Sustainable Development and Climate Change

05
CHAPTER

"You know that India is one sixth of the global community. Our development needs are enormous. Our poverty or prosperity will have direct impact on the global poverty or prosperity. People in India have waited too long for access to modern amenities and means of development. We have committed to complete this task sooner than anticipated. However, we have also said that we will do all this in a cleaner and greener way"

- Prime Minister Narendra Modi (2018)

In adoption of 2030 global agenda, the countries are moving forward for achieving a world free from poverty, gender inequality and economic inequality and thereby ensuring a healthy planet for future generations. These goals are multi-dimensional and integrate various social, economic and environmental dimensions. India continues to target and maintain its economic growth by introducing and implementing various policies and measures relating to sustainable development, climate change, resource efficiency and air pollution. India has been progressing rapidly towards achieving the Sustainable Development Goals (SDGs). With increasing demand for resources to cater to the different developmental needs, policies need to nudge economic agents towards achieving the maximum output from the available resources. Developing countries like India need to endeavor to do the best possible within their own domestic resources, keeping in mind the sustainable development imperatives. It is time for the global community to exhibit the requisite momentum to act upon their responsibilities on establishing the enabling environment for sustainable development and climate actions.

INTRODUCTION

5.1 The 2030 Agenda for Sustainable Development and its 17 SDGs adopted by World leaders in 2015 presents a roadmap for future development trajectory to all nations with focus on poverty eradication, environmental sustainability, peace and prosperity. The achievement of these goals is an imperative for, not just, any particular country but the global community as a whole. The need for global cooperation in helping the developing countries in achieving the climate targets cannot be overstated. India's development agenda has for long been based on principles that are closely related to those that have been propounded in the 2030 Development Agenda. Climate change requires concerted global efforts and India has been preserving to address the climate challenges along with other developmental imperatives. The country has been making substantial additions to its installation of renewable power capacity. Increasing growth rate and rapid urbanization in India have

spurred the demand for natural resources, exerting pressures on the environment and raising sustainability concerns. Resource efficiency can be a major tool to meet the resource needs of the country at the least possible cost to the environment. Air pollution has emerged as a serious issue in India. National Clean Air Program (NCAP) has been launched by the Government as a pan-India, time bound, national level initiative to address the country-wide issues of air pollution in a comprehensive manner.

ACHIEVING THE SDGs

5.2 The SDGs are global goals, built upon the erstwhile Millennium Development Goals. They are exhaustive, universal and integrated and emphasize on core areas of poverty and inequality, economic growth, innovation, sustainable consumption and production, climate change, peace and justice and partnerships.

5.3 Estimates suggest that US$5 to US$7 trillion per year is required for financing these goals worldwide and US$3.9 trillion per year in developing countries. However, the current investment in developing countries is around US$1.4 trillion leading to a shortfall of US$2.5 trillion per year (UNCTAD, 2014). Global action of this scale requires strong coordination between different governments, development institutions, private sector and financial institutions for the effective financing and implementation across the globe.

India's Progress towards the SDGs

5.4 Sustainable development requires every nation to prioritize their targets and carefully implement various schemes/programmes in accordance with local challenges, capacities and available resources. India follows a holistic approach for achieving the SDGs by implementing a comprehensive array of schemes. Current flagship policies and programmes of Government of India such as Swachh Bharat Mission (SBM), Beti Bachao Beti Padhao (BBBP), Pradhan Mantri Awas Yojana (PMAY), Pradhan Mantri Jan-Dhan Yojana (PMJDY), Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY) and Pradhan Mantri Ujjwala Yojana (PMUY) have substantially contributed to India's progress in this regard.

5.5 In the federal context of India, programmes and schemes are basically implemented at the level of States and Union Territories. Tracking of progress on different SDGs, therefore, is important for appropriate policy actions and building up a competitive spirit among the States and UTs. NITI Aayog has come up with a single measurable index to track the progress of all the States and UTs across 13 out of 17 SDGs (excluding Goal 12, 13, 14 and 17 on account of unavailability of comparable data across States/UTs). This SDG index provides an aggregate assessment of India's progress. This index helps in informed policy formulations as it captures status of both national and state-level social, economic, and environmental parameters across a set of 62 select indicators. The score varies from 0 to 100. States with scores equal to/greater than 65 are considered as **Front-Runners (in Green); as Performers (in Yellow)** in the range of 50-64 and as **Aspirants (in Red)** if the score is less than 50. States with an index score of 100 are classified as **Achievers (in Blue)** i.e. the states have achieved the national target set for 2030. A score of 0 denotes worst performance. The SDG Index Score ranges between 42 and 69 for States and between 57 and 68 for UTs and is presented in Table 1 below.

