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- SDG 4- Quality Education
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- SDG 13- Climate Action
- SDG 16- Peace, Justice & Strong Institutions



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# NO ESCAPE FROM THE CONCRETE JUNGLE: CLIMATE CHANGE AND MARGINALISED GROUPS

-by Nikita D'Lima & Soumili Gupta

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## Abstract

George Orwell in his book, *Animal Farm* said, “All animals are equal but some animals are more equal than others”. This statement undoubtedly holds true for the impact of climate change and its other catastrophic effects on Earth. Climate change is wreaking havoc on the environment, with rising temperatures, erratic rainfall patterns, high-impact weather events, and a rise in sea levels leading to a cascade of negative consequences. In this vast array of effects, rather the burden of climate change is not shared equally. Despite contributing the lowest to the emission of greenhouse gases, low-income and lesser developed countries remain the most affected. This research examines disproportionality as a multifaceted concept, exploring its various dimensions within climate change and how remedies to mitigate the impact on vulnerable and marginalised communities have fallen short of the mark when it comes to the implementation of policies and instruments.

The first chapter deals with an in-depth explanation of the Sustainable Development Goal (SDG) 13, along with its reflection on Indian laws. Further, this paper proposes to study such impacts through a cross-dimensional lens of race, gender, caste and other similar forms of social hierarchy and division, with a detailed understanding of the various sub-groups and marginalised populations, which focus on how each of these communities are currently ignored from any positive environmental action in their favour. This chapter additionally proposes how such communities need to be protected, and what further actions need to be taken. Additionally, there is an urgent need to review international treaties, agreements and resolutions which allegedly propose to address the impact of climate change on these communities, along with the formation of global funds and other attempts to finance such people and countries against the horrific impact climate change brings with it. It is on this premise that the third chapter focuses on the existing legal remedies and solutions internationally as well as in India. It also sheds light on existing problems which hinder positive environmental governance. The final chapter focuses on the recommendations that the authors suggest to mitigate this problem.

**KEYWORDS:** Sustainable development, marginalised communities, climate change, disproportionality, mitigation policies.

## Introduction

Climate change is an environmental justice concern as it is expected to inflict unequal damage on economically disadvantaged nations and low-income communities within wealthier nations. Programmes on climate change mitigation and adaptation do have the potential to reduce these negative impacts but if these policies are not designed and executed with a focus on promoting justice and fairness, they might instead exacerbate the damages. Policymakers have long recognised that climate change casts a longer shadow on certain populations and regions. The Intergovernmental Panel on Climate

Change (IPCC) emphasises this disparity in its fifth assessment report, by stating that socio-economically marginalised persons are affected disproportionately by the extremity of climate change. However, the concept of ‘disproportionality’ within the context of climate change, loss and damage research remains poorly defined and often implicit.

At its core, disproportionality signifies a greater disparity in size or magnitude when comparing two entities. In a broader sense, it encompasses notions of unfairness or unequal distribution. The vulnerability and exposure of populations to climate hazards are key determinants of risk. Exposure is influenced by geographic factors like climate, topography, and location, while vulnerability is shaped by social, economic, and political processes. For instance, coastal communities face a greater risk of cyclones compared to those residing inland.

In 2004, Hurricane Katrina raised climate justice concerns in public policy discourse by devastating the US Gulf Coast, resulting in the loss of 986 lives and property damage worth billions of dollars. The flooding caused by the storm had a disproportionately adverse effect on low-income communities and people of colour. It attributed to the fact that these communities were situated in locations prone to flooding and lacked the socio-economic means to safeguard themselves from harm or facilitate recovery.

The nature and severity of climate change impacts vary depending on the hazard and the affected population. Disproportionate impacts often arise due to socio-economic inequalities. Individual or group characteristics such as gender, ethnicity and socio-economic status significantly influence their ability to cope with, adapt to, and recover from climate-related disasters.

## Focus on Sustainable Development

- A Global Step Towards Sustainability

Climate change hinders the enjoyment of human rights, especially for individuals who are considered vulnerable due to variables such as geographic location, poverty, gender, indigenous or minority persons, birth, and disability and are more susceptible to the negative effects of climate change on basic rights. The probable cause-effect relationship between the climate crisis and the marginalised oppressed communities is the limited capacity of these people to address their pitiable situations without active action from the appropriate authorities. A 2021 report on the impacts of climate change on the human rights of people in vulnerable situations provided that indigenous peoples, migrants, children and women, among others, are the most likely to face climate risks.

Crafting a sustainable world is interlinked with the 2030 Agenda for Sustainable Development was adopted in 2015, focusing on seventeen sustainable development goals (SDGs). SDG 13 categorically urges for climate action and comprises three key areas. Climate action can be achieved by regulating emissions and developing methods of

renewable energy, strengthening resilience and formulating national policies. The goal encourages the implementation of the commitment by developed countries to raise \$100 billion for developing countries' mitigation actions. Such action must also extend to organisational levels, to broaden the horizons of response to climate problems. In fact, SDG 13 is, directly and indirectly, interrelated to other SDGs, without which, an increase in sources of local income (SDG 1) or food production (SDG 2) is improbable to achieve.

The World Bank notes that although the 74 lowest-income nations contribute just 10% of the global greenhouse emissions, they bear the most consequences of climate change, even extending

to as much as eight times as many natural disasters in the previous decade as they had in the 1980s. Lack of climate change might drive more than 200 million people to move inside their own nations by 2050, resulting in widespread poverty and the collapse of decades' worth of arduously earned development progress.

- **India's Commitments to Achieve SDG 13**

India ranked seventh among the nations most impacted by severe weather patterns in 2019 due to climate change and extreme weather events have increased in frequency recently, thereby putting vulnerable people at risk. To implement its goals, the Indian government appointed NITI Aayog as the agency to coordinate SDGs to make indicators that reflect targets. The government's interventions on SDG 13 include the National Action Plan on Climate Change (NAPCC), and the National Mission for a Green India, among others. India's policy response to mitigate vulnerabilities that climate change creates for human settlements is primarily through missions and programmes. Numerous targeted projects on solar power, water, sustainability, maintaining the Himalaya's ecology, and promoting awareness supplement these national plans.

India, under the Paris Agreement, submitted its Nationally Determined Contributions (NDCs) in 2015. These contributions outlined eight specific targets for the period of 2021-2030, including an effort to reduce India's emissions by 33–35% by 2030 compared to the 2005 level, achieving about 40% of collective electric power capacity from non-fossil fuel sources by 2030 and financing from the Green Climate Fund. It also committed to creating a carbon sink of 2.5 to 3 billion tonnes of carbon dioxide, by increasing vegetation by 2030.

Although India has the institutional framework to take steps towards achieving climate change objectives outlined in SDG 13, it will be necessary to refocus efforts on urban areas and link current climate action programmes with the SDG targets to prevent duplication and guarantee responsible funding allocation for the aim to be transformative.

## Linking Climate & Disproportionality

The scope of marginalised communities in this paper has been taken to mean low-income groups in developing, least developed, and developed countries, as each of them

experiences impacts differently. Resolving the issues that vulnerable communities face stems from the need to acknowledge their distinct experiences, which have often been oppressed and ignored for ages, including unemployed people, disabled individuals and people living in unsafe environments, leading to their present precarious situation in the face of climate disasters and global warming. Five variables have been considered for this study: Women, indigenous peoples, racial impact, caste, and climate refugees as marginalised groups.

- **Women**

Climate change and its related disasters affect the daily lives of women, who already stand at a disadvantaged position in the patriarchal society. In many countries, traditional roles and expectations from women make them more vulnerable to climate-induced gender-based violence. In the global south, women travel long distances to collect water and firewood for their households. Extreme high temperatures, droughts, decrease in agricultural produce and consequent sky-rocketing prices, make women extremely vulnerable to climate change.

Rural women, who mainly depend on agriculture for their livelihood, are particularly affected by climate change and income disparities, leading to greater food insecurity. This is especially evident in countries like Bangladesh, where susceptibility to both consequences is high. Africa has experienced the most severe consequences of climate change, especially in countries like Zimbabwe where women, children, and the elderly rely heavily on rain-fed agriculture, making them susceptible to the detrimental impacts of climate change. Urbanisation and male emigration to neighbouring countries further exacerbate the situation by significantly reducing agricultural productivity. During natural disasters, women's capacity to move freely is often compromised, resulting in their being confined to their houses, whereas males often have more freedom and flexibility to move around.

An additional correlation between pollution-induced natural disasters is the rise in the sexual gender-based violence that women face after any such disaster which occurred in 2005, after a massive earthquake in Kashmir. Almost a decade later, the United Nations also took cognisance of this phenomenon that during and after any disaster, females are more prone to any form of harassment, further showcasing their extremely vulnerable situations. The UN Environment Programme and the UN Department of Political and Peacebuilding Affairs, through their report on these issues, opined that the measures taken by various governments for women end up increasing their vulnerability and expose them to newer risks without teaching them how to adapt.

- **Indigenous Peoples**

Indigenous peoples make up around 5% of the overall population, but they account for around 15% of the global destitute population and consist of some of the most

economically disadvantaged groups worldwide. Research has shown that 100 million people would be forced into destitution owing to climate change and the effects of the inequities that shall ensue will be particularly painful for indigenous peoples. Climate change is invading their access to their customary meals and livelihoods in numerous regions, even as far as crops and forecasting weather. Weather extremes are harming the natural wealth that they have counted on for ages.

The Inuit and Arctic populations are facing major impacts of climate change because of the exceptional warming in the Arctic area. Sami and Nenets individuals across Russia depend upon their reindeer flocks for food, clothing, transport, and shelter and have moved around their homelands for millennia. Unable to sustain their customary lives, many indigenous peoples are driven to relocate to seek work and a source of income. Indigenous tribes in Guatemala, Mexico, Nepal, and Brazil allege a rise in migration because largely owing to effects on farming, the communities can no longer support themselves on their farms and several have been forced to

flee to be able to care for their families' needs. While the UN has looked at the subject, a detailed plan of action regarding how to handle such difficulties is still not defined.

Tribal groups in India heavily depend on river deltas, fertile basins and natural caves for their sustenance. Deforestation and climate change have given rise to zoonotic diseases, which have limited medical aid. There are 75 tribal communities categorised as Particularly Vulnerable Tribal Groups (PVTG) that have stagnant population growth and low literacy. Due to frequent droughts in tribal areas, The National Dalit Watch's report in 2022 found that Dalit and Adivasi communities are part of a vicious cycle of economic disadvantages, further worsened by climate change, intensifying their poverty levels. Concomitantly, the intersectional variables of women, migrants and children faced a harsher drought impact.

- **Racial Impact**

Other than women and indigenous tribes, coloured people also bear the brunt of the disproportionate impact of environmental disasters and the effects of global warming and climate change. These people are prone to die of environmental causes or die of diseases caused due to their residences being close to marginal areas or even hazardous areas. In the US, this phenomenon has been termed the new 'Jim Crow' as it subjects people of colour to inequitable living conditions.

In the US, over a million people of coloured communities live near chemical or natural gas plants, which vastly increases their risk of contracting cancer. A 2017 report found that the probability of African Americans living in 'fence-line' communities, such as regions proximate to commercial hubs having higher levels of pollution, is 75% more likely than Caucasians. Even oil spills, sea pollution and ocean acidification, largely affect the livelihood and survival of coastal Native American tribes, whose life has depended on the oceans.

Another study found that following a significant disaster, white-majority nations like the US had a jump in average wealth whereas nations which were largely marginalised, saw a decline in average income. Due to structural racism, increased environmental stress, and limited access to healthcare services, economic power, social policies, and political influence fluctuate by area, race, and income. Effective policies and actions are vital to resolving the current situations faced by people of colour as a consequence of climate change, which also brings new problems for them.

- Caste

India has had a caste system for over three thousand years, and an overwhelming 69% of Indians identify themselves as members of lower castes. Citing an example of air pollution, a study showed that socio-economic conditions are a crucial determinant regarding the amount of pollution exposure of socially disadvantaged populations. An increase in the number of SC and OBC households in a cluster is associated with a significant increase in the total exposure to air pollution in that neighbourhood, which postulates that there exists environmental injustice in air pollution, whose exposure varies in urban and rural India. It corresponds with the structural socio-economic disparities that differ from urban regions. It was interestingly noted that there was a difference in the result with a change in the parameters. For instance, cumulatively, the exposure was found to be low in neighbourhoods that are inhabited by Scheduled Tribes.

Although the research on this correlation is limited, a study in the USA quantified the nexus between air pollution exposure and a community's socio-economic status. It found that pollution from power plants running on coal is more concentrated in marginalised-caste villages than in dominant-caste villages.<sup>40</sup> Any policies or initiatives to strengthen environmental justice would be ineffective if social mechanisms of disparity are not correctly defined and recognised.

The three elements of every environmental justice policy initiative are information accessibility, participation accessibility, and justice accessibility. Various environmental justice goals can be achieved within the boundaries of these pillars.

- Climate Refugees

Although there is no comprehensive definition of climate refugees, the forgotten victims of climate change, they are described as persons who are displaced and flee due to disaster and other weather events.<sup>42</sup> Apart from migration arising from adverse economic impacts of climate change, a 2021 global report<sup>43</sup> by the Internal Displacement Monitoring Centre notes that climate-related disasters led to the displacement of 30.7 million persons.<sup>44</sup> Further, the World Bank also predicted an estimated 216 million internal migrants by 2050, due to severe weather events and agricultural collapse.<sup>45</sup> climate change disproportionately affects poorer and more vulnerable communities, and those forced to flee due to climate impacts often lack the resources to adapt or relocate.

After being struck by two severe hurricanes in November of last year, a large number of individuals crossed the border into Mexico and made their way toward the US border

from Honduras, Guatemala, and El Salvador.<sup>46</sup> The UN High Commissioner for Refugees (UNHCR) announced in April 2021 that, besides unexpected crises, climate change is a convoluted reason for shortages of food and water, along with challenges to utilising natural resources. The data indicated that, since 2010, the number of individuals forced out due to disasters caused by climate change has increased to 21.5 million.

Ioane Teitiota's landmark example underlies the gravity of the uncertainty that climate refugees face. As a native of Kiribati, a location that threatened land loss from the rise in sea level, Teitiota petitioned New Zealand's government for refugee status as a 'climate refugee'. However, his application was refused, and he was deported back to Kiribati. He protested to the UN Covenant on Civil Liberties in 2016 stating that the deportation had breached his right to life. Teitiota's life was not in imminent danger, according to the UN Commission on Human Rights, which backed the New Zealand government's judgement in 2018. However, it did accept that the implications of climate change such as increasing sea levels, create a severe risk to the right to life for persons living in nations like Kiribati.

## Measures to Mitigate the Disproportionate Impact

There has been an unprecedented number of legislation and international accords on environmental concerns addressing climate change. However, governments and international organisations alike concur that the application of these rules, and improvements arising from them are infrequent.<sup>49</sup> This chapter comprises two sections, one concentrating on the numerous international laws and an overview of the laws in various nations. The second section focuses on India's domestic actions to address environmental concerns.

- **International Measures**

If the most dire projections of future economic losses in the existing scientific literature prove true, climate change will erase the progress of the decades prior and drive the imbalance between nations to increase again. The international standing of environmental laws can be understood from the 2019 UN report which came to be known as the first-ever global environmental assessment of the rule of law.

The report focused on the lacuna in the laws which were in place theoretically, but the implementation of these laws was minimal and poorly coordinated. Most environmental laws lack essential resources and often take a lesser seat to economic development and corruption by the executives. The report additionally specified that almost 88 countries recognise the right to a healthy environment as a fundamental right with almost 50 countries having established some form of environmental tribunal to address these issues. Hundreds of multilateral agreements between member states of UN conventions on biological diversity, climate change and more, do not effectively correspond with existing environmental data, fostering a need to bridge the seemingly devastating gap.

Intergenerational equity, initially conceptualised for sustainable development, must be weaved into any policies to mitigate climate change and formulate adaptation policies. They are two sides of the same coin that are rooted in the need to balance short-term and long-term needs. The disproportionate impact of climate change poses a hindrance to marginalised groups and their enjoyment of human rights accorded in the International Bill of Human Rights. International instruments such as the Stockholm Declaration, Rio Declaration and the Paris Agreement[4] recognise that the rights and interests of future generations need to be safeguarded, intergenerational equity is contextually limited as a ‘soft law’ applicable on a subjective basis.

COP27 also saw a commitment to creating a ‘loss and damage fund’ particularly to aid countries that are vulnerable to the adverse effects of climate change, which was operationalised at the COP28 in Dubai and countries have pledged to donate \$700 million. Although the historic decision was met with approval, this is only the initial stage and the achievement of the fund depends on its prompt implementation. The amount of international adaptation financing provided to poor countries is five to ten times less than required. It is projected that by the year 2030, an annual sum of over \$387 billion will be necessary.

However, for the fund to be successful, it is necessary to address the fundamental cause of climate change, which entails the reduction of emissions. If emissions are not significantly decreased, an increasing number of countries will experience the catastrophic consequences of climate change.

## II. A Critical Analysis of the Indian Approach

India was the third most polluted country in the world with Delhi recording the poorest air quality in 2023 and out of the top 11 most polluted cities, 10 were in India. One of the problems in India's environmental governmental landscape can be attributed to the backdoor provisions that enable circumventing legal provisions that ensure environmental protection. One study found that the most notable adaptation measures to mitigate the impact on marginalised communities in India were the credit initiatives and support provided by NGOs in the agriculture and fishery sectors. In the same study, 45.45% of the respondents stated that the government must do more to combat the effects of climate change.

In *Alembic Pharmaceuticals Ltd versus Rohit Prajapati & Ors.* The Supreme Court denied ex-post facto environmental clearance (EC) that was enabled by a 2002 notification. Essentially, companies that operated without an environmental clearance could do so retrospectively. However, unsurprisingly, there were similar circulars preceding the 2002 notification that were never challenged. The National Green Tribunal held the circular to be illegal and void, which was upheld by the Supreme Court to be unsustainable in law.

However, the Supreme Court reversed the two previous orders of 1) revoking the environmental clearances and 2) closure of companies that did not have valid EIAs. The Court applied the doctrine of proportionality, reasoning that the industries had been functioning for quite some years and had sought retrospective clearances in 2002 and 2003. The authors respectfully disagree with the ratio of the court, as allowing such industries to continue operating without an environmental clearance sets a bad precedent for new industries which may get a clean chit in the future from the government through its circulars and the court by letting these industries continue without any adequate penalty.

In this case, The Ministry of Environment and Forests argued that “the circular was an administrative decision, meaning it has no legal basis.” It perfectly encapsulates how the government and other private companies treat the delicate matter of environmental laws and their adherence. The organs of the government need to be construed not as a neutral regulator but as one of the stakeholders that will be affected by the rules themselves. Immense private lobbying and the government's own ventures being affected by environmental laws make them a biased party.

Although India has monumental plans to mitigate climate change, the ability to ensure transparency in implementation is missing. India was one of the first countries to enact an Energy Conservation Act in 2001 which was amended in 2022 to make the Ministry of Power the nodal Ministry and the Bureau of Energy Efficiency (BEE) the implementing agency. It raises the question of whether the Ministry of Power will be the correct forum to regulate this, which contradicts the existing practices in other countries where the environment ministry or its counterparts are in charge of such implementation.

To mitigate the extent of damage that indigenous peoples face due to the loss of biodiversity, the Ministry of Tribal Affairs allocated \$10 billion for the implementation of technology to forecast the weather, capacity building for adaptation and covering loss and damage. In a positive development, the government has recognised certain ‘habitat rights’ of the PVTGs, starting with

the tribal groups in Dhamtari, Chhatisgarh. Habitat rights include the right to biodiversity, traditional knowledge and ecological rights. Efforts were taken to have an in-depth understanding of their relation with the environment and the Tribal Department provided training to the executive officers and members of the Kamar tribal community in 2022.

However, in a 2022 report on the impact of droughts in ST regions in Maharashtra, an overwhelming 93% of the respondents denied having benefitted from any government schemes to mitigate droughts and 89% were not enrolled in any health scheme. It indicates that the efforts taken, albeit on a smaller scale, need to cover a wider demography of communities to effectively lessen the disproportionate impact of climate change.

#### 4. Recommendations

Addressing that there are lacunas in the implementation of environmental policies is a step towards rectifying the deleterious effects of climate change, and the authors propose some recommendations to mitigate international as well as domestic problems for marginalised communities.

First, international and domestic forums must acknowledge that marginalised communities stand in a disadvantaged position, including an unequal distribution of costs and benefits across society. Problems related to employment and healthcare have a crucial role and their environmental impact on marginalised communities penetrates deep into the system for there to be a one-dimensional solution by a country. For instance, a ‘climate-smart food system’ is a requisite to feed growing populations while reducing greenhouse gases, but requires years of upfront investments, which is especially impossible for marginalised communities.

Second, proactive steps are required to ensure that climate change policies do not overlook any initiatives for vulnerable and marginalised communities. Local governments hastily work without adequate research on how their projects or schemes truly impact marginalised communities. Rewards for adopting low-carbon technologies frequently go after the largest emitters, aggravating the disparity in access to the newest, best-performing, and greenest products and innovations. Thus, the aim should not be preserving the climate solely but as well as ensuring to maintain the status quo of social equity.

Third, climate action strategies must integrate a focus on social justice. National-level policies, while crucial for mitigation efforts, need to be complemented by decentralised approaches that actively engage local communities. Incorporating multiple stakeholders, particularly at the local level, throughout all stages of intervention— from planning to evaluation— is essential for achieving equitable outcomes. Thus, instead of the ‘top-down’ approach which involves governments and their ministries as the nodal agency, a grassroots-level approach often helps. Ideal examples are the African nations of Senegal, Ghana and Uganda where giving access to residents and communities helped design better proposals for a more sustainable living.

Fourth, institutions must conduct assessments specifically designed to learn and accumulate data on how climate change affects specific communities, including the collection of disaggregated data by gender, age, ethnicity and race among these vulnerable communities. Comprehensive equity impact evaluations uncover the obstacles, such as societal norms and restricted access to technology, that can keep underprivileged groups from taking advantage of opportunities. These may entail taking back some detrimental policies, changing others, and making adjustments that can lessen negative effects and eliminate obstacles.

Finally, channelling funds to communities in remote and rural areas, despite the higher costs that it might entail, must be boosted. Integrating conscious planning for resource allocation to underprivileged groups and modifying climate finance tools to guarantee social fairness.

## Concluding Remarks

From a multi-dimensional view of the livelihood and overall welfare of poor and marginalised communities, climate change adaptation is a burgeoning concern, which is imperative through the cohesion of SDG 13 and safeguarding the rights of marginalised communities. These communities are subjected to inequities in the course of their basic survival and are bearing the brunt of climate change.

Abysmally, there is a dearth of international and national strategies that address the detrimental impact of climate change on marginalised communities. Countries boast of their commitments and achievements made in the Paris Agreement, but 2023 had shattered climate records and would breach the 1.4 degree Celsius mark; dangerously close to the 1.5 degree Celsius threshold. Such a breach would surely impact countries all over the world, but more so to marginalised communities. Each variable considered in Chapter II endures climate change differently and holds different stakes if the situation were to worsen and international measures have not borne fruit as countries maintain their autonomy in deciding policies and ways to implement them.

A surplus of international instruments does not guarantee their implementation, especially when key forums such as governments do not approach climate change the same way they would approach political or financial matters. To acknowledge that sustainability is the need of the hour would include acknowledging that women, indigenous peoples, certain races, lower castes and climate refugees require an abundance of mitigation policies and support, which, to date, are not prioritised. Further studies are required to establish a sustainable community in any part of the world and to address the negative impacts of climate change among the existing socio-ecological challenges.

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# BRSR SCENARIO IN INDIA: EXTENDING ITS APPLICATION FOR BETTER IMPLEMENTATION OF ESG

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## Synopsis

Abstract

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## Abstract

The Concept of Sustainability arose with the growth of modern environmental movements, which rebuked the traditional system of use of resources, growth & consumption and threatened the integrity of ecosystems & the well-being of future generations. This awakening towards conservation & sustainability targeted businesses & their ways resource use & consumption. It also garnered the interest of investors & started changing the business landscape. The more environmentally conscious a business was, the better it became viewed. The result of this attention transitioned into a need for measurement, reporting, monitoring, & measuring the activities towards such sustainability of businesses. Over time, worldwide frameworks evolved for the same. In India, this happened through Business Responsibility Report introduced by the SEBI, which was updated as Business Responsibility & Sustainability Reporting. Another important aspect of sustainability reporting is Environment Social Governance (ESG), which helps stakeholders understand how a business manages risks & targets the opportunities related to environment, social & governance elements. It to sets the non-financial values a company instils in their functioning for better ethical practices, social responsibility, governance, & environment-friendly measures. Relatively new in India, ESG can reach greater heights in achieving sustainability & the targeted “Net Zero” emissions in India through proper implementation & governance. However, this is only concentrated to the top 1000 listed companies on the market. This limitation curtails the benefits that are achievable to all. Factors of Environment, Social, Governance & Sustainability can be better implemented through companies who are indulged in all such factors that affect the environment be it directly or indirectly – through manufacturing, waste creation & human resource. This paper focuses on the overall understanding of the concept of BRSR, the current challenges faced in implementation & effectivity, recommendations, & benefits of BRSR to increase ESG reporting.

**Keywords:** Economic Social Governance, BRSR, Business Environment, Sustainability Reporting, non-financial reporting.

## Introduction

*“Every Right implies a responsibility; Every opportunity, an obligation; Every Possession, a Duty.”*

*- John D. Rockefeller*

Every action has two sides, the right to do something and the responsibility that comes along with it. This is applicable in every aspect of the world. In relation to businesses, their right to carry on business is intertwined with their various responsibilities towards the world. One such responsibility is towards the Environment and Sustainability.

The Concept of Sustainability arose with the growth of modern environmental movements, which rebuked the traditional methods of using resources, development and consumption patterns, which made the ecosystem and the well-being of future

generations vulnerable. This awakening towards conservation and sustainability targeted businesses and their ways of resource use and consumption. It also garnered the interest of investors and started changing the business landscape. The more environmentally conscious a business was, the better it became viewed. This can also be said as the result of countries taking the United Nation's Sustainability goals more seriously.

The result of this attention transitioned into a need for measurement, reporting, monitoring and measuring the activities towards such sustainability of businesses. Over time, worldwide frameworks have evolved for the same. Global sustainability disclosures and frameworks such as the Global Reporting Initiative (GRI), Integrated Reporting, Sustainability Accounting Standards Board (SASB), United Nations Global Compact (UNGC) and CDP require businesses to disclose their sustainability performance as per the respective key performance indicators (KPIs) and principles.

In India, the realm of sustainability reporting, then known as Business Responsibility Reporting, is controlled by the Securities and Exchange Board (SEBI). It first put this in action through their circular on "Business Responsibility Reports" dated August 13th, 2012. Since then, the SEBI has been regularly updating and advising listed companies in relation to sustainability reporting.

However, the main lacuna in this lies with the fact that only listed companies are put on the mandate of sustainability reporting. This generates reports of only top companies, leaving all others behind. Considering these aspects of sustainability, corporate reporting and government regulations, this paper takes the descriptive research approach in understanding them and characterising sustainability reporting and its ongoing state.

#### A Brief Look at Sustainability Reporting in India:

The 1990s brought an increasing demand for sustainability, including those in the economic and corporate spheres. What translated at an International Level was the UN Summit on the Environment and Development, held in Rio de Janeiro in 1992, and in Johannesburg in 2002 played an important role in the emergence and development of the concepts, of sustainability and sustainable development. Thus, companies too, came under immense pressure to be extra-vocal and transparent with the effects of their business activities.



**Figure1: Stakeholders**

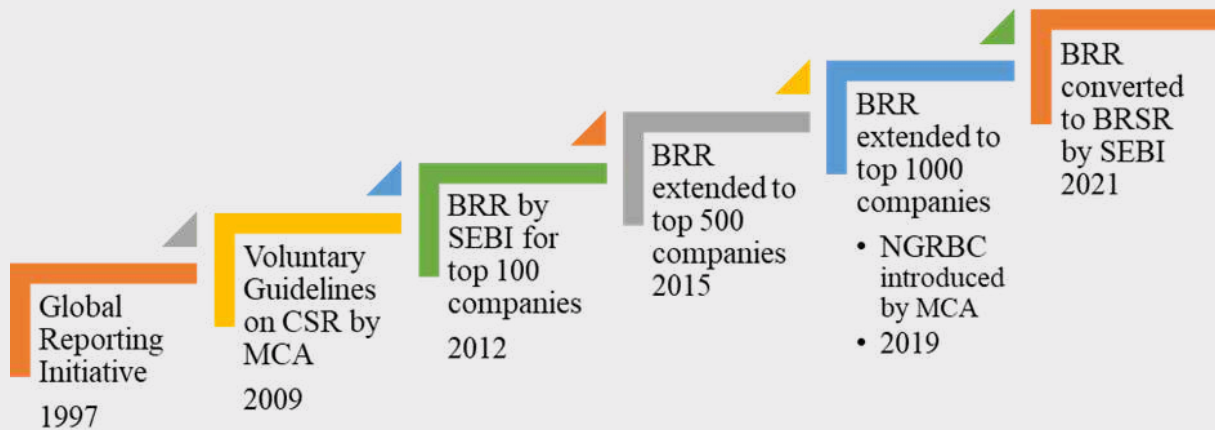
The pressure came from various stakeholders such as those shown in the diagram on the side. Customers being concerned about the impact of their purchases, Shareholders and Investors who based their input into the companies by assessing social and environmental consequences of the company’s affairs and actions, the community inquiring into the impact of businesses in their society and lastly, the employees wanting to be associated with a good employer.

In India, reporting was mostly on voluntary basis, TATA (Automotive) being a pioneer in the same, reporting since 2001. Most of this voluntary reporting was done based on GRI Guidelines. The major turn to ESG came in the year 2009, when the Ministry of Corporate Affairs issued the Voluntary Guidelines on CSR as the first step towards normalizing the concept of business

responsibility. This voluntary policy focused on 6 core elements as follows:

- a. Care for all Stakeholders
- b. Ethical functioning
- c. Respect for workers’ rights and welfare,
- d. Respect for human rights,
- e. Respect for the Environment, and
- f. Activities for social and inclusive development.

The result of the voluntary policy and keeping in line public interest disclosures, the SEBI in 2012 brought the Business Responsibility Report, which mandated that as per market capitalisation the top 100 companies were to file their annual reports along with the BRR. This mandate was later extended to top 500 companies in 2015 and to top 1000 companies in 2019. Further, in 2019, the National Guidelines on Responsible Business Conduct (NGRBC) were also brought by the MCA. The latest development in this sense, stands that the BRR by SEBI has been converted to BRSR as of 2021. Figure 2 underneath highlights the major milestones of ESG reporting in India.



**Figure 2: Timeline of ESG Reporting**

### An Overview of ESG:

Another important aspect when talking about sustainability reporting, comes that of Environment Social Governance (ESG). It helps stakeholders understand how a business is engaged in risk management and targeting opportunities related to ESG elements. ESG take a holistic view of sustainability which extends beyond just the environmental issue. It is a policy that is used to define a set of non-financial values a company instils in their functioning for better ethical practices, social responsibility, governance, and environment-friendly measures. Environmental, Social, and Governance is the report framed by these businesses on social, environmental, and governance issues. The report is intended to provide a glance of the business's influence in the three areas.

As noted earlier, the emergence of ESG was in 2009 with the Ministry of Corporate Affairs' putting forth the Voluntary Guidelines on Corporate Social Responsibility. As such ESG became a tool, the best approach to maintain a balance between the Environment, Economy & Ethics. ESG focuses on the following 3 concerns.

- A. **Environment Concerns:** This covers climate change, greenhouse gas emissions, pollution, biodiversity loss, deforestation, and resource depletion for the coming years.
- B. **Social Concerns:** This covers employee safety and health, working conditions including child labour and slavery, diversity and equity in the organization, cybersecurity and privacy practices, customer satisfaction, and employee engagement in decision-making.
- C. **Governance Concerns:** This covers corporate governance such as bribery and corruption, diversity of the Board of Directors, and financial and non-financial remuneration.

A collection of surveys composed by Monika Mittal et al, showed that the consideration given to ESG reporting by investors had not only grown but also had affected their investment patterns. The focus that was put on climate risk by investors in-turn showed the larger impact on firms to adopt ESG reporting. However, with the emergence of the ESG concept there has arisen a larger need for Sustainability Reporting. As such, the SEBI came up with Business Responsibility and Sustainability Report (BRSR).

## ESG Reporting in USA, UK, Singapore:

With reference to the international scenario on ESG reporting, the following is the scenario in the countries of USA, UK & Singapore.

