diversity". Convention on Biological Diversity. Retrieved 24 July 2022

[2004] https://unctad.org/meeting/trade-day-convention-biological-diversity-cop16

[2005] The National Policy on Biological Diversity (NPBD) 2022-2030

[2006] Nagoya Protocol on Access and Benefi t-sharing, © 2011 by the Secretariat of the Convention on Biological Diversity

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In recent years, there has been an increased recognition of the role that indigenous peoples and local communities play in biodiversity conservation. Indigenous knowledge and practices are often crucial in maintaining ecosystems, and their rights must be protected under international law. The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) underscores the importance of consulting indigenous communities and obtaining their free, prior, and informed consent before implementing conservation projects. States are therefore responsible for protecting the land and resource rights of indigenous groups, as well as ensuring their participation in biodiversity management.

4. Financial Responsibility and International Cooperation

One of the significant challenges in achieving the CBD's objectives in today's era is the lack of adequate financial resources. Biodiversity conservation is expensive, requiring investments in protected area management, scientific research, and policy implementation. Many developing countries, which are home to the world's richest biodiversity, often lack the necessary funds to meet their obligations under the CBD. The KMGBF highlighted the need for substantial increases in funding for biodiversity conservation, with a target of mobilizing $200 billion annually by 2030 from various public and private sources.

International cooperation is essential for achieving these financial targets. Developed countries are expected to provide financial assistance to developing nations through mechanisms such as the Global Environment Facility (GEF), which finances projects related to biodiversity, climate change, and land degradation. States must also collaborate on knowledge sharing, technology transfer, and capacity building to ensure that all countries, regardless of their economic status, can contribute to global biodiversity conservation efforts.[2007]

5. Accountability and Enforcement Mechanisms

The CBD's enforcement mechanisms have historically been weak, with limited consequences for states that fail to meet their obligations. In recent years, however, there has been a push to enhance accountability. The KMGBF introduced a monitoring framework that requires states to report regularly on their progress toward achieving the 2030 targets. This framework is expected to improve transparency and hold states accountable for their commitments.

At the national level, states are encouraged to strengthen their legal frameworks for biodiversity protection. This includes adopting biodiversity laws, establishing environmental courts, and ensuring that violations of biodiversity regulations are met with appropriate penalties. Furthermore, civil society organizations and environmental defenders play a critical role in holding states accountable, and governments must ensure that these groups can operate freely without facing threats or violence.[2008]

6. Contemporary Challenges in State Responsibility

While the CBD provides a robust framework for biodiversity conservation, states face numerous challenges in fulfilling their responsibilities. The COVID-19 pandemic, for example, has strained financial resources and shifted political attention away from environmental issues. Moreover, the ongoing climate crisis exacerbates biodiversity loss, creating a complex web of environmental, social, and economic challenges that states must navigate.

Another pressing issue is the integration of biodiversity protection into other sectors,

[2007] Convention on Biological Diversity Including its Cartagena Protocol on Biosafety, 3rd edition, (Montreal, Canada).

[2008] Secretariat of the Convention on Biological Diversity (2005)

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such as agriculture, energy, and infrastructure development. States must adopt a holistic approach that incorporates biodiversity considerations into all areas of policymaking. This requires breaking down silos between different government agencies and fostering collaboration across sectors.

In today's era, the responsibility of states to protect the environment under the CBD is more critical than ever. The accelerated loss of biodiversity, driven by human activities and exacerbated by climate change, demands urgent and coordinated action. States must take stronger steps to conserve biodiversity, promote sustainable use, ensure equitable benefit-sharing, and provide financial and technical support to developing nations. The Kunming-Montreal Global Biodiversity Framework offers a roadmap for achieving these goals, but its success depends on the commitment of states to implement its targets effectively. As the international community prepares for COP16, the focus will be on ensuring that states fulfill their obligations and take concrete actions to reverse biodiversity loss by 2030.

In the contemporary context, protecting biodiversity is not just an environmental issue but a matter of human rights, economic stability, and global security. The future of biodiversity, and by extension, the planet's ecological balance, rests on the shoulders of states and their ability to meet the challenges of this critical era.

Transforming deforestation into reforestation[2009]

Transforming deforestation into reforestation through tree planting and sustainable practices is a critical strategy for restoring degraded ecosystems, sequestering carbon, and maintaining biodiversity. This approach involves reversing the destructive practices that lead to large-scale deforestation and replacing them with sustainable methods that promote the growth and regeneration of forests.

