# Mitigating Environmental Issues

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**Greenhouses gases are generated by burning fossil fuels for energy production which are responsible for global climate change posing great environmental threat. Over 80 percent of India's energy needs are met by three fuels namely coal, oil and solid biomass. As per World Energy Outlook (2021) of International Energy Agency, the current share of India in global primary energy consumption is 6.1 per cent. If the subsidies and impacts of fossil fuels are addressed in energy policies, then the renewable energy technologies could be used more rapidly.**

Greenhouses gases are generated by burning fossil fuels for energy production which are responsible for global climate change posing great environmental threat. Environmental problems span a continuously growing range of pollutants, hazards, and ecosystem degradation factors that affect areas ranging from local through regional to global. Literature reveals that energy consumption accounts for 60 per cent of the total greenhouse gas emissions. Talking about the energy consumption in India, as per World Energy Outlook 2021 of International Energy Agency (IEA), the current share of India in global primary energy consumption is 6.1 percent. Over 80 percent of India's energy needs are met by three fuels: coal, oil and solid biomass. [India Energy Outlook, IEA 2021]. In the energy sectors (both for developing and developed countries) widespread use of renewable energy is important for achieving sustainability. After all clean air is basic fundamental human right (World Health Organisation). A transition to cleaner forms of energy has already begun in many countries, with the fast rate of technological innovation and cost reduction. Renewable energy technologies could be

*Solar Panels in Uttarakhand*

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deployed more rapidly if energy policies addressed both the subsidies and impacts of fossil fuels while facilitating more finance for renewable energy projects (www.unep.org).

> The Union Cabinet has given its approval to introduce the Production-Linked Incentive Scheme in High Efficiency Solar PV Modules. Further, the Energy Conservation (Amendment) Bill, 2022 has been passed which focus on the use of non-fossil energy to decarbonise Indian economy. These initiatives will help India achieve targets of Paris Climate Agreement and significantly contributes towards reducing the pollution load and thereby mitigating environmental problems.

In 2008, National Action Plan on Climate Change (NAPCC) was prepared which has eight missions as a multi-pronged, long-term and integrated approach to address climate change. It has overarching policy framework for all climate actions including the expansion of solar energy resources. Subsequently, the states also prepare their respective State Action Plans on Climate Change (SAPCCs) that focus on adaptation interventions. Long-Term Low-Carbon Development Strategy submitted by India under United Nations Framework Convention on Climate Change (UNFCCC) focus on the rational utilisation of national resources with due regard to energy security (www.moef.nic.in). The Paris Agreement in Article 4, states, "All Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies, mindful of Article 2 taking into account their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances." Ministry of Environment, Forest and Climate Change has two central sector schemes that address climate change. The Climate Change Action Plan (CCAP) launched during the 12th Five Year Plan with an outlay of Rs. 290 Cr. to build capacity and support implementation of relevant climate change related actions at the national and State level. Another scheme, the National Adaptation Fund for Climate Change (NAFCC), established in August 2015, with the aim of meeting the cost of climate change adaptation for states and union territories in India which are vulnerable to the impacts of climate change. India at the 26th session of the Conference of the Parties (COP 26) to the UNFCCC held in Glasgow, presented 'Panchamrit' of India's climate action. These were: (1) India will get its non-fossil energy capacity to 500 gigawatt (GW) by 2030, (2) India will meet 50 per cent of its energy requirements from renewable energy by 2030, (3) India will reduce the total projected carbon emissions by one billion tonnes from now onwards till 2030, (4) By 2030, India will reduce the carbon intensity of its economy by less than 45 per cent and (5) By the year 2070, India will achieve the target of Net Zero.

Under the various policy measures taken to fulfil its commitment made in Paris Climate Agreement in 2015 to have 40 per cent of installed power generation capacity from non-fossil fuel sources by 2030, the Government of India also initiated PM-KUSUM (Pradhan Mantri Kisan Urja Suraksha Evam Utthan Mahabhiyan) implemented by Ministry of New and Renewable Energy (MNRE). The scheme has three components: Component A: 10,000 MW of Decentralised Ground Mounted Grid Connected Renewable Power Plants of individual plant size up to 2 MW, Component B: Installation of 17.50 lakh standalone Solar Powered Agriculture Pumps of individual pump capacity up to 7.5 HP and Component C: Solarisation of 10 Lakh Grid-connected Agriculture Pumps of individual pump capacity up to 7.5 HP [pmkusum.mnre.gov.in]. The aim is to provide


energy and water security to farmers, enhance their income, de-dieselise the farm sector, and reduce environmental pollution in the process. Also, for setting up of subsidised solar pumps and solar power plants across the country. It is one of the biggest initiatives in the field of transforming India's energy landscapes to provide clean energy to more than 3.5 million farmers across India [Mann ki Baat (Oct 2022), Ministry of Information and Broadcasting].