In USA, ESG reporting is largely voluntary and market-driven. However, there have been fast-paced changes in the past two years that have changed the regulatory landscape in the US, headed by the Securities and Exchange Commission (SEC). It has taken an agency-based approach to improve tackling of ESG risks and opportunities, starting with the Financial Stability Oversight Council (FSOC). Apart from this, different federal agencies propose actions such as green marketing standards, climate disclosures, adding climate-related risk into regulatory and supervisory practices. Notably, California became the first state to mandate climate risk disclosures through Green House Gases (GHG) Reporting. It is required for the companies in the state of California that generate over \$1 Billion in annual revenue. However, the SEC has proposed climate disclosure reporting for listed companies by 2024. Currently, ESG reporting is not largely mandatory in the US. However, in March 2022, the SEC proposed the requirements of climate-risk disclosures, which would widen the annual reporting requirements of publicly companies.

In the UK, ESG reporting is becoming increasingly mandatory. As of 6th April 2022, the largest of the companies in the UK, i.e., those having more than 500 employees and £500 million in turnover, must mandatorily disclose their climate related financial information, in line with the Task Force on Climate-Related Financial Disclosures (TCFD). The backing to base such regulation comes from the UK's Company Law Act, 2006 and has now been extended to include sustainability matters. ESG reporting will become mandatory for more than 1,300 of the UK's largest publicly traded companies, banks, and insurers, with large private companies coming under the scope of the new rules as well. The International Sustainability Standards Board (ISSB) released its exposure drafts on 31st March 2022 with comments to be received by 29th July 2022. The draft standards set out the requirements for disclosures over climate and general ESG reporting and are expected to be adopted under UK law by 2024 or 2025. A key that sustainability reporting connects and complements the financial status of such reporting companies.

In Singapore, the authorities behind ESG are Singapore Exchange, the National Environment Agency and the PUB, Singapore National Water. Since 2016, the Singapore Exchange (SGX) began requiring listed companies to publish their sustainability reporting framework along with their annual sustainability reports which included the information of ESG factors being applicable to such companies, their policies, practices and performance.

However, Singapore focuses on the TCFD guidelines on climate-related disclosures and for other sustainability aspects, continue to rely on globally-recognized frameworks. The SGX recommends 21 core ESG metrics, which act like guidelines for companies to begin their ESG reporting. What this does is, that it establishes common and standardised metrics that would align several reports. Some of these metrics include greenhouse gas emissions, employment, development and training, waste generation and management, energy consumption, board composition, diversity management amongst others.

In view of these 3 countries, UK has the highest level of mandates when it comes to ESG reporting. However, one observation of the authors is towards the negative approach followed by the three countries. Per contra, India follows a positive approach in respect of ESG reporting. In other words, India has a greater focus towards showing attained sustainable measures (non-financial) whereas the other countries focus on the negative impact of their business activities (financial) on the environmental scenario. In India the primary focus on demonstrating the value created by an entity while operating within its economic, social, and environmental system.

### All About BRSR:

#### A. The BRR: The predecessor to BRSR:

BRR was introduced by the SEBI as a way of ensuring accountability to stakeholders and the larger public. Thus, the *“adoption of responsible business practices in the interest of the social set-up and the environment are as vital as their financial and operational performance.”* BRR was to describe the initiatives taken by the listed companies from an ESG perspective.

The disclosures pertaining to BRR were to include the following:

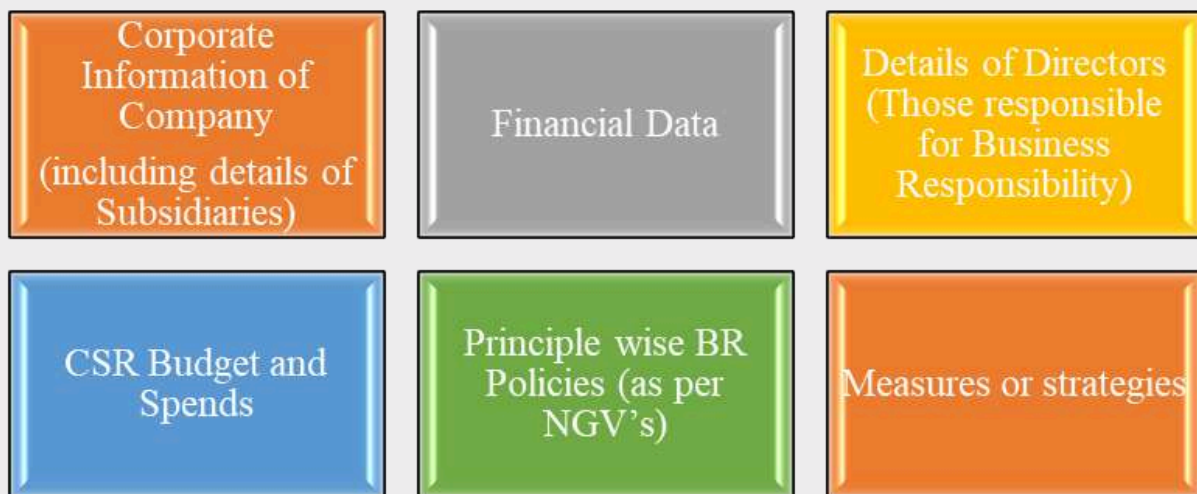


Figure 3: Main disclosures of BRR

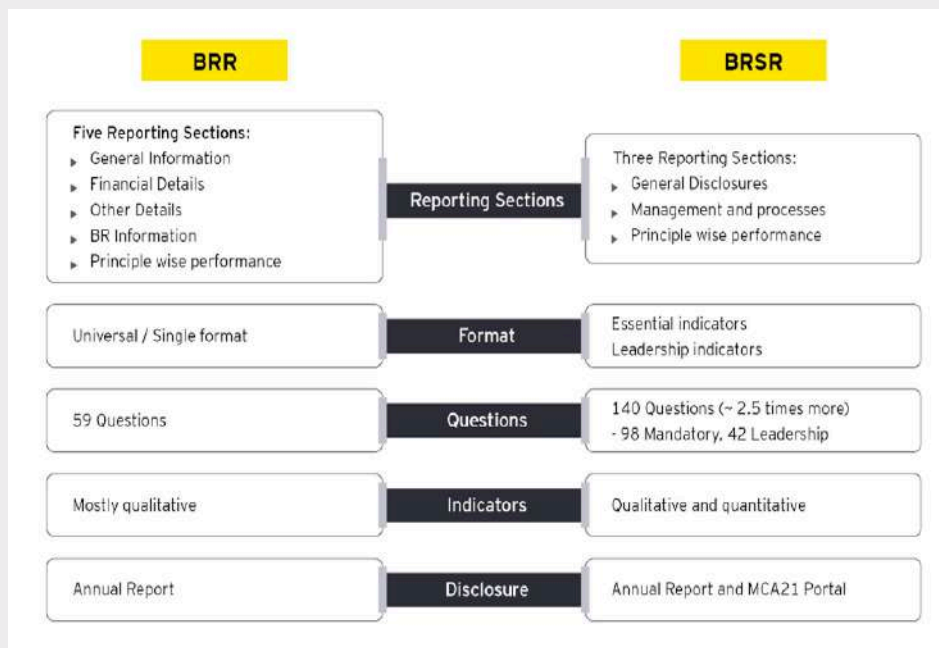
## B. Introduction of BRSR:

In 2021, the introduction of BRSR was for “*adapting to and mitigating climate change impact, inclusive growth and transitioning to a sustainable economy have emerges as major issues globally.*”

BRSR stands for Business Responsibility and Sustainability Reporting, which is a disclosure of responsible business practice measures taken by listed companies to all its stakeholders. As these companies have procured funds from the public at large, an element of public interest involved within them. Thus, it is obligatory on such companies to make comprehensive report about their business practices on a regular basis, aside from financial disclosures.

## C. Difference between BRR and BRSR:

The betterment of sustainability reporting from BRR to BRSR can be seen through the following chart:



**Figure 4: Difference between BRR & BRSR**

Source: BRSR reporting and the evolving ESG landscape in India, EY India

## D. BRSR & NGRBC:

In connection with BRSR, it is also important to look at the National Guidelines on Responsible Business Conduct (NGRBC) provided by the MCA. The SEBI in its 2021 circular as well presses on the significance of using the same. Point 4 of the 2021 circular seeks BRSR disclosure from listed companies against the 9 principles of NGRBC. The Sustainable Development Goals of the UN are the backbone of these NGRBCs. Annexure 4 of the NGRBC by MCA demonstrates the alignment of SDGs with NGRBC.

The reporting under each of the principles is further divided into essential and leadership indicators. These 9 indicators are mandatory whereas the leadership indicators are on voluntary basis. The NGRBC provide for 9 main principles which aid businesses in principle-wise performance disclosures as an important tool for companies to disclose sustainability performance to create greater transparency and accountability. The 9 principles of BRSR through NGRBC are as follows:

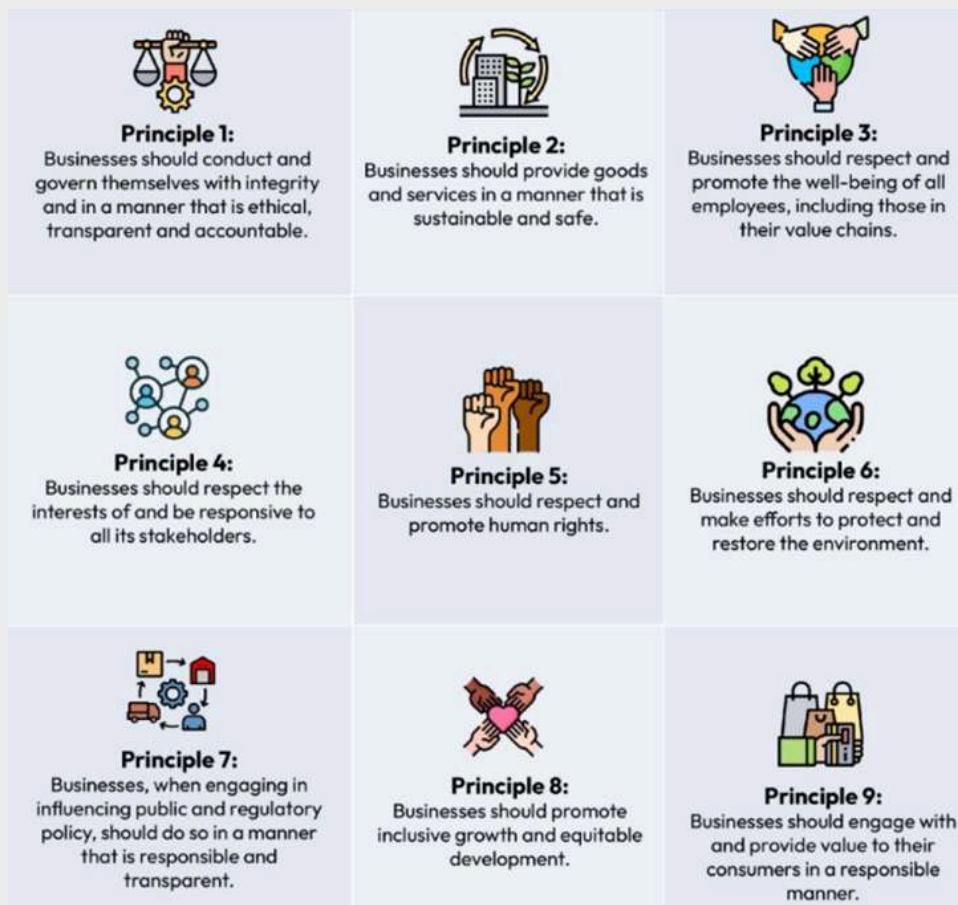


Figure 5: 9 Principles of BRSR

Source: What is BRSR and What are the 9 Principles of BRSR?, India CSR

## E. BRSR Core:

The SEBI through its circular dated 12th July 2023, has revised the BRSR framework and has since incorporated 'Key Performance Indicators' (KPIs) to bring the Indian Companies at par with the global ESG reporting trends. These KPIs were incorporated keeping in mind the international framework of non-financial reporting. As per SEBI, the following top listed companies based on market capitalization shall ensure reasonable assurance of the BRSR core as under:

- FY 2023-24: Top 150 listed companies
- FY 2024-25: Top 250 listed companies
- FY 2025-26: Top 500 listed companies
- FY 2026-27: Top 1000 listed companies

SEBI introduced the BRSR core by keeping in mind the dual objectives of improving the credibility and limiting the cost of compliance through reasonable assurance which consists of KPIs under each of the E, S, and G attributes that need to be reasonably assured. These KPIs are provided in the table below.

ENVIRONMENTAL	SOCIAL	GOVERNANCE
Environmental Policy	Monetary and Non Monetary employee benefits	Board Independence
Environmental impacts	Attrition rate	Board Diversity
Energy Consumption	Training and Development Hours	Separation of powers
Energy intensity	Health care Benefits	Voting pattern and results
Carbon Emission	Human Rights Policy and Violations	Gender Pay Ratio
Primary Energy Source	Child and Forced labour	Business Ethics and Code of Conduct
Renewable Energy usage	Gender Parity	Supplier Code of Conduct
Water Management	Local Procurement	Corporate Governance
Waste Management	Community and Social Work	AML / Anti Bribery Policy

Figure 6: KPIs of ESG

Source: ICSI CS Professional 2022 syllabus Group 1, Paper 1, Environmental, Social and Governance – Principles and Practice Page – 726.

### F. Structure of BRSR:

The structure of BRSR as per Annexure 1 and 2 of the 2021 circular of the SEBI state the report to have the following structure:

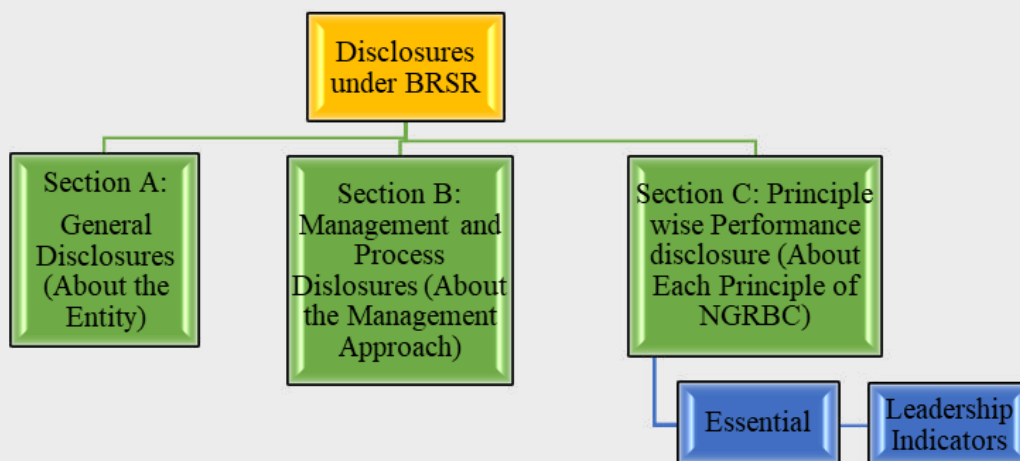


Figure 6: BRSR framework structure

Source: ESG and BRSR Navigating ESG Compliance, Sarika Gosain

The Reporting is mainly divided into 3 structures, which are as under-

- **Section A: General Disclosures (About the Entity)**

This includes the essential information and the details of the entity making the disclosures, such as products and services, operations, employees, transparency and disclosure requirements and compliances, subsidiary companies, holdings, and joint ventures, etc.

- **Section B: Management and Process Disclosures (About the Management Approach)**

As the header suggests, the disclosures related to policies and processes relating to the NGRBC principles that such entity follows are also to be made. These are inclusive of oversight, leadership, governance, stakeholder engagement, management process etc. Providing website links to such policies is highly encouraged, wherever possible.

- **Section C: Principle-wise Performance Disclosure (About each principle of the NGRBC)**

Companies are required to demonstrate their intent and commitment to responsible business practices through their actions and the outcomes of such actions. Companies need to disclose on KPIs in line with the NGRBC's nine principles of responsible business conduct which were mentioned above. Further, companies are required to report on two parameters for each principle, which are:

1. **Essential Indicators (Mandatory)**

These include environmental data such as energy, emissions, water, and waste; trainings conducted; community initiatives undertaken by the company and social impact created by the company.

2. **Leadership Indicators (Voluntary)**

These are non-voluntary indicators which companies may report. Although, the understanding here stands as that those companies who would be compliant of even these voluntary factors are held to have improved transparency and greater accountability. The leadership indicators focus on providing a broader picture of the company's operations in terms of sustainability.

#### A. Legal Provisions related to BRSR:

As discussed earlier, the ESG regime in India is through BRSR, regulated by the SEBI. In terms of Legal Provisions, it is only the circulars, directions and guidelines of the SEBI that can be taken into consideration. Focus shall be given on SEBI (Listing Obligations and Disclosure Requirement) Regulations, 2015, Regulation 34 (2) (f) which states:

*“For the top one thousand listed entities based on market capitalization, a Business Responsibility and Sustainability Report on the environmental, social and governance disclosures, in the format as may be specified by the Board from time to time.*

*Provided that the assurance of the Business Responsibility and Sustainability Report Core shall be obtained, with effect from and in the manner as may be specified by the Board from time to time.*

*Provided further that the listed entities shall also make disclosures and obtain assurance as per the Business Responsibility and Sustainability Report Core for their value chain, with effect from and in the manner as may be specified by the Board from time to time.*

*Provided further that the listed entities shall also make disclosures and obtain assurance as per the Business Responsibility and Sustainability Report Core for their value chain, with effect from and in the manner as may be specified by the Board from time to time.*

*Provided further that the remaining listed entities, including the entities which have listed their specified securities on the SME Exchange, may voluntarily disclose the Business Responsibility and Sustainability Report or may voluntarily obtain the assurance of the Business Responsibility and Sustainability Report Core, for themselves or for their value chain, as the case may be.”*

## H. BRSR & Integrated Reporting:

Another aspect when it comes to BRSR is Integrated Reporting. Large Companies such as TATA and Reliance disclose their BRSR and BRR respectively through integrated reporting. Integrated Reporting essentially is the combination of financial and non-financial disclosures of the businesses. It is also the communication of the governance and performance in creation of sustainable value.

## Current Issues With ESG Reporting Through BRSR/ Challenges With BRSR:

The main vision of ESG reporting globally is addressing the SDGs, environmental concerns and others. Environmental and Social concerns ideally should be of all, and must not be limited to only certain businesses. ESG is implemented in India through BRSR only. However, as stated earlier, reporting is mandatory to only the top 1000 companies as per market capitalisation. While it is agreed that Sustainability Reporting is a relatively new concept, it is still relevant and essential to address the challenges in order to take better steps forward. Some of the challenges are as follows:

1. **Mandatory to only top 1000 listed Companies:** As of 31st March 2023, the company holding the 1000th Rank was GIC Housing Finance Limited having a m-cap of ₹83,388 Lakhs. Hence, it is not mandatory to include BRSR in the annual report for the companies having market capitalisation less than ₹83,388 Lakhs. This list includes companies indulged in manufacturing as well as non-manufacturing companies. It is essential to keep a check on manufacturing companies on a greater scale as they are the ones which are more likely to affect the 'Environment, Social & Governance' factors. There are many such companies who do not fall in the ambit of top 1000 companies who escape the mandatory reporting, whereas it is essential for them too to make such reporting in order to move towards sustainability.
2. **Regulation only through SEBI:** SEBI is the sole authority having powers to govern over the listed entities and hence the regulation is done through SEBI. As mentioned above, BRSR is mandatory for Top 1000 listed companies based on market capitalization. As such, all the regulatory and governance roles fall on SEBI. This overburden sometimes causes a neglect on the part the authority for the mandatory reporting of BRSR. However, the final annual reports of such listed companies are submitted to the Ministry of Corporate Affairs. Although this is the situation, mere submission of report does not give any significant control to the Ministry.
3. **Voluntary disclosure for other listed companies:** The BRSR reporting mandatory for Top 1000 companies and voluntary for the rest listed companies. Being voluntary, its seriousness is not valued and is often ignored. As we all know of the Indian mentality, we don't like to do anything unless it is mandatory. As such, some companies which should be put under the scope of BRSR, who have a huge impact on the ESG factors, escape it due to their low market capitalisation.
4. **Investor behaviour:** A recognised principle is that investors should consider the ESG issues while making decisions as to their investments. Investor behaviour may vary and at times the investment is made without considering the ESG issues. This may be either due to lack of awareness or some other business reasons. It should be made a practice that the funds of investors flow to those organisations following the good ESG practices.
5. **Expertise Knowledge:** BRSR is relatively a new concept in many territories, due to which organisations find it difficult to prepare a sustainability report in the absence of expert guidance. The ESG reporting concept is emerging as a good tool to showcase the corporate governance practices of an organisations and this area demands professionals having expert knowledge in BRSR.
6. **Additional Costs:** Expert knowledge attracts additional costs. As mentioned above, BRSR needs an expert knowledge and hence attracts additional costs for its preparation. Other than its preparation costs, other costs such as costs incurred for data collection, maintenance of such data, extraction of relevant data also pose as a challenge.

## Recommendations to Tackle Challenges:

- 1. Label for ESG Compliant companies:** Labelling the ESG compliant companies like blue chip companies (from Governance point of view); other than the top 1000 companies, will attract the other listed companies to voluntarily opt for BRSR. By labelling such companies, it will also attract various investors and many other benefits can be availed by the companies similar to the companies mentioned below.
- 2. Control by MCA:** As mentioned above in the challenges, currently only SEBI is governing over BRSR. However, it is a suggestion of the authors that the Ministry of Corporate Affairs, being the highest authority regulating over the businesses in the country, shall promote and implement BRSR at a larger scale and diversify the sole powers of SEBI with other authorities such as the Regional Director (RD) or Registrar of Companies (ROC).
- 3. Incentives:** An incentive scheme may be launched for the companies who voluntarily opt for , BRSR may it be Listed companies (Other than top 1000), non-listed Public Companies, Private Companies, etc. Incentives in Tax returns or incentives similar to the ones given to Micro, Small and Medium Companies can be given to the companies who voluntarily opt for BRSR.
- 4. Increasing Awareness:** Lack of awareness about the emerging concept of ESG and BRSR is also a major challenge which the government and the corporate bodies need to address by arranging the sustainability awareness programme for the Professionals, Board of Directors and Management in corporate sector as these are the persons who will drive sustainability reporting initiative for the organisation. The government/regulators should organise such awareness programme jointly with the experts in the field.
- 5. Training and education:** The professional bodies across various jurisdictions should impart the knowledge of reporting to their students and members to develop a good cadre of experts in this emerging area of reporting.
- 6. Committee for BRSR:** There are various committees found in a company, mandatory/voluntary based on threshold limits be it under Companies Act 2013 or SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015. As such a separate committee may be created inside the organisation to look over ESG and its BRSR factors. A qualified person or the Compliance Officer can be appointed as its chairman having expert knowledge in the field of reporting. Any such other number of directors can be appointed as its members having relevant knowledge in the field.

## Benefits of BRSR / ESG Reporting:

Even though there are some provisions related to ESG reporting, it cannot be denied that ESG reporting and BRSR are a relatively a new concept, at least for India. There have been studies that show the benefit of ESG reporting for businesses.

One of the first benefits that can be seen is the betterment of Investor-stakeholder relations. As stated earlier, with everyone getting more conscious about the environment, businesses being more environmentally responsible are more attractive to investors. Further, it additionally serves as an aid for a business to be more ethical and moral. Further, ESG themed mutual funds are also getting popular. Recently, even SEBI has also allowed mutual funds to expand to ESG offerings. ESG is a good theme to invest and it is very popular worldwide. In India, it is started gaining traction. *"Gone are the days when ESG was merely a Western preference, as Indian Financial markets are now making a strong impact on the global stage,"* PTI quoted Akshat Garg, Senior Manager (Research) Choice Broking. SEBI has mandated ESG schemes to invest at least 65% of assets under management (AUM), where assurance on the BRSR is undertaken.

Going away from the Indian perspective, one can also check the benefits of BRSR way of implementing ESG through the increased opportunities seen by global businesses. In a study done by Workiva, various businesses in leading countries have seen certain benefits of ESG reporting. Increased consumer retention and recruitment, better insurance/credit agency engagement was seen in 72% of the businesses.

Further, 68% of businesses also reported positive media and brand awareness. Individually as well, 79% businesses in the US saw an increased strengthening of partnerships. The businesses in UK reported a 74% improvement in cost savings. Even Singapore reported an 80% increase in both increased consumer retention and recruitment, and better insurance/credit agency engagement.

Thus, even though BRSR is small in India as of now, there are greater benefits of the same. These benefits that were seen in global businesses can also be acquired by adopting BRSR (or similar) forms of ESG reporting for businesses that do not fit in the top 1000 criteria. The authors have already given some recommendations for extending ESG reporting to others.

## Conclusion:

Although a relatively new concept in India, ESG can reach new heights in achieving sustainability and the targeted “Net Zero” emissions in India through proper implementation and governance. BRSR plays a vital role in reporting aspect of ESG. BRSR being mandatory for top 1000 companies, shall be made mandatory for a larger group of companies especially those engaged in manufacturing as those are the ones impacting the ESG factors on a larger scale. The powers and functions of SEBI shall be exercised in more a proficient way in order to implement the reporting in a more efficient manner. The same can be achieved through delegation of powers as mentioned in the recommendations above.

Factors of Environment, Social, Governance and Sustainability can be better implemented through companies who are indulged in all such factors as they affect the environment be it directly or indirectly, through manufacturing or creating waste and employment of personnel on large scale where the social factors come in. The authors have tried to identify and recommend few pointers for better implementation of BRSR. Hence, Board Responsibility and Sustainability Reporting plays an essential part in order to achieve sustainability.

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# BEYOND THE GRAVE: UNDERSTANDING AND ADDRESSING NECROPHILIA AS A CRIME AGAINST HUMANITY

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## Synopsis

Abstract

Introduction

1. A Historical Background of Necrophilia
2. Classification of Necrophilia
3. Necrophilia in India: Legal Ambiguities
4. Legal Status of Dead Bodies

Conclusion

References

## Abstract

This paper delves into the phenomenon of necrophilia, the sexual attraction to and engagement with corpses, poses intricate legal and ethical challenges in both global and Indian contexts. This paper delves into the multifaceted dimensions of necrophilia as a crime against humanity, exploring its historical background, legal ambiguities, and societal implications. Focusing particularly on India, where the absence of explicit legal provisions addressing necrophilia exacerbates the difficulty in prosecuting offenders, this research elucidates the complexities involved in recognizing and addressing necrophilia within the framework of existing laws.

Beginning with an exploration of the meaning and historical context of necrophilia, this paper navigates through the intricate web of legal and psychological debates surrounding its classification. The distinction between necrophilia as a criminal act or a psychological disorder necessitates a comprehensive understanding from both legal and clinical perspectives. As such, the classification of necrophilia involves a nuanced interplay of legal and clinical assessments to determine appropriate responses, ranging from legal consequences for criminal acts to psychological interventions for underlying disorders. However, in India, the legal landscape regarding necrophilia is fraught with ambiguity. The Indian Penal Code fails to explicitly recognize necrophilia as a punishable offense, leading to challenges in prosecuting offenders. With the absence of specific legislation, interpreting existing laws related to sexual assault, rape, or desecration of a corpse becomes convoluted, hindering effective enforcement and prosecution. Several factors contribute to the difficulty in addressing necrophilia within the Indian legal system. Forensic evidence challenges, social stigma, limited awareness and training among law enforcement agencies, and the complexity of psychological factors present formidable obstacles. Moreover, the lack of victim testimony, issues surrounding consent and capacity, and concerns regarding privacy and autonomy further complicate legal proceedings. To bridge this gap and ensure justice for victims, legal reforms are imperative. Explicitly criminalizing necrophilia and providing clear guidelines for prosecution would serve as crucial steps toward accountability and deterrence. Moreover, addressing societal taboos and enhancing awareness and training among legal professionals and law enforcement agencies are essential in tackling this sensitive issue effectively. The legal status of the dead with respect to necrophilia underscores the intricate interplay between legal, ethical, and societal considerations. By navigating through these complexities and advocating for legal reforms, we can strive towards a more just and equitable legal framework that upholds the dignity and rights of both the living and the deceased. This journey towards reform requires not only legislative action but also a cultural shift in attitudes towards death, sexuality, and the treatment of human remains. Only through comprehensive efforts can we address the profound challenges posed by necrophilia in our societies, ensuring respect for the deceased and protection for potential victims.

## Abstract

**Key Words:** Deceased, Necrophilia, Paraphilia, Sexual.

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*“The dead cannot cry out for justice. It is a duty of the living to do so for them.”*  
*–Lois McMaster Bujold*

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## Introduction

The term “Necrophilia” is derived from Greek words: “philios” means attraction or love, and “nekros” means dead body. It is about being sexually attracted to a dead body. Necrophilia is not a mental illness. Instead, it is usually seen as a fetish – something that gives pleasure to certain people. Necrophilia, which is getting sexual pleasure from having sex with dead bodies, is seen as one of the strangest, most bizarre, and disgusting acts related to abnormal and perverted desires. Anil Aggarwal has defined Necrophilia as “sexual gratification” derived from engaging in sexual intercourse with deceased individuals. Necrophiles do sexual things with dead bodies because they get turned on by them. These things can include having sex, biting, touching, cuddling, and even drinking the blood or preserving the body. They might also imagine doing sexual stuff with dead bodies. People who are attracted to dead bodies often get close to them through jobs like working in hospitals, cemeteries, morgues, funeral homes, or being in the military, religious positions, ambulance services, studying anatomy, volunteering as firefighters, or working as pathologists. Necrophilia is one of many ‘paraphilia’ linked to human sexuality, like being cruel for pleasure (sadism), eating dead flesh (cannibalism), acting like a vampire (vampirism), having sexual attraction to dead children (necropedophilia), and being attracted to dead animals (necrobestiality). Necrophilia involves disrespect toward deceased, involving sexual desires or impulses. It involves the attraction or engagement in sexual activities, such as intercourse or oral stimulation, with a corpse or any of its part, seeking some form of erotic gratification. Therefore, it has been described as a rare disorder. When it comes to different country’s stances on necrophilia, Canada, Germany, the UK, and South Africa have laws against it. New Zealand forbids “misconduct with human remains.” In the United States, there is not a federal law against necrophilia, but individual states have their own regulations. Sadly, despite frequent instances in India, there are no specific laws there against necrophilic behavior. The most well-known instance of necrophilia in India is believed to be connected to the “Nithari killings” of 2006 which involved accusations including kidnapping, murder, rape, and cannibalism on children against the accused and their accomplice and a recent case Rangaraju v. State of Karnataka in which victim was murdered and then raped.

### **A Historical Background of Necrophilia**

In certain ancient societies, necrophilia served as a way to spiritually connect with the deceased or as an endeavour to bring the recently deceased back to life. Among the Moche civilization in South America, there are indications of necrophilic practices, evidenced by their pottery featuring depictions of skeletal figures, likely representing the dead, engaged in sexual acts with the living. During ancient times, when dead bodies were transported by sea across different countries for final burial ceremonies, such as in instances where deaths occurred in foreign lands, sailors were frequently suspected of engaging in necrophilia. Extended periods of travel, combined with isolation and the absence of witnesses, facilitated, and sometimes even promoted sailors to engage in acts of necrophilia with the deceased bodies.

The ancient Greek historian Herodotus, known for his work ‘The Histories,’ mentioned a practice among the ancient Egyptians to prevent intimacy with corpses. He noted that they would allow attractive deceased women to decompose for “three or four days” before sending them for embalming. These actions were initiated due to fears that the embalmers might mishandle the body. Consequently, to prevent any potential abuse by embalmers, corpses were handed over after undergoing natural decomposition for three to four days following death.

## **Classification of Necrophilia**

Various authors have explored and debated the topic of necrophilia, the attraction to corpses, offering distinct viewpoints on its classification. Necrophilia is frequently categorized as a subtype of paraphilia, a condition characterized by unconventional sexual desires or actions. Nevertheless, classifications may diverge depending on the criteria employed by various researchers and clinicians.

Certain authors include necrophilia under the umbrella of sexual paraphilias, which cover a spectrum of non-standard sexual interests. Within this context, necrophilia is viewed as an extreme form of paraphilic arousal.

Jonathan P. Rosman and Phillip J. Resnick: They necrophiliacs into two main groups.

### 1. Genuine necrophilia:

i. Necrophilic homicide: This occurs when someone commits murder to obtain a corpse for sexual purposes.

ii. Regular necrophilia: This involves engaging in sexual acts with a corpse that has naturally deceased.

iii. Necrophilic fantasy: This refers to fantasizing about sexual activities with a corpse without actually carrying them out.

