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Climate Security: An Evolving Dimension to Climate Change

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Abstract:

The global phenomenon of climate change has evidently transgressed through every domain of human life and existence. The present-day enormity of climate change makes it more than a mere environmental issue to be a risk or a threat multiplier to the existing human vulnerabilities and grievances in society. The evolving notion of 'climate security' summons the idea that climate related changes can endanger the security of humans, ecosystems, economy, infrastructure and societies. At this juncture, it is essential to explore the potential national as well as international security risks that are associated to climate change and to address them appropriately. While the international attempt to bring in the issue of climate change within the mandate of the United Nations Security Council failed to receive desired recognition; it is inevitable to identify the ways and means to approach the arising issue of climate security through national policies. This paper attempts to identify the lacunae in the prevailing domestic policies in addressing the concern of climate security and seeks to suggest requisite reforms for the same.

Keywords: *Climate Change, Human Vulnerability, UNSC, Policies, Climate Security*

The Global Climate Change Movement: From Rio to Paris and Ahead

From the beginning of this century, the phenomenon of 'global warming' or 'climate change' along with its associated maladies has invited tremendous global attention. Global warming or climate change can be described as the increase in average global temperature due to the rising level of Carbon Dioxide concentration and Greenhouse Gas emissions in the atmosphere, arising from human-induced anthropogenic interventions and its incidental aftermath, over the decades.[2] Of all the different human deeds, is it the irrational consumption of conventional energy resources or fossil fuels i.e., Coal, Oil and Natural Gas, that is identified to be the most contributive factor to the rising level of such noxious emissions in the atmosphere. While the direct effect of the climate change phenomenon is being witnessed by the humanity in the form of droughts, storms, heat waves etc. the consequential impact is capable of leaving some irreversible damage on the nature in the form of rising of sea level, melting of glaciers, extinction of species, warming of oceans etc.[3]

Fortunately, from the inception of the global movement against climate change, the nations-states have been showing consensus on the occurrence of the phenomenon, although there has always been a lack of agreement on who has to be held accountable for the bygone emissions, who has to involve in the mitigation action, how the emission reduction goals could be

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[2] The Inter-governmental Panel on Climate Change (IPCC) defines climate change as 'a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer.' *See Generally*: https://unfccc.int/files/press/backgrounders/application/pdf/press_factsh_science.pdf

[3] Matt McGrath, *Climate Change: IPCC Report Warns of Irreversible Impacts of Global Warming*, BBC News, *available at:* https://www.bbc.com/news/science-environment-60525591 (last visited on June 29, 2022).

established etc. Yet, the repeated international negotiations have resulted in the production of some important accords as the global climate agreements.

The development of international environmental law jurisprudence governing climate change can be traced back to the first international environmental summit that took place at Stockholm in Sweden as the UN Conference on Human Environment in 1972. Moreover, the creation of the Intergovernmental Panel on Climate Change (IPCC) in 1988 by the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP), was precisely intended to provide governments at all levels with scientific information that could be useful to design climate policies. Yet, it was the United Nations Framework Convention on Climate Change (UNFCCC) which was deliberated among the nations during the Earth Summit of 1992 at Rio de Janeiro, that laid the foundation for an action plan towards climate change adaptation and mitigation. Relying on the principle of 'Common but Differentiated Responsibility'[4] the developed nations were obligated to reduce their emissions[5] by an average of 5% below the 1990 levels, during the first commitment period of 2008-2012. The UNFCCC was later carried forward by the different 'Conference of Parties'[6] that was proposed to take place annually. And the Framework Convention was also supplemented by the Kyoto Protocol (signed in 1997 and came into force in 2005) agreed to at the COP 3 in Japan. Subsequently, the Doha Amendment to the Protocol in 2012 established the Kyoto Protocol's second commitment period from 2013-2020, wherein the Parties agreed to reduce the emission by an average of 18% below the 1990 levels.

