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# Climate Change and Environmental Laws: A Comparative Legal Perspective on Policy Effectiveness and Reform

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### ABSTRACT:

Climate change is a core concern of the world, which needs urgent and strong action from laws and governments of the nations. Environmental laws play an important role as they assist in guiding how nations lessen emissions (mitigation) and adjust to the impacts of climate change. The objective of this paper is to explore thoroughly how various nations use the laws related to climate and it compares the legal systems of Sweden, Germany, and India. This paper adopts both quantitative data analysis and qualitative legal review. This paper evaluates the performance of laws, like how laws related to climate are working and implemented and if these laws are correct and updated. It draws actual data from organizations like the Intergovernmental Panel on Climate Change (IPCC), the United Nations Environment Programme (UNEP), national environment departments, and records of court cases. This paper finds that there are still shortcomings in how laws are framed, implemented, and executed equally. Overall, this paper suggests the ways to improve laws related to climate to make strong institutions and provide justice to all affected by climate change.

**Keywords:** Climate change, Environmental law, Environmental governance, Legal framework, Climate justice.

### Introduction:

The severe threat to the earth and humans is climate change, which causes various problems like harming human health, farming, wildlife, water supply, and equality in society. Scientists from across the globe in the IPCC's Sixth Assessment Report agree that over 95% of warming is because of human activities since 1950, especially due to the cutting of forests and burning of fossil fuels.<sup>1</sup> The report says that 2023 was the hottest year on the earth with world temperatures of 1.48°C, which was never observed in the pre-industrial period.<sup>2</sup>

Although science has shown that the changes in climate are really harmful and real, the laws related to it are still not strong. Environmental laws can assist in lessening emissions, controlling and managing climate risks, enforcing rules and regulations, and supporting public decisions. But in most of the nations, the laws are not strong and well organized; moreover, they are not implemented properly. Not only laws, but there are no strict rules to follow the global climate agreements by the countries.

This paper examines the relationship between climate change and environmental laws using both empirical data and a legal framework. By studying the examples and data of different nations, this paper shows that laws concerned with climate change are quite significant, and it points out some major problems that need to be resolved.

### Research Objectives:

1. To study how nations like Germany, Sweden, and India use their laws related to the environment to fight climate change.
2. To evaluate the working of these laws if they are properly implemented and followed.
3. To analyze the good points and loopholes in these laws related to climate in different nations.
4. To compare the laws in Sweden and Germany with India.

<sup>1</sup> Intergovernmental Panel on Climate Change, Sixth Assessment Report: Climate Change 2021 – The Physical Science Basis (2021) SPM-5 <https://www.ipcc.ch/report/ar6/wg1/>

<sup>2</sup> World Meteorological Organization, Global Climate Report 2023 (2023).

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## Research Methodology:

This research adopts a mixed-method approach of qualitative and quantitative techniques. In the quantitative approach, this research analyzes the real data from IPCC, UNEP, and governmental departments of environment. Qualitative approach studies and understands the laws, rules, and policies related to climate from different nations and how the judiciary handles the cases related to climate. The study also compares how Germany, Sweden, and India handle crises related to climate and environment through their laws and rules. The study gives suggestions for improvement of climate laws so that they can work in a better way.

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## Role of science in climate change

### Essential Role of Science

The highest record of global greenhouse gas was increased to 59 gigatonnes of CO<sub>2</sub> in 2022.<sup>3</sup> The UNEP's Emission Gap Report 2023 shows that the countries that agreed under the Paris Agreement did not fulfill their promises to maintain global warming below 1.5°C. If there will be no improvement and the same things happen, there will be an increase in temperature of 2.5 to 2.9°C by 2100.<sup>4</sup> Moreover, climate calamities like floods in Pakistan, wildfires in Canada, and heat waves in India prove that it is quite dangerous to delay urgent actions.<sup>5</sup>

The IPCC reports that only 400 GT of CO<sub>2</sub> is left before we reach the 1.5°C limit of global warming in the coming 10 years.<sup>6</sup>

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## Legal Framework for International Environmental Laws:

**UNFCC (1992):** It set up the international system to address the changes in climate on the basis of countries that make voluntary promises.<sup>7</sup> This convention was made in 1992 to assist the nations to work together to fight the climate crisis. The primary aim of this convention is to lessen greenhouse gases to prevent dangerous, human-made interference in the system of climate.<sup>8</sup>

**Kyoto Protocol (1997):** The protocol initiated compulsory targets for the developed nations, but it did not include the major developing countries.<sup>9</sup> It is an international agreement passed in 1997 and started working in 2005 whose main purpose was to decrease the emission of greenhouse gases. This protocol legally binds the countries to reduce emissions, and the target was mainly for the developed countries. This concept is based on CBDR, which makes the advanced countries more responsible for present levels of GHG (greenhouse gas) emissions.<sup>10</sup>