### 2. Pseudo-necrophilia: Due to insufficient data, this category could not be fully classified or defined.

Wade C. Myers, Ann W. Burgess, Allen G. Burgess, and John E. Douglas: There exist two distinct categories of sexual murderers: those driven by sadistic or lustful impulses and those motivated by vindictiveness or displaced anger. The former, termed rape murderers, typically kill their victims after committing rape primarily to evade detection. These offenders rarely derive sexual gratification from their actions or engage in further contact with their victims after death. Conversely, a sadistic killer perpetrates murder as a component of a ritualized expression of sadistic impulses.

Anil Aggrawal, a forensic psychologist, developed a categorization system for necrophiliacs according to the intensity of their condition. He utilized the seriousness of psychosexual disorders observed in individuals with necrophilia. A categorization system consisting of ten levels for classifying necrophilia (Anil Aggrawal, 2009):-

- **Role players:** Individuals who derive arousal from engaging in sexual acts with a living person pretending to be deceased rather than engaging with an actual dead body.
- **Romantic necrophiliacs:** Individuals who preserve the deceased bodies of their loved ones and continue to engage in sexual activity with them as they did when the individuals were alive.
- **Necrophilic fantasizers:** People who fantasize about engaging in sexual activity with the dead but do not actually engage in such acts.
- **Tactile necrophiliacs:** Necrophiles who require physical contact with a corpse, finding satisfaction in touching, stroking, or even licking the genitalia and breasts of the deceased.
- **Fetishistic necrophiliacs:** Individuals who do not engage in sexual activity with the dead but may dismember a corpse for later fetishistic purposes.
- **Necromutilomaniacs:** Individuals who find sexual pleasure in dismembering corpses and masturbating simultaneously but do not engage in intercourse with the deceased.
- **Opportunistic necrophiliacs:** People who are primarily satisfied with sexual activity with the living but would consider engaging with a dead body if the opportunity arose.
- **Regular necrophiliacs:** Individuals who prefer engaging in sexual activity with dead bodies over living beings, finding it more enjoyable.
- **Homicidal Necrophiliacs:** Individuals who resort to murder in order to fulfil their desire for sexual activity with a corpse.
- **Exclusive necrophiliacs:** Criminals who solely engage in sexual activity with dead bodies and are unable to be sexually active with living beings, going to extreme lengths to obtain corpses for this purpose.

Based on the classification of necrophilia individuals with this disorder can be categorized into three groups according to the extent of their psychosexual condition.

These categories include:

- a) Mild Necrophiliac
- b) Moderate Necrophiliac
- c) Severe Necrophiliac

Individuals with ‘Mild necrophilic’ tendencies, such as role players and fantasy Necrophiliacs, are generally not considered to pose a danger. Role players derive arousal from simulating sexual encounters with a living person pretending to be deceased,

rather than engaging in actual necrophilia. Fantasy necrophiliacs, on the other hand, simply fantasize about sexual activity with corpses without any intention of acting on these fantasies in reality.

Another group falls into the category of ‘Moderate Necrophiliacs.’ These individuals are not considered very harmful, but they tend to avoid interactions if encountered. Romantic Necrophiliacs may be included in this group. They are known to preserve the bodies of their loved ones and engage in sexual activities with them as they did when the person was alive.

Other form of necrophiliacs can be classified as ‘Severe Necrophiliac,’ who pose significant dangers. This category includes various types such as tactile, fetishistic, necromutilomaniacs, opportunistic, regular, homicidal, and exclusive necrophiliacs. They may engage in acts like biting, devouring, or mutilating the body during sexual acts with the deceased. In extreme cases, their desperation may lead them to commit murder.

### **Necrophilia in India: Legal Ambiguities**

Navigating the legal complexities surrounding necrophilia in India proves to be a daunting task, characterized by uncertainty and legal gaps. Unlike some countries where there are specific laws targeting this abhorrent crime, Indian legal system remains silent on necrophilia as a distinct offense. The Indian Penal Code (IPC), which forms the backbone of criminal law, does not explicitly acknowledge necrophilia, leaving law enforcement and the judiciary without clear guidelines for prosecution. The absence of dedicated laws addressing necrophilia creates difficulties in interpreting existing legal provisions, making it challenging to hold perpetrators accountable. Typically, cases of necrophilia are categorized under Section 297 of the IPC, which aims to protect places of worship and funeral customs, penalizing actions that disrespect human corpses. However, applying this provision to necrophilic acts often falls short as it focuses more on religious sentiments rather than the dignity of the deceased. Additionally, Section 377 of the IPC, which criminalizes “unnatural sex,” can potentially be used to prosecute necrophilia cases. However, the limitations of this section underscore the inadequacy of the legal framework in addressing the unique nature of necrophilic behavior.

Despite these legal provisions, the lack of explicit recognition and classification of necrophilia as a separate offense presents significant hurdles in prosecuting offenders and ensuring justice for victims and their families. Offenders often exploit legal loopholes, escaping appropriate punishment for their reprehensible actions.

## a) Cases of Necrophilia

There are instances of necrophilia in India. In 2006, a shocking discovery was made in Noida's Nithari area, where 19 dismembered bodies, including those of women and children, were found in a house. The homeowner, Moninder Singh Pandher, and his assistant, Surinder Koli, were apprehended following the revelation by neighbours of eight children's remains found in the house's drain. Subsequent investigations revealed additional skeletons both inside and outside the premises. During interrogation in March 2007, Koli confessed to sexual assault, murder, and necrophilia. However, due to the absence of specific legislation addressing necrophilia and the fact that there was no violation of burial grounds in this case, Koli was never formally charged with necrophilia. In 2019, the West Bengal Police arrested a person for killing of at least seven women and engaging in sexual acts with their deceased bodies. In the year 2022 a man was arrested in the state of Madhya Pradesh who attempted rape on her daughter but when the 14-year-old girl resisted, the man killed her and committed necrophilia. In 2023, the Karnataka High Court cleared an individual of rape charges by declaring that engaging in sexual activity with the body of a deceased woman does not qualify as rape or unnatural acts according to the Indian Penal Code. The High Court recommended amendments to Section 377 of the IPC to include the sexual violation of deceased bodies of both men, women, and animals, with the aim of safeguarding the dignity of the deceased. The court recommended criminalizing necrophilia through a separate penal provision, proposing a penalty of life imprisonment up to 10 years along with a fine. The court also recommended for installation of CCTV cameras in morgues highlighting the importance of maintaining hygiene, privacy, and the security of clinical records and information, as well as sensitizing mortuary staff to these concerns.

## b) Legal Ambiguities

In India, there is no law addressing necrophilia. However, the Indian Penal Code, 1860 does have Section 297 which deals with 'trespassing in burial places.' This section carries penalties including imprisonment for up to one year, a fine, or both. Section 297 of the Indian Penal Code, 1860 states:

*"Whoever, with the intention of wounding the feelings of any person, or of insulting the religion of any person, or with the knowledge that the feelings of any person are likely to be wounded, or that the religion of any person is likely to be insulted thereby, commits any trespass in any place of worship or on any place of the sepulchre, or any place set apart from the performance of funeral rites or as a depository for the remains of the dead, or offers any indignity to any human corpse, or causes disturbance to any persons assembled for the performance of funeral ceremonies, shall be punished with imprisonment of either description for a term which may extend to one year, or with fine, or with both."*

This section has following flaws:

i. It is categorized under ‘offenses relating to religion’ in the Indian penal code. Therefore, its main purpose seems to be protecting burial grounds rather than addressing the rights of the deceased.

ii. The section primarily deals with trespassing into burial sites. To be convicted for necrophilia, a person must trespass into a cemetery and defile a corpse with the intention to dishonour the deceased. This means individuals who engage in necrophilia elsewhere, like during post-mortems, are not covered by Indian law. Also, those who work at burial sites are not considered trespassers. So, if the act happens outside the cemetery or without trespassing into burial place, this section cannot be used to prosecute the offender.

iii. Another issue is the lenient punishment. Only one year of imprisonment seems inadequate for such a heinous crime. This suggests that lawmakers did not intend to address necrophilia under this section.

Sexual intercourse with a deceased woman does not legally constitute rape under Section 376 of the Penal Code of 1860. Engaging in sexual intercourse with the body of a deceased woman is not considered rape under Section 376 of the Penal Code, 1860. This is because when we examine the language of Sections 375, it becomes clear that a dead body does not meet the definition of a living human being. Therefore, the criteria for rape outlined in Section 375 do not apply in this situation. Section 375 typically deals with non-consensual sexual activity involving a living woman. Since a deceased body is not legally recognized as a living person, the provisions of Section 375 defining rape is not relevant. Consequently, there is no punishable offense under Section 376 of the Penal Code, 1860, in such cases.

Section 377 might be applied in cases of necrophilia, but the challenge arises from the fact that the participation of the deceased person would have been voluntary, making it problematic to enforce this law in such situations. Section 377 of the IPC states that:

*“whoever voluntarily has carnal intercourse against the order of nature with any man, woman or animal, shall be punished with imprisonment for life, or with imprisonment of either description for a term which may extend to ten years, and shall also be liable to fine.”*

*In order to punish someone under this provision, three conditions must be fulfilled. firstly, the intercourse must go against natural order. Secondly, the intercourse must involve a man, woman, or animal. Thirdly, engagement in intercourse voluntarily. Only one of these conditions is met in the case of necrophilia. The first one is fulfilled in the case of necrophilia that the intercourse is against the order of nature. The natural object of intercourse is that there should be the chance of conceiving a child.*

While interpreting Section 377, the Delhi High Court supported conservative Victorian moral standards, which condemn any sexual activity not aimed at procreation as unnatural. The second requirement that the intercourse must involve a man, woman, or animal is not fulfilled as the definition of man and women under the Indian Penal Code does not include dead body of man and woman. The third requirement that the engagement in intercourse should be voluntarily is also not fulfilled because it is difficult to establish if the act was voluntary. It is impossible to obtain consent from a dead body, so without consent, the intercourse would be non-consensual which is why section 377 of Indian Penal Code, 1860 cannot be applied in the case of Necrophilia.

## **Legal status of dead bodies**

The legal status of dead bodies brings a new aspect to the matter. While living people have well-defined rights and legal safeguards, those who have passed away exist in a somewhat uncertain legal space. Issues emerge concerning who owns the body, consent related matters, and how remains should be treated appropriately. This lack of clarity not only makes it difficult to handle cases of necrophilia but also prompts ethical and philosophical discussions about society's approach to and treatment of the deceased. Article 21 of the Constitution of India states that:

*“No person shall be deprived of his life or personal liberty except according to procedure established by law”*

The right to life extends beyond mere survival. It includes the right to live a meaningful life. Article 21 applies to both living as well as dead people. Even deceased persons have a right and their souls should not be disturbed. Preserving the dignity of those who have passed away is paramount, ensuring that even a homeless individual is entitled to a dignified cremation aligned with their religious beliefs.

In the year 2021 the NHRC (National Human Rights Commission) of India has issued an advisory upholding the dignity of the dead.

### **Basic Principles for Upholding the Dignity and Protecting the Rights of the Dead**

1. **No discrimination in treatment of the body in any form-** To ensure that the dead body is properly preserved and handled irrespective of religion, region, caste, gender, etc.
2. **No physical exploitation-** Any form of physical exploitation of the body of the dead violates the basic right of the deceased person.
3. **Decent and timely burial/cremation-** The deceased person has the right to a decent and timely burial/cremation.

4. **To receive justice, in case of death due to crime-** The dead have the right to receive justice in cases where death occurs due to crime.
5. **To carry out a legal will-** The will, if any, left by the dead must be respected and honoured.
6. **No defamation after death-**The deceased person should not be defamed by any kind of statement or visible representation, made or published intending to harm his/her reputation.
7. **No breach of privacy-** The deceased person has the right to privacy, i.e., the right to control the dissemination of information about one's privacy.”

## Conclusion

After careful consideration, it is evident that Necrophilia is a rare and often overlooked condition. Those who engage in necrophilia not only defy societal norms but also inflict further anguish upon grieving families. The inability of the deceased to give consent or resist may contribute to the occurrence of necrophilia. One major challenge with prosecuting necrophilia cases is the lack of specific laws addressing this offense. In India, existing laws fail to adequately address necrophilia as a distinct sexual offense. There is an urgent need for comprehensive research on necrophilia and its acknowledgment within legal frameworks. However, immediate action is required to educate the public, raise awareness, and facilitate the identification and reporting of such crimes until legal measures are implemented.

Below are some suggested reforms to Indian laws aimed at safeguarding the honour and respect of deceased.

1. Introduce a fresh amendment to criminal legislation addressing necrophilia, targeting individuals engaging in sexual intercourse contrary to natural order, specifically involving deceased women's bodies. This offense shall be punishable by imprisonment or a term of ten years, along with potential fines.
2. Installing a thorough CCTV surveillance network across mortuaries and burial grounds can discourage potential wrongdoers. These cameras need to cover entrances, exits, viewing areas, and storage spaces where bodies are stored.
3. Keep detailed records of all dead bodies coming in and out of the mortuary or burial ground. This involves documenting the deceased's identity, arrival time, body condition, and information on any authorized personnel accessing the area.
4. Regularly inspect mortuary facilities and burial grounds to ensure they follow security measures and handle deceased individuals properly. These inspections should check CCTV functionality, record-keeping, and adherence to procedures for handling and storing bodies.
5. Arrange training programs for staff in mortuaries and burial grounds to educate them about the importance of treating the deceased with respect and dignity.
6. Foster collaboration among mortuary authorities, burial ground managers, and law enforcement to promptly report and investigate any incidents involving crimes against the deceased, like necrophilia.

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32. Several countries, including Canada, Germany, the UK, and South Africa, have laws against necrophilia. In the UK, Section 70 of the Sexual Offences Act, 2003, prohibits intentionally sexually penetrating a dead person, punishable by up to 2 years imprisonment. Canada's Criminal Code makes it punishable with up to 5 years imprisonment for neglecting burial duties or indecently interfering with a dead body. In New Zealand, the Crimes Act, 1961, imposes up to 2 years imprisonment for any act harming the dignity of a corpse. South Africa's Criminal Law Amendment Act, 2007, also prohibits necrophilia.
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# HEALTHCARE IN CRISIS - EXPLORING THE IMPACT OF WOMEN'S REPRODUCTIVE HEALTHCARE DISRUPTIONS ADMIST THE WAR WITH REFERENCE TO ISRAEL- PALESTINE WAR

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## **Synopsis**

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## Abstract

Access to basic healthcare is a fundamental right of every individual, irrespective of gender, ethnicity or geographical location. It is a right that ensures individuals receive the essential medical services, treatments, and preventive care without facing significant barriers. It also encompasses various aspects, including primary care, vaccinations, maternal and child health services, and management of common illnesses and chronic conditions. Ensuring universal access to basic health care is crucial for promoting overall well-being and reducing health disparities within communities. Access to healthcare in times of war has been a negotiable one. In the recent Israel - Palestine war, particularly women faced significant challenges in accessing essential medical services and treatments, in the affected areas like the Gaza Strip and Westbank. The ongoing Israel-Palestine conflict has led to severe humanitarian crises, particularly affecting the access to life-saving healthcare for women. Around 50,000 women were pregnant and of 183 women who give birth every day, 15% face severe complications during delivery and over 690,000 menstruating women and girls have limited access to menstrual hygiene products. Moreover, only 3 water pipelines between Israel and Gaza are functional and there is only one toilet per 486 people. As medication, water, and hospital resources dwindle quickly or become depleted, pregnant women are at risk of delivering babies without anesthesia, proper sanitation measures, or potential surgical procedures even if needed. Tragically, reports indicate that some women have lost their lives either before or during childbirth due to these challenging circumstances.

This study explores the challenges faced by women in accessing essential medical treatments, maternal care, and reproductive health services in a conflict-ridden environment. This study emphasizes the urgent need for sustained humanitarian efforts to ensure equitable access to life-saving healthcare for women relating to pregnancy, menstruation and other related healthcare in conflict-affected areas highlighting the imperative of prioritizing health as a fundamental human right. Through a comprehensive review of literature, this study highlights challenges including prenatal care, maternal health services, and access to reproductive healthcare. Drawing upon various testimonies from affected communities, this paper elucidates the complex interplay between conflict dynamics and women's health outcomes, shedding light on the urgent need for targeted interventions and policy reforms to mitigate the adverse effects of warfare on women's healthcare.

**Keywords:** Healthcare, Women, Israel - Palestine war, Human right.

## Introduction

The Israel-Palestine conflict has long been a focal point of global attention, marked by complex geopolitical dynamics and enduring humanitarian challenges. Amidst the turmoil of this protracted conflict, the impact on women's healthcare stands out as a critical yet often overlooked aspect. The disruptions in healthcare services caused by the conflict have far-reaching implications, particularly for women who face unique vulnerabilities and healthcare needs. This study delves into the profound impact of women's healthcare disruptions amidst the Israel-Palestine war, gendered health dynamics, public health ramifications, and the potential for policy and advocacy interventions. By shedding light on this crucial issue, we aim to highlight the urgent need for targeted healthcare interventions, international cooperation, and policy reforms to address the healthcare crises faced by women in conflict-affected areas.

## Objectives

- 1) To analyse the impact of conflict in reproductive healthcare on women in times of war.
- 2) To highlight the interlink of healthcare and fundamental human rights.
- 3) To explore reproductive and psychological health consequences of conflict.
- 4) To call for policy actions and international support to address reproductive healthcare emergencies in conflict-affected regions like Gaza.

## Significance

- This study primarily focuses on the healthcare challenges in conflict zones, with a focus on Gaza.
- The implications of this study highlight distinct reproductive health issues faced by women in conflict.
- Our findings advocate humanitarian aid to address healthcare crises and ensure the well-being of affected women.

## Methodology

This study employs a doctrinal qualitative research design using secondary data sourced from peer-reviewed journals, NGO reports, and governmental publications. A purposive sampling strategy is used to select relevant articles focusing on women's healthcare disruptions during the Israel-Palestine conflict. Content analysis is conducted to identify key themes and issues related to healthcare challenges faced by women in conflict zones.

## Literature Review

Through careful examining of data from authoritative sources like UN and WHO reports on impact of conflict on women's healthcare provides critical insights into the challenges facing healthcare systems in conflict-affected regions.

Furthermore, WHO's "Health Conditions in the Occupied Palestinian Territory, underscores issues such as limited access to maternal and reproductive healthcare services, exacerbated by the conflict's impact on healthcare infrastructure.

Research by Smith (2018) highlighted the disproportionate burden on women in conflict zones, citing limited access to maternal and reproductive healthcare services. Additionally, NGO reports such as Amnesty International (2020) shed light on the challenges faced by women due to disrupted healthcare systems amidst ongoing conflict.

Governmental publications from the Israeli and Palestinian authorities provide valuable insights into the healthcare infrastructure and challenges faced by women in accessing essential healthcare services during periods of conflict. These documents offer a comprehensive understanding of the broader healthcare landscape amid the Israel-Palestine conflict.

## **Importance Of Healthcare**

The Preamble of the constitution of World Health Organization's (WHO) Constitution states that "Health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition." Similar to this, the right to health is described as "a fundamental part of our human rights and of our understanding of a life in dignity" in a collaborative paper by the WHO and the Office of the United Nations High Commissioner for Human Rights (OHCHR). The human right to health is interconnected with other rights that foster well-being, such as equitable access to healthcare and social services, and encompasses access to all medical and social services required to achieve the highest level of physical and mental health.

In addition to international human rights organizations and legal frameworks, several nation-states' internal laws also recognize and safeguard the right to health. Health interventions throughout childhood or the reproductive years might have hidden health consequences and intergenerational results. Women and children face health difficulties throughout the whole life period. In addition to sexual and reproductive problems, chronic illness and mental health problems also have a distinctively gendered influence on women's health.

There are short-term and long-term effects of war on public health. Individuals may be murdered or maimed by acts of violence, or they may suffer from health issues brought on by the stress of fighting and the lack of access to quality medical care. People can be impacted by war for extended lengths of time at any stage of life, from infancy and early childhood to maturity.

## Healthcare Of Women Shattered In Gaza

Gender concerns and how they impact humanitarian programs have received more attention in the last few years. In addition to the numerous NGOs engaged in emergency relief, organizations like the World Food Programme (WFP), the United Nations High Commission for Refugees (UNHCR), and the United Nations Children's Fund (UNICEF) have started to give greater consideration to how their operations may help the affected women and girl children. However, women are more likely than males to encounter situations and experiences that have an impact on their health. In addition, their access to healthcare follows distinct patterns compared to that of males and children.

Women and children account for 70% of all casualties in Israel's current military assault on Gaza, which has killed nearly 29,000 people. Currently in Gaza, only 40% of the country's hospitals and medical facilities are fully operating, which means that more than 180 women give birth each day without access to safe delivery or medical care. The world is witnessing the horrific and ongoing effects of the conflict in Gaza in real time. The situation is grave, with little access to sanitation, medicine, pregnancy and postnatal care, and menstrual supplies. Access to gynaecological treatment for women has significantly declined.

Due to the devastated infrastructure and the sanctions, which impacted the distribution of food and medical supplies, basic care for women has decreased. Hospitals continue to face serious shortages of electricity, medication, medical equipment, food, and personnel due to Israeli restrictions on aid entering and moving freely and safely around Gaza, significantly compromising the provision of essential care. This situation is exacerbated by substantial damage to hospital infrastructure and facilities. Continuous airstrikes and military ground operations have also led to the evacuation of healthcare personnel and patients, and restricted their access to hospitals. In addition to increasing the danger of gender-based violence, sexual exploitation, and abuse against women and girls, overcrowded shelters lack privacy and the means to maintain dignity.

Services related to reproductive health are now less accessible. Menstrual hygiene supplies and regular access to facilities are no longer available to women and girls. Inadequate menstruation care raises the possibility of infections that Gaza's health system cannot control and may lead to outbreaks of avoidable disease. The danger of infection is further increased by improper disposal of these materials if tainted water or abandoned goods draw disease-carrying rats and flies. While women using hormonal birth control no longer have access to pharmacies or doctors to keep their medicine up to date. Women with intrauterine contraceptive devices (IUDs) are experiencing infections and bleeding as a result of living in substandard conditions without access to healthcare. Some females have turned to off-label use of hormonal medications to delay their period amid these conditions.

## **Reproductive Healthcare Of Women In Gaza**

Women's reproductive health issues during conflicts can range from the consequences of sexual abuse to not having birth control or life-threatening pregnancy-related diseases. They can also include things like not having access to sanitary supplies for menstruation. Women have also had to deal with the devastating spread of HIV/AIDS. In Occupied Palestine, control and brutality against women and girls' sexual and reproductive rights have always been a systemic concern. Prior to October, 94,000 women and girls did not have access to sexual and reproductive health services, according to the United Nations Population Fund (UNFPA).

### **a) Menstruation**

It is remarkable that only in the last few years, humanitarian organizations have started to include sanitary products in the packages of relief items delivered in emergencies, despite the fact that it is evident that women who are 10 to 50 years old either victims or internally displaced need a way to manage their menstruation. Women can roam around freely and carry out their day-to-day activities during their menstruation instead of sitting at home or in their tents, isolated from others, if clean cotton rags or contemporary sanitary goods are available.

The UN estimates that nearly 700,000 women and girls in Gaza have menstrual cycles, which they are trying to manage with little privacy or access to pads, toilets and clean water. In the shelters run by UNRWA, the UN aid agency for Palestinians, on average, there is only one toilet per 486 people. Menstruating women and girls have little access to sanitary supplies, and many are forced to use tent scraps, while others miss their periods entirely owing to stress. Women have been taking norethisterone tablets, which are commonly prescribed for conditions such as heavy menstrual flow, endometriosis, and painful periods.

### **b) Pregnancy**

Even in the best of situations, giving birth and going through pregnancy be perilous for women. Women are particularly more vulnerable in conflict-ridden nations because they typically lack access to emergency obstetric care and prenatal assistance. Pregnant women and mothers in Gaza fight for their lives while trying to provide the necessary and safeguard their unborn children. The serious impacts that the six months of conflict have had on these Palestinian women are being called into question by the International Rescue Committee (IRC). Difficultly as to pregnancy is especially true given the extreme shortages of food, water, healthcare, and the prospect of impending famine.

Out of the estimated 50,000 pregnant women in Gaza, around 5,522 of whom are expected to give birth in the upcoming month, are among the women and girls for whom UNFPA is extremely concerned. Approximately 183 women are estimated to give birth daily in Gaza, of whom 15% are expected to need additional medical care due to pregnancy or birth-related complications.

In addition to the constant fear of dying from wounds, infections, or disease, pregnant women in Gaza also have to deal with hunger, Israeli bombing, and displacement. There are reputable accounts of women being forced to have C-sections without anesthetic, and many women have been forced to give birth without any kind of medical assistance in addition to reports of malnutrition, severe hostility, and the very real possibility of death and disease. In addition to starvation, dehydration, and direct exposure to armed conflict, doctors have reported that stress and shock are causing some pregnant women to experience premature labour in situations where access to emergency care is limited. This often results in the child's death before they reach full term. Infants are being "sent into hell" in the absence of any anesthesia for their mothers.

### **c) Miscarriage**

Unfavourable pregnancy outcomes could not always be the result of a lack of access to quality healthcare. Miscarriages resulting from spontaneous abortions can rise during flight and acute emergency situations due to the physical and psychological strain. Since October 7, the number of miscarriages among Gazan women has increased threefold, according to health organizations. "A high-stress environment" brought on by the war is likely to encourage complications of birth and may lead to miscarriages. Women experiencing miscarriages need medical attention right away in order to preserve their fertility and save their lives. It is tragic to witness women giving birth to stillborn babies in the hospitals due to physiological trauma. This battle has a huge cost and will have a lasting impact on not just the present generation but also the future generation.

### **d) Delivery**

Women are ought to have access to first-rate medical care and the privacy in order to give birth. Rather, they are compelled to give birth to their children under absolutely horrible circumstances. A total of 8,000 delivery kits have been successfully delivered to Gaza by the UN agency. They include things like disposable sheets, baby blankets, and umbilical cord cutters. However, this only meets a small portion of the requirement. According to Gaza's health ministry, some women have been compelled to give birth in the congested shelters without the assistance of a midwife. There are crucial shortages of drugs, blood products, medical supplies, and fuel which is being severely rationed at the remaining partially functional hospitals. These shortages severely curtail access to life-saving obstetric care for women who are pregnant or postpartum. Statements from health providers in Gaza indicate that some surgical procedures, including caesarean sections, have been conducted without anaesthesia and at times without electricity. Shortages of antiseptic for stitching and treatment following the cutting of umbilical cords, as well as blood to treat postpartum haemorrhage. Mothers lose their babies immediately after giving birth because there isn't enough power to run incubators that could keep them alive.

This implies that instead of giving birth in hospitals, women are giving birth in abandoned buildings, in vehicles or tents, or in cramped shelters that barely have comfortable space. Complete privacy is non-existent, and appropriate medical care including prenatal and postnatal care is lacking.

### **e) Breastfeeding**

In order to produce enough milk, breastfeeding moms should consume at least three litres (more than six pints) of water each day and eat a healthy diet; however, it is getting harder and harder to access clean water and food in Gaza. New born child has jaundice, marked by yellowish skin and eyes. The condition can be worsened by low milk intake and dehydration and is often treated with daylight exposure. The massive amount of dust outside from the constant bombardment is making it difficult for people to breathe, which puts babies at particular risk.

### **f) Malnutrition**

In Gaza, women are the last to eat and children are the first to die. Women's physiologies make them susceptible to iron and vitamin shortages, which can have an impact on their energy levels, general health, and ability to conceive. For women of reproductive age, iron deficiency anaemia is a dangerous illness that can be fatal for expectant mothers. Women and children are suffering acute malnutrition as territory faces 'catastrophic conditions', according to UN. According to UN estimates, over half a million people, or one in every four homes in Gaza, are "facing catastrophic conditions characterised by lack of food, starvation and exhaustion of coping capacities".

Gaza's entire population is now food insecure, with a 94% reduction in water availability. The World Food Programme reports that hunger and dehydration cases are rising quickly, and that there is a serious risk of famine. To protect the health of their children, mothers only eat once a day. We fear that as a result of the toxic combination of poor hygiene, high levels of hunger, and living in overcrowded shelters, there will be an increase in the number of women and children passing away from diseases that could be prevented or treated. Women who are pregnant or nursing need to consume more water and calories to promote healthy pregnancies and births. More than half of pregnant women in Gaza are anaemic, which increases the risk of preterm birth and low birthweight. Left untreated, these women will have higher problems during pregnancy, and their infants are at risk for developmental delays.

### **Effect Of Sexual Violence**

The health consequences of sexual violence can be devastating. Injuries, unwanted pregnancies, sexual dysfunction and HIV/AIDS are physical consequences. Mental effects include anxiety, post-traumatic stress disorder, depression and suicide. Although sexual violence as a war strategy and human rights issue has received global attention for more than a decade, women victims in need of immediate support is still a loud cry. Rape often causes serious physical damage to the woman's body, requiring treatment for cuts and tears; Some women even need stitches. Antibiotic treatment is necessary. If emergency contraception is prescribed within 72 hours, it can prevent unwanted pregnancy. Since violence is common in war and is inevitable, health systems must be prepared to provide such care and ensure that personnels are trained to treat patients sensitively.

## **a) Sexually transmitted Diseases**

Globally, STI rates are approaching pandemic levels. However, the majority can be treated really easily with a straightforward diagnostic strategy that doesn't call for laboratory testing. STIs spread among displaced populations, it is difficult to see why this health concern is given such short shrift in emergency situations.

## **Environmental Factors Affecting Reproductive Health**

For extended periods of time, exposure to chemical warfare or the environmental repercussions of combat can be harmful to one's health. Radiation effects are extremely dangerous for women's reproductive health. Continuous exposure to smoke pollution or chemical remnants from weapons which is highly seen in Gaza now, that seeped into the food chain is likely to cause the risk of miscarriage and pregnancy complication.

## **Inverse Effect on Psychological Well-Being Due to Challenges in Reproductive Health**

As misery deepens in Gaza, with 2.2 million Palestinians facing hunger, thirst and a broken healthcare system, mental health is a priority, especially among Gazan women and girls. Among the consequences of war, the effect on the mental health of the civilian population is one of the most important. Various studies on the population clearly shows an increase in the incidence and prevalence of mental disorders. Women are found to suffer more than men. Gazan women have also experienced deadly horrors, compounded by the region's worsening health crisis. Although all women and girls suffer from mental health problems, managing the menstrual cycle and maternal health in these difficult circumstances is a particularly acute challenge. The emotional stress and trauma of the conflict has been reported to cause multiple menstrual cycles per month, further increasing women's demand for these increasingly scarce hygiene products. Access to clean water is critical to women's hygiene and women's health, but Gaza is experiencing severe water shortages. Per capita water per day has dropped to just three litres for essential tasks such as washing, drinking and cooking. This scarcity creates enormous psychological stress on women and families as they struggle to balance the bare minimum between competing needs for hydration, hygiene and sanitation to cook for their families. They are forced to find an impossible balance between these fundamental activities, which directly threaten the physical and mental well-being of themselves and their children. Of the 17,000 women who have given birth so far during the conflict, many had caesarean sections without anesthesia as mentioned earlier, and abortions in Gaza has increased by 300% due to Israeli bombing leading to extreme dreadful situations such as pain and emotional trauma.

A study was conducted on the impact of Israeli human rights violations on the physical and mental health of women in the Gaza Strip. Research results show that the prevalence of psychological distress (anxiety and depression) was 64.89%, while the prevalence of no psychological distress was only 6.6%. In addition, 19.1% of participants were found to experience mild psychological distress, 26.7% suffered moderate distress, and approximately half (47.6%) suffered severe distress. About 31% of participants described their physical health as “very poor” and most reported at least one physical problem. About 38% of participants reported back pain, 31.4% glaucoma and other eye problems, and 30.2% arthritis. Another 22.4% of the study participants reported body aches, 18.9% high blood pressure, 18.4% skin diseases, and about 17.7% suffered digestive problems. 44.1% of participants reported having undergone surgery or sustained serious injuries. Despite the spread of depressive and anxiety symptoms among the participants, only 11.8% sought help from mental services. This clearly shows that the majority of women in Gaza suffer from serious psychological disorders. In this time of war, the women of Gaza must be more carefully looked at and taken care of. This change in psychological health can also affect them in the long run. Therefore, measures must be taken to help women deal with all the anxiety.

### **Barriers to Access Healthcare:**

During the current conflict, there are many barriers for women in accessing the health care in Palestine. The following factors are seen as a challenge that hinder in providing adequate health care and the availability of health services at the right time.