In order to address the injurious consequences of climate change, the developing nations which have been particularly vulnerable to the adverse effects of climate change, had put forth the notion of 'loss and damage' to be negotiated in the climate change agreement. Accordingly, an approach to enhance knowledge and understanding of risk management to address loss and damage was initiated at the COP 18 in Doha (2012). As a fall out of this, in 2013 the COP19 at Warsaw established a 'Mechanism for Loss and Damage' for which a workplan was also approved at the COP 20 in Lima. Through a 'Climate Financing Mechanism/Green Climate Fund,'[7] the higher income nations had also pledged to provide jointly US$ 30 billion for the period 2010-2012 and to further mobilize US $ 100 billion each year by 2020, from a variety of sources. Despite being a milestone in the movement, these mechanisms seem to remain fairly ineffective due to lack of political will and commitment, from the developed nations.

Nevertheless, the subsequent deliberations introduced in the climate change front, got culminated into the Paris Agreement at the COP 21 in 2016. It has called for the nations, both developed as well as developing ones, to conjointly contribute towards reduction in Carbon Dioxide and other Greenhouse Gas emissions, as one of the major steps towards combating

[4] The Principle of Common but Differentiated Responsibility requires all the nations to jointly hold responsibility to work towards climate change adaptation and mitigation. However, the duty is differential for the Annex-I (developed nations) and Annex-II (developing and least developed nations) countries, with the former required to take the lead.

[5] The six emissions that were covered for the first commitment period of the Protocol were Carbon Dioxide, Methane, Nitrous Oxide, Hydrofluorocarbons, Perfluorocarbons and Sulphur Hexafluoride.

[6] The Conference of Parties was established under Article 7 of the UNFCCC for regular review of the implementation of the Convention and any related legal instruments they may adopt.

[7] The Green Climate Fund (GCF) as a potential mechanism for climate financing was proposed at the COP 15 in Copenhagen (2009), was established at the COP 16 in Cancun (2010), received acceptance during the COP 17 in Durban (2011) and was made operational at the UN Climate Summit in 2014. As per the Adaptation Gap Report 2020 of UNEP, the annual cost of adaptation in developing countries is bound to rise to $ 280-500 billion by 2050, while the current levels show that a huge gap persists in extending fiscal support to such nations by the developed ones.

climate change. Having received an extensive consensus of 195 nations, the Paris Agreement had urged the world nations to stipulate their voluntary commitments in the form of Nationally Determined Contributions, in order to prevent the increase in global average temperature preferably beyond 1.5 Degree Celsius, above the pre-industrial levels.

The COP 25 at Madrid in 2019 was an accelerating action in the face of the climate emergency. Yet there was disagreement on the setting up of rules for an international carbon market as well as on the concern of compensating developing nations for the 'loss and damage' already suffered from impact of climate change. Lately, at the COP 26 at Glasgow, UK in November 2021 countries have come together for generating more ambitious commitment to accelerate action towards the goal set under the UNFCCC.

Evidently, there exists an impasse in terms of the international community in reaching at an agreement on sharing the climate change responsibility, in extending financial support to the vulnerable nations and in facilitating international carbon trading. Furthermore, although the Paris Agreement is being hailed as a much-celebrated development in the global move against climate change, the UNEP has pointed out that 'even the full implementation of the volunteered commitments would mean that the global average temperature would still rise above 3 Degree Celsius by 2100, far ahead the stipulated goal of limiting the temperate rise to 1.5 Degree Celsius, above pre-industrial levels.'[8]

The Notion of Climate Security

In order to better appreciate the notion of climate security or the security threats associated to climate change, it is essential to identify the scope of the term 'human security'. According to the Human Development Report, 1994[9] as developed by the United Nations Development Programme, "security symbolized protection from the threat of disease, hunger, unemployment, crime, social conflict, political repression and environmental hazards" and not just "security of threat from external aggression or as protection of national interests in foreign policy or as global security from the threat of a nuclear holocaust." This wider connotation to human security has evidently shifted the focus from nation-states to people, to bring within its fold multiple facets of security like economic security, food security, health security, environmental security, personal security, community security and political security.

With the passage of time, the global crisis of climate change has taken over the center stage in global deliberation, having transgressed through every possible domain of human existence. It was the Fourth Assessment Report[10] of the Intergovernmental Panel on Climate Change (IPCC) 2007 that for the first time provided a credible scientific basis to climate change along with a detailed exploration into its impacts, vulnerability, adaptation and mitigation. With the unprecedented intensification of the adversaries caused by this phenomenon, it is lately not being perceived purely as a scientific or an environmental issue, but as a threat multiplier to the existing human vulnerabilities and grievances in the society.