1. Tree Planting for Reforestation

Tree planting plays a crucial role in reforestation efforts. It involves planting native species in deforested or degraded areas to restore ecosystems. This practice can help rebuild forest cover, promote biodiversity, and improve ecosystem services such as water purification, carbon sequestration, and soil fertility. However, tree planting must be done carefully, ensuring that the species selected are suitable for the local environment and that proper care is taken during the early stages of growth. Large-scale global initiatives such as the Bonn Challenge aim to restore 350 million hectares of deforested land by 2030.[2010]

2. Agroforestry and Sustainable Land Use

Agroforestry is a sustainable land-use practice that integrates trees into agricultural systems. By combining agriculture and forestry, this method allows farmers to grow crops while maintaining forest cover, thereby preventing soil degradation, enhancing biodiversity, and improving resilience to climate change. Agroforestry can also enhance livelihoods by providing additional sources of income from the sale of timber, fruits, and other tree-based products. It is an effective approach in areas where deforestation is driven by agricultural expansion.

3. Community-Based Reforestation

Engaging local communities in reforestation efforts is crucial for long-term success. Indigenous and rural communities often rely on forests for their livelihoods and have valuable knowledge about sustainable land management. Programs that involve these communities in the reforestation process through decision-making, tree planting, and forest management are more likely to be sustainable and effective. Examples include community-managed forests in countries like

[2009] "Christiane runyan "Global Deforestetion"Cambridge University Press April 2016

[2010] Convention on Biological Diversity. "Ecologically or Biologically Significant Marine Areas (EBSAs)". CBD. Retrieved 21 October 2023

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Nepal, where deforestation rates have significantly declined as a result of local involvement.

4. Sustainable Forest Management

Sustainable forest management (SFM) ensures that forests are used in a way that maintains their biodiversity, productivity, and regeneration capacity. This approach includes practices like selective logging, where only specific trees are harvested, allowing the forest to regenerate naturally. SFM also involves maintaining protected areas, enforcing legal frameworks to prevent illegal logging, and promoting the use of certified sustainable products. Certification schemes like the Forest Stewardship Council (FSC) promote the use of responsibly sourced timber, reducing the demand for wood from deforested areas.

5. Restoration of Ecosystem Services

Reforestation not only restores forests but also the essential services they provide. Trees play a critical role in absorbing carbon dioxide from the atmosphere, which helps mitigate climate change. In addition, forests regulate water cycles, protect watersheds, and prevent soil erosion. By restoring forest ecosystems, reforestation efforts can provide resilience against environmental challenges such as floods, droughts, and extreme weather events, making it an integral part of climate adaptation strategies.[2011]

6. Challenges and Considerations

While reforestation is essential, it is not a silver bullet. Challenges include the high cost of large-scale tree planting projects, the need for long-term maintenance, and ensuring that newly planted trees survive and grow into mature forests. Additionally, it is important to focus on restoring native forests rather than establishing monoculture plantations, which can reduce biodiversity and have other negative environmental impacts. Successful reforestation efforts must prioritize ecosystem health, biodiversity, and the needs of local communities.

In conclusion, transitioning from deforestation to reforestation through sustainable practices is key to protecting the environment and addressing global challenges like climate change and biodiversity loss. Reforestation initiatives, when paired with sustainable land-use practices and community involvement, offer a pathway to restoring ecosystems and enhancing resilience against future environmental threats.

The source of electricity

The source of electricity for vehicles is a key factor in determining the environmental impact of electric vehicles (EVs), especially regarding global warming. The energy used to power EVs can come from either renewable sources or fossil fuels, and the overall environmental benefits of EVs depend heavily on the type of electricity used.

1. Renewable Energy for EVs

Renewable energy sources, such as wind, solar, hydro, and geothermal, produce electricity without emitting carbon dioxide (CO_2) during energy generation. When EVs are powered by electricity from renewable sources, they have a significantly lower carbon footprint compared to vehicles powered by internal combustion engines. This is because renewable energy does not contribute to global warming through the release of greenhouse gases (GHGs). The Solar and Wind Power are among the cleanest energy sources available. Solar panels and wind turbines can produce vast amounts of electricity, and when used to charge EVs, the net emissions are close to zero. The hydropower is a significant source of renewable energy, large dams can have ecological impacts. However, they still produce electricity with far fewer GHGs compared to fossil fuels. Geothermal Energy is another renewable source that has minimal environmental impact and can provide reliable electricity for EVs with a low carbon footprint.