#### **a) Structural barriers**

People emphasized that the lack of adequate systems and infrastructures and the lack of a clear universal policy are major barriers in the Palestinian health system. The number of beds (1.3 per 1,000 inhabitants in the Gaza Strip) and the capacity of hospitals are low and cannot meet the expectations of patients. In fact, optimal health care cannot be adequately and timely achieved in health facilities with poor infrastructure and logistics, as well as a lack of clear policies. Informants said that segregation is ineffective in all public hospitals and is not available in some hospitals due to unclear health policies. They also noted that there is no standard classification or classification system for prioritizing cases. They also described increased patient loads, long waiting times and an overload of nurses and visitors, especially in emergency departments and surgical units, which makes immediate care difficult. patient care is a major barrier to improving health care in the Palestinian health system.

### **b) Availability barrier**

Patients have had negative experiences with managing facilities with various barriers. Most patients faced many barriers to access quality care, including a lack of necessary resources such as a lack of medications (e.g. heart medications, kidney failure medications, anticoagulants), lack of expertise and teamwork in kidney disease and important subspecialties (e.g. vascular). and neurosurgery), lack of medical instruments and equipment (eg, laparoscopes, surgical tools and instruments, and patient monitors) and medical imaging equipment (eg, MRI and CT scans). Patients mentioned that they are not satisfied with the current quality of care in public hospitals, as insufficient human and medical resources are a major obstacle to the quality of care in the Palestinian health system. Access to essential resources is severely limited due to the border blockade. such as sewage, medical supplies, food and hot water.[1]

### **d) Economic & Political barrier**

Another major challenge is the lack of funds from the Ministry to provide resources for primary health services, which affects the quality of optimal care to meet people's expectations and wishes. Political factors play a crucial role in times of war.

### **e) Communication barrier**

Effective communication was considered very important for optimal care and better case management. However, many important barriers have been identified that limit this process in Palestinian health facilities, including lack of an accepted clear formal communication system between health providers, lack of communication skills and necessary tools, poor communication between health workers and patients, and suboptimal sharing of details, communication maintenance between MOH and relevant stakeholders. There are also problems in communication between the government or the social worker or the organization and the people.

### **f) Aggression against the health center**

Hospitals are constantly attacked. Health facilities are destroyed, looted or forced to close or isolate themselves from the population they serve. It is considered a major barrier to access to health services. The hospital in this area is facing severe shortages of doctors and nurses, as well as essential medications for chronic illnesses, narcotics, and medical supplies. A total of 622 incidents targeting the healthcare sector were reported in Gaza, resulting in damage to 123 health facilities. Out of 36 hospitals in Gaza, only 14 are partially functional due to frequent outages and significant shortages of medical supplies. Hospitals are under constant attack, leading to their destruction, looting, closure, or isolation from the communities they serve. This situation represents a significant obstacle to accessing healthcare services.

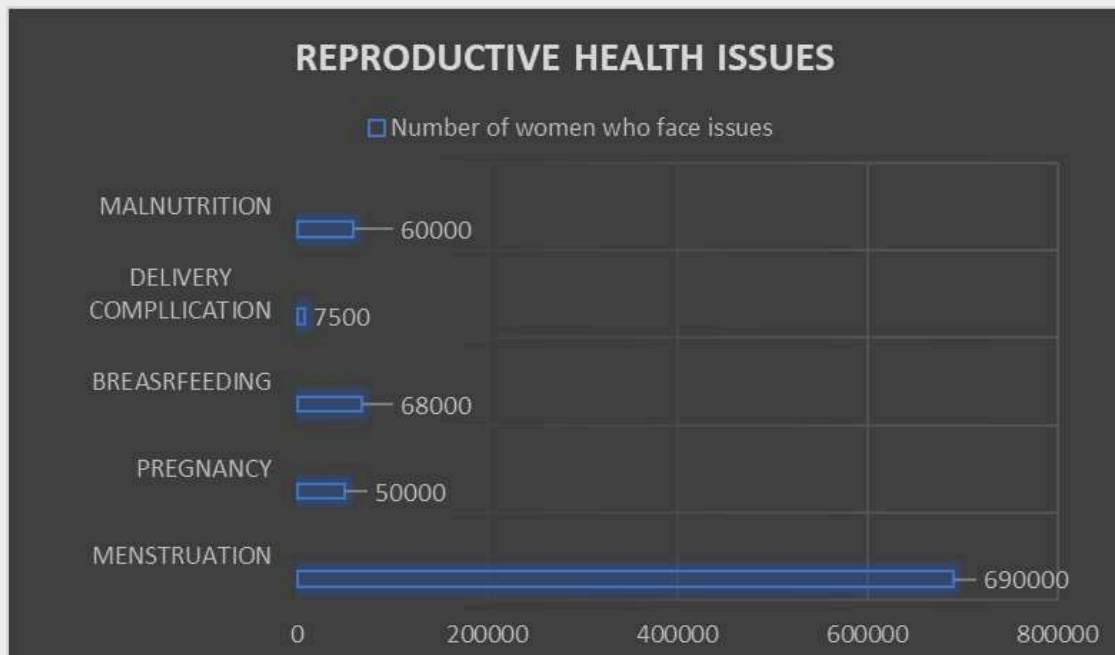
## After Effects of Healthcare Access Restrictions on Reproductive Health

- **Sexually transmitted diseases:** Sexual and sexual violence have a significant impact on physical and mental health, including sexual assault injuries, HIV, reproductive health v problems and social isolation. When there is obstacle to access health care it may take a severe effect on the victim.
- **Unwanted pregnancy:** Conversely, a decline in modern contraceptives and an increase in sexual violence may increase the number of unwanted pregnancies and abortions. Proper abortion by means of healthcare facilities may not be availed due to the serious war conditions.
- **Mental health:** WHO estimates that in situations of armed conflict, “10 percent of people who have survived traumatic events have serious mental health problems, and another 10 percent develop behaviors that hinder their ability to function effectively. The most common conditions there is depression, anxiety and psychosomatic problems such as insomnia or back – and abdominal pains.
- **Menstrual Health:** They are also prone to health problems due to their reproductive systems - menstruation increases the risk of anemia and mineral deficiencies. Lack of sanitary napkins, women and girls use other options, which can lead to infections. Inadequate menstruation care raises the possibility of infections that Gaza’s health system cannot control and may lead to outbreaks of avoidable disease.
- **Malnutrition:** Hunger can be seen from adults to children during this war which is leading to serious health issues. Due to the lack of necessary nutrients, pregnant women develop various complications during pregnancy, which even lead to death. Newborns search for nutrients because mothers cannot breastfeed. This leads to child malnutrition even in worst cases leading to death.

## Findings

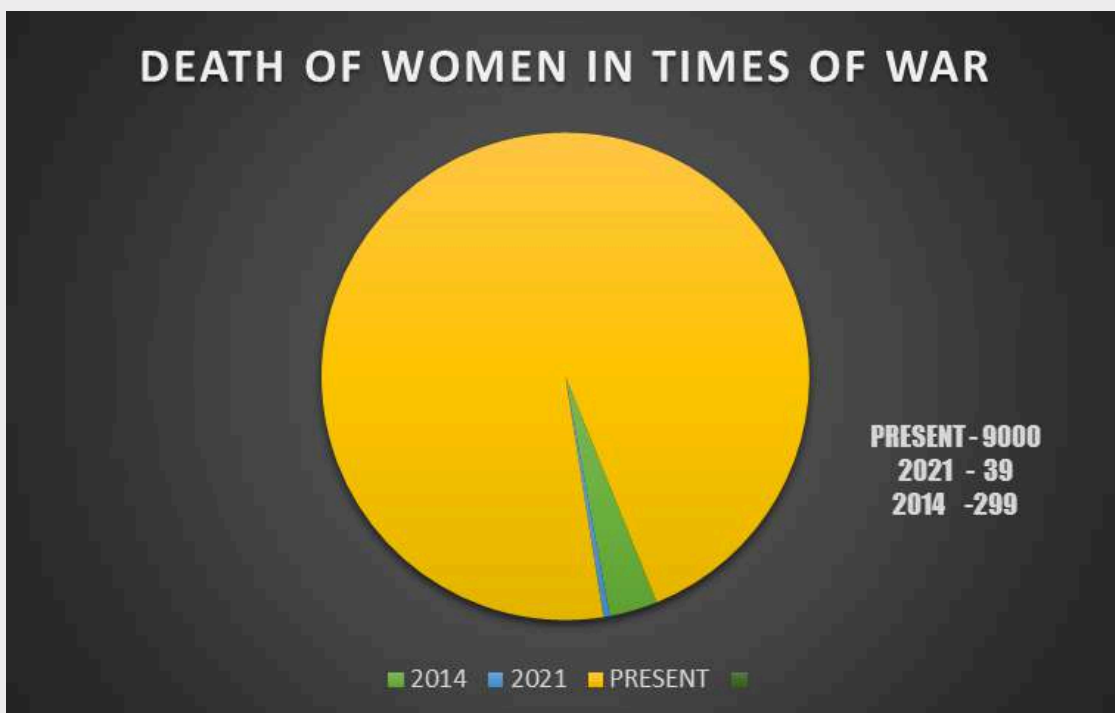
1) The statistics clearly shows the various reproductive health issues faced by women at present in Gaza. As a majority of population, a major issue faced by women in regard to menstrual health as the menstruating age range between 10 to 55. Approximately around 6,90,000 women face sanitary issues during their menstruation due to lack of sanitary pads. Use of other alternatives are now happening in gaza which may lead to various infections.

Around 50,000 women are in their pregnancy period, who require pre-natal care. Due to the inadequate care, women had to undergo other health issues such as inability to breastfeed, malnutrition and delivery complication. Around 15 % of the pregnant women are undergoing severe delivery complications i.e nearly 7,500 women.



**Fig. 1**

2) According to the records, the death of women in the ongoing present war is more than multiple folds of death in the previous years. In the conflict of 2014, 299 women had died and 39 women in 2021, which is comparatively less than previous conflict. As a tragic scenario, the present war caused the death of nearly 9000 women. These deaths include deaths due to attacks, assault, sexual violence and denial of access to healthcare.



**Fig. 2**

## Suggestions

- Training provided to army people shall not only include medical assistance but also psychiatric assistance to the people which is a crucial aspect in times of war.
- The international instruments must be converted into Nations policies and laws. It must be enacted to criminalize or restrict the provision of medical care to those opposing the state.
- Healthcare team must comprise of women in order to address the issue in a more effective manner.
- Providing immediate treatment including emergency contraception, pills, STI treatment for sexually affected victims to prevent unwanted pregnancies and to cease the spread of infection which if left untreated may become fatal.
- Separate Breast-feeding shelter, delivery rooms must be established along with the establishment of refugee Camps.
- Providing menstrual cups in the sanitary relief products as an alternate to napkins.

## Conclusion

Human rights of minority people are a questionable factor even in normal times and has seen its at most crucial point in times of war. Study on the women's reproductive healthcare disruptions in the Israel-Palestine conflict has shown lack of menstrual hygiene, malnutrition in women and girl children, pregnancy and delivery issues. Due to lack of postnatal care, breastfeeding their children is also a complication among lactating women. Women's reproductive health own various issues which demand decisive action and collaboration. Death of women has increased multiple folds than the previous stats. Upholding fundamental human rights, equitable healthcare access, policy reforms and international cooperation are considered as a crucial step towards human rights of women in times of war. As a concluding note, prioritizing women's reproductive healthcare not only addresses immediate needs but also fosters long-term resilience and stability. Governments, humanitarian organizations, and civil society, must work collaboratively to implement reforms and improve healthcare outcomes for women impacted by conflict globally.

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# INNOVATING FOR THE SKY: THE ROLE OF GREEN TECHNOLOGIES IN SUSTAINABLE AVIATION

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## Synopsis

Abstract

Introduction

1. The Environmental Challenge of Aviation
2. Technological Innovations for Sustainable Aviation
3. Policy and Regulation: Accelerating Adoption of Green Technologies
4. The Future of Sustainable Aviation

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## Abstract

The aviation industry is currently, at a point in the battle against climate change with its significant carbon footprint requiring creative solutions to secure a sustainable future. "Innovating for the Sky; The Impact of Green Technologies on Aviation" provides an in depth look at the recent advancements and approaches being utilized to lessen the environmental effects of air travel. This study explores eco technologies such as electric propulsion systems, hydrogen fuel cells and sustainable aviation fuels (SAF) assessing their potential to transform the sector and support global sustainability objectives. The research sets the stage by discussing the significance of the aviation sector in the economy and its related environmental difficulties. As per data from the International Air Transport Association (IATA) aviation contributes between 2-3% of CO<sub>2</sub> emissions a number that is predicted to increase due to growing air travel demands. The document stresses the necessity for a shift, towards sustainability underscoring the industry's role in meeting the Sustainable Development Goals set by United Nations SDG 9 (Industry, Innovation and Infrastructure) and SDG 13 (Climate Action).

A notable section of the paper focuses on investigating electric propulsion systems, which offer an approach, to decreasing the impact of short to medium distance flights. Recent studies like those conducted by Electric Power Systems (EPS) and NASA's endeavours in electric aircraft technology lay a groundwork for understanding the status of electric aviation technologies their constraints and future possibilities. The examination includes accounts of prototypes and pilot projects involving electric aircraft revealing insights into technological advancements and persisting hurdles related to battery capacity, energy storage and overall aircraft design. Additionally, hydrogen fuel cells emerge as a groundbreaking technology with the potential to support emissions flights. The paper explores research efforts and pilot initiatives led by industry giants like Airbus and Boeing that are exploring hydrogen as a fuel alternative capable of powering larger aircraft on longer routes. The discourse also encompasses discussions on infrastructure prerequisites, safety considerations and economic feasibility associated with using hydrogen fuel cells in aviation operations presenting a rounded perspective on their implications. Furthermore, sustainable aviation fuels (SAF) are recognized as a solution for reducing the carbon footprint of the aviation sector. The study delves into SAF sources such as biofuels, synthetic fuels and waste, to energy processes while outlining their benefits and challenges.

The conclusion underscores the significance of investing in research and development (R&D) creating frameworks and leveraging market driven mechanisms to drive progress, towards sustainable aviation.

**Key words:** Sustainable aviation, Electric propulsion, Hydrogen fuel cells, Sustainable aviation fuels (SAF), Policy and regulation

## Introduction

The aviation industry, a cornerstone of global mobility and economic development, faces an unprecedented challenge in aligning its growth with environmental sustainability. As an integral component of the international economy, aviation not only facilitates global trade and tourism but also significantly contributes to the connectivity between countries and cultures. However, this vital sector is also a notable contributor to global carbon emissions, with the International Air Transport Association (IATA) reporting aviation as responsible for approximately 2-3% of global CO<sub>2</sub> emissions. This environmental footprint underscores the urgent need for innovative solutions to mitigate the impacts of air travel on the planet. "Innovating for the Sky: The Role of Green Technologies in Sustainable Aviation" embarks on a comprehensive examination of advanced green technologies and strategies pivotal for transforming the aviation industry into a model of sustainability.

The research underscores the critical importance of adopting green technologies, such as electric propulsion systems, hydrogen fuel cells, and sustainable aviation fuels (SAF), to address the environmental challenges confronting the aviation sector. These innovative solutions hold the promise not only to significantly reduce the carbon footprint of air travel but also to contribute actively towards achieving the United Nations' Sustainable Development Goals (SDGs), particularly SDG 9 (Industry, Innovation, and Infrastructure) and SDG 13 (Climate Action). The urgency to transition towards sustainable aviation is further amplified by the projected increase in demand for air travel, which threatens to escalate the sector's environmental impacts unless significant interventions are implemented.

This paper sets out to explore the viability and impact of these green technologies within the aviation industry. It aims to provide a holistic understanding of the current state of electric aviation technologies, the potential of hydrogen fuel cells as an alternative power source, and the role of SAF in reducing aviation's carbon emissions. Through a meticulous analysis supported by recent studies and pilot projects, this research intends to evaluate the challenges, opportunities, and future prospects of these technologies in fostering a sustainable aviation sector. Furthermore, the paper will assess the effectiveness of global governance efforts in promoting the adoption of these green technologies and reducing aviation emissions.

## The Environmental Challenge of Aviation

The aviation industry, instrumental in fostering global connectivity and economic growth, concurrently poses significant environmental challenges. As a substantial contributor to global carbon emissions, the sector's environmental footprint has garnered increasing scrutiny amid heightened awareness of climate change's impacts. Aviation is accountable for approximately 2-3% of worldwide CO<sub>2</sub> emissions, a figure with considerable implications for global warming and climate dynamics.

This carbon footprint is a critical concern, particularly as the demand for air travel is projected to rise, potentially exacerbating the industry's environmental impact unless significant mitigation strategies are implemented.

Environmental scientists and industry experts have emphasized the necessity of addressing aviation's contribution to atmospheric CO<sub>2</sub> levels, which contribute to the greenhouse effect and global warming. The greenhouse gases emitted by aircraft, predominantly CO<sub>2</sub>, along with nitrogen oxides, contrails, and cirrus cloud formation, further amplify the industry's climate impact. The comprehensive assessment of aviation's environmental challenge necessitates an examination of its direct and indirect contributions to climate change, encompassing not only CO<sub>2</sub> emissions but also the broader spectrum of radiative forcing effects.

Future projections of aviation's environmental impact paint a concerning picture, with forecasts indicating a potential tripling of CO<sub>2</sub> emissions by 2050 if current trends persist and without the integration of substantive green technologies and sustainable practices. The urgency for innovative solutions is underscored by the sector's projected growth and the parallel imperative to curtail its environmental footprint, aligning with global sustainability objectives and the Paris Agreement's climate goals.

The path to mitigating aviation's environmental impact is multifaceted, involving the advancement of green technologies such as electric propulsion systems, hydrogen fuel cells, and sustainable aviation fuels (SAF). These innovations present promising avenues for reducing the sector's carbon emissions and environmental footprint, contributing to the broader sustainability goals outlined in the United Nations' Sustainable Development Goals (SDGs), particularly SDG 13 (Climate Action).

When it comes to dealing with the issues linked to aviation it's crucial to take into account the impact of policies, regulations and commitments, across the industry towards sustainability. Agreements on a scale such as the Paris Agreement and CORSIA highlight the agreement on the importance of united actions to reduce emissions. Both national and international policies that promote the use of eco technologies and fuels play a role, in supporting the aviation sectors shift towards a greener and more sustainable future.

## **Technological Innovations for Sustainable Aviation**

### **Electric Propulsion Systems**

Electric propulsion systems represent a transformative approach to aviation, offering a pathway to drastically reduce the sector's carbon emissions. By leveraging electric motors instead of traditional combustion engines, these systems promise a future of cleaner, quieter flights. The development of electric propulsion technologies is spearheaded by research initiatives and experimental projects that aim to address current limitations, particularly in battery technology. Challenges such as achieving sufficient energy density for longer flights and reducing the weight of batteries are at the forefront of current research efforts. Advances in materials science and battery chemistry are critical to overcoming these hurdles, enabling the practical implementation of electric propulsion in commercial aviation.

Electric propulsion systems are playing a role, in making aviation environmentally friendly as shown by recent test flights that highlight the potential for significant reductions in carbon emissions. Projects like the E Fan X, an effort involving Airbus, Rolls Royce and Siemens aimed to push the boundaries of electric propulsion technology. Although the E Fan X project was eventually halted the knowledge gained has fuelled exploration and innovation in this field.

The successful test flight of Eviation Aircrafts all aircraft called Alice in 2021 marked an achievement. Alice can carry nine passengers. Travel up to 440 miles demonstrating the practical application of electric propulsion for short to medium distance flights. Similarly, Velis Electro by Pipistrel became the electric plane to receive certification from the European Union Aviation Safety Agency (EASA) showcasing the rapid advancements in electric aviation technology.

Additionally, MagniX and Harbour Airs collaboration to convert seaplanes to power has resulted in the launch of electric flights. This move signifies a shift towards operations, within the aviation industry. These test flights not demonstrate that electric propulsion is viable but shed light, on the obstacles and possibilities in expanding these technologies for wider commercial use.

These instances showcase a trend toward propulsion fuelled by the need to reduce aviation's environmental footprint. With advancements in battery technology and changes in regulations, electric propulsion systems are set to have an impact, on the future of eco aviation providing a cleaner, quieter and more effective option compared to conventional combustion engines.

## **Hydrogen Fuel Cells: A Promising Alternative**

Hydrogen fuel cells have emerged as a promising alternative to traditional aviation fuel, offering the potential to significantly reduce greenhouse gas emissions. By utilizing hydrogen as a clean and efficient energy source, fuel cells generate electricity to power an aircraft's propulsion system, producing only water and heat as byproducts. The development and integration of hydrogen fuel cells in aviation entail overcoming technical challenges related to hydrogen storage, distribution, and onboard fuel cell systems. Research and development efforts are focused on enhancing the energy density of hydrogen storage systems and optimizing fuel cell performance to meet the demanding requirements of commercial aircraft. The successful integration of hydrogen fuel cells holds the promise of a sustainable and low-carbon future for aviation, aligning with the industry's commitment to environmental responsibility and climate action.

## **Sustainable Aviation Fuels**

Sustainable aviation fuels present a pivotal opportunity to decarbonize the aviation industry by offering an alternative to conventional fossil-based aviation fuels. Derived from sustainable feedstocks such as biomass, waste oils, and renewable hydrogen, SAF have the potential to substantially reduce the carbon footprint of air travel.

The production and utilization of SAF involve advanced processes such as hydro processing and Fischer-Tropsch synthesis to yield aviation fuel with properties comparable to traditional jet fuel. Furthermore, blending SAF with conventional jet fuel allows for seamless integration into existing aircraft and infrastructure. The widespread adoption of SAF requires concerted efforts to scale up production, optimize supply chains, and establish regulatory frameworks that incentivize their deployment within the aviation sector. As the industry transitions towards sustainable aviation fuels, partnerships between airlines, fuel producers, and governments are essential to accelerate the development and adoption of SAF, driving the industry towards a more sustainable and environmentally conscious future.

The imperative to address the environmental challenges presented by aviation necessitates a multifaceted approach that encompasses technological innovation, policy frameworks, and industry collaboration. The advancement and integration of green technologies such as electric propulsion systems, hydrogen fuel cells, and sustainable aviation fuels are pivotal to realizing a sustainable aviation sector that aligns with global climate goals and sustainability objectives. Additionally, proactive policy measures, international agreements, and industry-wide commitments to sustainability play a crucial role in facilitating the transition towards a low-carbon and environmentally responsible aviation industry. By fostering a collaborative ecosystem of innovation and sustainability, the aviation sector can embark on a transformative journey towards mitigating its environmental impact and embracing a future of sustainable and responsible air travel.

The future of sustainable aviation is predicated on a multi-faceted approach that integrates green technologies, fosters collaborative efforts among key stakeholders, and amplifies investment in research and development (R&D), alongside leveraging market-based mechanisms. This holistic strategy is vital for the aviation sector's transition towards sustainability, aligning with global environmental goals and mitigating its substantial environmental footprint.

## **Policy and Regulation: Accelerating Adoption of Green Technologies**

To ensure a comprehensive analysis of policies and regulations accelerating the adoption of green technologies in aviation, it's crucial to refer to documented initiatives and examples within international agreements, national policies, and specific case studies, including insights from the Indian context. This revised section focuses on real examples backed by sources, with an emphasis on the Paris Agreement, CORSIA, initiatives by the European Union, the United States, and India's approach to sustainable aviation.

## **International Agreements: Paris Agreement and CORSIA**

The Paris Agreement, a landmark in the global climate effort, outlines objectives to limit global warming, with indirect implications for the aviation sector. Countries participating in the agreement are expected to make national determinations to reduce their carbon footprint, indirectly affecting aviation through national policies.

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) by the International Civil Aviation Organization (ICAO) represents a direct global effort to address aviation emissions. Starting in 2021, CORSIA aims to stabilize CO<sub>2</sub> emissions at 2019 levels, requiring airlines to offset any increase in emissions through investments in environmental projects.

## **National Policies: Incentivizing Sustainable Aviation Technologies**

### **European Union**

The European Union's commitment to sustainability is embodied in the European Green Deal, with the objective of becoming the first climate-neutral continent by 2050. Specific to aviation, the EU has proposed revising its Emissions Trading System (ETS) to cover more emissions from air travel. The "Fit for 55" package under the Green Deal aims to increase the use of sustainable aviation fuels (SAF) to 5% by 2030.

### **United States**

The United States has demonstrated its commitment to sustainable aviation through various initiatives, notably the Federal Aviation Administration's (FAA) Continuous Lower Energy, Emissions, and Noise (CLEEN) program. This public-private partnership aims to develop and commercialize advanced technologies that reduce aircraft's carbon footprint and noise levels.

### **India**

India is taking strides towards sustainable aviation, with the Directorate General of Civil Aviation (DGCA) promoting the use of SAF. India's first SAF flight, operated by SpiceJet in 2018 from Dehradun to Delhi, used a blend of aviation turbine fuel and bio jet fuel derived from Jatropha seeds, marking a significant step towards reducing aviation emissions in the country.

Vistara, in a pioneering move, became the first Indian airline to operate a wide-body aircraft on a long-haul route using Sustainable Aviation Fuel (SAF). The flight utilized a Boeing 787-9 Dreamliner, blending 30% SAF with conventional jet fuel, significantly reducing CO<sub>2</sub> emissions by about 150,000 pounds over the fuel's life cycle. This step is a testament to Vistara's commitment to reducing carbon emissions and advancing sustainable aviation technologies in India.

### **Key Policy Levers, Barriers, and Case Studies**

Policy levers like R&D funding, tax incentives, and SAF mandates are critical for overcoming barriers such as high costs and technological challenges. The EU's "Refuel EU Aviation" initiative mandates a minimum share of SAF in fuel suppliers' portfolios, accelerating the adoption of greener fuels. In the US, the success of the CLEEN program highlights the potential of public-private partnerships in advancing sustainable aviation technologies. Through CLEEN, the FAA has worked with industry leaders to develop and deploy innovative technologies aimed at reducing aviation's environmental impact.

India's approach, particularly through SpiceJet's SAF flight, demonstrates the viability of integrating SAF into existing operations, showcasing an important milestone in the country's aviation sustainability efforts. The integration of green technologies in aviation is intricately tied to policy and regulation. Through international agreements like the Paris Agreement and CORSIA, alongside national initiatives across the EU, US, and India, the aviation industry is gradually adopting sustainable practices. These efforts, supported by real-world examples and

case studies, underscore the global movement towards sustainable aviation, highlighting the critical role of policy in facilitating this transition.

## **The Future of Sustainable Aviation**

### **Roadmap for Integrating Green Technologies**

The integration of green technologies into aviation requires a comprehensive roadmap that encompasses the development and deployment of electric propulsion systems, hydrogen fuel cells, and sustainable aviation fuels (SAF). Recent advancements have positioned these technologies at the cusp of scalability, yet their widespread adoption hinges on overcoming existing technical, economic, and infrastructural barriers. For instance, the successful incorporation of SAF into commercial aviation necessitates enhanced production capacities and supportive policy frameworks, ensuring these fuels are both accessible and economically viable for airlines. The International Renewable Energy Agency (IRENA) emphasizes the critical role of technological innovation and policy support in accelerating SAF production to meet aviation's growing demand.

### **Importance of Collaborative Efforts Among Stakeholders**

Achieving sustainable aviation is not a solo endeavour but rather a collective journey requiring the concerted effort of governments, industry players, research institutions, and civil society. The Clean Sky Joint Undertaking in the European Union exemplifies such collaboration, uniting the private and public sectors in the quest for greener aviation technologies. Similarly, the International Civil Aviation Organization (ICAO)'s adoption of CORSIA underscores the global aviation community's commitment to carbon-neutral growth, facilitated by cross-border cooperation and shared responsibility.

### **Investment in R&D and Market-Based Mechanisms**

Investment in R&D is paramount to unlocking the potential of green technologies, driving innovation, and reducing costs through economies of scale. Governmental funding initiatives, alongside private sector investment, play a pivotal role in nurturing the development of cutting-edge solutions for sustainable aviation. Moreover, market-based mechanisms, such as carbon pricing and trading schemes, offer financial incentives for reducing emissions, encouraging airlines to adopt greener technologies and operational practices. The European Union's Emissions Trading System (EU ETS) serves as a precedent, applying a cap-and-trade approach to airline emissions within the EU, promoting environmental accountability and innovation.

As we look towards the future, the sustainable transformation of the aviation sector will undoubtedly be a complex and challenging journey. Yet, the trajectory is clear: through the integration of green technologies, reinforced by collaborative efforts, significant investment in R&D, and the strategic use of market-based mechanisms, aviation can soar towards a sustainable horizon. This pathway not only addresses the urgent environmental challenges posed

by aviation but also aligns with broader global sustainability ambitions, marking a pivotal chapter in the industry's evolution.

## Conclusion

The drive, for implementing technologies in the aviation industry through policies and regulations reflects a dedication to sustainable progress in this crucial sector. The Paris Agreement, CORSIA and various national programs in the EU the US and India demonstrate an effort to reduce the impact of aviation. These endeavours emphasize how policy measures play a role in promoting technologies like sustainable aviation fuels (SAF) electric propulsion advancements and hydrogen fuel cell innovations.

India's active involvement in these initiatives exemplified by SpiceJet's use of bio jet fuel on flights highlights the potential for emerging economies to make contributions to sustainable aviation. This not showcases India's capacity for innovation. Also sets an example for future research in SAF and other ecofriendly technologies within the country and worldwide.

Looking ahead achieving aviation demands innovation and collaboration. Research efforts should concentrate on improving the efficiency and scalability of technologies while addressing existing economic hurdles to their adoption. This involves enhancing battery energy density, for electric propulsion systems lowering hydrogen production costs and making SAF more accessible and cost effective.

In addition, conducting research, on policies plays a role in grasping the relationship among regulations, market dynamics and technological progress. This helps ensure that policies continue to support advancements and the adoption of friendly solutions.

The incorporation of these technologies into the aviation framework requires not technological innovations but also a regulatory environment that is supportive and significant investments in research and development. By creating an environment that promotes collaboration among governments, industry players and the research sector the global aviation industry can reach its sustainability targets. This will contribute to the effort, against climate change. Propel us towards a more sustainable and eco conscious future.

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# FOSTERING INDUSTRIAL TRANSFORMATION: THE ROLE OF INNOVATION INFRASTRUCTURE

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## Synopsis

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## Abstract

This paper explores how Indian companies are driving sustainable industrialization through innovation in environmental compliance, Corporate Social Responsibility (CSR), and green technology adoption. India faces the challenge of achieving economic growth while ensuring environmental sustainability. The paper highlights the role of companies as key drivers of sustainable development. Companies are adopting new technologies and practices to reduce their environmental impact and comply with regulations. CSR initiatives focus on creating shared value for society and shareholders, with an emphasis on environmental sustainability. Examples include green buildings and sustainable transportation. The Companies Act 2013 mandates certain companies to invest in green technology through CSR activities. This has led to increased adoption of renewable energy and waste management solutions. Public-Private Partnerships (PPPs) combine private sector expertise and public sector resources to promote green technology adoption in infrastructure projects. Environmental regulations set standards and create incentives for companies to develop innovative and sustainable solutions. The paper concludes by emphasizing the importance of balancing regulatory compliance with innovation to achieve sustainable development. It also highlights the role of infrastructure in fostering innovation for a greener and more sustainable future.

**Keywords:** Corporate Social Responsibility, Sustainable Infrastructure, Green Technology, Public-Private Partnerships, Sustainable Innovation.

## Introduction

Industrialization in India has brought about economic growth and development, but it has also resulted in some challenges. Here are some of the key problems associated with industrialization in India:

- **Environmental pollution:** Industrial processes can release pollutants into the air, water, and soil. This can lead to respiratory problems, water contamination, and damage to ecosystems.
- **Resource depletion:** Industries consume a large amount of natural resources such as water, minerals, and fossil fuels. This can lead to depletion of these resources and put a strain on their availability.
- **Waste generation:** Industrial activities generate a significant amount of waste, including hazardous waste. Improper disposal of this waste can cause further environmental damage and health problems.
- **Social displacement:** Industrialization can sometimes lead to the displacement of communities, particularly those living near industrial zones. This can disrupt livelihoods and social structures.
- **Uneven development:** The benefits of industrialization may not be evenly distributed across the country. Some regions may see rapid economic growth, while others lag behind.

Sustainable industrialization is being prioritized on India's development agenda, signifying a balanced approach that achieves both economic prosperity and environmental stewardship. As one of the world's fastest-growing economies, India faces a significant challenge: accomplishing its developmental goals while ensuring sustainability and inclusivity. Indian companies play a critical role in achieving these goals, acting as the driving force behind growth and innovation across various economic sectors. This article explores how Indian companies are driving sustainable industrialization through advancements in environmental compliance, their commitment to Corporate Social Responsibility (CSR), and the adoption of green technology.