**Paris Agreement (2015):** It is France's Paris Agreement that was approved under UNFCC on December 12, 2015 (COP21). It came into effect on November 4, 2016. Furthermore, this agreement is historic among the countries to meet the climate change purposes. The main goal of this agreement is to enhance the international response to the risk posed by the climatic issues by limiting the increase to below 2°C in temperature. The agreement created a system in which all countries create their own climate action plans, which are called NDCs, or "Nationally Determined Contributions," but there are no strict rules to follow it.<sup>11</sup>

Although many nations are taking part but they are not fulfilling their targets and promises. Less than 20 nations are really making efforts to meet the 2030 global goals (NDCs).<sup>12</sup> The law experts are of the view that the Paris Agreement does not have strong and consistent legal rules to bind the countries to follow it.<sup>13</sup>

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## Empirical Review of Legal Framework and Carbon Emission:

### Quantitative Correlation

The World Bank studied in 2022 that 150 countries are using a tool named "Environmental Law Enforcement Index." The primary function of this tool is to check how strong the environmental laws of a country are. It also checks the rules, penalties for breaking the laws, and how courts deal with environmental concerns.<sup>14</sup>

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<sup>3</sup> Global Carbon Project, 'Global Carbon Budget 2023' <https://www.globalcarbonproject.org>

<sup>4</sup> United Nations Environment Programme, Emissions Gap Report 2023 (2023).

<sup>5</sup> Centre for Research on the Epidemiology of Disasters, 'Disaster Data Review 2023' <https://www.emdat.be>

<sup>6</sup> Intergovernmental Panel on Climate Change, Sixth Assessment Report: Climate Change 2021 – The Physical Science Basis (2021).

<sup>7</sup> United Nations Framework Convention on Climate Change, 9 May 1992, 1771 UNTS 107 <https://unfccc.int>.

<sup>8</sup> United Nations Framework Convention on Climate Change, 1998.

<sup>9</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change, UN Doc FCCC/CP/1997/7/Add.1 (10 December 1997).

<sup>10</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1998.

<sup>11</sup> Paris Agreement, UN Doc FCCC/CP/2015/L.9/Rev.1 (12 December 2015).

<sup>12</sup> Climate Action Tracker, 'Country Assessments 2023' <https://climateactiontracker.org>

<sup>13</sup> Daniel Bodansky, *The Art and Craft of International Environmental Law* (Harvard University Press 2010) 202–205

<sup>14</sup> World Bank, Environmental Law Enforcement Index (2022).

Country	ELEI Score	Emissions (Mt)	Trend (1990-2022)
Sweden	9.1	45 Mt	-44%
Germany	8.8	645 Mt	-33%
Brazil	6.4	1,180 Mt	+40%
India	5.6	3,750 Mt	+180%
USA	7.3	5,000 Mt	-15%

Emissions by Country (ELEI Score, Mt) Trend (1990–2022) 9.1 45 Mt–44% Sweden, Germany 8.8 645 Mt – 33% ,6.4 1,180 Mt + 40% Brazil, India 5.6 3,750 Mt +180%, USA 7.3 5,000 Mt–15%. The countries that have strong environmental laws release fewer harmful emissions. The industries and energy used by these countries impact how much pollution they make.<sup>15</sup>

#### Judicial Responses to the Climate Crisis:

People now are using the laws to fight climate change. Environmental organizations and persons now are taking actions against governments and companies, also taking them to court for not protecting the environment. As per the Grantham Research Institute, there are 2341 total cases related to climate in court around the world by 2023.<sup>16</sup>

In **Urgenda Foundation v. Netherlands**, the court ordered the government to reduce its greenhouse gas emissions by 25% by 2020.<sup>17</sup>

In **Milieudefensie v. Shell**, the court of Dutch commanded the oil company to lessen its emissions by 45% by 2030 as a moral and legal responsibility to care about the climate risk.<sup>18</sup>

The Lahore High Court in **Leghari v. Pakistan** said that climate justice is a part of constitutional rights, and the court ordered the government to take action to address changes in climate.<sup>19</sup>

### The legal framework of India

#### National Legislations:

##### India's legal framework includes:

**Environment Protection Act ,1986** : It is a comprehensive Indian legislation aimed at protecting the environment and addressing climate change. It establishes a legal context for sustainable development and regulates environmental pollution. The Act establishes quality standards, maximum pollutant limits, hazardous material management procedures, industrial siting and activities limitations, and accident prevention measures. Safety protocols are crucial for managing hazardous materials, preventing risks like chemical burns, poisoning, explosions, and environmental contamination. Authorized processes ensure skilled supervision, and adherence to regulations reduces accidents and contamination. Infringements may result in incarceration, monetary penalties, or a combination of both .Hence, it gives powers to control pollution and harm to environment.<sup>20</sup>