Thus, arises the notion of 'climate security', which reinstates the fact that the rising phenomenon of climate change is capable of pervading through the fundamental dimensions

[8] United Nations Environment Programme, *Emissions Gap Report 2019* (November 26, 2019) *available at:* Emissions Gap Report 2019 (unep.org)

[9] Chapter 2, Human Development Report, United Nations Development Programme 22 (Oxford University Press, New York 1994) *available at:* https://hdr.undp.org/system/files/documents//hdr1994encompletenostatspdf.pdf

[10] *See Generally:* https://www.ipcc.ch/assessment-report/ar4/

of human security. With different channels that can link through climate change and human security, there seem to exist security implications to climate change such that climate related changes are capable of endangering the security of humans, ecosystems, economy, infrastructure and societies. This had led to the evolution of a new dimension to climate change as 'climate security.'

International Developments in the Climate Security Front

According to the report titled 'Climate Change and Its Possible Security Implications,'[11] adopted by the United Nations General Assembly in its 64th session, five channels have been identified, through which climate change could impact security:

(a) Vulnerability: Climate change threatens food security and human health, and increases human exposure to extreme events;
(b) Development: If climate change results in slowing down or reversing the development process, this will exacerbate vulnerability and could undermine the capacity of States to maintain stability;
(c) Coping and Security: Migration, competition over natural resources and other coping responses of households and communities faced with climate-related threats could increase the risk of domestic conflict as well as have international repercussions;
(d) Statelessness: There are implications for rights, security, and sovereignty of the loss of statehood because of the disappearance of territory;
(e) International Conflict: There may be implications for international co-operation from climate change's impact on shared or undemarcated international resources.

The potential list of adverse consequences could include 'loss of territory, statelessness and increased numbers of displaced persons; stress on shared international water resources, for example, with the melting of glaciers; and disputes surrounding the opening of the Arctic region to resource exploitation and trade.' The report also identified certain threat minimizers which could alleviate the security risks associated to climate change. These include climate mitigation and adaptation, economic development, democratic governance and strong local and national institutions, international cooperation, preventive diplomacy and mediation, timely availability of information and increased support for research and analysis to improve the understanding of linkages between climate change and security.

While the detrimental impact of climate change is felt across the globe, it is the people in the least developed nations that are manifestly affected heavily by this,[12] due to their predominant reliance on the nature and natural resources for day-to-day survival, lack of administrative acumen to respond to the environmental threats as well as the timid nature of the communities to withstand and adapt to the changing environment. Protecting the interests of the vulnerable nations like the Small Island Developing States (SIDS), particularly Maldives, Malta, Mauritius, Trinidad & Tobago etc., that are precariously prone to be inundated to the rising sea level, have always been in the priority in the global climate negotiations.[13]

[11] *Climate Change and Its Possible Security Implications*, Report of the Secretary General, UN GA (September 11, 2009) *available at:* https://digitallibrary.un.org/record/667264?ln=en (last visited on June 29, 2022).
[12] *Physical and Social-economic Trends in Climate-related Risks and Extreme Events and their Implications for Sustainable Development*, United Nations Framework Convention on Climate Change (November 20, 2008) *available at:* https://unfccc.int/resource/docs/2008/tp/03.pdf
[13] Climate Change-Small Island Developing States, UNFCCC, 2005 *available at:* https://unfccc.int/resource/docs/publications/cc_sids.pdf

A case study of the security concerns in the African continent reveals multiple instances of ethnic clashes, water wars, human displacement from heightened tensions and other socio-economic and ecological implications, arising as an aftermath of the intensifying climate change phenomenon. The regions of Somalia, South Sudan, Mali etc. are found to be the worst effected by climate change related environmental disasters as well as complex conflict situations.[14] An area covering around 12 countries of the African region, which is recognized as the Sahel region, is being peculiarly subjected to study,[15] in order to evaluate the security implications of climate change in those regions, since desertification of the arid areas in those regions is found to be triggering water-related conflicts.