The country's industrial sector significantly contributes to GDP growth, job creation, and technological advancement. Innovation in environmental compliance is a major force propelling sustainable industrialization. Indian businesses are investing in methods and technologies that lessen their environmental impact while preserving or enhancing operational effectiveness (etinsights, 2024). Additionally, Indian companies are increasingly integrating CSR into their business strategies, viewing it as a means to generate shared value for society and shareholders (Report Yak, 2024). CSR initiatives in India are diverse, encompassing education, healthcare, environmental conservation, and community development. Companies are recognizing that CSR is not just philanthropy, but also about building sustainable and resilient communities that support their long-term business operations.

Furthermore, the Companies Act of 2013 has provided a regulatory impetus for Indian companies to invest in sustainable practices by promoting green technology (Government of India, 2013). The Act mandates that certain companies dedicate a portion of their profits to CSR activities, including those related to environmental sustainability. This has led to an increased adoption of green technologies such as solar power, energy-efficient lighting, and sustainable waste management systems. Indian companies are playing a transformative role in driving sustainable industrialization. Through advancements in environmental compliance, CSR initiatives, and the adoption of green technology, they are meeting regulatory requirements and contributing to achieving the Sustainable Development Goals (SDGs). This paper delves into these themes, highlighting the challenges and opportunities faced by Indian companies as they progress towards sustainable industrialization.

## **I. Sustainable Industrialization in India**

Due to the economic liberalization policies initiated in the early 1990s, rapid industrial growth and development were experienced in India (IMF, 2004). This period witnessed significant expansion across various sectors, resulting in a substantial increase in GDP and job creation. However, several environmental and social challenges, including pollution, resource depletion, and community displacement, were also brought about by this rapid industrialization. In recognition of the need for a more sustainable approach to industrialization, several initiatives have been undertaken by India to promote green and inclusive growth. The National Action Plan on Climate Change (NAPCC) was launched in 2008 to address climate change mitigation and adaptation through various policy measures and programs (Press Information Bureau, 2023). The adoption of the Sustainable Development Goals (SDGs) by India in 2015 further emphasizes the importance of sustainable industrialization in achieving inclusive and sustainable growth.

### **Significance of Indian Companies in Sustainable Development**

Sustainable development in India is significantly advanced by Indian companies. As major players in the economy, these companies are instrumental in inculcating sustainable practices across diverse sectors. The importance of integrating sustainability into business strategies is increasingly being recognized by Indian companies, who view it as a way to gain a competitive advantage and generate long-term value. Significant progress is being made by Indian companies in one key area: environmental compliance. Investments are being made in innovative technologies and practices to reduce their environmental impact and ensure adherence to regulatory requirements. These efforts contribute to achieving the overall goal of sustainable industrialization, while also fulfilling legal obligations for the companies themselves.

## **Innovation: The Engine of Sustainable Industrialization in India**

Innovation is recognized as a critical element propelling sustainable industrialization. It offers solutions to environmental challenges while simultaneously promoting economic growth. Within Indian industries, innovation plays a significant role in achieving Sustainable Development Goals (SDGs). This is achieved through the development and adoption of novel technologies, processes, and practices that minimize environmental impact and promote long-term sustainability.

In the context of sustainable industrialization, one of the most crucial aspects of innovation is the development of cleaner production processes. A growing number of companies are adopting technologies that minimize waste generation, reduce energy consumption, and lower emissions. These advancements not only assist companies in complying with environmental regulations but also improve operational efficiency and reduce costs. Another critical area of innovation is the adoption of renewable energy sources. Many Indian industries are being driven to invest in solar, wind, and other renewable energy technologies. This shift reduces their dependence on fossil fuels and lowers their carbon footprint. The transition towards renewable energy sources not only lessens environmental impact but also enhances energy security and resilience.

Innovation in sustainable industrialization extends to waste management practices as well. Companies are actively exploring innovative ways to recycle and reuse waste materials. This minimizes landfill disposal and promotes a circular economy. By transforming waste into valuable resources, companies can lessen their environmental impact and create new revenue streams. Innovation serves as a crucial driver of sustainable industrialization in India, enabling companies to achieve economic growth while minimizing their environmental footprint. By embracing innovation, Indian industries can pave the way towards a more sustainable and resilient future.

## **Corporate Social Responsibility: A Catalyst for Sustainable Infrastructure in India**

Corporate Social Responsibility (CSR) is recognized as crucial for promoting sustainable infrastructure development. CSR initiatives prioritize the creation of shared value for both society and shareholders, with a strong emphasis on environmental sustainability. This focus on sustainability significantly contributes to the development of sustainable infrastructure in India.

One way CSR initiatives contribute to sustainable infrastructure is through the development of green buildings. Several companies are driven to invest in eco-friendly building designs and technologies that reduce energy consumption. Sustainable materials are being utilized, and initiatives are undertaken to promote healthy indoor environments. These advancements in building practices not only minimize environmental impact but also provide employees with improved working conditions. Another area where CSR initiatives contribute to sustainable infrastructure development is by promoting sustainable transportation options. Investments are being made in infrastructure for electric vehicles, with initiatives to promote public transit use and carpooling among employees. These initiatives collectively help reduce carbon emissions and contribute to the development of sustainable mobility solutions.

Furthermore, CSR initiatives can support the development of sustainable water and waste management systems. Companies are actively involved in investing in technologies that recycle and reuse water, minimize waste generation, and promote circular economy practices. These advancements benefit the environment and contribute to cost savings and operational efficiency for the companies involved. CSR plays a crucial role in promoting sustainable infrastructure development in India. By integrating CSR principles into their business strategies, companies can significantly contribute to environmental sustainability, social well-being, and economic growth. This multifaceted approach paves the way for a more sustainable future.

## **The Synergy Between CSR and Infrastructure: A Pathway to Sustainable Development**

The intersection of Corporate Social Responsibility (CSR) and infrastructure development is identified as a crucial area where companies can make significant contributions to sustainable development. CSR encompasses the voluntary actions businesses undertake to address social, environmental, and economic issues beyond legal requirements. Infrastructure development, on the other hand, is considered essential for economic growth and improving the quality of life for citizens. One way CSR and infrastructure development converge is through the funding and implementation of infrastructure projects that benefit communities. Companies are empowered to utilize their CSR funds to support the construction of schools, hospitals, roads, and other essential infrastructure that contributes to community development. By investing in infrastructure, companies can improve the quality of life for people living in the surrounding areas, enhance access to essential services, and promote economic development.

Another point of convergence between CSR and infrastructure development lies in sustainable infrastructure initiatives. Companies can actively support the development of environmentally friendly infrastructure and promote sustainability. This can include investments in renewable energy projects, the promotion of green building practices, and support for sustainable transportation initiatives. By investing in sustainable infrastructure, companies can reduce their environmental impact and contribute to a more sustainable future. Overall, the intersection of CSR and infrastructure development presents companies with an opportunity to make a positive impact on society and the environment. By strategically aligning their CSR initiatives with infrastructure development goals, companies can contribute to sustainable development and create long-term value for their stakeholders. This synergy fosters a pathway towards a more sustainable future for all.

### **Case Studies: The Power of CSR in Sustainable Infrastructure**

Numerous examples showcase the positive influence that Corporate Social Responsibility (CSR) initiatives can exert on sustainable infrastructure development. Two such examples are explored here, highlighting the efforts of the Tata Group and the Mahindra Group in India. The Tata Group boasts a long-standing tradition of supporting community development through its CSR programs. A noteworthy initiative is the Tata Power Community Development Trust, dedicated to enhancing the quality of life for communities residing near Tata Power facilities. The Trust has overseen the implementation of various infrastructure projects, including the construction of schools, hospitals, and roads, leading to significant benefits for surrounding communities (Tata Power, 2023).

The Mahindra Group's CSR initiatives in sustainable agriculture provide another compelling example. They have implemented several projects designed to promote sustainable agricultural practices and improve access to rural infrastructure for farmers. One such initiative is the Mahindra Agribusiness Development Program, which provides training and support to farmers, empowering them to adopt sustainable agricultural practices. Through these initiatives, the Mahindra Group has demonstrably improved farmers' livelihoods while promoting sustainable agriculture and environmental conservation (Mahindra & Mahindra, 2016).

These case studies serve to illuminate the positive impact that CSR initiatives can have on sustainable infrastructure development. By investing in infrastructure projects that benefit communities and promote sustainability, companies can contribute meaningfully to sustainable development and create lasting positive change. Their actions establish a model for responsible corporate practices, paving the way for a more sustainable future.

## **II. Promotion of Green Technology under the Companies Act 2013.**

The Companies Act of 2013 in India introduced a mandatory provision for certain companies to allocate a portion of their profits towards Corporate Social Responsibility (CSR) activities (Government of India, 2013). This requirement has opened doors for companies to focus their CSR efforts on promoting green technology, a category encompassing environmentally friendly technologies that contribute to sustainability goals. The Act empowers companies to utilize their CSR initiatives to support the development and adoption of green technology. This support can encompass investments in research and development of innovative green technologies, the promotion of renewable energy sources, and initiatives that reduce carbon emissions. By actively promoting green technology, companies can not only lessen their environmental impact but also contribute to the establishment of a more sustainable Indian economy.

## **III. The Rise of Green Technology in Indian Industries**

Green technology has recently gained significant momentum in India, fueled by a confluence of factors. Regulatory requirements, evolving Corporate Social Responsibility (CSR) initiatives, and a growing market demand are all playing a role in this upsurge. Green technologies, by definition, are environmentally friendly and promote sustainability goals. The sector encompasses a diverse range of technologies, including renewable energy, energy efficiency solutions, waste management systems, and water conservation practices. The escalating climate change and environmental degradation crises have prompted many companies to prioritize sustainability and minimize their ecological footprint. This has led to a shift towards the adoption of more eco-friendly and sustainable practices. Green technology is emerging as a preferred solution due to its ability to provide environmentally friendly alternatives that outperform traditional technologies.

The adoption of green technology in Indian industries offers a compelling combination of environmental and economic benefits. Many green technologies prove to be more cost-effective and energy-efficient in the long run, translating to significant savings on energy bills and operational costs. Additionally, companies that embrace green technology can enhance their public image, attracting environmentally conscious consumers and investors. The overall growth in green technology adoption within Indian industries is a promising trend with strong indications of continued momentum. As companies strive for greater sustainability and reduced environmental impact, green technology is poised to significantly drive innovation and competitiveness within the sector. This focus on environmental responsibility paves the way for a more sustainable future for Indian industries.

## **The Significance of Green Technology on Sustainable Development Goals (SDGs)**

The potential of green technology to significantly impact the achievement of the Sustainable Development Goals (SDGs) in India is undeniable. Established in 2015, the SDGs are a collection of 17 global objectives adopted by the United Nations that aim to address critical issues like poverty, hunger, health, education, and, most importantly, environmental sustainability. Green technology can play a pivotal role in advancing sustainable development through its focus on renewable energy sources, reduced carbon emissions, and enhanced energy efficiency. The adoption of green technology in India holds significant promise for contributing to several SDGs. This includes poverty reduction and the promotion of decent work and economic growth through the creation of new job opportunities in the green sector. Overall, green technology serves as a critical driver for achieving SDGs in India by promoting sustainable development, fostering improved quality of life for citizens, and minimizing environmental impact. This multifaceted approach paves the way for a more sustainable future for India.

## **IV. Public-Private Partnerships: A Pathway for Green Infrastructure in India**

Public-Private Partnerships (PPPs) have emerged as a significant force in infrastructure development within India. These partnerships involve collaborations between private companies and government agencies, with the private sector providing financing and expertise for building, financing, and operating infrastructure projects. PPPs offer a valuable platform for the private sector to contribute resources and expertise in addressing infrastructure gaps and promoting sustainable development goals. PPPs can play a critical role in fostering the deployment and development of green technologies in infrastructure projects. Through partnerships with private companies, governments gain access to innovative green technologies and expertise that may not be readily available within the public sector. Furthermore, PPPs can help overcome financial barriers to green technology adoption by leveraging private sector investment. By integrating green technology considerations from the planning stage onwards, PPPs can ensure the long-term sustainability of infrastructure projects.

By merging green technology into infrastructure projects, PPPs can deliver a multitude of benefits. Energy efficiency is improved, environmental impact is reduced, and sustainable development is fostered. Overall, infrastructure development PPPs offer a promising avenue for accelerating the adoption of green technology in India. By facilitating collaboration between the public and private sectors, PPPs can drive innovation, promote sustainability, and contribute to achieving the SDGs. This partnership model leverages the strengths of both sectors – the public sector providing regulatory oversight and public funding, while the private sector brings expertise, innovation, and financing. Additionally, PPPs can enhance the efficiency and quality of infrastructure projects by leveraging the private sector's innovative ideas, technologies, and management practices that can lead to more efficient project delivery and operation.

Furthermore, PPPs can transfer risk from the public sector to the private sector, leading to better risk management and project outcomes. In conclusion, PPPs are essential for infrastructure development in India, as they increase investment, improve project efficiency, and transfer risk, ultimately leading to better infrastructure outcomes with a focus on environmental sustainability.

## **V. Environmental Regulations: A Catalyst for Sustainable Infrastructure Innovation**

Environmental regulations play an integral role in driving innovation in infrastructure development. These regulations establish standards for environmental performance, and companies are encouraged to adopt innovative technologies and practices to meet these standards. By setting clear and enforceable regulations, governments can create an environment conducive to innovation in environmental compliance. This focus on compliance fosters the development of new technologies and practices that contribute to achieving sustainable development goals. Companies can achieve compliance with environmental regulations through the adoption of innovative technologies and practices that utilize renewable energy sources and enhance energy efficiency. This focus on sustainability advancements is a critical outcome of effective environmental regulations.

Overall, environmental regulations play a crucial role in driving innovation in infrastructure development. By setting standards and offering incentives for innovation, governments can encourage companies to adopt sustainable practices that contribute to achieving broader sustainable development goals. Regulatory pressure, in this context, serves as a catalyst for innovation in environmentally friendly products and technologies. Companies that comply with regulations can gain a competitive edge by offering services and products that meet regulatory requirements. Conversely, companies that fail to comply face penalties and sanctions, motivating them to develop innovative solutions to meet the requirements. This focus on regulatory compliance fosters the development of new practices and technologies to improve sustainability and environmental processes.

Environmental regulations are crucial in influencing industry innovation by creating market demand for sustainable technologies and practices. Regulations apply pressure on companies to meet environmental standards, leading to the development of new solutions in the clean technology sector. This focus on environmental responsibility paves the way for a more sustainable future for infrastructure development.

## **VI. Striking a Balance: Regulatory Compliance, Innovation, and Sustainable Development**

Achieving sustainable development necessitates a delicate balance between regulatory compliance, innovation, and long-term environmental well-being. Regulations serve a vital function in ensuring environmental protection and public health. Policymakers can incentivize innovation through various regulatory mechanisms, such as tax breaks, grants, and subsidies. Companies are then empowered to develop and adopt sustainable solutions that fulfill both regulatory requirements and their own business objectives. Striking a balance between regulatory compliance and innovation is paramount for sustainable development. Flexible regulatory approaches, coupled with incentives for innovation, can encourage companies to develop and adopt sustainable technologies and practices. This fosters environmental protection, promotes economic growth, and paves the way for a more sustainable future.

## **VII. Infrastructure: The Bedrock of Innovation and Sustainable Development**

The development of new ideas and technologies is heavily influenced by the underlying infrastructure, which serves as a critical foundation – both physical and technological. Infrastructure encompasses an extensive network of elements, including transportation networks, communication systems, and building and energy grids. Innovation is fostered by providing access to essential resources and services. Reliable and efficient transportation networks are a prime example. These networks facilitate the movement of goods and people, thereby promoting trade, commerce, and the crucial exchange of knowledge.

The internet and telecommunication networks play a vital role by connecting people and businesses. This fosters collaboration and information sharing, both essential elements for innovation. Furthermore, infrastructure plays a critical role in promoting the development and adoption of new technologies. For instance, robust energy infrastructure is essential for deploying renewable energy technologies such as wind turbines and solar panels. This infrastructure provides the necessary framework for energy generation, transmission, and distribution. By investing in infrastructure development, policymakers can create an environment that actively supports innovation and promotes sustainable development. This investment fosters a foundation for a future where economic growth and environmental responsibility go hand in hand.

## VIII. Conclusion

This paper examined the crucial role of Indian companies in driving sustainable industrialization. The analysis focused on three key areas: innovation in environmental compliance, Corporate Social Responsibility (CSR) initiatives, and the adoption of green technology. Innovation in environmental compliance emerged as a critical factor for companies to minimize their environmental impact and comply with regulations. Companies are adopting innovative technologies and practices to reduce their ecological footprint, such as utilizing renewable energy sources and implementing waste management systems. CSR initiatives play a significant role in promoting sustainable infrastructure development. Companies are integrating environmental sustainability into their CSR strategies by investing in green buildings, sustainable transportation options, and responsible waste management practices.

The promotion of green technology under the Companies Act 2013 has further spurred sustainable practices. Companies are allocating a portion of their profits towards developing and adopting green technologies, such as renewable energy and energy-efficient solutions. This not only benefits the environment but also leads to cost savings and a positive brand image for companies. The paper also explored the importance of Public-Private Partnerships (PPPs) in infrastructure development. PPPs leverage the strengths of both public and private sectors, facilitating the deployment of green technologies in infrastructure projects. This approach fosters innovation, promotes sustainability, and contributes to achieving the Sustainable Development Goals (SDGs). Finally, the paper discussed the role of environmental regulations in driving innovation. Regulations set standards for environmental protection, encouraging companies to adopt innovative technologies and practices to meet compliance requirements. This regulatory pressure ultimately leads to the development of new solutions that contribute to achieving sustainable development goals. In conclusion, Indian companies are playing a transformative role in driving sustainable industrialization through innovation, CSR initiatives, and green technology adoption. By balancing regulatory compliance with innovation, India can continue to achieve economic growth in a sustainable and environmentally friendly manner.

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# **‘THE RIGHT TO EDUCATION’, ‘THE RIGHT TO HEALTH’ AND ‘THE RIGHT TO BE HEARD’: THE INTERMINGLED LULLABY OF ‘THE GOOD, BAD AND THE UGLY’ IN THE DREAM OF A SUSTAINABLE WORLD.**

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## **Synopsis**

Abstract

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2. “The Global Scriptures”: Key International Legal Instruments to recognize and ensure ‘Right to Education’
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## Abstract

*“Education is the special manifestation of man; Education is the treasure which can be preserved without the fear of loss; Education secures material pleasure, happiness and fame; Education is the teacher of the teacher; Education is God incarnate; Education secures honour at the hands of the State, not money; A man without education is equal to animal”*

Education is the most important element for development and progress of human society and civilisation. In the annals of human civilisation, it has been proved time and again that societies which gave priority to education, progressed, flourished, and inscribed their names in golden words. Unfortunately, in The Constitution of India, ‘Right to Education’ wasn’t there in its present form since the beginning; rather it was incorporated in Article 45 of DPSP as ‘Free and Compulsory Education’. It was only after the Supreme Court Judgements in the cases of ‘Mohini Jain v. State of Karnataka (1992)’ and ‘Unnikrishnan JP v. State of Andhra Pradesh (1993)’, that education was seen as ‘essence of right to life’ which ‘flows from Article 21’ and finally in the 86th amendment of Constitution of India [2002], ‘Right to Education’ was inserted in Article 21A. Later on, ‘Right of Children to Free and Compulsory Education Act’ was enacted in 2009 in line with the Article 21A. More than a decade has passed since then yet there are a lot of loopholes in the system to realise the dream of an educated India that was seen by the writers of the Constitution. When we talk of an enlightened mind, how can health be forgotten, as it is said ‘Mens sana in corpore sano’. ‘Right to health’ of a child is ensured by Article 21 of Constitution linked with ‘Right to life’. While ‘Right to Education’ and ‘Right to Health’ has been debated for long, it was only recently that ‘Right to be Heard’ came into limelight after the ‘UN Committee on Rights of the Child’ stated that ‘Children should be included in the decision-making processes.’ In the arena of 21st Century, it would be naive to see all these three rights as separate entities, but somewhere down the line they would be found intertwined as notes to a symphony, where if one note gets missed, the entire harmony collapses. This doctrinal study is an attempt to tread through each of the threads of the fabric that covers the body of the child securing the soul of the nation in the hope of a healthy, educated and decisive future.

## Introduction

*“Education is the passport to the future, for tomorrow belongs to those who prepare for it today.”*  
 [ - Malcolm X ]



Around 84 million children and youth will still be out of school by 2030 with around 300 million students lacking basic numeracy and literacy skills and hardly 1 in 6 countries will achieve universal secondary school completion target if present trend continues. The COVID-19 Pandemic caused learning losses in 80% countries and there is still huge financial gap in low-income countries to achieve targets of universal elementary education.

**Fig 1: SDG 4 -Quality education**

It is not about picking the pinholes in the fabric that wraps round the morale of a society keeping it dignified in the eyes of the world, but it's about searching those snags and weak spots where the threads got weakened, loosening the knots that bind the future of our children. A stitch in time saves nine; if timely intervention is not undertaken, then our SDG 4 – Education 2030 Goals will remain an unachievable dream instead of a much-needed reality. This doctrinal research is an attempt to narrate the legal tapestry woven by threads of global conventions and national instruments to recognize the 'right to education' with patterned motifs of 'Right to health' and 'Right to be heard' knotted together realizing their intertwined roots for the sustainable development of the nation and the world at large.

## **1. What is the Need to Legalize 'Right to Education'?**

*"He who opens a school door, closes a prison."*

*[– Victor Hugo]*

UNESCO data of 2022 shows 244 million children and youth around the globe are still deprived of education.[1] Even after all the efforts, compulsory education for 9 years onwards is not ensured by more than 30% countries of the world. 771 million young adults still lack basic literacy skills[2], of which two thirds are unsurprisingly women. This huge gap between wishful effort and effect on ground clearly shows that there is need for strict laws to ensure that wish converts into effect.

**Alleviate poverty:** Education is one of the ways to alleviate poverty for marginalized section and a way to bring them in the mainstream for social involvement and inclusive development.

**Sustainable Development:** Education is the cornerstone to achieve sustainable development goals.

**Ensuring access to education:** Codified law is a step towards achieving and ensuring access to education for the deprived section of society.

**Justiciable Right:** Legalizing the right will also ensure a suit to be instituted in case of violation of the right.

## **2. "The Global Scriptures": Key International Legal Instruments to recognize and ensure 'Right to Education'**

*"Education in the most powerful weapon which you can use to change the world."*

*[– Nelson Mandela]*

‘Right to Education’ of which Article 26 of ‘Universal Declaration of Human Rights (UDHR)’ (1948) and ‘Convention against discrimination in education (CADE)’ (1960) are the flag bearers. CADE has been ratified by 110 states and acts as the base upon which ‘SDG 4’ and ‘Education 2030’ Agenda has been developed.

### **A.) ‘Universal Declaration of Human Rights’, 1948 (UDHR):**

Adopted in 1948, UDHR was a landmark document recognising the ‘Right to Education’ in its Article no. 26 which goes as the following:

#### **UDHR Article 26:**

“1) Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.

2) Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.

(3) Parents have a prior right to choose the kind of education that shall be given to their children.”

Article 26 had worked as the initiator of the ‘right to education’ movement which led to incorporation of right to education throughout the world in various national laws, regional treaties and international instruments.

### **B.) ‘The Convention against Discrimination in Education’, 1960 (CADE):**

If there was any international convention for the first time dedicated entirely for ‘Right to education’, it was undoubtedly the CADE of 1960 by UNESCO. It gave a clarion call for equivalency of education among all groups in all institutions eliminating discrimination.

Articles in CADE critical to right to education for all are the following-

- **Discrimination:** It is defined in Art.1 and 2 as –

‘Any distinction, exclusion, limitation or preference which, being based on race, colour, sex, language, religion, political or other opinion, national or social origin, economic condition or birth, has the purpose or effect of nullifying or impairing equality of treatment in education.’

- How to prevent discrimination? : It is elaborated in Article 3 as follows -

“(a) To abrogate any statutory provisions and any administrative instructions and to discontinue any administrative practices which involve discrimination in education.

(b) To ensure, by legislation where necessary, that there is no discrimination in the admission of pupils to educational institutions.

(c) Not to allow any differences of treatment by the public authorities between nationals, except on the basis of merit or need, in the matter of school fees and the grant of scholarships or other forms of assistance to pupils and necessary permits and facilities for the pursuit of studies in foreign countries.

(d) Not to allow, in any form of assistance granted by the public authorities to educational institutions, any restrictions or preference based solely on the ground that pupils belong to a particular group.

(e) To give foreign nationals resident within their territory the same access to education as that given to their own nationals”.

- **State Obligations to implement ‘Right to Education’ without discrimination:** It is described in Articles 4 and 5.

### **C.) ‘The International Covenant on Economic, Social and Cultural Rights’, 1966 (ICESCR):**

In International Law, the scope of ‘Right to Education’ has nowhere been better described than the Art. 13 of ICESCR, which goes as below:

#### **Article 13:**

“1. The States Parties to the present Covenant recognize the right of everyone to education. They agree that education shall be directed to the full development of the human personality and the sense of its dignity and shall strengthen the respect for human rights and fundamental freedoms.

2. The States Parties to the present Covenant recognize that, with a view to achieving the full realization of this right:

(a) Primary education shall be compulsory and available free to all.

(b) Secondary education in its different forms, including technical and vocational secondary education, shall be made generally available and accessible to all by every appropriate means, and in particular by the progressive introduction of free education.

(c) Higher education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by the progressive introduction of free education.

(d) Fundamental education shall be encouraged or intensified as far as possible for those persons who have not received or completed the whole period of their primary education.”

These provisions have been echoed by the ‘Committee on Economic, Social and Cultural Rights (CESCR)’ in the following general comments:

General Comment 13: “The Right to Education”.

General Comment 11: “Plans of Action for Primary Education.”

### **D.) ‘The Convention on the Rights of the Child’, 1989 (CRC):**

Education as a ‘legal right of children’ based on ‘equal opportunity’ has been recognized in Art. 28 of CRC and is similar to Art. 13 of ICESCR. The provisions are as follows -

Article 28 (1) (a): ‘free compulsory primary education for all.’

Article 28 (1) (b): ‘progressive free secondary education, including vocational and technical education, that should in any case be available and accessible to all.’

Article 28 (1) (c): ‘accessibility to higher education on the basis of capacity.’

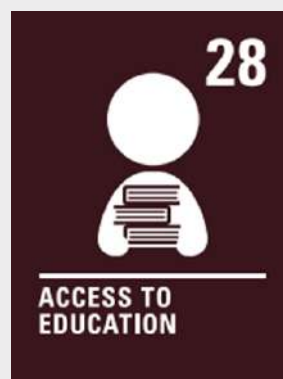
Article 28 (1) (d): ‘available and accessible educational and vocational information and guidance.’

Article 28 (1) (e): ‘an obligation on the state to take measures regarding school attendance and the reduction of drop-out rates.’

Article 28 (2): ‘the administering of school discipline shall be in conformity with the dignity of the child.’

Article 28 (3): ‘the encouragement of international cooperation in matters related to education, in particular, the elimination of ignorance and illiteracy and access to scientific and technical knowledge.’

Article 29: ‘aims of education, the liberty of parents to choose the kind of education they want to give to their children and the liberty to establish and direct educational institutions’.



**Fig 2: CRC Art.28-Access to Education**

### **E.) ‘The Convention on the Elimination of All Forms of Discrimination against Women’, 1979 (CEDAW):**

The most comprehensive chapter in International Law on girl child’s right to education is Article 10 of CEDAW and recognizes females right to be equal to a male’s right related to education.

### **F.) ‘The Convention on the Rights of Persons with Disabilities’, 2006 (CRPD):**

Right of ‘people with disabilities’ to education and ‘equal opportunity’ without discrimination has been realised in Article 24 of the CRPD.

‘Committee on the Rights of Persons with Disabilities’ have recognized Art. 24 in General Comment 4 as “Article 24: Right to inclusive education.”

### **G.) ‘The International Covenant on Civil and Political Rights’, 1966 (ICCPR):**

It recognizes ‘Freedom of Education’ in Art. 18 (4) and includes an ‘Autonomous non-discrimination clause’ in Art. 26.

### **H.) ‘The International Convention on the Elimination of All Forms of Racial Discrimination’, 1965 (ICERD):**

‘The right to education for all’ is ensured in Art. 5, without discrimination based on ‘race, colour or national or ethnic origin’. Obligation of State to take measures to eliminate racial discrimination in the field of teaching and education has been stated in Art. 7.

### **I.) ‘The International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families’, 1990 (ICRMW):**

Equal right of access to education for children of migrant workers as per other nationals of the state has been described in Articles 12 (4), 30, 43, and 45 of ICRMW.

### **J.) United Nations Declarations related to ‘Right to Education’:**

- The United Nations Declaration on Human Rights Education and Training (2011).
- The United Nations Declaration on the Rights of Indigenous Peoples (2007).
- The United Nations Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities (1992).

## **K.) UNESCO normative instruments related to ‘Right to Education’:**

- ‘Recommendation against Discrimination in Education’ (1960): similar to CADE.
- ‘The Convention on Technical and Vocational Education’ (1989): ‘right of equal access to technical and vocational education’.
- ‘ILO/UNESCO Recommendation concerning the Status of Teachers’ (1966)
- ‘Salamanca Statement and Framework for Action on Special Needs Education’ (1994)
- ‘Dakar Framework for Action – Education for All: Meeting our Collective Commitment’ (2000)
- ‘Declaration of Amsterdam’ (2004)
- ‘Jakarta Declaration’ (2005)
- ‘Recommendation concerning Technical and Vocational Education and Training’ (TVET) (2015)
- ‘Incheon Declaration and Education 2030 Framework for Action’ (2015)

## **L.) SDG 4 - Education 2030:**

‘Sustainable Development Goal 4’ sets an ambitious goal of ‘Quality Education’ with an aim to ‘Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all’ by 2030. Considering education as key to prosperity and the driver of a progressive and healthy society, it speaks of 10 targets to ‘create action to ensure quality education’. The 10 targets are:

Target 4.1 – Free Primary and Secondary Education.

Target 4.2 – Equal access to Quality Pre-Primary Education.

Target 4.3 – Equal access to Affordable Technical, Vocational and Higher Education.

Target 4.4 – Increase the number of people with Relevant Skills for Financial Success.

Target 4.5 - Eliminate all Discrimination in Education.

Target 4.6 – Universal Literacy and Numeracy.

Target 4.7 – Education for Sustainable Development and Global Citizenship.

Target 4.8 – Build and Upgrade Inclusive and Safe Schools.

Target 4.9 – Expand Higher Education Scholarships for Developing Countries.

Target 4.A – Increase the supply of qualified teachers in Developing Countries.

Through a ‘Rights-based Approach’, the agenda captures the multidimensional nature of the right to education. ‘Sustainable Development Goals’ are not legally binding for member States,

but it elaborates the ‘multidimensional nature of the right to education’ and pushes states to take necessary steps to implement the ‘SDG 4-Education 2030 agenda’.

### **3. “The Controlling Core”: Implementation, Observance and Feedback Mechanisms for realization of the Global Conventions and Treaties**

*“The Controlling Core”: Implementation, Observance and Feedback Mechanisms for realization of the Global Conventions and Treaties*

#### **Role of UN Special Rapporteur on the right to education:**

The ‘Mandate of the Special Rapporteur’ on the ‘Right to education’ was created in 1998.

Its role is:

- to ‘gather, request, receive and exchange information’ from all relevant sources.
- to ‘identify progress and obstacles to this right.’
- Based on information gathered, to ‘formulate recommendations to protect the right to education for everyone on a basis of equality and without discrimination’.
- After being included in a nation’s law, ‘states must ensure its justiciability.’

To “advance the ideal of equality of educational opportunities without regard to race, sex or any distinctions, economic or social”, UNESCO from time to time releases a ‘Consultation on the Convention and Recommendation against Discrimination in Education.’ In February 2024, the 11th consultation is released.

#### **Role of UN Special Rapporteur on the right to education:**

UNESCO develops and propagates various guidelines for promotion of right to education. It provides technical assistance to member states to develop and implement laws regarding this. It keeps an eye over the legal instruments of the countries to establish this right. it also helps to develop global partnerships to facilitate this right. The UNESCO partners regarding this matter are:

- Office of the UN High Commissioner for Human Rights.
- UN Human Rights Committees.
- Universal Periodic Review.
- UN Special Rapporteur on the Right to Education.
- International Labour Organization.
- Different NGOs.