**Air (Prevention and Control of Pollution) Act,1981.**The purpose of acts is to prevent, control, decrease pollution in air and set standard for the quality of air. It also manage and control the pollution from transport and factories. Therefore, the Acts govern pollution control and management.<sup>21</sup>

**National Action Plan on Climate Change (NAPCC):** It was launched by the Prime Minister of India on June 30, 2008”, to improve the nation's flexibility to climate change and foster environmental sustainability. The strategy emphasizes maintaining elevated growth rates to enhance living standards and alleviate the influences of climate change. It seeks to safeguard the disadvantaged via sustainable development, attain national growth and poverty alleviation objectives, and assure ecological sustainability. NAPCC, 2008 includes total 8 missions like solar energy sustainable habitat and agriculture.<sup>22</sup>

**National Green Tribunal, 2010 (NGT)** is a specialized body established in India to address environmental preservation and conservation issues." With New Delhi serving as its primary location, it has five designated sites. Restitution for damages, resolving interdisciplinary environmental disputes, and environmental protection are among the tribunal's primary goals. Establishing alternative dispute resolution procedures, lowering the burden of

<sup>15</sup> International Energy Agency, World Energy Outlook 2023 (2023).

<sup>16</sup> Grantham Research Institute on Climate Change and the Environment, Climate Litigation: 2023 Snapshot (London School of Economics and Political Science) <https://www.lse.ac.uk/granthaminstitute/>

<sup>17</sup> Urgenda Foundation v State of the Netherlands HAZA C/09/00456689 (2015).

<sup>18</sup> Milieudefensie v Royal Dutch Shell C/09/571932/HA ZA 19-379 (2021)

<sup>19</sup> Ashgar Leghari v Federation of Pakistan W.P. No. 25501/2015 (Lahore High Court).

<sup>20</sup> Environment (Protection) Act 1986 (India) No 29 of 1986 <https://legislative.gov.in/sites/default/files/A1986-29.pdf>

<sup>21</sup> Air (Prevention and Control of Pollution) Act 1981 (India) No 14 of 1981.

<sup>22</sup> Government of India, National Action Plan on Climate Change (2008).

litigation, offering quick, informal, and economical resolutions, preventing harmful activities, enforcing rigorous adherence to the EIA procedure, and assisting in the relief and payment of damages are some of its duties. Civil disputes pertaining to seven environmental statutes are decided through NGT. NGT hears in environmental issues and it has issued important rulings related to climate but it faces many problems due to slow process of government and lack of resources.<sup>23</sup>

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## Comparative Approaches to Climate Laws:

### Germany: Statutory Climate Obligations.

Germany's Federal Climate Change Act, which was passed in 2019, aimed to make the nation carbon neutral by 2045. The laws put some limits on emissions and also make special targets for different sectors like industry, energy, and transport.<sup>24</sup> In 2021, the Federal Constitutional Court of Germany said that the climate targets of the government were not strong. The court further said that insufficient measures of climate could be harmful for the future generation's rights. Consequently, the government needed to make more strict climate goals after 2030.<sup>25</sup>

The federal parliament of Germany created a climate change enquiry committee to begin the climate policy of Germany in 1987. The nation of Germany rectified the Climate Change Act in 2019, whose purpose is to make the climate neutral by 2015, and submitted its plan (Climate Action Plan 2050) to the EU and the United Nations Framework Convention on Climate Change in 2016. The highest court of Germany created a big change in March 2021 related to the climate policy of this country, which says that the Climate Change Act was not fair, as it delayed the work to reduce emissions beyond 2030, and it would create difficulty for the young generation to limit their freedom and much pressure in the future. The Climate Change Act was changed by Germany after this decision, and as per the new laws, this nation will reduce its greenhouse gas by 65% by 2030 compared to 1990 and by 88% by 2040. Germany wants to make itself a climate-neutral country by 2045, and even its purpose is to be a negative-emissions nation after 2050. These targets are similar to the European Green Deal goals. The government of this country announced its action plan related to climate in October 2023, whose purpose is to lessen the gap between the 2030 targets fixed by Germany and the EU and current emissions. Germany will need a total of €5 trillion to meet climate neutrality by 2045. To fulfill this target, Germany made a climate and transformation fund for the purpose of electromobility, energy-efficient building renovation, and decarbonization of industries related to sustainable energy. Germany was unable to reach its target for the final energy consumption, but it was successful in reaching its goal for 2020 under the EU Renewable Energy Directive and was also able to get success in its primary energy consumption target under the EU Energy Efficiency Directive. Germany got a medium rating in the 2025 Climate Change Performance Index. CCPI mainly focuses on the numbers to observe how countries are doing properly in preserving the climate, whereas experts focus on the future of country climate plans.<sup>26</sup>