It was at the wake of these peaking apprehensions that the United Nations Security Council considered a draft proposal to bring in climate change within the mandate of the Council. Sponsored by Niger and Ireland, and backed by countries like USA, UK and France, the proposal sought to integrate climate-related security risks into the Council's conflict prevention mandate. While it has to be asserted that the UNFCCC in its annual COPs have never sought to explicitly address the probable link between climate change and security; this unprecedented effort at the UN SC failed to receive the requisite recognition.[16] Since India's stance at the resolution was that the Security Council's mandate should not be broadened to intervene and overreach on sovereign issues,[17] it is essential to analyze how India's domestic laws and policies have been responding to the concern of climate security.

Domestic Law and Policy Response to Climate Security

India, is fortunately not placed in the list of potentially vulnerable nation states either in terms of her geographic location in the globe or the latent ecological fragility. However, the socio-political scenario prevailing in the nation, showcases the probable social tensions, communal disruptions as well as political instability ingrained in the Indian society, which can pose greater threat to national security. The struggling challenges of a striving developing economy adds fuel to the fuming concerns. Moreover, being covered by water on all the three sides, the possibility of accelerated melting of Himalayan glaciers and the submersion of Indian shores to the rising sea levels cannot be completely disregarded in the forthcoming decades. The recurring climate change induced national calamities in the country in the form of flash floods, landslides, droughts etc. are a clear indication of the how prone the country is to the adversaries of climate change; while the humongous socio-economic loss left by those events are blatant evidence to the lack of resilience and adaptability to these threats from the local communities and societies in India. Having portrayed the ground realities, the probe needs to be diverted to analyze if the Indian legal and regulatory system is adept to tackle this situation effectively.

Though India's per-capita emission (i.e., 1.7 tons of CO2) is much below the global average (i.e., 4.4 tons), the total emissions are increasing, as per the 'Country Greenhouse Gas

[14] Anab Ovidie Grand & Khiera Tariff, *Climate-related Peace and Security Risks in Africa,* Accord, December 10, 2021 *available at:* https://www.accord.org.za/conflict-trends/climate-related-peace-and-security-risks-in-africa/ (last visited on June 29, 2022).

[15] Phillip Heinrigs, *Security Implications of Climate Change in the Sahel Region: Policy Considerations,* OECD-SWAC, 2010 *available at:* https://www.oecd.org/swac/publications/47234320.pdf

[16] While 12 nations voted in favour of the resolution, Russia vetoed against it with India supporting them to oppose the draft and China abstaining from voting. *See:* Suhasini Haider, *Why did India Reject UNSC Draft on Climate?*, THE HINDU, December 19, 2021 *available at:* https://www.thehindu.com/sci-tech/energy-and-environment/explained-why-did-india-reject-unsc-draft-on-climate/article37988088.ece (last visited on June 29, 2022).

[17] *Id.*

Emissions Data'[18] of the World Resources Institute; in such a way that India is currently the third largest global emitter of Carbon Dioxide and other Greenhouse Gases. While India's initial response to the climate change movement has been in tandem with the other developing nations, with focus more towards climate change 'adaptation', thereby vesting the 'mitigation' obligation on the developed countries,[19] with active participation in the global climate politics for more than two decades 'India has transitioned from a protest voice on the fringes of global climate policy to one that is actively shaping international efforts to combat climate change.'[20]

The different domestic efforts that India has initiated so far, which can be deemed to have an implication in the climate change mitigation movement, could be brought under diverse categories:

(a) Legislative & Policy Initiatives

The enactment of the Energy Conservation Act as early as in 2001 with the objective of securing energy efficiency and conservation through demand side management, could be treated as a major initiative; although the international developments in the climate change front were not given any specific regard in the legislation. Even though the Delhi Ministerial Declaration on Climate Change and Sustainable Development, 2002 emphasized on minimizing the climate change responsibility on developing nations, it brought in a major breakthrough in the Indian climate change movement. India's willingness to join hands with the global community was felt apparent with her signing and ratifying the Kyoto Protocol in August 2002. The revamped Electricity Act of 2003 had a few major provisions that recognized the importance of renewable energy in the country's power policy. The creation of an exclusive ministry as the Ministry of New & Renewable Energy in October 2006, from the erstwhile Ministry of Non-Conventional Energy Sources (1992) was also a fall out response to the global sensitization on the urgency to focus on alternatives to conventional energy resources. In furtherance to the aforementioned developments, the importance of integrating different renewable energy technologies into the domain of power generation also received prominence, leading to the initiation of specific policies like Jawaharlal Nehru National Solar Mission 2010, National Offshore Wind Energy Policy 2015, National Policy on Biofuels 2018 etc.