## Following are few Diagrams representing ‘2023 Report on SDG 4’:

### Primary and secondary school completion is rising, but the pace is far too slow and uneven

Between 2015 and 2021, worldwide primary school completion increased from 85 to 87 per cent, lower secondary completion rose from 74 to 77 per cent and upper secondary completion grew from 53 to 58 per cent. However, the pace of improvement was significantly slower than the 2000–2015 period. Most regions have primary completion rates of nearly 90 per cent or higher, except sub-Saharan Africa, where fewer than two-thirds of children complete primary school. In impoverished regions, poor learning outcomes lead to high drop-out rates and delayed completion. In sub-Saharan Africa, although 80 per cent of primary-aged children are enrolled in school, only 62 per cent graduate on time. Economic burdens, like expenses for books and uniforms, plus opportunity costs, also contribute to incomplete education.

Since 2019, UNESCO Member States have participated in a national Goal 4 benchmarking process to set national education targets. Despite the aspiration of universal secondary school completion, only one in six countries aims to achieve this goal by 2030 based on their national targets. Even if these targets are met, an estimated 84 million children and young people will still be out of school by 2030.

School completion rate, by level of education, 2015 and 2021 (percentage)

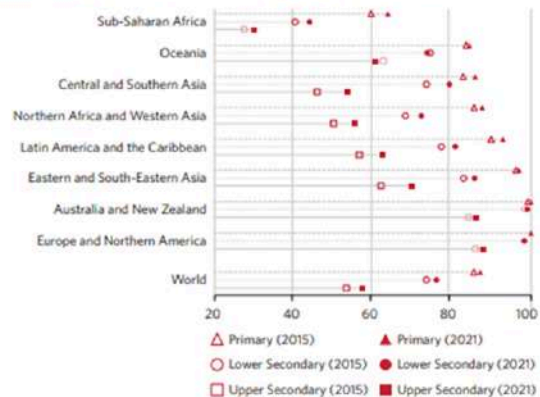
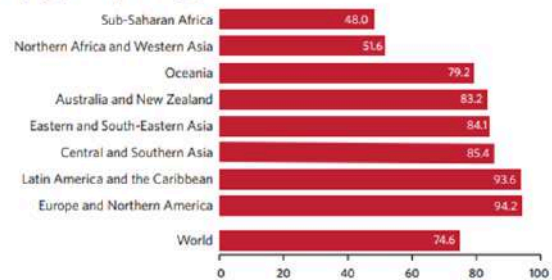


Fig. 3: 2023 Report on SDG 4 – School completion rate

### Access to early childhood education has expanded, but progress has slowed since 2015

Early schooling stimulates children’s readiness for school and improves their future learning experience. In 2020, three out of four children globally were enrolled in organized learning one year before the official primary entry age, with progress stagnating since 2015. The pandemic caused temporary dips in pre-primary education participation, with 30 out of 52 countries with data for 2021 or after witnessing declines. Only half of children were enrolled in organized learning one year before the official primary entry age in sub-Saharan Africa and in Northern Africa and Western Asia in 2020. The average attendance rate of early childhood education for children aged 36–59 months in 61 low- and middle-income countries was 37 per cent, with a 16-percentage-point gap between urban and rural areas and a 34-percentage-point gap between the richest and poorest quintiles. As of 2020, only half of the 187 countries and areas with data provided free pre-primary education, and almost three quarters of the 215 countries and areas with data did not make pre-primary education compulsory. Failure to eliminate school fees risks entrenching inequality. About 40 per cent of countries have not achieved gender parity.

Participation rate in organized learning (one year before the official primary entry age), 2020 (percentage)



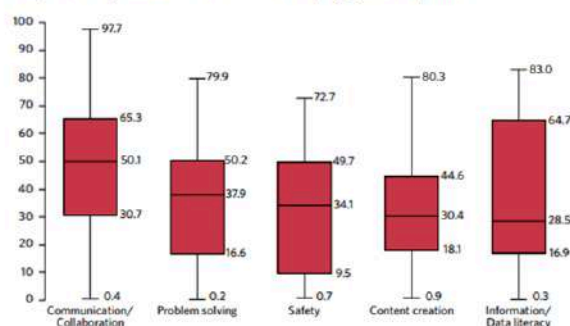
Note: "Eastern and South-Eastern Asia" data are from 2019.

Fig. 4: 2023 Report on SDG 4 – Participation rate in organised learning

### Low digital skills hamper progress towards universal and meaningful connectivity

Low levels of information and communications technology (ICT) skills are a major barrier to achieving universal and meaningful connectivity. Data on digital skills are limited, only available in 78 countries and rarely for all five categories of skills (communication/collaboration; problem-solving; safety; content creation; and information/data literacy). While 86 per cent of individuals use the Internet in countries providing data, many lack the required digital skills to be able to fully benefit from it or avoid its dangers. Communication/collaboration skills are the most prevalent, followed by problem-solving, safety and content creation. Information/data literacy varies widely between countries. Among 74 countries that provided data on at least three skills areas, only five reported averages of over 75 per cent in multiple areas.

Proportion of youth and adults with ICT skills, by type of skill, 2019–2021



Note: The bars indicate the 25th, median and 75th percentile of all country values. The bottom and top lines indicate the minimum and maximum values (excluding outliers).

Fig.5: 2023 Report on SDG 4 – proportion of youth and adults with ICT Skills.

**4** QUALITY EDUCATION

**ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL**

**DESPITE SLOW PROGRESS,**

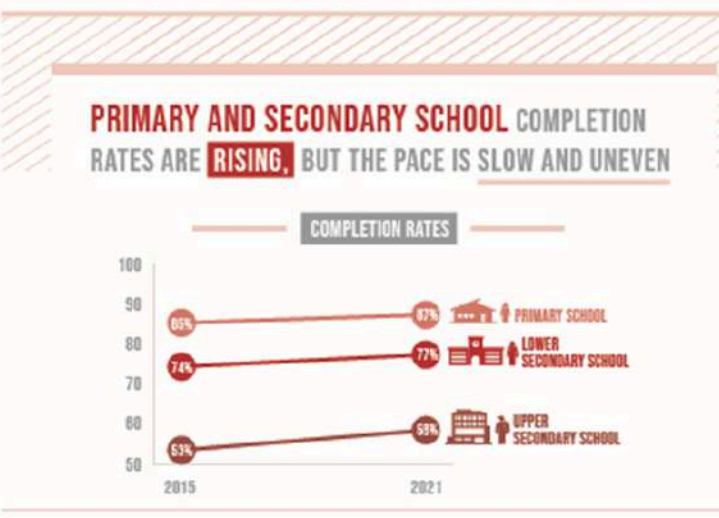
## THE WORLD IS FALLING FAR BEHIND IN ACHIEVING QUALITY EDUCATION

WITHOUT ADDITIONAL MEASURES, BY 2030:

<p><b>84 MILLION</b> CHILDREN AND YOUTH WILL BE OUT OF SCHOOL</p>	<p><b>300 MILLION</b> STUDENTS WILL LACK BASIC NUMERACY/LITERACY SKILLS</p>	<p><b>ONLY 1 IN 6</b> COUNTRIES WILL ACHIEVE UNIVERSAL SECONDARY SCHOOL COMPLETION TARGET</p>
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**THE PANDEMIC**

**CAUSED LEARNING LOSSES IN 4 IN 5 OF 104 COUNTRIES STUDIED**



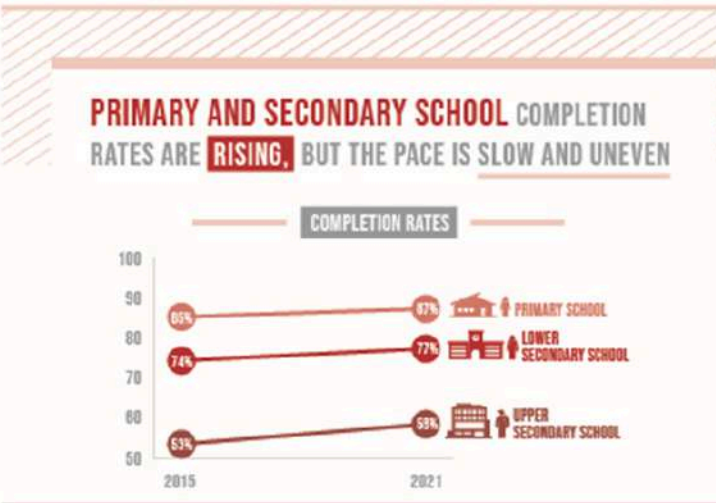
**LOW- AND LOWER-MIDDLE-INCOME COUNTRIES FACE A NEARLY \$100 BILLION ANNUAL FINANCING GAP TO REACH THEIR EDUCATION TARGETS**

THE SUSTAINABLE DEVELOPMENT GOALS REPORT 2023: SPECIAL EDITION- [UNSTATS.UN.ORG/SDGS/REPORT/2023/](https://unstats.un.org/sdgs/report/2023/)

Fig. 6: 2023 Report on SDG 4

**4** QUALITY EDUCATION

**ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL**



THE SUSTAINABLE DEVELOPMENT GOALS REPORT 2023: SPECIAL EDITION- UNSTATS.UN.ORG/SDGS/REPORT/2023/

Fig. 6: 2023 Report on SDG 4

#### 4. “The Indian Chronology”: Origin of a Post Colonial Saga

*“Education is simply the soul of a society as it passes from one generation to another.”*

*[– Gilbert K. Chesterton]*

The path to present day ‘Right to education’ wasn’t a smooth and straight one for a post-colonial India, but one with numerous turns giving a bumpy ride guided by hoardings of landmark judgements throughout the journey. When the constitution was formed, ‘Education for All’ seemed too costly for the government treasury to afford and too difficult for the system to implement, and that’s why instead of implementing it as a fundamental right, it was put under the ‘Directive Principles of State Policy’ (DPSP) to flourish with need of time and consensus of people. This initiation of this journey can be seen in light of the Article 41, 45 and 46 of DPSP which spoke of “free and compulsory education for all children until they complete the age of fourteen years within a period of ten years from the commencement of this Constitution” (Article 45), “effective provisions to secure right to education” (Article 41) and “Promotion of educational and economic interests of Scheduled Castes, Scheduled Tribes and other weaker sections” (Article 46). Unfortunately, none of them got realised in a decade and it was going to be a journey to be dragged for many decades in search of the destination.

#### 5. “The Indian Chronology”: Constitutional Contemplations (Part 1)

*“The philosophy of the school room in one generation will be the philosophy of government in the next.”*

*[– Abraham Lincoln]*

‘Indian Education Commission’ under leadership of D.S. Kothari placed the ‘National Education Policy’ in 1968 and gave multiple suggestions including compulsory education between 6 to 14 years of age, education in regional languages etc. ‘National Policy on Education’ was developed in 1986 showing path to implement Art. 29, 30 and 350A to safeguard the minorities and marginalised sections, along with recognising non-formal, vocational, and technical education to ensure equality and social justice. In light of the Article 45 of DPSP, ‘Ramamurti Committee’ presented its report in 1990 to be immortalised as the ‘1st official document on RTE’. Then came two landmark judgements which brought decisive hues in the horizon of Education System:

#### ‘Mohini Jain v. State of Karnataka’, 1992 (SC):

- Court held, “The right to life under Article 21 and the dignity of an individual cannot be assured unless it is accompanied by the right to education. The State Government is under an obligation to make endeavour to provide educational facilities at all levels to its citizens...”
- “Charging capitation fee in consideration of admission to educational institutions, is a patent

denial of a citizen's right to education under the Constitution...”

- No particular age was mentioned for free education.

### **‘Unni Krishnan, J.P. v. State of Andhra Pradesh’, 1993 (SC):**

- Court held, “Right to education is not expressly mentioned as a fundamental right but it is implicit and flows from the right to life guaranteed under Art.21.”
- Every child of this country has the right to ‘free and compulsory’ education till the age of 14years.
- Education cannot be treated as a trade or business.
- Restrictions were laid down regarding fees charged by the Private institutes.

Subsequently in the case of ‘Bandhuwa Mukti Morcha vs. Union of India and others (1997)’, it was held that it is the duty of state to provide education to the children working in different industries.

As a consequence of all these events ‘Tapas Majumdar Committee’ was set up in 1999 to insert Art. 21A in the constitution to make space for ‘Right to Education’ as a fundamental right. Finally in 2002 by 86th amendment of Indian constitution, Article 21A was inserted to ensure ‘right to education’. Article 51A (k) ‘Fundamental Duties’ was added speaking of parent’s duty to provide education to children between 6-14 years. To realise the words stated in Article 21A, ‘Right of children to free and compulsory Education act 2009’ was formed, which came into force in April 2010.

### **Essentials of ‘Right of children to free and compulsory Education act 2009’:**

Few of the important points are as follows-

- a) ‘Right to Free and Compulsory Education’: Free and compulsory education to be provided to all the children between 6-14 years of age without any fees.
- b) No Capitation fees and Screening procedures for admission: Admission is to be done without any Screening test or capitation fees.
- c) ‘Neighbourhood Schools’: Adequate neighbourhood schools to be established so that children can access to school easily within their locality.
- d) ‘Reservations in Private School’: If Government or aided schools are not available locally then children may get admitted to private schools and for that purpose private schools will have 25% reservation for disadvantaged section of society.
- e) ‘No Discrimination’: All children should have equal access to education without any discrimination.
- f) ‘Special provisions for children not admitted to Elementary Education’: these children are to be admitted in the class suitable for their age.

- g) 'Right of transfer to other school': The children will have the right to seek transfer to other schools.
- h) 'Quality Education': Quality of education is to be ensured.
- i) 'School Infrastructure development': The schools should fulfil basic infrastructure requirements regarding classrooms, library, playground, sanitation etc.
- j) 'Teacher Training': Teachers should have specified qualification and need to be trained properly in required skills.
- k) 'Pre-school Education': Free pre-school education from 3-6 years to prepare for elementary education.
- l) 'No denial of Admission': No child shall be denied admission if age proof not present or if seeking admission after commencement of academic year if he can complete his studies as per government guidelines.
- m) 'No Holding back or Expulsion': No student can be held back in the same class for more than a year and in no condition can be expelled from the school till completion of elementary education.
- n) 'No Physical punishment or Mental harassment': Any kind of physical punishment or mental harassment of children are totally prohibited.
- o) 'Pupil teacher ratio': Proper pupil: teacher ratio is to be maintained.
- p) 'Filling up of vacancies of teacher'.
- q) 'Prohibition of Private tuition'
- r) 'Prohibition of deployment of teachers for non-educational purposes'
- s) 'Community and Parental participation'
- t) 'Formation of School Management Committee'
- u) 'Formation of State Advisory Council'
- v) 'Formation of National Advisory Council'.

### **'Right of Children to Free and Compulsory Education (Amendment) Act', 2019**

- This amendment brought abolishment of the “no-detention” policy of schools.
- Whether to continue with the ‘no-detention policy’ or not was left to the states.
- Regular examination in classes V and VIII was returned. In case of failure to pass, the amendment gave provision for re-examination after 2 months of ‘remedial teaching’.
- If the student fails even after that, then state government would decide whether to detain them or not.

## 6. “Constitutional Contemplations (Part 2)”: Indian Constitutional provisions working as bulwark to promote Education as a ‘Right’

*“Constitution is not a mere lawyer’s document; it is a vehicle of life and its spirit is always the spirit of age.”*

*[- Dr. B. R. Ambedkar]*

- Article 45 [ DPSP: ‘Provision for early Childhood care and Education’] (After 86th Amendment):

“The State shall endeavour to provide early childhood care and education for all children until they complete the age of six years.”

- Article 21A [‘Right to education’]:

“The State shall provide free and compulsory education to all children of the age of six to fourteen years in such manner as the State may, by law, determine.”

- 51 A (k) [‘Fundamental Duties’]:

“It shall be the duty of every citizen of India who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.” (Added by 86th Amendment Act, 2002)

- Article 15. (5) and (6). (b) [‘Prohibition of Discrimination on grounds of religion, race, caste, sex, or place of birth’]:

(5) “...special provision, by law, for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes or the Scheduled Tribes in so far as such special provisions relate to their admission to educational institutions including private educational institutions, whether aided or unaided by the State, other than the minority educational institutions....”

(6). (b) “.... special provision for the advancement of any economically weaker sections of citizens .... relate to their admission to educational institutions including private educational institutions.... which in the case of reservation would be in addition to the existing reservations and subject to a maximum of ten per cent. of the total seats in each category.”

- Article 29(2) [‘Admission to Educational Institutes’]:

“No citizen shall be denied admission into any educational institution maintained by the State or receiving aid out of State funds on grounds only of religion, race, caste, language or any of them.”

- Article 46 [‘Promotion of educational and economic interests of Scheduled Castes, Scheduled Tribes and other weaker sections’]:

“The State shall promote with special care the educational and economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation.”

- Article 30 [‘Right of minorities to establish and administer educational institutions’]:

(1) “All minorities, whether based on religion or language, shall have the right to establish and administer educational institutions of their choice.”

(2) “The state shall not, in granting aid to educational institutions, discriminate against any educational institution on the ground that it is under the management of a minority, whether based on religion or language.”

- Article 337 [‘Special provision with respect to educational grants for the benefit of Anglo-Indian community’]:

“...No educational institution shall be entitled to receive any grant under this article unless at least forty per cent of annual admissions therein are made available to members of communities other than the Anglo-Indian community.”

- Article 41 [DPSP: ‘Right to work, to education and to public assistance in certain cases’]:

“The State shall, within the limits of its economic capacity and development, make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, and in other cases of undeserved want.”

## 7. Criticism: Where it went wrong?

*“Our Constitution fathers did not intend that we just set up hovels, put students there, give untrained teachers, give them bad textbooks, no playgrounds, and say, we have complied with Article 45 and primary education is expanding... They meant that real education should be given to our children between the ages of 6 and 14”.*

[ - MC Chagla, 1964 ]

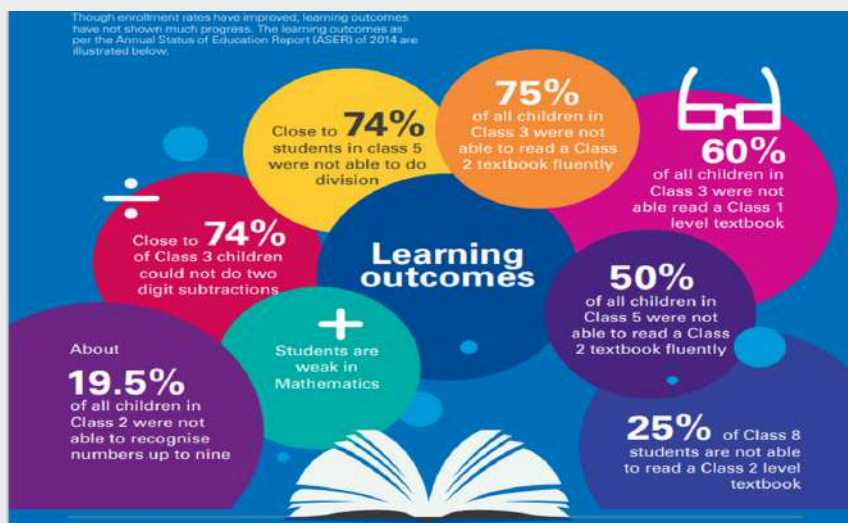


Fig. 7: KPMG - Assessing the impact of right to education act. (March 2016. KPMG.com)

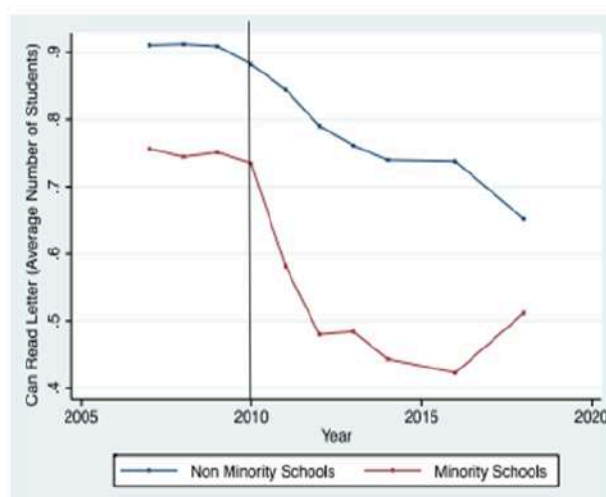
- **Admission-Attendance Disparity:** Only enrolment in the school doesn't confirm attendance of the student. Reason for absence in class is multifactorial in nature.
- **Bane of 'No Detention Policy':** Due to 'no detention policy', learning has decreased a lot among student, value of exams has not been realised by the makers of act.
- **Lack of Teachers:** Due to lack of teachers, large number of teaching posts are remaining vacant, leading to huge disparity in 'teacher: student ratio', leading to decreased interest in class for students and increasing student absenteeism.
- **Teacher Quality and training:** Deficiency of trained teachers with required skills is hampering achieve the desired learning goals for students.
- **Minority Institutes:** In many peripheral regions, minority institutes like madrasahs still rely upon religious based studies and lack mainstream modern education. There are visible differences in maths and language learning outcomes between minority and non-minority schools.
- **Pressurised Private schools:** 25% reservation of private seats for needy students has led to increased cost of education for rest of the 75% students.
- **Unmet targets for Marginalized groups:** School enrolment and attendance among the marginalized groups, the persons with disability, refugees and people below poverty level is still far less.
- **Language barrier:** In peripheral and remote areas language barrier still persists for elementary education.
- **Low digital penetration in rural and remote areas:** Digital penetration is uneven throughout the country leading to digital divide.
- **Gender disparity:** We have overcome the gender disparity in education but more needs to be done.
- **Inadequate funding and lack of Infrastructure:** Lack of funding and infrastructure is a barrier towards achieving the education goals.
- **Inadequate pre-primary facilities:** There is visible lack in the pre-primary phase between 3-6 years.

### Selected trained teacher indicators by education level, latest available year

Region	Trained teachers (%)		Pupil/teacher ratio	
	Primary	Secondary	Primary	Secondary
World	85	86	23	17
Sub-Saharan Africa	64	50	38	22
Northern Africa and Western Asia	86	85	20	15
Central Asia	97	95	21	9
Southern Asia	72	77	33	27
Eastern and South-eastern Asia	...	...	17	15
Latin America and the Caribbean	90	83	21	16
Oceania	...	...	21	...
Europe and Northern America	...	...	14	12
Low income	72	...	40	22
Lower middle income	76	78	29	22
Upper middle income	...	...	18	14
High income	...	...	14	13

Note: Ratios calculated on the basis of teacher headcounts.  
Source: UIS database.

Fig. 8: Trained teacher indicators by education level 2019 (prepared by the International Task Force on Teachers for Education 2030, the UNESCO Institute for Statistics and the Global Education Monitoring Report team. [www.uis.unesco.org](http://www.uis.unesco.org) )



Average number of students that can read at least letters in non minority and minority schools.

Fig. 9: comparison of minority and nonminority schools regarding literary skills (The Impact of the Right to Education Act on Enrolments and Test Scores in India: An Empirical Analysis. University of Rochester, May 4th, 2020).

### Steps to be taken:

- More teacher recruitment is needed to fill up the vacant posts and increase teacher: student ratio.
- Adequate training of teachers to develop required skills is needed.
- ‘Minority Religious Schools’ should be brought under the scope of RTE.
- Quality of education should be improved.
- Funding for education should be increased along with adequate infrastructure development.
- Better collaboration among concerned government departments needed for better monitoring and facilitation of the system to realise RTE.

### 8. ‘National Education Policy (NEP)’, 2020

National Education Policy suggested multiple changes in the Education system as follows:

- 5+3+3+4 School System: existing 10+2 School System to be replaced with the new (5+3+3+4) School System [‘12 years of school & 3 years of pre-school (or Anganwadi or Balvatika)’].
- Age group: The range of age group for the ‘Right to Education’ (RTE) is to be increased from 6-14years to 3-18 years.
- Curriculum: the curriculum is reduced to decrease undue pressure on the children
- Promote multilingualism: In NEP 2020, mother tongue is kept as the medium of instruction till 5th grade.
- Technology: Use of technology is to be increased to facilitate education.
- Outcome: ‘Multiple exit options’ for UG has been kept as per need of the children.
- The ‘National Education Policy 2020’ (NEP 2020) also stresses upon ‘access, affordability, equity, quality, accountability & universalisation of Early Childhood Care Education’ (ECCE).



Fig. 10

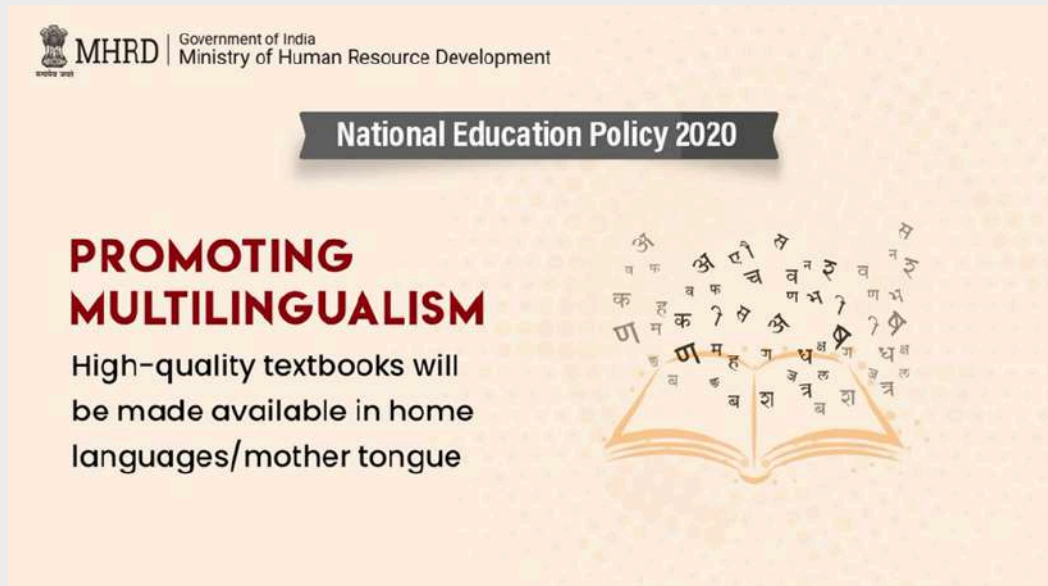


Fig. 11

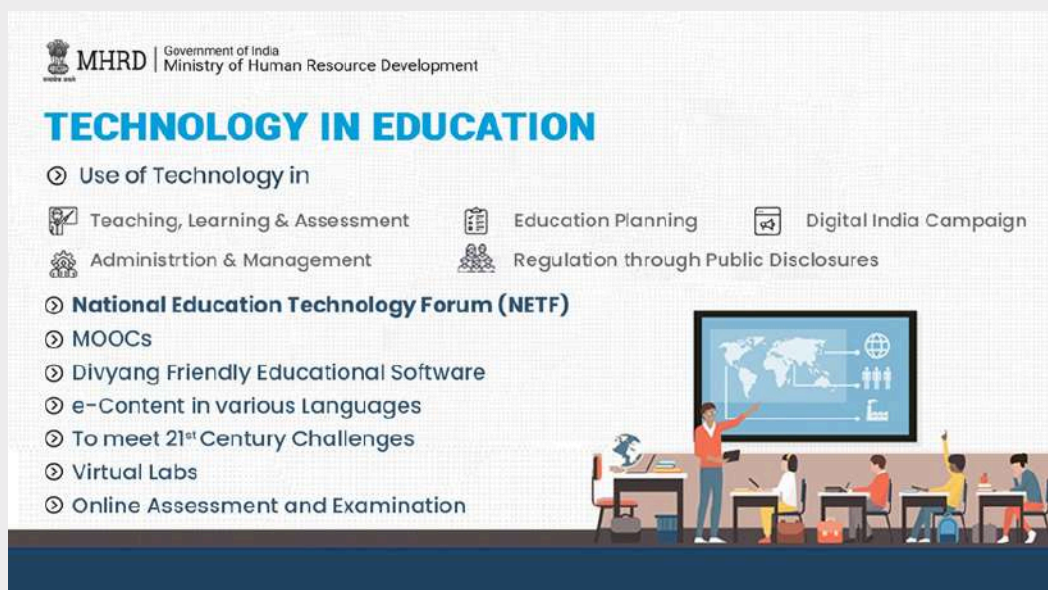


Fig. 12

### 9. ‘The Right to Education’, ‘The Right to Health’ and ‘The Right to be Heard’: The ‘Good’, ‘Bad’ and the ‘Ugly’

*“There can be no keener revelation of a society’s soul than the way in which it treats its children. ...Let us reach out to the children. Let us do whatever we can to support their fight to rise above their pain and suffering.”*

*[- Nelson Mandela]*

“Even if people are still very young, they shouldn’t be prevented from saying what they think.” These words by Anne Frank weren’t just an epilogue to an autobiographical life she led but an utterance of a million young souls living a life confined within the invisible prison constructed out of an adult brain with no clue of the undertone of pathos that runs down their unheard

minds. We give them the ‘right to education’ because we think it to be right for them, but did we spend time to hear what they want? We tax out brain about unmet needs, but did we spend time hearing the unheard needs? Did we recognise the need for ‘Children’s participation in Decision making’? ‘United Nations Convention on the Rights of the Child’, ‘The Council of Europe Recommendation on Children’s Participation’ and ‘The European Union Strategy on the Rights of the Child’ -all recognized the need of participation of the children themselves for laying a strong foundation for a sustainable development. In ‘Convention on the Rights of the Child’ Art. 12 is dedicated to ‘Respect for Children’s Views’ and Art. 13 speaks of ‘Sharing thoughts freely’. Did India do enough to include the very entity for whom we are spending hours to codify laws?

*The ‘United Nations Committee on the Rights of the Child’ in 2009 rightly stated:*

*‘Children, including young children, should be included in decision-making processes, in a manner consistent with their evolving capacities.’*



**Figure 10: Convention on the Rights of the Child Art. 12 and 13.**

Why speak of health when speaking of Education? It may seem a diversion to speak of health when we are on the way of education, but we shouldn’t forget that - ‘Mens sana in corpore sano’ [“a healthy mind in a healthy body”]. We can’t separate the health of a child from education. It’s like a mid-day meal in a school where education and health seem intertwined, and education comes hand in hand with health. Article 21 of Indian constitution recognizes ‘Right to Health’ in light of ‘Right to Life’. While SDG 3 speaks of ‘Good Health and Well-Being’, Article 24 of CRC takes care of ‘Right to the best health care possible’ for the children. And the multidimensional ‘Right to health’ for a child begins right from antenatal and perinatal care of mother (Maternal and Child health) to protection from vaccine preventable diseases till taking care of nutritional needs and psychological support of adolescents. The SDG-3 sets target to reduce ‘maternal, neonatal and under-5 mortality’, end diseases like AIDS, Tuberculosis and Malaria, control hepatitis and other ‘communicable diseases’, ensure universal access to ‘Reproductive health-care services’, achieve ‘Universal health coverage’ with ‘Essential medicines and vaccines for all’ and give tomorrow’s child a world to thrive in which is free from environmental pollution with clean water to drink and healthy food to eat.

We have done a lot regarding ‘Right to education’, much needs to be done regarding ‘Right to Health’ and ‘right to be heard’ is still taking its baby steps yet to gain recognition in Indian perspective. Instead of considering them separately, they should be considered as notes of a harmony to be nurtured together.



Fig. 11: SDG 3



Children have the right to the best health care possible, clean water to drink, healthy food and a clean and safe environment to live in. All adults and children should have information about how to stay safe and healthy.

Fig 12: Convention on the Rights of the Child- Art.24.

## Conclusion

*‘The Right to Education’, ‘The Right to Health’ and ‘The Right to be Heard’: The ‘Good’, ‘Bad’ and the ‘Ugly’*

In the conundrum of sociopolitical drama when we sit to draft the blueprint for a sustainable world, the developmental goals come in myriad forms ranging from ‘Climate action’ to ‘Quality Education’ and ‘Peace & justice’ to ‘Industrial innovation’. It is beyond doubt that out of these multidimensional sustainable developmental goals, quality education would be one of the foremost. “Education is not preparation for life; education is life itself.” [-John Dewey]. To recognize the ‘right to education’ is the first step towards making a basic human right justiciable. While Indian constitution recognizes it in Article 21 A, much effort is needed for its proper implementation and social realization. It needs both the efforts of the guardians in form of fundamental duties [Article 51A (k)] and efforts from the Government to run needed programs.

While speaking of Education of children, we should never forget the ‘right to health’ and ‘right to be heard’, both of which are the coveted motifs in the fabric woven by ‘right to education’. All of these three rights should go hand in hand and journey on the path of education can’t go far if the child is not healthy and if his views are not heard, as it is said- ‘If you want to go fast, go alone; but if you want to go far go together.’

