

Sustainable development and climate change

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The concept of Sustainability is based on three pillars namely Economy, Society, and Environment. In September 2015, 193 member countries came together with the 2030 agenda and adopted the Sustainable Development Goals consisting of 17 goals and 169 targets. In view of the rapid depletion in climate change conditions marked by exposure of an average of 83.2 g/cubic meters of PM2.5 pollutants, compared to a much lower level of merely 8 g/cubic meters in cleaner countries, rise in water level and exhaustion of natural resources, striving towards achieving Sustainable Goals holds immense importance. In addition to that, the COVID-19 pandemic and its impact on all 17 SDGs has demonstrated that what started out as a health catastrophe has soon turned into a human and socioeconomic crisis. While the crisis jeopardizes progress toward the SDGs, it also emphasizes the urgency and importance of achieving them. It is necessary to seek a revolutionary recovery from COVID-19, one that tackles the crisis, decreases the danger of future potential crises, and relaunches implementation efforts to deliver the 2030 Agenda and SDGs during the Decade of Action. India's overall attainment of the NITI Aayog SDG India index climbed to 66 in 2020-21 from 60 in 2019-20 and 57 in 2018-19, indicating success in the country's efforts to meet the SDGs. This achievement is even more significant in light of the human and economic costs imposed by the COVID-19 epidemic, which has caused nations to fall behind on their development targets and has presented substantial hurdles to the global implementation of the SDGs.

Out of the 17 SDG Goals, India performed well in 8 SDGS for the year 2020-21. Almost all the states have shown increment in their performance with Kerala being in the topmost position followed by Tamil Nadu and Himachal Pradesh. The Government has also been

taking extensive measures to improve the climate and achieve sustainable 2030 agenda. According to the budget provision 2022-23, the government has allocated Rs. 3030 crores under the Ministry of Environment, Forests and Climate Change, Rs. 18697.88 crores under the Department of Water Resources, River Development and Ganga Rejuvenation, Rs. 6900.68 crores under the Ministry of New and Renewable Energy, and Rs. 16074.74 under the Ministry of Power.

Government measures taken to preserve the current state of the environment

Our country's social and economic development over centuries has continued to have an impact on the environment which makes preservation of our environment essential.

As per the data of India State of Forest Report 2021, India is the tenth-largest country in terms of forest area accounting for 24% of total India's geographical area and 2% of the world's total forest area. Madhya Pradesh (11%) has the highest forest area in India followed by Arunachal Pradesh (9%) and Chhattisgarh (8%). The Government has been making policy measures for Plastic use and waste management. In effect, the manufacturing, stocking, and selling of single-use plastic shall be prohibited from July 2022. The thickness of plastic carry bags has been increased to 120 microns which shall come into effect from December 31, 2022, and this is being done in order to stop littering and to enable the reuse of the bags. In addition to this, for a more comprehensive action plan, the first meeting of the National Task Force for successful execution of the Plastic Waste Management Rules, 2016 was held on 31st August 2021.

Rapid urbanization and industrialization have resulted in the expansion of the gap between sewage generation and treatment which is a major source of increase in pollution of rivers. The Ganga River Basin is India's biggest river basin housing roughly 43% of the country's population and providing 28% of the country's water resources. In an effort to preserve and conserve the water bodies, Namami Ganga Mission was started in 2015 for a period of five years (2015-2020). As an effect of this, a total of 363 projects worth Rs. 30,841.53 crores have been sanctioned. Under the pillar 'Nirmal Ganga', a total of 160 sewage projects have been sanctioned in 2021. Under the pillar of Jal Ganga under the Namami Ganga Mission, the River City Alliance was established in November 2021. In addition to this, there has been an improvement in the compliance status of Grossly Polluted Industries (GPIs) to 81% in 2020.

In the Union Budget 2022-23, significant measures have been taken to combat the challenges of air pollution. The National Clean Air Programme targets to achieve a 20-30% reduction in particulate matter (PM) concentrations by the end of 2024. For this purpose, phase 2 of faster adoption and manufacturing of hybrid and electric vehicles (FAME) has been allotted a budget outlay of 10000 crores for the period of 2019-2024 but a proper plan for this scheme has not been addressed yet. In order to monitor the air quality, Air Quality Early Warning System has been implemented in three cities: Delhi, Kanpur, and Lucknow.