While the National Environment Policy, 2006 had an express mention of the aspect of climate change, the policy evidently reflected India's stance that putting any constraint on GHG emission would reduce the country's economic growth rate. Yet, the National Action Plan on Climate Change, 2008, initiated by the then Ministry of Environment & Forests (now known as the Ministry of Environment, Forests & Climate Change) provided a specific road map for the prospective activities in the climate change domain in India. With eight Missions[21] being identified, the Action Plan was an affirmation of India's intention to act as a responsible member in the global climate change movement, while reiterating the fact that India's

[18] *See*: http://www.wri.org/resources/data-sets/cait-country-greenhouse-Gas-emissions-data

[19] Lavanya Rajamani, *India's Negotiating Position on Climate Change: Legitimate but Not Sagacious*, CENTER FOR POLICY RESEARCH ISSUE BRIEF (November 2, 2007).

[20] Aniruddh Mohan, *From Rio to Paris: India in Global Climate Politics*, 2 (3) RISING POWERS QUARTERLY 39-61 (2017).

[21] The missions under the NAPCC 2008 were National Missions for Solar Energy, Energy Efficiency, Sustainable Habitat (to enhance energy efficiency in buildings, management of solid waste, better public transport), Water (to conserve water, to minimize wastage and to ensure equitable distribution), Himalayan Ecosystem (to safeguard the Himalayan glacier and mountain eco-system), Green India (to enhance eco-system through afforestation), Sustainable Agriculture (to make our agriculture resilient to climate change) and Strategic Knowledge for Climate Change (to fund research and technology development on climate change). On a revisit to the Missions in 2016, the government has proposed to set up new missions on Wind Energy, Health, Waste to Energy and Coastal Areas as well as to redesign the Missions on Water and Sustainable Agriculture.

developmental initiatives shall not result in the enhancement of her per-capita emissions. Currently, each state government is also in the process of developing State Action Plan on Climate Change whereby the climate change adaptation and mitigation strategy would get imbibed into the state developmental policies.

Being a party to the Paris Agreement (2016), India had also submitted her action plan for 2030, in the form of Intended Nationally Determined Contributions (INDC). Despite the non-existence of any binding obligation (either under the Kyoto regime or the Paris regime), India has volunteered to commit the reduction of the emissions intensity of her GDP by 33-35%, over 2005 levels, by 2030. Other commitments include propagating a sustainable way of living based on the values of conservation; adopting a climate friendly path towards economic development; achieving 40% cumulative installed power capacity from non-conventional energy resources by 2030; creating an additional carbon sink of 2.5 to 3 billion tons of Oil equivalent through forest cover by 2030; enhancing investment in developmental programmes; mobilizing funds from developed countries; and building capacity. The newly formed 'Climate Change' division of the Ministry of Environment, Forests & Climate Change presently acts as the nodal agency to co-ordinate the National Action Plan on Climate Change and to oversee the domestic level implementation of India's pledges to the Paris Agreement.

Nevertheless, although integrating climate change adaptation and mitigation in forest management for REDD+ (reducing emissions from deforestation and forest degradation in developing countries) has been in discussion under the UNFCCC, India's move to address the rising concerns of climate change as well as pollution with the introduction of a new Draft National Forest Policy has been in the offing since 2018.

(b) Market Mechanisms

Market-based mechanisms became an integral component of the climate change movement, with the adoption of the Kyoto Protocol to the UNFCCC in 1997, which identified International Emissions Trading, Clean Development Mechanism and Joint Implementation as multiple mechanisms to facilitate international carbon trading. As the first initiative in a developing country, India can proudly take credit for the introduction of a domestic market-based mechanism for emission reduction, as the Emissions Trading Scheme (ETS) which is aimed at the reduction in the emission of Respiratory Solid Particulate Matter (RSPM), a major air pollutant. Another unique trading mechanism that prevails in India under the NAPCC, 2008, which is designed to enhance energy efficiency and to reduce energy consumption by energy intensive industries, is the Perform, Achieve & Trade (PAT) Scheme. While Renewable Energy Certificates (REC) is a non-emission trading mechanism, it has a direct implication in mitigating climate change by obligating the utilization of renewable resources of energy for power generation.