The Union Cabinet has also given its approval to introduce the Production-Linked Incentive (PLI) Scheme in High Efficiency Solar PV Modules for Enhancing India's Manufacturing Capabilities and Enhancing Exports – AatmaNirbhar Bharat with the scheme outlay as Rs. 24,000 cr, (www.investindia.gov.in). It aims to reduce import dependence in the area of energy sector. The PLI scheme has six objectives which are as follows:

i. To build up solar PV manufacturing capacity of high efficiency modules.

ii. To bring cutting-edge technology to India for manufacturing high efficiency modules. Technologies which yield better module performance will be incentivised.

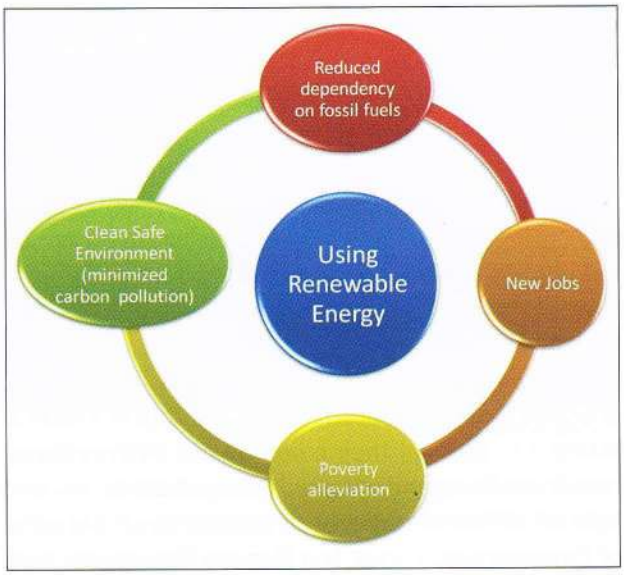
iii. To promote setting up of integrated plants for better quality control and competitiveness.

iv. To develop ecosystem for sourcing of local material in solar manufacturing.

v. Employment generation and technological self sufficiency.

vi. To encourage sustainable manufacturing practices and adoption of circular economy approaches.

It has 14 key sectors to create national manufacturing champions and also to create 60 lakh new jobs during next five years. Green Energy Corridors is another programme implemented by MNRE in the country to promote renewable energy sources, to create intra-state transmission system for renewable energy projects. Central financial assistance is provided to set up transmission infrastructure for evacuation of Power from Renewable Energy projects. Recently, Hon'ble Prime Minister of India declared Modhera, a village in the Mehsana district of Gujarat as India's first solar-powered village. Conversion to a clean, renewable energy source is not only enabling the villagers to run more electrical household gadgets to make life comfortable, without worrying about the electricity bill but also becoming a source of income for them (UN News). The solarisation of the Modhera Sun Temple and town happened through partnership between the Central and State governments. It involved integrating the village with a Battery Energy Storage System (BESS) at Sujjanpura in Mehsana, about 6 km away from the Sun Temple. More than 1,300 rooftop solar systems have been installed on houses for power generation. While day time power comes from the solar panels, at night it is supplied from the BESS. Villagers at the ground level have realised the benefits and have not only reduced their electricity bills but have also expanded their scope of work with the help of solar power.



In Uttar Pradesh, a target of producing 22,000 MW electricity from solar energy in the next five years has been set viz. 14,000 MW from Solar Park, 4500 MW from Solar Rooftop Residential, 1500 MW from Solar Rooftop Non-Residential and 2000 MW under PM Kusum Yojana. The new Solar Policy will give subsidy for solar power pumps for running tubewells and other agricultural purposes. There is exemption for solar plants from obtaining environmental clearance, grid connected solar PV projects from obtaining consent and NOC for installation and operation under pollution control rules. The solar energy sector is a true representation of an AatmaNirbhar Bharat. Renewable energy technologies need to be strengthened by education and training programs (knowledge awareness). Further, the Energy Conservation (Amendment) Bill, 2022 has been passed which focus on the use of non-fossil energy (biomass, ethanol, green hydrogen) to decarbonise Indian economy. It will also allow carbon credit trading. These initiatives will help India achieve targets of Paris Climate Agreement and significantly contributes towards reducing the pollution load and thereby mitigating environmental problems. It will also have bearing on the targets set in Global Biodiversity Framework under the COP-15 of Convention on Biological Diversity to protect the world's biodiversity.