[2011] Convention on Biological Diversity. "Ecologically or Biologically Significant Marine Areas (EBSAs)". CBD. Retrieved 21 October 2023

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The increasing integration of EVs with renewable energy sources can contribute to reducing global CO_2 emissions, which is essential for meeting climate goals set by agreements such as the Paris Agreement.[2012]

2. Fossil Fuels and EVs

On the other hand, if the electricity grid is predominantly powered by fossil fuels like coal, natural gas, or oil, the environmental benefits of EVs are reduced. Fossil fuel-based power plants emit significant amounts of CO_2 and other pollutants during the generation of electricity. As a result, EVs in regions where coal or natural gas dominate the electricity supply may still have a notable carbon footprint, although typically less than that of gasoline or diesel-powered vehicles. The Coal is most carbon-intensive fossil fuel, coal emits large amounts of CO_2, particulate matter, and sulfur dioxide when burned for electricity generation. EVs charged on a grid that heavily relies on coal are less environmentally friendly compared to those charged using cleaner energy sources. The Natural Gas it emits less CO_2 than coal, natural gas is still a fossil fuel, contributing to GHG emissions. It is considered a "bridge fuel" in the transition to renewables, but its impact on global warming remains significant when compared to renewable energy sources. The Oil is Direct burning of oil for electricity is less common but remains a contributor to carbon emissions in some parts of the world. Like gasoline-powered cars, electricity generated from oil worsens global warming.[2013]

3. Global Impact and Transition to Clean Energy

The environmental benefits of EVs can only be fully realized if countries transition to cleaner energy sources. For example:

In countries with high renewable energy adoption, like Norway, where over 90% of electricity comes from hydropower, EVs contribute significantly to reducing carbon emissions.

In contrast, in regions like parts of China or the U.S. where coal still plays a major role in electricity generation, the net benefit of EVs is diminished, though still generally favorable compared to gasoline cars due to the efficiency of electric motors.

The transition to renewable energy sources is critical in the fight against global warming. EVs powered by clean energy can help decarbonize the transportation sector, which is one of the largest contributors to global GHG emissions. The shift to renewable-powered EVs is also supported by initiatives such as the European Green Deal and the U.S. Clean Energy Standard, which aim to increase the share of renewable energy in the grid.

4. Future Outlook: Electrification and Global Warming

As renewable energy becomes more prevalent and battery technology improves, the overall carbon footprint of EVs is expected to decrease further. In addition, technological advancements in grid management and energy storage, such as smart grids and large-scale battery storage, will make it easier to integrate intermittent renewable sources like solar and wind into the energy mix, providing cleaner electricity for EVs. Governments are also incentivizing the adoption of renewables to reduce fossil fuel dependence and mitigate climate change impacts.

In conclusion, the impact of EVs on global warming is largely determined by the source of electricity. When powered by renewable energy, EVs offer a significant reduction in GHG emissions compared to fossil-fueled vehicles. However, continued reliance on fossil fuels for electricity generation limits the potential environmental benefits of EVs, highlighting the need for global transitions toward cleaner energy systems.

Conclusion

[2012]" Fundamentals and applications of renewable energy" john m. Cimbala dec. 2020

[2013] " fundamentals and applications of renewable energy" john m. Cimbala dec. 2020

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The environment encompasses various elements, both natural and human-made, which influence life on Earth. It includes ecosystems formed by air, water, plants, animals, and the climate, essential for sustaining life. Human activities have created built environments, such as cities and infrastructure, and a social environment influenced by culture and institutions. In business and technology, the environment refers to external factors and the operational setup of systems. Across these domains, the environment profoundly shapes organisms, societies, and technologies, highlighting its importance in everyday life.

One major international effort to protect the environment is the Convention on Biological Diversity (CBD), established during the 1992 Earth Summit. The CBD aims to conserve biodiversity, promote sustainable use, and ensure equitable sharing of benefits from genetic resources. With nearly universal participation, it addresses critical issues such as habitat conservation, sustainable resource use, and indigenous rights. Initiatives like the Kunming-Montreal Global Biodiversity Framework, which sets ambitious goals like protecting 30% of global ecosystems by 2030, exemplify efforts to reverse biodiversity loss and promote sustainability.

State responsibilities under the CBD have intensified, requiring stronger conservation efforts, sustainable resource use, and financial cooperation. Governments must integrate biodiversity protection into broader policies while ensuring community participation and international collaboration. The need to reverse deforestation through reforestation practices, for instance, is part of a larger strategy to restore ecosystems, mitigate climate change, and promote sustainable livelihoods. Overall, the environment is crucial to the survival of all life forms, and protecting it demands coordinated global action.