Internal Carbon Pricing (ICP) is a yet another strategy, adopted by some corporate entities to voluntarily deploy or integrate various measures to reduce emissions or to channel investments for clean and efficient technologies, into their business activities. However, to promote this trend a robust regulatory framework is deemed essential, which would seek to align such internal mechanisms with the global carbon market.[22] In addition to these, India is also considered to be the largest beneficiary of the Clean Development Mechanism- an approved financial mechanism under the Kyoto Protocol whereby a developed country can take up

[22] Tanushree Chandra, *Pricing Carbon: Trade-Offs and Opportunities for India*, OBSERVER RESEARCH FOUNDATION, June 05, 2021 *available at*: https://www.orfonline.org/expert-speak/pricing-carbon-trade-offs-opportunities-india/ (last visited on June 30, 2022).

emission reduction projects in developing countries wherein the costs involved are significantly lower, in furtherance to fulfilling their emission reduction commitments, claiming about 31% of the total world carbon trade.[23]

(c) Technological Measures

While India had contemplated that all the Coal based capacity addition during the Twelfth Five Year Plan period (2017-22) shall be based on supercritical technology[24] and although several Ultra Mega Power Projects had been identified, only four such projects have been awarded for operation so far[25] and a few others are under consideration.[26], [27] Although lately the government had considered the initiation of a new National Mission on Advanced Ultra Supercritical Technology (2017) for the better utilization of cleaner Coal technologies, in order to achieve the NDC target set under the Paris Agreement, there has to be an increase in the share of such technologies from 11.35% to 50% (under Business-as-Usual Scenario) and to 80% (under Clean Coal Technology Scenario) by 2047.[28]

(d) Fiscal Measures

The notion of a Coal Cess was introduced in India to be applied on Coal, both domestically produced and imported, from July 1, 2010 to be levied at the rate of Rs.50 per ton. The intention was to utilize the money collected from the Coal Cess/Clean Energy Cess to finance the National Clean Energy Fund, a mechanism aimed at funding clean energy projects and technologies in India. Later it was increased to Rs.400 per ton. However, with the introduction of the GST regime in 2017, the Cess was absorbed into it with a major portion of the garnered finance being diverted to raise the GST Compensation Fund.

(e) Climate Change Litigation

Indian courts have been quite pro-active lately in the development of an enviro-legal jurisprudence having an implication on climate change mitigation in the country. In this regard, the National Green Tribunal (NGT) had initiated a litigation on its own motion against the State of Himachal Pradesh in 2010, on finding that the Black carbon emission during vehicular use at the Rohtang Pass was causing rapid melting of glaciers in the Himalayan regions.[29] However, when the tribunal's jurisdiction was invoked to hold the state and the central government accountable for implementing the NAPCC, it was objected by the central ministry on the ground that the issue did not fall within the jurisdictional ambit of NGT.[30] Another significant opportunity arose when a 9-year-old climate activist moved a petition in March 2017 urging the State to undertake greater actions to mitigate climate change, specifically by the inclusion

[23] *Hey, What Exactly are Carbon Credits?*, THE ECONOMIC TIMES, August 29, 2005 *available at*: https://economictimes.indiatimes.com/hey-what-exactly-are-carbon-credits/articleshow/1212812.cms (last visited on June 30, 2022).

[24] 2 Planning Commission of India, Twelfth Five Year Plan, *Economic Sector* 138 (2012-17) at para.14.28 & 14.29.