### Sweden: Systematic Monitoring Approach

Sweden's Climate Act was passed in 2017, which says that it is the duty of the government to give a climate report every year. This act also makes it mandatory that the decisions of government should support the nation to be carbon neutral. There is an independent group named the Swedish Climate Policy Council that checks whether the government of Sweden is following the rules.<sup>27</sup>

The secretariat gave warning in June 2024 that Sweden has not aligned any of its goals related to the national climate, especially the 2030 goal, which deals with the transport sector. as per the report of the Climate Policy Council from March 2024, which shows that the policy of 2023 will enhance emissions, which is quite risky for Sweden's 2030 goals of climate and promises of the EU. The report shows the difference between what the government is saying and what it is actually doing. As per the report of the European Commission, Sweden is not fulfilling its 2013 climate goals just because of the changes in its policy. These new changes can make climate-related action more expensive in the future. The solution to it is that Sweden should produce more renewable electricity for the purpose of transport and industry to get improvement for this purpose.<sup>28</sup>

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## Policy and Legal Recommendation for India:

India can get the lessons from other countries in the following ways:

- India should set lawful limits on emissions to decrease pollution.
- India should make an independent climate body like the Swedish Climate Policy Council to ensure whether the rules are being followed.
- It should allow the courts to preserve the rights related to climate by using article 21 of the Indian Constitution, which provides the right to life, including a safe, clean, and healthy environment.

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<sup>23</sup> Lavanya Rajamani, 'The 2010 NGT and Environmental Jurisprudence' (2015) 10 Journal of Environmental Law 245.

<sup>24</sup> German Federal Ministry for the Environment, Federal Climate Change Act (2019).

<sup>25</sup> BVerfG, 1 BvR 2656/18, Federal Constitutional Court of Germany (2021).

<sup>26</sup> European Parliamentary Research Service, 'BRIEFING: EPRS\_BRI(2024)767182\_EN' (2024).

<sup>27</sup> Swedish Ministry of Environment, Swedish Climate Act (2017).

<sup>28</sup> European Parliamentary Research Service, 'BRIEFING: EPRS\_BRI(2024)767174\_EN' (2024) [https://www.europarl.europa.eu/RegData/etudes/BRIE/2024/767174/EPRS\\_BRI\(2024\)767174\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2024/767174/EPRS_BRI(2024)767174_EN.pdf)

The concerns related to climate are handled by various ministers, but there is no coordination in their work.<sup>29</sup> Environmental Impact Assessments (EIAs) are not implemented properly.<sup>30</sup> Moreover, the targets under the National Action Plan on Climate Change are not binding, due to which the government is not answerable if they are not being followed.<sup>31</sup> State Pollution Control Boards are lacking proper staff and legal training to do their work effectively.<sup>32</sup>

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### Conclusion:

It is very important to have a connection between climate change and environmental law. The countries that have strong legal systems are quite good at preserving the environment. But they still face the problems of how these laws are prepared and implemented properly, especially in countries like India. Therefore, the laws must be properly enforceable to deal with climatic concerns. Hence, the only powerful laws will assist us to protect the environment and make a more sustainable future.

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### Suggestions:

There are some suggestions at different levels to make the environmental laws more effective in fighting and addressing climate change in the following ways:

India must pass that kind of climate change Act, which sets the national targets to reduce emissions and meet the Paris Agreement. There must be a legal climate body that should enforce and coordinate actions. The best examples are Germany and Sweden, which already have these strong laws. Another important suggestion is to strengthen the National Green Tribunal. Although this tribunal passes significant rulings, it should have more legal power to ensure that if orders passed by it are being followed properly. The best example is the Netherlands, where the rulings of the court force them to take real climate action. The improvement in climate is not only needed at the national level, but it also needs to be improved at the state and local levels too. The most important suggestion is that India should introduce 'environmental tax,' also known as 'green tax,' as implemented in countries like China, Japan, Finland, Sweden, Denmark and some other countries too, to reduce greenhouse gas emissions. A green tax system can be a powerful tool to promote sustainable development and address climate change. These nations have successfully initiated environmental taxes in the form of carbon taxes and energy taxes to lower greenhouse gas emissions as well as encourage innovations in cleaner energy and energy taxes.

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<sup>30</sup> Centre for Science and Environment, India's State of Environment Report 2022 (2022).

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