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# DIRECTING THE LEGAL TRAIL FOR SECURING UNIVERSAL ACCESS AND EQUALITY IN EDUCATION, WITH FOCUS ON MARGINALIZED COMMUNITIES IN INDIA SHAPING A SUSTAINABLE WORLD

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## Abstract

To truly achieve sustainable development goals, we need to commit to inclusive education, especially when it comes to India's vulnerable populations. This research is all about understanding the laws that govern fair educational opportunities, with a special focus on ensuring everyone gets equal access, no matter their background. We're diving deep into the legal framework of inclusive education in India, checking how well it serves those who are often left behind. By looking at real-life examples, global agreements, and local laws, we're trying to figure out what's stopping everyone from getting the quality education they deserve. You see, there are all these legal and social barriers that make it tough for marginalized groups to get an education. So, besides suggesting changes to the law to make things fairer, we're also trying to understand how all these different factors interact. We're also looking at recent policies, like the New Education Policy, to see if they're actually making education more inclusive. Plus, we're exploring how the constitution and other legal stuff play a role in bringing people together after conflicts, which is super important for creating inclusive classrooms. Our research involves a lot of reading through laws, looking at case studies, and talking to people like lawmakers, teachers, and folks from marginalized communities. Ultimately, we want to create a roadmap for making education in India more inclusive, which is key to building a sustainable future.

## Introduction

Inclusive education is essential to the pursuit of a sustainable future, particularly when it comes to meeting the needs of neglected Indian populations. In addition to fostering social cohesion and economic prosperity, universal rights and educational equality also help to fortify individuals and set the groundwork for a sustainable future. Education can be difficult for marginalized groups such as SCs, STs, OBCs, and low-income individuals because of things like poverty, prejudice, and poor infrastructure.

The vulnerable population's educational standing is significantly impacted by the legal framework that governs education in India. It establishes the framework for laws and initiatives designed to fulfil the unique requirements of marginalized communities and provide inclusive education. Analysing this legislative structure sheds light on the possibilities and limitations of guaranteeing equality and universal access to education.

This study examines Indian legal beliefs about education, with a focus on marginalized communities, and their implications for shaping a sustainable world. It focuses on laws, policies, roles of governments and NGOs governing education for marginalized groups and how effective they are in ensuring equal access to quality education. Inclusive research in India of the s It also identifies legal obstacles and seeks to submit its recommendations for legal reforms thereby giving equity and universality a chance to flourish.

Through a review of the legal framework governing inclusive education in India and recommendations for legislative changes to promote inclusivity and equality, this research aims to empower underprivileged communities and support sustainable development goals related to

education and social inclusion. In order to guarantee equality and universal access to education, it highlights the significance of legislative standards, paving the way for a more inclusive and sustainable future.

## Review of literature

1) 2009 Right to Education Act: Under the RTE Act, which is of historical importance, free and compulsory education is mandatory for all children aged six to fourteen years in India. It requires that the learning environment be inclusive and of high quality for all the kids, and prohibits discrimination on various grounds. However, some of its implementation challenges are like issues related to quality, infrastructure and monitoring systems (Kumar, 2013). V. Kumar (2013). Rights to Education: Problems and Difficulties. *Educational and Social Research Journal*, 3(7), 161.

2) Scheduled Tribes And Scheduled Castes (Prevention Of Atrocities) Act 1989 : In order for marginalized populations to have access to education , they must be safe and treated with dignity . This act attempts at stopping atrocities against them (Ghosal , 2018 ). S. Ghosal (2018 ). Empowerment of Scheduled Castes in Socio-Economic Domain

3) National Education Policy, 1986 (Updated in 1992): The policy advocates for inclusive and equitable education while underscoring the need for special measures targeting underprivileged sections for educational support (Mishra , 2019 ). R. Mishra (2019 ). An Analytical Study of National Education Policy in India .*Journal of Social Science and Humanities Research International* ,7(2),1–8.

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## Research Objectives and Questions

Shaping the Legal Laws for Securing Universal Access and Equality in education, with Focus on Marginalized Communities in India shaping a Sustainable World.

- 1.) EXAMINE THE LEGAL FRAMEWORK
- 2.) EXAMINE THR SDG'S
- 3.) DISCUSS THE ROLE OF GOVERNMENT AND NGO'S
- 4.) FUTURE DIRECTIONS

## Research Methodology

The approach that I used to perform this research is a descriptive and doctrinal method of study. The study included published research. The sources that I used in my study includes primary and secondary data.

PRIMARY DATA has been collected in terms of my own skills and understanding. SECONDARY DATA has been collected through various articles, publications, reports, magazines, government websites, papers, journals, educational websites, documentaries, case studies, and other trustworthy sources.

## Research Analysis

Certain aspects of society are considered as privileges by others, while others take them for granted. For children from prosperous, upper-class families, education may seem like a basic right, but even in modern times, it is still seen as a luxury for other marginalized groups. “An Oxfam report states that of the 6 million children who are not in school right now, nearly 75% (32% Dalits, 16.4% tribal people, and 25.7% Muslims) are from socially excluded areas”

“These social groups, lack access to education for a variety of reasons—including poverty, social regression, cultural differences, and even rejection by certain segments of the public—continue to face a variety of issues despite the government's implementation of multiple measures”

## 1. Examining the Legal Framework

The legal structure that governs education is crucial in achieving universal access and equality especially for marginalized communities. It is in this view that the present discussion looks at the existing legal provisions in India that have been made to protect these rights, as well as their effectiveness and limitations.

## 1.1: The Right to Education Act, 2009

Landmark legislation called the “Right to Education (RTE) Act, 2009” makes it compulsory for education to be made available to all children from age 6 through 14 years. It legalizes and obviates discrimination on grounds of caste, religion, gender, or economic status and promotes an inclusive and quality-driven education system for all children. However, there are still implementation bottlenecks as always including infrastructure bottlenecks, quality issues and mainly monitoring mechanisms.

The following are some of the important sections which ensure universal access and equality towards educational rights:

Section 3: “Right of a child to free and compulsory education – Section demands every child within six and fourteen years has a right to free, compulsory education in the neighborhood school.”

Section 4: “Duty of the appropriate government and local authorities” – This section bears out what responsibilities should be executed by government/local bodies about provision of education as per provisions under the act.

Section 6: Special provisions for children not admitted to or who have not completed elementary education – “This section provides for the identification, admission, and continued education of children who have not been able to attend school or complete their elementary education”.

Section 9: Protection of rights of children – “This section prohibits physical punishment and mental harassment of children, and ensures the rights of children belonging to disadvantaged groups and weaker sections”

[1] “Right to Education Act, 2009, section 3”

[2] “Right to Education Act, 2009, section 4”

[3] “Right to education Act, 2009, section 6”

[4] “Right to education Act, 2009, section 9”

## 1.2 National Educational Policy 2020:

"India a global knowledge superpower" is the goal of the NEP 2020. It is only the third major revamp of India's educational framework since independence. The two previous educational policies were implemented in 1968 and 1986.

“The NEP 2020 categorises marginalised groups, including SC, ST, OBC, minorities, the poor, and children with special abilities, as socio-economically disadvantaged.” It suggests creating special economic zones (SEZs) for these groups, including community-led volunteering, peer tutoring, and teacher certification courses.

This approach ignores the differences between marginalised communities, which account for 80% of the population, and also disregards constitutional categories.

“SEZs may exacerbate disparities between marginalised and non-marginalized populations”. According to the Kothari Commission (1964), the common school system model encourages children from diverse backgrounds to study together, potentially laying the groundwork for an inclusive society starting at the school level. NEP can exacerbate social and economic inequalities, as well as educational inequalities. This is a significant barrier to further inclusive education efforts.

The policy prioritises inclusive education to provide equal opportunities for students from diverse backgrounds, including those with disabilities and marginalised communities. It fosters an inclusive and supportive learning environment in which students develop empathy and understanding.

NEP 2020 aims to equip students with 21st-century skills, including critical thinking, communication, problem-solving, and digital literacy. This improves their employability and gets them ready for future challenges.

### **1.3 The Sarva Shiksha Abhiyan (SSA):**

SSA is a flagship program of the Government of India for achieving universal elementary education, with a focus on marginalized groups and children with special needs. “The Sarva Shiksha Abhiyan (SSA) is a flagship program of the Government of India aimed at achieving universal elementary education (UEE) in a time-bound manner, with a focus on marginalized groups and children with special needs. It was launched in 2001 as a response to the need for a comprehensive and integrated approach to improving the quality of education in elementary schools across the country.”

Objectives:

1. To provide universal access to education for all children in the 6-14 age group.
2. To bridge gender and social gaps in education.
3. To ensure retention and completion of elementary education.
4. To enhance the quality of education through improving infrastructure, teacher quality, and curriculum.
5. To promote a child-friendly and inclusive education system.

### **1.4 Ignorance about significant policies that are already in place :**

The 2010 implementation of the Right to Education Act (RTE) sought to establish the state's obligation to offer free and compulsory education to all children between the ages of 6 and 14 (about class 8).

- Despite the fact that RTE is still legally binding, NEP nowhere treats it as a baseline. “Furthermore, it seems that NEP is limited to talking about universalizing and doesn't provide any details on how it will be further ensured or realized. When NEP discusses universalizing education from preschool to the 12th grade, it relegates RTE as a bygone project.”

- "The final policy talks about the universalization of school education from 3-18 years, without making it a legal right," the RTE forum said in a statement. Therefore, there is no required system in place for the federal government and the states to implement it. "Universalization will be exceedingly challenging in the absence of the RTE Act. A considerable number of children fall under the age of six, and the preparatory education sector functions in a rather deregulated fashion. Therefore, this would be a grandiose proposal put on paper without a legal foundation for the states; a promise made without giving much thought to implementation and the enormous expenditures involved—that is, without compelling the plans to fall under the jurisdiction of a legislative act like RTE."

## 1.5 Protection of Child Rights

The legal framework also includes provisions for the protection of child rights, which are crucial for ensuring that marginalized children are not deprived of education due to factors such as child labor, trafficking, or exploitation. The Juvenile Justice (Care and Protection of Children) Act, 2015, and the Child Labor (Prohibition and Regulation) Amendment Act, 2016, are examples of legislation that seek to protect the rights of children, including their right to education.

## 2. Findings

Despite these legal provisions, there are several challenges to achieving universal access and equality in education. These include inadequate implementation, lack of resources, social barriers, and gaps in monitoring and evaluation. To address these challenges, there is a need for comprehensive reforms, including:

- Strengthening implementation mechanisms and monitoring frameworks
- Enhancing the quality of education, including teacher training and curriculum development
- Addressing socio-economic barriers through targeted interventions
- Increasing public awareness and participation in education governance
- Ensuring accountability and transparency in the education system

**SECTION 2: The Sustainable Development Goals (SDGs) are a set of 17 global goals adopted by the United Nations in 2015 to achieve a more sustainable future for all. These goals address various social, economic, and environmental challenges, including those related to education and marginalized communities. Let's align the research paper "Blueprint for Tomorrow: Crafting a Sustainable World - Directing the Legal Trail for Securing Universal Access and Equality in Education, with Focus on Marginalized Communities in India" with relevant SDGs:**

1. **SDG 4: Quality Education** : "This goal aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Your research paper directly aligns with this goal by focusing on securing universal access and equality in education, particularly for marginalized communities in India."
2. **SDG 5: Gender Equality** : "This goal aims to achieve gender equality and empower all women and girls. Your research, especially if it includes a focus on girls' education and gender disparities in education, would contribute to this goal."

3. **SDG 10: Reduced Inequalities** : “This goal aims to reduce inequality within and among countries. Your research on ensuring equal access to education for marginalized communities in India directly contributes to this goal.”

4. **SDG 16: Peace, Justice, and Strong Institutions** : “This goal aims to promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels. Your research on directing the legal trail for securing universal access and equality in education aligns with the spirit of this goal by focusing on legal frameworks and institutions.”

SDGs, contribute to the global agenda for sustainable development but also highlight the importance of education and legal frameworks in achieving a more sustainable and equitable world for all.

### **SECTION 3 Role of government**

1. Consider a large-scale program dubbed "Education for All"; this is the goal of the Sarva Shiksha Abhiyan (SSA). Commencing in 2001, this movement has grown to become one of the largest in the world for education! The main goal is to ensure that all children, particularly those who live in underprivileged areas, have an equal opportunity to learn. Imagine a legislation that states unequivocally that all children between the ages of six and fourteen should have access to education.

2. **Right to education act** : Every child between the ages of 6 and 14 has the fundamental right to an education, according to the Act, which also establishes minimum standards for primary institutions. All private schools must reserve 25% of their seats for students (with the state paying the difference as part of the public-private partnership model). Private schools accept students according to their financial situation or caste. In addition, it forbids the operation of any unapproved schools and stipulates that neither donations nor capitations may be collected, nor does admittance by parent or child interview. Additionally, the Act states that until a kid completes their elementary education, they cannot be held back, expelled, or forced to pass a board test. Furthermore, a provision for specialized training of school drop-outs to bring them up to par with students of the same age.

3. The Indian government launched the Midday Meal Scheme (MDMS) with the goal of enhancing schoolchildren's nutritional status and promoting school attendance. Students at government and government-aided elementary and upper primary schools around the nation are eligible for free lunches under this program.

4. The government of India introduced the Rashtriya Madhyamik Shiksha Abhiyan (RMSA), a centrally financed program, in 2009 with the goal of expanding secondary school access and raising educational standards nationwide. In particular for underprivileged and marginalized populations, the program's main goals are to provide universal access to secondary education, lower dropout rates, and raise enrollment rates. RMSA emphasizes equity and inclusion by targeting underserved and marginalized communities, including girls, Scheduled Castes (SCs), Scheduled Tribes (STs), and children with disabilities, and ensuring their participation and

retention in secondary education.

5. Post-Matric Scholarship Program for SC Students: Under this centrally supported program, SC students pursuing post-matriculation studies can get financial aid to pay their living expenses, tuition, and other associated costs. Almost 4.8 million SC students benefited from this program in 2019–2020, obtaining financial help for their study. More than 10,000 ST students have benefited from the program since it began by pursuing higher education.

#### **SECTION 4 Role of NGOs**

NGOs frequently create contextually appropriate curricula that represent the needs and goals of their local communities. In addition to increasing learning engagement, this strategy guarantees that instruction is in line with students' real-world experiences. **Emphasis on marginalized communities:** Bridges between educational inequalities among marginalized groups are being spearheaded by an education NGO in India.

By giving girls, kids from low-income households, and people with disabilities access to education, they promote inclusivity. **Additional programs:** Remedial and after-school programs are provided by numerous NGOs to give students extra help with their academics. Both learning results and dropout rates are enhanced by these approaches. **Influence on policy and advocacy:** In India, education non-governmental organizations (NGOs) are vital in pushing for policy modifications that support high-[3]quality and accessible education. Their ground-level experiences allow them to offer insightful opinions for the creation of evidence-based policy. Education-focused non-governmental organizations (NGOs) frequently undertake the task of monitoring and evaluating educational programs to verify their efficacy. By relying on data-driven methodologies, they can pinpoint areas requiring enhancement and iteratively enhance their strategies. Let's look at the few examples

1. based in Mumbai The Udaan Foundation offers a one-year program aimed at helping children from low-income neighborhoods, ages four to six, get ready for school. The goal is to provide students with a solid foundation in language and social skills in a joyful, safe learning environment. Contributions to this initiative will pay for school teachers' wages.

2. Vidyaloka: With the usage of era, this Bengaluru-based NGO is helping impoverished rural youngsters in India in receiving a exceptional training. EVidyaloka is running to cope with the intense instructor shortage in government faculties, and more than 20,000 students in greater than two hundred isolated communities have benefited from its efforts. This has been achieved with the aid of the usage of live, interactive classes to hyperlink the children with volunteer instructors all through the globe.

3. K.C. Mahindra Education Trust (Nanhi Kali): Since 1953, when the trust was founded to promote literacy and higher learning in the country, it has undertaken several initiatives to improve the lives of deserving students through education. Project Nanhi Kali, the flagship programme of K.C. Mahindra Education Trust, supports the education of underprivileged girls. After 1996 when the project started, Nanhi Kali has helped over 4.5 lakh girls.

4. Vanavil Trust Children from traditionally nomadic and marginalized populations who might otherwise be residing on the streets, begging, or worse, are helped by means of Vanavil. Vanavil collaborates carefully with the nomadic Boom Boom Mattukaran and Narikuravar tribes, who are forced to rely upon begging and small-scale sales for their subsistence. A few younger human beings launched Vanavil in 2005 inside the wake of the December 2004 tsunami, and it has considering expanded with the support of private donors and charities that guide training.

## Conclusion

Integrating the Disenfranchised Mainstreaming refers to the process of integrating students with unique requirements into the mainstream curriculum so they may participate in normal classes and, in turn, become part of the dominant social circles and thinking processes. Though many initiatives and attempts have been made to bring the idea of education for all to reality, the Indian education system's rate of waste and stagnation is still within dangerous bounds. There are a number of factors that prevent students from lower socioeconomic classes from obtaining and continuing their education, including social, economic, ethnic, and flawed educational systems. The following ideas might help with the mainstreaming of the underprivileged children:

- The government should oversee the proper execution of the Right to Education Act to guarantee not just student enrollment but also each student's continued attendance at school. The government should monitor children who are at risk of dropping out in order to reduce the dropout rate. Appropriate social mapping techniques should be developed by relevant authorities among marginalized and minority populations in order to assure retention.
- All educational institutions, as well as those run by legislators, authorities, educators, and fellow students, should be free from any kind of prejudice. Such behaviors in educational institutions, from basic to higher education, should be closely regulated by the government. By creating suitable rules to combat discrimination and other forms of child maltreatment, as well as by outlining acceptable disciplinary procedures, the National Commission for Protection of Child Rights may make significant progress in this area.
- The penalties for these transgressions have to be reinforced as well.
- More incentives for families to enroll their kids in school on a regular basis until they graduate from high school. To encourage more students to pursue higher education, more educators from a variety of underrepresented groups should be hired as teachers.
- More educational institutes in rural and remote areas.
- Appropriate focus on tribal education while honoring their ethnicity and distinctive culture.
- The Ministry of Human Resource Development can provide guides for educators that promote fairness and social inclusion. Children from underprivileged groups would benefit from encouragement in various school activities and duties as it would significantly impact their development. It's also important to guarantee that kids from various socioeconomic classes work together.

In this aspect, the government can provide guidance. Concerns about teacher credentials and training should also be raised in addition to appropriate service conditions. Teaching-learning resources have an impact on educational quality. Since impoverished children have little access to resources other than textbooks, many instructors and students struggle to provide high-quality textbooks and materials, which hinders their ability to study. The provision of fundamental academic and physical amenities in the school is required while enhancing quality.

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# IMPACT OF ENVIRONMENTAL REGULATIONS ON INNOVATION: HOW INDIA'S ENVIRONMENTAL LAWS AFFECT INDUSTRY INNOVATION

-by **Reenu Bairagi**

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## Abstract

India, with the rapidly increasing industrial sector, faces tremendous environmental difficulties caused by pollution, resource depletion, and climate change. In response, the Indian government has implemented an assortment of environmental legislation aimed at addressing these issues and promoting long-term growth. However, the influence of these rules on industry innovation is still being studied by scholars. Environmental rules are increasingly being recognized as major drivers of innovation within companies, particularly in emerging economies such as India, where fast industrialization has resulted in environmental deterioration. Compliance costs associated with meeting regulatory requirements can be substantial, especially for resource-constrained firms with limited technological capabilities. Moreover, regulatory uncertainty and administrative burdens may deter firms from investing in long-term R&D projects, hindering innovation diffusion and technology adoption. Effective policymaking is essential for harnessing the potential of environmental regulations to drive innovation while minimizing adverse effects on industry competitiveness. This research paper examines the influence of environmental regulations on innovation in Indian industries, elucidating the mechanisms through which regulatory pressures shape firms' innovation strategies and outcomes. Drawing on empirical evidence and case studies, the paper explores the dynamic interplay between regulatory frameworks, technological innovation, and industry competitiveness. It also investigates the role of government policies and institutional factors in mediating the relationship between environmental regulations and innovation. By providing insights into the complex dynamics of regulatory-induced innovation in the Indian context, this paper contributes to both theoretical understanding and practical implications for policymakers, businesses, and researchers striving for sustainable development.

*Keywords: Environmental regulations, Innovation, India, Industries, Regulatory frameworks, Government policies, Sustainability, Technological change.*

## Introduction

Environmental regulation is one of the policies and procedures used by the government to address "market failure" in environmental issues, and it has become a significant tool for driving industrial change. The primary driver of industrial transformation is technological innovation. An effective environmental regulating policy encourages firms to engage in technological innovation, which can be referred to as the effect of technological innovation incentives. Between 1980 and 2005, India enacted a succession of environmental laws to ensure that the environmental and social effects of land use change, infrastructural development, and industrialization be mitigated in a timely manner. The laws create specific procedures for examining the environmental implications of proposed projects that may result in the same. The rules also require the establishment of conditions that are related to the permissions granted to these projects. These criteria are intended to mitigate or prevent damage or affects to the extent as determined by the project proponents and the government or regulator. Environmental regulation has a complex and far-reaching economic influence. Stringent environmental restrictions can encourage corporations to invest in and research and develop clean

production technology. This, in turn, promotes technical innovation, increases production efficiency, and facilitates the upgrading and transformation of industrial structures.

Environmental regulation helps businesses use resources more efficiently, reduces production costs, and improves economic efficiency of resource use, all of which benefit the economy's long-term development. Over decades there has been a gradual shift in environmental regulations from merely focusing on economic development to prioritizing high-quality economic development, which places greater emphasis on environmental protection and sustainable growth. This shift can prompt governments to establish ecological compensation mechanisms or markets for ecological services, making businesses responsible for the protection and restoration of ecosystems, and ensuring they pay a corresponding price for these efforts. India's environmental regulations are many, inconsistent, and issue-specific. They address various environmental challenges. Legal duties for businesses can be challenging to understand and implement, requiring greater resources than currently provided. Environmental regulations need to be updated from a command-and-control approach to one that articulates a vision for the desired environment and collaborates with businesses to achieve it. Also environmental regulation can inhibit technological innovation, which in turn affects economic quality development, and the interaction term between environmental regulation and economic quality development has a significant negative effect on ecological capital utilization. Based on this, the government should enhance environmental regulations while increasing support and technological innovation subsidies for heavily polluting enterprises and new industries to promote high-quality economic development while improving the utilization of ecological capital.

Thus, this research paper aims to explore the intricate relationship between environmental regulations and innovation within the Indian industrial landscape. To ensure sustainable development in our country, this paper delves deeply into the relationships among environmental regulation, high-quality economic development, and the utilization of ecological capital, also offering insights for global development. The empirical research in this paper unfolds and examined the impact of environmental regulation on technological innovation.

## **Objectives of the Research**

- To examine the impact of environmental regulations on innovation in India's industrial sector.
- To analyse how environmental laws influence technological advancements, business strategies, and sustainability practices.
- To identify challenges and opportunities for innovation in response to environmental regulations.
- To provide policy recommendations for fostering innovation-driven sustainable development.

## **Environmental Regulations in India**

India has numerous environmental laws, both at the central and state levels. However, most key environmental laws have been centrally enacted. These rules fall into two categories: pollution control and natural resource management. The table below summarizes the main statutes under these two topics. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (also known as the Forest Rights Act) falls under natural resource management because it establishes individual and community rights for forest dwellers, which impacts resource management.

### **Water, Air and Environmental Protection Acts**

- The Water (Prevention and Control of Pollution) Act 1974
- The Air (Prevention and Control of Pollution) Act 1981
- The Environment (Protection) Act 1986

### **Minerals and coal legislation**

- The Mines and Minerals (Development and Regulation) Act 1957

### **Coal mining laws**

- The Mineral Laws (Amendment) Act 2020
- National Mining Policy, 2019

### **Electricity and energy efficiency legislation**

- The Electricity Act 2003
- The Energy Conservation Act 2001

### **Disaster management legislation**

- The Disaster Management Act (2005)

### **Forest legislation**

- The Forest Conservation Act (FCA), 1980
- The Biological Diversity Act, 2002
- The Compensatory Afforestation Fund Act, 2016
- The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (also referred to as the Forest Rights Act)

### **Environment Court**

The National Green Tribunal (NGT) was established in the year 2010 under the National Green Tribunal Act of 2010 to dispose of civil cases relating to environmental protection and conservation of forests and other natural resources, including enforcement of any legal rights related to the environment. The NGT arose from a recommendation in the Law Commission of India (186th Report 2003) to establish environmental courts in India. This recommendation was based on a review of the technical and scientific problems that came before the courts and the

inadequacy of judicial knowledge on the scientific and technical aspects of environmental issues.

From the review of various environmental legislations and authorities, it is clear that the Constitutional authority to enact a framework legislation on climate clearly exists. There is a strong existing precedent of using international agreements to enact domestic environmental legislation, which makes enactment of a national framework legislation straightforward under Article 253 of the Constitution. Alternatively, a national framework legislation is possible under the residuary powers reserved for the Centre under Article 248. We also have precedent for domestic laws targeted at global (rather than purely domestic) environmental issues, such as the Ozone Depleting substance (Regulation and Control) Rules, 2000. All existing laws delineate responsibility between Central and State Governments. Generally, the Central Government is entrusted with building capacity, setting national targets and standards, coordination of states, technical studies, and providing oversight, while State Governments are entrusted with planning, execution, enforcement, and coordination of resources on the ground.

### **The Effectiveness of the Environmental Regulations on Industries in India**

- Government of India is reluctant to enforce its own laws on air and water pollution lest it stop developmental projects that help create jobs and improve the economy
- Although many of the environmental regulations in India on air and water pollution are similar to those of the existing standards of other industrialized countries, the lack of its enforcement has upset the global business community as it seems to provide Indian businesses an important cost advantage
- Effective control has been inconsistent, especially among smaller companies.
- Environmental control standards vary between large companies and the small to medium sized companies.
- Small businesses are more likely to have out-of-date processes, and curtailing emissions is more costly in comparison with fine-tuning the newer technologies employed by global players. There is also a reluctance by the government to come down too hard on SME'S that has lifted so many Indians out of poverty;
- Corporations are now in a position to identify and estimate the environmental costs, benefits, investments, assets and liabilities into main stream accounting and reporting practices, for a variety of managerial decisions.

### **Why is Industrialization and its Regulation Important in India?**

Industrialization is the primary driving force in most countries. India's planned economy prioritizes growth, resulting in significant investments in this industry. Labour productivity is

highest in manufacturing industries and industrial sector and contributed to higher national income growth rates.

Industrial development and its innovation are prerequisite for agricultural development and a driver for growth and development of other sectors as well. India's government prioritizes industrialization as a long-term strategy for economic development, given its enormous population and rising economy. The impact of industrialization on communities, corporations, and governments remains a topic of ongoing debate. Being dependent on agriculture India's vast population has led to poverty, making industry a key driver of economic development and job creation. In May 2000, India's population surpassed 1 billion, posing a new environmental challenge. In contrast to India's successful economic our country is a test for the sustainable vision due to its rapid development and deteriorating surroundings, notably in urban and industrial areas.

Industrialization in India maximizes resource utilization, diversifies the economy, improves living standards, and promotes balanced regional development through fiscal incentives and concessional financing backward regions. Industries contribute considerably to pollution. Small industries have made major contributions to both urban and rural institutions. Environmental problems are less of an issue for major firms, which prioritize environmental protection, but more so for small industries. These minor industries appear to have significant environmental issues. The government prioritizes encouraging the expansion of these industries over environmental concerns. The majority of industrial wastewater originates from 3 million small and medium-and large sized industries. Paper, sugar, leather, and chemicals are among the industries with widespread locations across the country. Unfortunately, barely half of medium to large-scale industries have partial or total effluent treatment. From 1963 to 1991, fourfold industrial growth led to a six fold increase in hazardous emissions. Iron and steel producers generate roughly 70% of toxic waste, but only 20% of industrial output. Polluted effluent from industrial processes is either discharged into streams and reservoirs or injected underground. Many industrial estates lack wastewater treatment systems. Laws and regulations are needed that aims at reducing environmental pollution and promoting sustainable development. Compliance with these regulations often requires industries to adopt eco-innovative practices and technologies. Embracing eco-innovation can give industries a competitive edge by differentiating their products and services in the market. Consumers are increasingly conscious of environmental issues and are more likely to favour environmentally friendly products and companies. Eco-innovation and regulatory frameworks work hand in hand to drive industries towards sustainability, benefiting both the environment and the economy in the long run.

### **Why There is Need of Eco-Innovation in Industries for Enabling Green Growth?**

- Eco-innovation has fostered the emergence of sustainable manufacturing projects, highlighting the importance of innovation in the industry. As these projects move forward, the process of implementation of eco-innovation becomes more complex, enterprises must integrate numerous factors to maximize environmental benefits. Advanced eco-innovation

processes, also known as system innovation, involve societal shifts and meeting of demands.

- Manufacturing industries can promote sustainability by implementing efficient manufacturing techniques and creating products and services that minimize negative consequences.
- To increase environmental performance, companies are focusing on product life cycles, integrated environmental plans, and management systems, rather than only controlling pollutants at the end of the process. Closed-loop, circular production systems are being developed to reuse rejected products as fresh resources.
- Eco-innovation projects in the automotive and transportation industries aim to improve vehicle energy efficiency and safety. The iron and steel industry has recently implemented a variety of energy-saving adjustments and has altered numerous manufacturing processes. Current eco-innovation efforts mostly focus on technology breakthroughs. Eco-innovation tackles products or processes and primarily involves modification or redesign.
- Nevertheless, a number of complementary non-technological changes have functioned as key drivers. Such changes have been either organisational regulatory or institutional in nature. They include the establishment of separate environmental divisions to monitor and improve overall environmental performance and help direct R&D efforts, and the establishment of inter sectoral or multi stakeholder collaborative research networks.
- Some industry players have even started exploring more systemic eco-innovation through the introduction of new business models and alternative modes of provision, such as bicycle-sharing schemes and product-service solutions in photocopying and data centre energy management.
- Combining current indicator sets can provide companies with a better understanding of economic, environmental, and social impacts throughout the value chain and product life cycle. The further development and standardization of environmental valuation approaches can assist organizations in making better informed decisions for sustainable manufacturing investments.
- Initiatives and programmes that promote eco-innovation are diverse and include both supply-side and demand-side measures. Many supply-side initiatives involve the creation of networks, platforms or partnerships that engage different industry and non-industry stakeholders, in addition to conventional measures for funding research, education and technology demonstration. Demand-side measures such as green public procurement are receiving increasing attention, as governments acknowledge that insufficiently developed markets are often the key constraint for eco-innovation.

### **Government Incentives and Support Programs for Eco-Innovation**

Government incentives and support programs for eco-innovation are critical in promoting environmentally sustainable practices and stimulating innovation across multiple sectors. Below are some examples of government incentives and support schemes for eco-innovation:

1. **Grants and Funding Programs:** Governments often provide financial support in the form of grants, subsidies, and funding programs to facilitate research, development, and implementation of eco-friendly technologies and practices. These grants may cover expenses related to research and development, pilot projects, technology demonstration, and commercialization of innovative solutions.

2. **Tax incentives:** Tax incentives are another popular tactic used by governments to encourage eco-innovation. These incentives may include tax credits, deductions, exemptions, or lower tax rates for enterprises that participate in environmental conservation, renewable energy, energy efficiency, waste management, and sustainable manufacturing processes.

3. **R&D Tax Credits:** Research and Development (R&D) tax credits encourage businesses to participate in innovative R&D activities that result in environmentally friendly solutions. These credits offset a percentage of the expenditures incurred by businesses in performing R&D, lowering the financial strain connected with innovation initiatives.

4. **Procurement Policies:** Government procurement policies can serve as a powerful driver for eco-innovation by requiring public agencies to prioritize the purchase of environmentally sustainable products and services. By creating demand for eco-friendly goods and services, governments can stimulate innovation and market development in sustainable industries.

5. **Innovation Support Programs:** Governments may establish innovation support programs that give technical assistance, mentoring, incubation services, and networking opportunities to startups, entrepreneurs, and small enterprises that are focused on environmental innovation. These programs support the development and implementation of new ideas and technology with environmental advantages.

6. **Regulatory Support and Standards:** Governments can promote eco-innovation by establishing regulatory frameworks and standards that encourage the use of environmentally friendly methods. By establishing clear standards and regulations for pollution control, energy efficiency, waste management, and resource conservation, governments generate market incentives for eco-innovation.