[25] Sasan (M.P.), Mundra (Gujarat), Krishnapatnam (A.P.), Tilaiya (Jharkhand) See: http://www.pfcindia.com/Home/VS/22

[26] Cheyyur (TN), Kakwara (Bihar), Bedabahal (Odisha), Deoghar (Jharkhand), Bijoypatna (Odisha), Kalahandi (Odisha) and Etah (UP). See: https://powermin.gov.in/sites/default/files/webform/notices/UMPP_Projects.pdf

[27] Das, B., Pandya, M., Chaudhari, S., Bhatt, A., & Trivedi, D. (2021). Global Research Trends and Network Visualization on Climate Action : A Bibliometric Study. Library Philosophy and Practice (E-Journal). https://digitalcommons.unl.edu/libphilprac/5818/

[28] Manoj Kumar Upadhyay, *Analyzing the Impact of Clean Coal Technology on the Overall Energy Scenario in Energizing India*, NITI Aayog & IEEJ (2017) *available at*: https://niti.gov.in/writereaddata/files/Energising-India.pdf

[29] Re, Court on its own motion v. State of Himachal Pradesh & Ors., CWPIL No. 15 of 2010.

[30] Gaurav Kumar Bansal v. Union of India and Ors., Original Application No. 498 of 2014.

of 'climate change' in the Environment Impact Assessment (EIA). Unfortunately, the case was dismissed on the reasoning that the allegation of governmental disregard to international developments in the national policies, was groundless.[31] Similarly, when a petition arose before the tribunal seeking for a directive to be issued to certain industries to abstain from the manufacture of HFC-23 (a gas identified in the GHG category), the tribunal showed reluctance to intervene as it was not categorized as a pollutant in the Indian statutes.[32]

(f) Energy Efficiency and Conservation Measures

Since energy sector in India is accountable for almost 68% of the country's total GHG emissions,[33] a few specific provisions are also found to have been attempted at the supply as well as demand side of energy management, in order to enhance energy efficiency and conservation, towards climate change mitigation. One of the strategic plans laid down as a part of India's NDC to the Paris Agreement is also to promote energy efficiency to lessen the emission intensity and to promote behavioral change leading to energy conservation.

In this regard, a detailed institutional framework does exist in India for reducing the energy demand and consumption at the different energy consuming sectors like the Industrial Sector, Transportation Sector, Appliance & Equipment, Agricultural Sector, Building Sector, Domestic Sector etc., under the Energy Conservation Act, 2001 and worked out through the Bureau of Energy Efficiency (BEE). However, at the supply side of energy management, particularly with respect to energy generated from conventional energy resources (i.e., Coal, Oil & Gas), the efficiency and conservation measures have not been developed effectively or been subjected to comprehensive institutionalization. Rather the available provisions governing supply side management like resource exploration, production, processing, storage, transportation, distribution etc. are spread across multiple policies and legislations, like the Mines and Minerals (Development & Regulation), Act 1957, Coal Mines (Conservation & Development) Act, 1974, Oilfields (Regulation & Development) Act, 1948, Air (Prevention & Control of Pollution) Act, 1981, Water (Prevention & Control of Pollution) Act,1974, Environment Protection Act, 1986, Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016, Ozone Depleting Substances (Regulation & Control) Rules 2000, Environment Impact Assessment, 2006, Corporate Environmental Responsibility, Sustainability Reporting for Business etc. Moreover, several reforms are warranted to be introduced in order to strengthen these provisions and to bring them in line with the international developments.

Analysis

As an outcome of the pro-active measures adopted (according to the report) to increase the share of renewable energy across sectors (approximately reaching 38.18% of total installed capacity by November 2020), to improve energy efficiency schemes/programmes (with an overall energy savings of 23.728 Mtoe for 2018-19), to enhance forest and tree cover (from 8, 02, 088 square km in 2017 to 8, 07, 276 square km in 2019) etc., India has reported to have resulted in the reduction of the emission intensity of its GDP by 24% between 2005 and 2016.[34] Be that as it may, the new goals[35] put forth by India under the Glasgow Summit (COP 26) in

[31] Ridhima Pandey v. India, 2017 *available at:* http://climatecasechart.com/non-us-case/pandey-v-india/

[32] Indian Council for Enviro-Legal Action v. Ministry of Environment, Original Application No. 170 of 2014.