Government measures taken to prevent climate change

India is experiencing significant repercussions as a result of climate change and was rated fourth on the list of nations most impacted by climate change in 2015. Temperature changes on the Tibetan Plateau are forcing Himalayan glaciers to recede and causing jeopardy to the flow rates of the Ganges, Brahmaputra, Yamuna, and other important rivers. Climate change is increasing the frequency and intensity of heatwaves in India. Severe landslides and floods are expected to become more prevalent in the future. National Action Plan on climate change mainly focuses on identifying measures to promote development through addressing climate change effectively by the use of new technology. This plan has made significant progress through the years with the eight missions that are being implemented under this scheme, which range from installation of solar power plants, afforestation activities, sustainable agricultural techniques, energy conservation, and building a vibrant and dynamic knowledge system. Moreover, Climate Change Action Plan (CCAP) has been extended up to 2025-26 with a budget estimate of Rs. 30 crores this year. The wind-solar hybrid policy, by the Ministry of New and Renewable Energy, aims to promote renewable power generation and better grid stability. A capacity of 4.25 GW of the wind-solar hybrid has been installed as of 31st December 2021. In addition to this, the government is also planning to set up Solar Parks with a capacity of 40 GW by March 2024, in an effort to effectively channel the unused solar energy in India.

International initiatives taken by India

The major initiative taken by the government is committing to the Nationally Distributed Contribution (NDC) under the Paris Agreement in which India has to -

1. Reduce emission intensity of GDP by 33-35%, by 2030.

2. Create an additional carbon sink of 2.5- 3.0 million tonnes of CO₂ equivalent to additional forest and tree cover, by 2030.

3. Achieve about 40% cumulative elective power install capacity from non-fossil fuel energy resources by 2030.

To comply with climate change on a global scale, India became a part of numerous initiatives. Our honourable Prime Minister proposed Lifestyle for Environment (LIFE) at COP26 in November 2021, with the aim of a mindful utilization of resources that encourages sustainability and protects the environment. India is home to the world's largest solar plant (648 MW) and solar park (2 GW). Our honourable prime minister, Narendra Modi while addressing the nation had stated, "Humans have in the past 150-200 years relied on resources trapped under the Earth's surface for meeting energy needs but for a secure future, resources available above the earth like solar and wind energy needs to be harnessed." The International Solar Alliance (ISA) has been tasked with facilitating the mobilization of \$1 trillion in solar investments by 2030 to massively scale up solar energy installations. The ISA's 2021-2026 Strategic Plan recognizes three major worldwide issues: energy access, energy security, and energy transition. Another significant international alliance was Infrastructure for the resilient Island States (IRIS) inaugurated in November 2021 as a part of the SIDS program with member countries: the United Kingdom, Australia, Fiji, Jamaica, and Mauritius to provide high quality technical and financial assistance to help withstand climate change and disasters.

Challenges and future prospects

Although it is clear that the need of adopting a sustainable way in one's lifestyle is imminent, certain bottlenecks are still faced by India. One of the major challenges faced by India in attaining sustainable goals and in steps of effective climate change measures is a financial backup. In this respect, the government is aiming for net-zero emissions by 2070, utilizing market-based tools such as sovereign green bonds to finance climate change. Another inevitable yet adverse challenge faced in attaining sustainable goals is the lack of completeness. Achieving a particular goal can result in an adverse effect on another goal. For example, The budget intends to encourage chemical-free natural farming as a means of promoting agricultural sustainability across the country. In effect to this, a 5-kilometer-long corridor along the Ganga's banks has been chosen on an experimental basis. This notably has an impact on the contamination of the Ganga. As a result, we may conclude that uplifting one

SDG 15 target harms another SDG 6. Another major challenge faced by India is the lack of proper infrastructure to facilitate the process of sustainable development. One illustration of this problem can be seen through the undersupply of proper charging points for electric vehicles.

Despite these challenges, the government is bringing new policy initiatives like Green Bonds which provide an issuer the access to investors who are financing 'green' projects. Reserve Bank of India has also joined the 'network for greening financing system' which will help to integrate climate and financial sector. Thus, it is evident that if policy interventions are made with proper planning and understanding, India can overcome the problem of climate change and fulfil the 2030 agenda of SDG.

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