7. **Public-Private Partnerships (PPPs):** Collaborative efforts between government, business, academia, and civil society organizations can expedite eco-innovation by pooling resources, expertise, and knowledge. Public-private partnerships enable technology transfer, knowledge exchange, and collaborative research and development activities to address environmental concerns.

8. **Capacity Building and Training:** Government initiatives may include capacity building programs and training workshops to enhance the skills and capabilities of professionals, researchers, and entrepreneurs involved in eco-innovation. By providing education and training in areas such as green technology, sustainability management, and eco-design, governments

empower individuals and organizations to drive environmental innovation.

### **List of Recommendations and Policy Implications for Fostering Innovation-Driven Sustainable Development**

- Consolidate key environmental statutes to eliminate inconsistencies. Comprehensively review the environmental laws to ensure uniformity of definitions, obligations and penalties. Remove inconsistencies across these provisions through amendment or repeal. Consolidate the Air Act, the Water Act and the Environment Protection Act into a single, overarching statute.
- Repeal the Indian Forest Act, 1927. Incorporate suitable powers for forest officials under other natural resource management laws like the Wildlife (Protection) Act, 1972 and the Forest (Conservation) Act, 1980.
- Identify key environmental statutes and obligations, violations of which are particularly likely to cause human rights abuses, such as the obligation to obtain forest and environment clearances or the obligation to not discharge effluents or emissions in excess of prescribed standards.
- Create guidance documents in consultation with civil society groups working on environmental and human rights issues as well as key representatives of business enterprises. These documents should assist enterprises in mainstreaming innovation based approaches to their activities under environmental laws. For example, they should provide guidance to business enterprises regarding their interactions with local communities, particularly marginalised groups living in areas where industrial activity is proposed to be undertaken with better objectives.
- Identify provisions under the existing legal framework that require business enterprises to submit information or regulatory authorities to consolidate and maintain information. Harmonise such provisions across the existing legal framework to ensure that there is no duplication of processes. Ensure harmony with reporting obligations under business laws as well.
- The draft notification should be broadened to encourage community-based monitoring and to protect the procedural right of affected persons to participate in environmental governance. Public consultation requirements should not be arbitrarily diluted.
- Introduce an appropriate method for assessing environmental damage and awarding environmental compensation. Create a special cell of officers, distinct from pollution control boards, to monitor the implementation of judicial directions.

- Publish guidance for business enterprises on setting up an operation-level grievance redressal mechanism. Conduct a feasibility study on the use of Gram Nyayaalayas to resolve environment related disputes.
- Constitute a committee to prepare a working paper on the different kinds of environmental regulatory tools that might be suited to the Indian context and which sets out the principles governing their use. These could include a range of restorative actions, including warnings, administrative fines, emission credits and financial securities.
- Enact a separate statute to govern the environmental impact assessment process to reduce legal uncertainty, to guarantee rights to access environmental information and participate in environmental decision-making, and to lay down guiding principles to govern complex decisions that require the balancing of competing interests.

## CONCLUSION

As the globe faces urgent environmental concerns, sustainable innovation has become critical to a brighter and more affluent future. Companies and government can use sustainable innovation to design and deploy solutions that solve their current business needs while also benefiting the earth and future generations. Sustainable innovation is the key to building a future in which economic prosperity coexists with environmental and social well-being. Businesses that incorporate sustainable practices into their operations can minimize their environmental impact, improve efficiency, and generate positive change. Furthermore, sustainable innovation develops a culture of foresight and responsibility, inspiring future generations to build on these foundations. Ultimately, implementing sustainable innovation is an essential answer to today's environmental concerns, as well as a hopeful path to a better and more sustainable future. It is clear that by adopting sustainable innovation, we are paving the way for a world that is economically rich while also thriving in harmony with nature. As we continue to push the boundaries of innovation, we must keep sustainability at the forefront of our efforts, guiding us to a brighter and more sustainable tomorrow. Moreover the additive manufacturing process can be readily utilized in repairing components without resorting to replacements. Such ease of repair fits well with the cradle-to-cradle concept of sustainable manufacturing. Furthermore the additive manufacturing technology also facilitates the creation and testing of new materials having enhanced properties that could find new application. Other areas beckoning for attention include automation with robots artificial intelligence big-data and cloud computing to name a few. All of these areas have the capacity to modernize Indian manufacturing prowess while catering to our requirements through sustainable development. However the use of these new concepts should also be tampered with the large pool of labour at various levels of skill available in this country.

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# CLIMATE JUSTICE AND LEGAL IMPERATIVES: NAVIGATING TOWARDS SUSTAINABLE FUTURE IN INDIA AND BEYOND

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## Synopsis

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2. The Green Climate Fund (GCF)
3. Environmental Action and Climate Change in India
4. What progress have countries made since the Paris Agreement?
5. Case study on water crisis in Bangalore and its relation with climate change
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## Abstract

This research paper addresses the rising need to address climate change as under “Blueprint for Tomorrow: Crafting a Sustainable World”. The paper recognizes climate change as one of the most compelling global challenge and it navigates through the various facets of climate action, highlighting the vital role of legal mechanisms in driving a meaningful change. The paper first examines the effectiveness of various international agreements in promoting climate action and analyzes the legal implications of these major agreements such as the Paris Agreement. Through a careful analysis of various global efforts, successes and the shortcomings in implementing collective action to combat climate change are assessed. The paper also delves into the Indian context and it examines the country's initiatives to combat climate change through a comprehensive set of national laws and various policies. It assesses the effectiveness of these measures in mitigating these diverse impacts of climate change, considering both successes and areas where further intervention is required. Additionally, this paper further examines the phenomenon of judicial activism as a powerful force in addressing climate change obligations within the Indian legal landscape. The paper further concentrates on examining various landmark court cases and highlights the central role of the judiciary in promoting the fulfillment of international climate commitments, thereby shaping climate policy and enforcement mechanisms.

*KEYWORDS: Climate change, Sustainable development, Legal mechanisms, International agreements, Paris Agreement, Climate action, Indian context, National laws ,Policies, Judicial activism, Court cases, Climate policy, Enforcement mechanisms, Global challenges, Collective action.*

## Introduction

With a rapidly growing economy and population, mitigating and adapting to climate change remains a daunting challenge for India. The consequences of climate change in the country fall into several different impacts, such as the exposure of coastal communities, decline in water supply, and damage to agriculture. Moreover, climate change effects are experienced unequally, with marginalized communities bearing the brunt of the burden. Consequently, climate justice requires just and inclusive solutions to climate change, ensuring that the most vulnerable needs and rights are protected. Given the international landscape in which much contemporary climate action and activism unfold, this research paper will attempt to ascertain how far international agreements are, or could be, effective. In doing so, it will focus on the legal effectiveness of such agreements in helping to create, and contribute to, climate action and activism at an international level. It therefore aims to analyse the extent to which the institutions of compliance and enforcement, and the mechanisms of implementation, in these agreements succeed in starting to address the enormity of the climate crises we face. In doing so, it will highlight the strengths and weaknesses of the legal infrastructures in these agreements for climate action and, particularly, for empowering activism at the international level. In addition, the findings confirm the importance of climate activism as a force that shapes the climate agenda and brings about policy change. Climate activists – from local activist groups on the streets to international

umbrella federations – are a key vehicle for raising awareness of the climate problem, for mobilising public pressure, and for holding governments and corporations to their climate promises. By studying the interactions between climate activism and international agreements, the paper seeks to clarify how activism can affect negotiations, make them more transparent and bring about greater accountability in global climate governance.

In this background, this research paper work will attempt to assess the promotion of climate action and activism to mitigate climate change, especially legally wise, through a thorough study of international legal frameworks, their findings and their potential in this field. This practice-oriented study on the law attempts to analyse existing literature, few case studies and legal frameworks on climate change and mitigation in an effort to provide a more robust understanding of the challenges and potential of mitigating climate change in international law and policy. Overall, this study aims to inform policymakers, practitioners and activists on mitigating climate change internationally with specific emphasis in India and with more emphasis on legal approaches and mechanisms.

### **Analysis on the International Agreements in Regard to Climate Change**

The United Nations aspires to have achieved all of its goals by 2030. The three fundamental pillars of sustainable development are environmental protection, economic development, and social development. Today, environmental protection is the key pillar since there is an urgent need to safeguard and sustain the environment. All 17 SDGs fall under one or more of the three pillars. Goal 13 of the SDGs focuses on the matter of climate action. This objective aims to counteract and mitigate the environmental consequences of climate change. This objective is becoming increasingly important as climate change becomes a more major danger. International environmental agreements can help to support goal 13 and sustainable development. For quite some time, countries have used international environmental agreements to address these worries about climate change. International environmental agreements, or IEAs, are used to conserve the world's natural resources and encourage climate action. There are several components required to develop an IEA. These aspects include green technology investment levels and greenhouse gas emission reduction standards. Recent international environmental agreements include the Kyoto Protocol, the Copenhagen Accord, and the Paris Agreement. The Kyoto Protocol, approved in 1997, was not completely implemented until 2008. The Copenhagen Accord, agreed in 2009, has never been officially accepted. The Paris Agreement was adopted in 2016. Global agreements are therefore effective in encouraging climate action to an extent because they involve governments from all around the world.

The very first agreement in regard to environment and the need for environmental protection arose from the Stockholm Convention. The Stockholm Conference, held in 1972, was a watershed moment that focused on environmental concerns rather than climate change explicitly.

However, it lay the groundwork for worldwide environmental cooperation and future attempts to combat climate change. While the Stockholm Conference did not specifically address climate change, it did emphasise the necessity of conserving the global environment and fostering sustainable development. The meeting resulted in the foundation of the United Nations Environment Programme (UNEP), the world's premier environmental authority. The United Nations Environment Programme (UNEP) coordinates worldwide efforts to address different environmental concerns, including climate change. In addition, the Stockholm Conference raised awareness of the interconnectivity of environmental challenges and the necessity for environmental action. Climate change was a major point of debate among global leaders, politicians, and environmentalists during the 1992 Rio Earth Summit. While the summit did not produce a formal agreement explicitly on climate change, it did lay the basis for future international efforts to address this critical issue. Several significant conclusions of the Rio Earth Summit are specifically related to climate change:

The UN Framework Convention on Climate Change (UNFCCC) was adopted at the Rio Earth Summit and is the major international treaty addressing climate change. The United Nations Framework Convention on Climate Change establishes a framework for international collaboration to stabilise greenhouse gas concentrations in the atmosphere and prevent hazardous anthropogenic interference with the climate system. It emphasises the ideas of shared but differentiated responsibilities and capabilities, while also acknowledging nations' various historical contributions to climate change and their respective capacity to address it.

The Rio Earth Summit helped to raise climate change to a worldwide priority, focusing international attention on the subject. The summit promoted awareness about the importance of taking action to reduce greenhouse gas emissions and adapt to climate change by bringing together world leaders, scientists, and civil society representatives to debate the environmental and socioeconomic implications of the phenomenon. Agenda 21, Sustainable Development: Agenda 21, adopted during the Rio Earth Summit, is a comprehensive action plan for sustainable development that covers several environmental, social, and economic challenges, including climate change. It emphasises the need of holistic methods to sustainable development that balance environmental conservation, economic growth, and social fairness. Agenda 21 established the groundwork for future efforts to incorporate climate change issues into more comprehensive sustainable development initiatives. The Rio Earth Summit contributed to increased public awareness and participation with climate change problems. The summit sparked a global movement for environmental preservation and sustainable development by exposing the environmental and socioeconomic consequences of climate change, as well as the significance of collective action. This momentum continues to fuel efforts to combat climate change at the international, national, and local level.

The Kyoto Protocol, enacted in 1997 as an annexe to the United Nations Framework Convention on Climate Change (UNFCCC), is seen as a watershed moment in international climate change negotiations. The Kyoto Protocol establishes legally obligatory emission reduction objectives for industrialised countries, generally referred to as Annex I parties. These objectives vary by nation, but they usually seek to reduce emissions by a specific percentage below 1990 levels. The Protocol set a collective emission reduction target of at least 5% below 1990 levels for 2008-2012. The Kyoto Protocol's principal goal is to address the anthropogenic

emissions of greenhouse gases (GHGs) that cause global warming and climate change. It seeks to keep GHG concentrations in the atmosphere stable enough to prevent hazardous human intervention with the climate system. While the Kyoto Protocol was a great step forward in worldwide efforts to combat climate change, it was also criticised and limited. One significant complaint is that it only applies emission reduction objectives to Western nations while excluding key growing economies like China and India. Furthermore, many people believe that the Protocol's aims are insufficient to handle the enormity of the global catastrophe. Nonetheless, the Kyoto Protocol established the foundation for succeeding climate agreements, like the Paris Agreement, and created creative channels for international collaboration on climate change mitigation.

The Paris Agreement, formed at COP 21 in 2015, was a watershed moment in international climate change negotiations. The pact, signed by 177 countries and approved by 144 as of April 2017, sought to galvanise global collaboration in addressing the grave issue of climate change. Despite being heralded as a "watershed moment," the Paris Agreement has been criticised for its apparent lack of legal substance when compared to the Kyoto Protocol. It works on a voluntary basis, with governments submitting nationally determined contributions (NDCs) stating their objectives to cut greenhouse gas emissions. Developed countries are required to offer financial aid to poorer countries for both mitigation and adaptation purposes.

Article 2 of the Paris Agreement defines its overall aims, which include limiting global average temperature rise to well below 2°C above pre-industrial levels and pursuing measures to keep it below 1.5°C. In addition, the pact seeks to strengthen adaptive ability, increase climate resilience, and align finance flows with low greenhouse gas emissions and climate-resilient development.

Despite these objectives, the agreement lacks legal enforcement and instead relies on a "name and shame" tactic to encourage compliance. Nations are required to monitor their own emissions and are not answerable to an international organisation. This self-monitoring strategy raises concerns regarding the openness and effectiveness of emission-reduction initiatives.

Analysing the NDCs provided by several nations reveals disparities in ambition and strategy. The United States, for example, plans to decrease greenhouse gas emissions by 26-28% below 2005 levels by 2025, while the European Union aims for at least a 40% reduction by 2030 compared to 1990 levels.

China's NDC focuses on peaking carbon dioxide emissions around 2030, whilst India's goal is to lower emissions intensity by 33-35% by 2030 compared to 2005 levels. Other countries, such as Russia, establish aggressive goals, while Thailand and Vietnam make fewer explicit pledges. Brazil's NDC is notable for its ambition, with a 37% reduction below 2005 levels by 2025 and 43% by 2030.

### **The Green Climate Fund (GCF)**

The Green Climate Fund (GCF) has become an important part of the policy talks at United Nations Framework Convention on Climate Change (UNFCCC) meetings over the last five years. The Green Climate Fund (GCF) was initially intended to be a financial tool to help

developing nations adapt to climate change and increase their involvement in policy debates. However, it has since grown into the main funding source for UNFCCC initiatives. Prioritising mitigation measures with an emphasis on lowering greenhouse gas emissions has long been a tradition of the UNFCCC negotiations. Although adaptation was recognised as one of the approaches to combating global warming, its importance was not entirely appreciated. Nonetheless, the UNFCCC document's Article 4 recognised the need of helping developing nations that are more susceptible to climate change adapt to its effects. The Kyoto Protocol was primarily focused on mitigation efforts to lower carbon dioxide emissions, and it was established during the UNFCCC's third conference of parties. Although the necessity for modification in the procedure was acknowledged, its significance was not as great.

The Green Climate Fund was established as a result of the Copenhagen conference's inability to prolong the Kyoto Protocol's initial phase. At the Copenhagen summit, the GCF was established as an operational component of the UNFCCC's financial system, with a pledge to raise USD 100 billion yearly by 2020 to support developing nations' needs.

The World Bank was first named as the GCF's interim trustee. The GCF was formally established as the UNFCCC's financial mechanism during COP16 in Cancun (2010). A governing board for the GCF was formed, with 24 members who were split evenly between parties from rich and developing countries. There is still ambiguity regarding the exact amount of money that the GCF will receive, despite the pledges made by a number of nations. Developing nations that receive GCF help contend that rather than fresh pledges, contributions frequently amount to a rerouting of already-existing aid. Questions about financing and allocation will probably continue to be crucial in climate talks as the GCF develops. The picture below shows the drastic effect of global climate change and its abnormal increase in the recent years which calls for major check on the climate action.

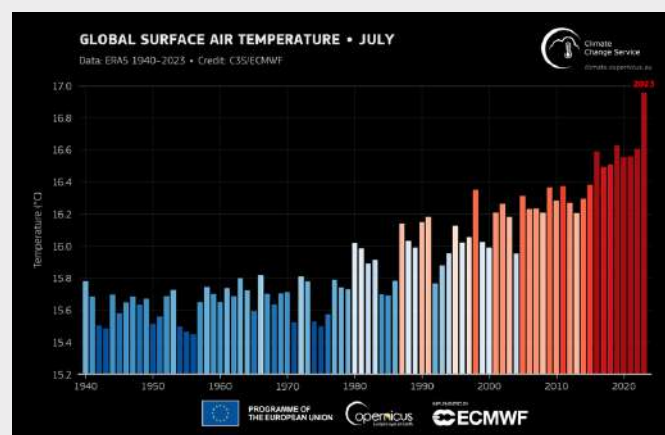


Fig. 1. Globally averaged surface air temperature for all months of July from 1940 to 2023. Shades of blue indicate cooler-than-average years, while shades of red show years that were warmer than average. Data: ERA5. Credit: C3S/ECMWF.

## **ENVIRONMENTAL ACTION AND CLIMATE CHANGE IN INDIA**

India's environmental laws, policies and international agreements are important in regulating climate change, promoting sustainable development and reducing greenhouse gas emissions. These laws and policies aim to protect the environment, regulate rooftop solar systems and combat climate change. These environmental laws can promote renewable energy, reduce greenhouse gases and protect vulnerable populations from the negative effects of climate change. India has ratified several international climate change agreements such as the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Paris Agreement. These agreements aim to reduce greenhouse gas emissions and promote long-term development both globally and in India. Although India is a developing country without a commitment to reduce emissions, it has taken steps to combat climate change through legal, institutional and policy frameworks. The Ministry of Environment, Forests and Climate Change (MoEFCC) coordinates all climate change initiatives in India, while other ministries actively address climate change in their jurisdictions. The Prime Minister's Council on Climate Change (PMCCC) was established in 2007 to develop and coordinate climate change policies and initiatives. The Council was established in 2014 and oversees political influence and coordination of action on climate change. The Government of India has developed its own climate change initiatives to guide the National Action Plan on Climate Change (NAPCC). The Ministry of Environment, Forests and Climate Change (MoEF) leads the coordination of the implementation of the NAPCC, while each of the eight tasks of the plan is assigned to a specific implementing ministry. Civil society and state governments are also important actors on climate change, and state governments monitor the implementation of the NAPCC through their stand-alone National Action Plans (SAPCCs). Approval of relevant national legislative measures, monitoring and reporting on their implementation initiatives are part of the implementation of international environmental agreements. Compliance is an ongoing process and lack of enforcement does not always mean disobedience. Implementation and enforcement of environmental laws in India has been a major challenge for lawmakers. Judge S.H. Chief Justice of India Kapadia expressed concern over this issue. He recommended changes to numerous environmental regulations to make them stricter and more effective and to provide the necessary resources to ensure proper enforcement. Indians are now worried about large companies that allegedly violate environmental rules or harm the environment. This sparked widespread outrage, with protests from several civil society organizations and indigenous tribes. Many argue that the government approves these projects without fully considering their impact on the environment and people who are there. The administration is trying to find a balance between environmental protection and continuous economic development. India has not done a good job of environmental protection. Even after the Bhopal gas tragedy, in which many people died, the government did not do enough to help the victims. Therefore, the courts had to intervene to protect the environment. The Supreme Court of India has rightly observed in *Indian Council of Environmental Legal Action Vs. Union of India* of Justice B.P. Jeevan Reddy that just passing legislation is not enough to ensure a clean environment in India. The situation is all the more

serious and the correct implementation of the rules requires action at multiple levels. Even when individuals do not go to court, the Supreme Court of India is great enough to protect their rights. India is an excellent place to file claims for damages caused by climate change. A convincing case of violation of constitutional rights should be presented to the National Green Tribunal. Indian common law courts have also been resourceful in their application of tort law, which can make claims for damages easier than in other common law jurisdictions. In India, the courts ruled that the right to live in a healthy environment is guaranteed in the Constitution. Although this right is not directly mentioned in the constitution, the courts can force environmentalists to go back. Courts can also hold private companies accountable for environmental damage. Article 21 of the Constitution of India contains the right to life and Article 14 the right to equality and the duty of the state and citizens to protect the environment in Article 48A and Article 51A (g). Indian courts have interpreted this set of rights and responsibilities to empower all Indians to live in a healthy environment. The Supreme Court of India declared M.C. in Mehta v. Kamal Nath that courts have the power to award monetary compensation to people who have suffered as a result of violation of the right to a healthy environment. According to the constitution, the government must strive to save the environment and the citizens must also strive to improve it. These provisions must be read together with Article 21, which provides that no one shall be deprived of life or liberty unless the law is followed. Any Any damage to air, water or soil essential to life is dangerous and violates Article 21.6. The Supreme Court said in M.C. Mehta Vs. Kamal Nath that apart from laws, he can also enforce the fundamental rights of people under Articles 14 and 21 of the Constitution. If these rights are violated by damaging the environment, in addition to restoring the environment, the court has the authority to grant compensation to those who suffered as a result of this damage. Court prioritizes protection of life and environment for pollution of air, water and soil and used its judgments to protect the rights of citizens under Article 21 of the Constitution and climate change. The Supreme Court can award damages under Sec. 32 in cases where the fundamental rights foreseen in § 21 of the Constitution have been violated due to pollution or climate change caused by industrial or other activities. The court also confirms the "polluter pays principle" whereby the polluter must pay for the resulting damages. For enforcement of fundamental rights and climate change, such cases are usually initiated in the Supreme Court or Supreme Court under Articles 32 and 226. In Bandhua Mukti Morcha v. The Union of India says that in addition to compensation for pollution, the culprit can pay extra money as a penalty to persuade others to stop polluting. However, under certain circumstances, private companies can be held liable for violation of fundamental rights. The Supreme Court of India noted in M.C. Mehta Vs. Union of India that a private company can be held liable for violation of fundamental rights. The incident involved a chemical factory that emitted harmful vapours that endangered the health and safety of workers and communities. Although the court did not rule on this issue, the reasoning of the Supreme Court suggests that private companies can be held responsible for such violations. The NGT was created to solve environmental problems and save natural resources, which is crucial in the fight against climate change. a change to change Its role in enforcing environmental legislation and paying damages prevents the creation of pollutants and promotes good environmental practices. In cases where M.C. Mehta vs. Kamal Nath and Shri Bodhisattwa Gautam Vs. Miss Shubhra Chakraborty, the Supreme Court said that the NGT is the only court in India where suits for climate damages can be filed and directed that all environmental complaints must be filed with the NGT. and that all high-profile cases pending in the court will be transferred to the NGT. This is done to minimize subscription disputes and ensure special rights in environmental matters. The government

challenged the authority of the NGT to decide a case involving unqualified persons on expert committees advising the government on environmental issues in the case of *Kalpavriksh v. Union of India*. But the NGT rejected this contention and noted that its jurisdiction is wide on environmental protection as a fundamental right. The court can evaluate any environmental or environmental legal dispute, regardless of whether it has a direct or indirect negative impact on the environment. This also applies to issues related to climate change. Indians affected by climate change have a high probability of getting their cases when they present constitutional arguments to the NGT. Before starting operations, industries and projects must receive approval from state circuits, although there is no central entity to monitor the operation of circuits. This, along with other issues such as lack of coordination and capacity constraints, makes it difficult to effectively manage PCBs under environmental regulations in India. According to the Water Law, if the State Pollution Control Board (RKA) does not satisfy or reject the application submitted by the industry within four months of the submission of the application, approval is considered granted. Unfortunately, many state PCBs reject these petitions in the absence of an effective consent process. As a result, industries are allowed to operate under the presumptive right of consent. The country's PCB faces several obstacles, such as lack of technical expertise, personnel and fiscal support, which make it difficult to implement environmental legislation. Corruption is a major problem in India's political and administrative systems and is particularly prevalent in environmental settings. One example is POSCO's proposed iron ore mining facility in Odisha.

### **What progress have countries made since the Paris Agreement?**

Every five years, countries are expected to assess their progress in implementing the agreement through a process known as the Global Status Review. The first of these reports, published in September 2023, warned governments that "the world is not on track to achieve the long-term goals of the Paris Agreement." However, countries made progress during the annual UN climate conference. summits, such as the landmark commitment to create a loss and damage fund at COP27 in Sharm el-Sheikh, Egypt. The fund aims to address climate change inequalities by providing financial assistance to poor countries, which are often the least responsible for global emissions but are the most vulnerable to climate disasters. At COP28, countries decided that the fund would initially be given to the World Bank, and several rich countries, such as the United States, Japan, the United Kingdom and EU members, initially pledged a total of about \$430 million. The United Arab Emirates also pledged \$100 million, which some analysts say could put additional pressure on other big emitters, such as China and Saudi Arabia, to increase their share of climate finance. There have been recent efforts worldwide to reduce methane emissions., which are responsible for more than half of the anthropogenic warming. Today due to their greater capacity and ability to trap heat in the first decades. At the COP26 conference, the US and EU proposed a global methane commitment with the goal of reducing methane emissions by 30 percent between 2020 and 2030. At the COP28 conference, oil companies announced that they would reduce methane emissions from their wells and drilling by more than 80 %. percentage by the end of the decade, and the pledge included international enforcement efforts to hold

companies accountable. At the same time, the United States announced its commitment to reduce methane emissions from the oil and gas industry by nearly 80 percent over the next fifteen years.

### **Case study on water crisis in Bangalore and its relation with climate change**

Effects of Climate Change Located on the crest of the Karnataka plateau, Bengaluru is far from rivers and has historically depended on local wells and lakes for water sources. The city experienced famine and drought: from 1876 to 1878, a famine caused by a lack of water caused 100,000 deaths and prompted the local government to create an ambitious water building program that included the early use of steam engines to pump water. to the city However, as the population has grown rapidly in recent decades, the city regularly suffers from acute water shortages and is at risk of running out of water. Although there is no reliable data on the effects of climate change in Bengaluru, preliminary studies. So far studies show that the amount of rainfall in the last century while the temperature has increased by an average of 0.6 °C, especially in the summer months. Rainfall patterns are predicted to change, with less rain during the off-monsoon season and more during the monsoon season. By 2050, drought is expected to increase by up to 10%. Temperatures are expected to increase by 1.7°C to 2.2°C by the 2030.

### **Suggested measures to tackle climate and proposed strategies**

The Million Wells for Bengaluru campaign is an ongoing initiative to build one million shallow wells using traditional borehole digging techniques in Bengaluru, India. The project is supported by the Bangalore Water Supply and Drainage Board, which claims that rainwater harvesting is a must for the city of Bengaluru. The project was designed by local design and environmental studio Biome Environmental Trust. It was implemented by many stakeholders, including industries providing financing, government agencies providing various types of support, and local communities actively participating in the construction and maintenance of wells. The project is expected to be completed in 2025. Following a 2015 survey and alarming reports on groundwater availability in Bengaluru, the project aims to improve the groundwater balance by constructing open recharge wells. At the same time, the initiative also includes an educational component to raise awareness of ecological streams, water bodies, and the personal responsibility of citizens to take responsibility for the maintenance and survival of the system. The project consists of four main areas of activity: Awareness campaign to encourage action to dig recharge wells, revive disused open wells, monitor water levels and share stories of open and recharge wells. This includes: on-events such as themed walks, workshops and photo exhibitions, developing communication campaigns through social media and articles for online and digital publications, and creating strategic partnerships with educational institutions, artists and storytellers to develop communication projects. One of these collaborations is Art in Transit,

a project to create a large mural at Cubbon Park metro station depicting Bengaluru's water story, painted with mud from the 65 charging wells dug in Cubbon Park. For two weeks, passers-by could participate in painting the mural under the guidance of key partner Sri Srishti University of Applied Arts. Residents interested in digging their own recharge will be supported with planning and project management support. Capacity development of service providers such as diggers, plumbers, architects, estate developers and government agencies. Strategic partnerships between researchers and academics with institutions to develop policy, monitor performance and document, analyze and communicate results. The start is targeted. . any landowners or organizations responsible for financing the project. This includes individuals and organizations digging wells on private property, as well as government agencies digging wells on public and common land. The total cost of the project is expected to reach 32 million Indian rupees (about US\$435,000 as of December 2020). The cost is borne by the users, with an average cost of INR 40,000 per well (approx. USD 540). The initiative involves several stakeholders such as: Manu Vaddar Community: The campaign aims to ensure that at least 3,000 families of Manu Traditional Vaddar Mining Community offer regular work. Digging and maintaining the existing 200,000 wells generated about INR 8 billion in revenue for well diggers and tire builders. This income allowed the diggers of some wells to improve their economic status, educate their children and invest in their business by buying tools and vehicles to help them in their work. Increased demand for their work and coverage in local and international newspapers increased their social status and involvement. Local traders and small businesses: Several small businesses are involved in the well production process, including the production of concrete rings, wells, pipelines and minor construction works. Bangalore residents who depend on groundwater and need to invest in digging recharge wells and reviving decommissioned open wells to improve the city's groundwater. Local design and architecture studio Biome Environmental Trust, designer and technical assistance providers. Groundwater Management non-profit and community organizations like ACWADAM and Friends of the Lakes who support the implementation of the project Private donors like Wipro who financially supported participatory urban water mapping in and around Bengaluru. According to the main partners of the projects, the main challenges of the campaign is related to the difficulties of education and awareness about groundwater. Waters and aquifers are mostly invisible, and many open wells are filled with debris. At the same time, it is difficult to provide accurate modelling of the results of shallow water filling due to the dynamic nature of urban groundwater and the limitation of current scientific and technological development. However, the experiences of the first five years of the project provided several lessons: The most useful way to educate and raise awareness among residents was to present personal stories and case studies of individual well owners. This includes, for example, examples of places where large-scale groundwater recharge has raised water levels. Developing scientific evidence to support the project required partnerships with experts in the field, such as ACWADAM in hydrogeology. The Million Wells for Bengaluru campaign shows the potential of joint public-private partnerships. Through partnerships between the many stakeholders of the sector, promotes the sustainability of cities and improves environmental sustainability. The initiative brings together scientific evidence and partners such as ACWADAM, traditional practices and communities, combining heritage and science to develop a comprehensive project based on community participation.

## Conclusion

This research paper examines climate change countermeasures and the promotion of climate action, with a special emphasis on the legal legitimacy of international agreements. We evaluated the procedures and structures put in place to handle the global climate catastrophe by conducting a comprehensive evaluation of significant international accords such as the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement. Our study emphasises the importance of international agreements in promoting climate action and creating cross-border collaboration. These agreements are key tools for establishing carbon reduction objectives, promoting technology transfer, and mobilising financial resources to assist climate mitigation and adaptation initiatives.

It also provides a framework for tracking progress in combating climate change, guaranteeing accountability, and increasing transparency. Furthermore, our study on the legal legitimacy of international accords identifies obstacles and possibilities in global climate policy. International accords play a crucial role in promoting climate action, but their efficacy is dependent on political will, resource availability, and institutional capability. Furthermore, the emergence of climate change activism has brought a new dimension to the climate change discussion by boosting public pressure and holding governments and corporations accountable for their efforts to combat climate change. To summarise, this research article contributes to a greater knowledge of the processes defining global climate policy and the significance of international agreements in supporting climate action.

Climate change activism has brought a new dimension to the climate change discussion by boosting public pressure and making governments and companies responsible for their efforts to combat climate change. In conclusion, this research article contributes to a better understanding of the processes that shape global climate policy, as well as the significance of international agreements in driving climate action. We found strategies to improve the efficacy of international efforts to solve the climate catastrophe by critically evaluating the legal legitimacy of these agreements and investigating the consequences of climate change initiatives. Looking ahead, we must continue to deepen international collaboration, mobilise public support, and adopt new solutions to combat climate change and create a more sustainable future for everybody.

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Thank you for embarking on this scholarly journey with us through the pages of our journal. As the ink dries on this final page, we extend our heartfelt gratitude to all the contributors, reviewers, and readers who have made this endeavor possible. Your dedication to the pursuit of knowledge and the advancement of legal scholarship is truly inspiring. As we close this chapter, let us carry forward the spirit of inquiry, dialogue, and collaboration that defines our academic community. Here's to the limitless possibilities that await in the pursuit of legal excellence. Until we meet again within these pages, let curiosity guide your path and may your insights continue to shape the future of law. With warmest regards, The Publication and Seminar Committee, School of Law SVKM's NMIMS Navi Mumbai.