[33] *See Generally:* https://www.climatelinks.org/resources/greenhouse-gas-emissions-factsheet-india

[34] India: Third Biennial Update Report to UNFCCC, Ministry of Environment, Forests & Climate Change, 2021 *available at*: https://unfccc.int/sites/default/files/resource/INDIA_%20BUR-3_20.02.2021_High.pdf

[35] As per the Panchmrit solution as proposed by the Prime Minister (at the Glasgow Summit), a five-fold plan has been promised which encompasses a) increasing non-fossil energy capacity to 500 GW by 2030 b) meeting 50% of energy requirements with renewable energy by 2030 c) reducing one billion tonnes of total projected

November 2021, needs to be appreciated well, so that appropriate plan of action is formulated in the way forward towards achieving them. Moreover, the fact that G20 countries (which includes India) have lately (in November 2021) agreed to keep the 1.5 Degree Celsius target, for a meaningful and effective action against climate change,[36] is also a reaffirmation that India needs to reconsider and update her commitments under the NDCs, to bring it in tune with the Paris Agreement.

Evidently,

a. The modest initiatives taken so far which can be deemed to have an implication in the country's climate change mitigation movement, are spread across different economic sectors. Except for the adoption of a National Action Plan on Climate Change in 2008, which is merely an action plan, no comprehensive law or policy framework has been introduced yet which seeks to lay down a blueprint for climate change adaptation and mitigation efforts for the Indian legal and regulatory domain, touching across all the sectors.
b. While the notion of 'climate security' is not even been comprehended in the prevailing laws or policies; the global issue of climate change itself is being dealt with restrictively as an environmental issue further being equated predominantly to the national concern of air pollution. Accordingly, the specific emission reduction measures implemented in India are targeting at reducing the air pollutants (i.e., Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone, Sulphur Dioxide, Particulate Matter etc.), which are different from the Greenhouse Gases (i.e., Carbon Dioxide, Methane, Nitrous Oxide, Fluorinated Gases etc.).
c. Moreover, the recurring environmental or natural disasters in India are not yet been recognized or perceived to be potentially in connection with the phenomenon of climate change. Accordingly, the Disaster Management Act, 2005 continues to remain silent on the requisite measures called for to integrate climate change mitigation measures within it.

Inferences and Suggestions

Addressing the ever-rising impact of climate change would require integrating its probable features into the national and regional developmental strategies. From the perspective of climate security, this would eventually warrant the formulation of an overarching law or policy. Imminently, this would at least call for amendments in the Disaster Management Act to inculcate the aspects of climate change mitigation into it such that the definition of the terms like disaster, capacity building, disaster management etc. are itself reflective of it. Moreover, specific provisions may have to be incorporated to make the statute more adept to address climate security concerns. Since, at this juncture, it would be too early and unviable to expect the central legislature to expressly design provisions in the disaster management law to meet with these requirements; it is deemed more prudent to consider the implementation of certain community-based and administration-based ground level measures which could be more pragmatic and effective, through state-specific rules. Fundamentally, the local self-government institutions in each state (particularly the ones that are more prone to natural calamities) should be made more adept to understand the socio-ecological impact of climate change as well as the vulnerabilities of each societal groups, in the occurrence of a climate change driven natural

carbon emissions by 2030 d) reducing the carbon intensity of the economy to less than 45% and e) thus achieving net-zero emissions by 2070.

[36] Jayashree Nandi, *G20 Leaders Agree to 1.5 Degree Celsius Global Warming Target*, HINDUSTAN TIMES, November 01, 2021 available at: https://www.hindustantimes.com/india-news/g20-leaders-agree-to-1-5-c-global-warming-target-101635704908793.html

disaster. Secondly, awareness, training and capacity building are to be provided to the potential vulnerable groups in the community in order to better cope to the changing situations. Thirdly, the local administrative authorities and community leaders should work in tandem to increase co-operation and strengthen measures for ensuring food, health, livelihood and human security, in the event of a natural calamity. Fourthly, steps should be taken to transmit to younger folk the forgotten conventional knowledge in the community governing natural resources management. Fifthly, the women folk in the community, who are deemed to be more effected by the adverse impact of climate change then men, should be given special attention in the capacity building measures, in order to fortify their resilience and adaptive capacity. In this regard, women organisations and other minority associations in the community should be made participant in the decision-making process on climate security. Thus, in addition to the prevailing focus of the laws and policies on emission reduction and conversion to green technologies towards climate change mitigation, there is also an imperative requirement for the related laws and policies to emphasize on human development, social sensitization and strengthening local governance institutions as a preventive measure towards climate security.