Table1: Performance of States/UTs on each SDG

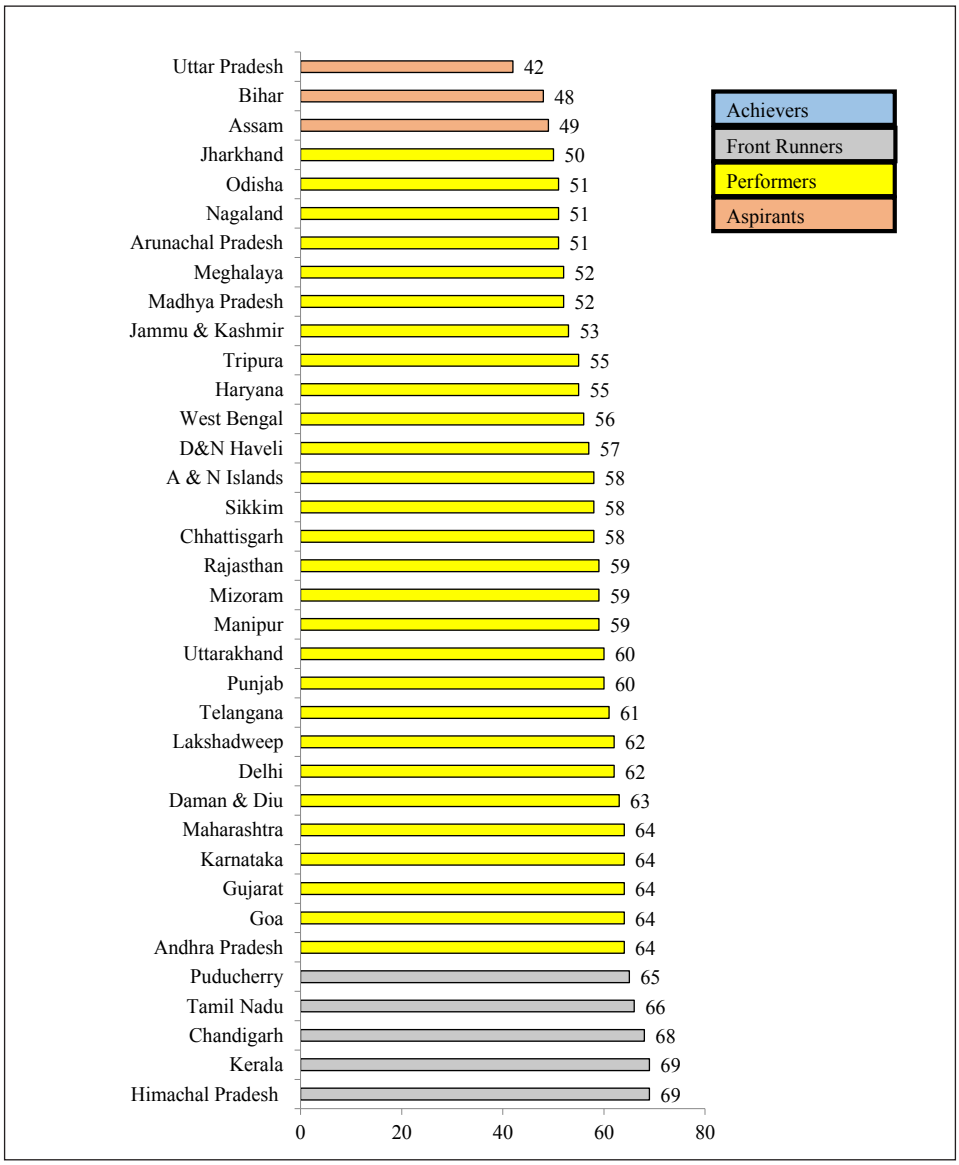
States	SDG 1 (End Poverty)	SDG 2 (End Hunger)	SDG 3 Health	SDG 4 Education	SDG 5 Gender Equality	SDG 6 Water	SDG 7 Energy	SDG 8 Eco Growth	SDG 9 Infrastructure and Industrialization	SDG 10 Inequality	SDG 11 Resilient cities	SDG 15 Ecosystem and Biodiversity	SDG 16 Institutions
Andhra Pradesh	67	50	68	77	44	59	76	81	31	75	26	87	90
Arunachal Pradesh	52	58	38	44	32	64	44	72	16	47	44	73	77
Assam	53	53	30	54	36	42	18	61	35	75	32	100	53
Bihar	45	39	40	36	24	31	67	58	38	82	43	56	60
Chhattisgarh	50	46	42	53	49	98	36	56	30	73	54	100	65
Goa	62	80	65	71	35	65	61	90	0	50	71	100	87
Gujarat	48	49	52	67	31	100	67	80	65	79	52	71	73
Haryana	50	53	57	65	31	80	50	72	50	55	30	43	78
Himachal Pradesh	60	58	62	82	42	95	62	71	43	98	41	93	91
Jammu & Kashmir	61	60	53	51	39	52	58	43	35	71	23	74	69
Jharkhand	37	35	40	58	32	51	20	52	47	72	52	96	64
Karnataka	52	54	69	76	43	62	77	72	57	68	36	88	74
Kerala	66	72	92	87	50	62	60	61	68	72	46	75	82
Madhya Pradesh	44	41	38	49	33	63	58	57	27	75	39	91	59
Maharashtra	47	47	60	74	43	81	69	74	53	76	34	86	82
Manipur	44	74	67	65	25	44	39	33	72	98	31	100	70
Meghalaya	68	43	52	38	36	40	11	62	42	100	39	94	53
Mizoram	71	69	53	54	43	67	78	65	0	100	32	69	71
Nagaland	59	69	34	45	42	58	45	40	0	80	32	75	87
Odisha	59	46	54	46	43	46	23	53	32	78	34	100	55
Punjab	56	71	71	63	43	60	61	57	48	62	36	67	84
Rajasthan	59	45	49	73	37	43	63	57	62	79	45	68	81
Sikkim	64	67	52	47	50	78	47	57	1	67	56	98	66
Tamil Nadu	76	61	77	75	38	66	89	71	46	85	33	74	61
Telangana	52	53	73	66	43	55	63	75	16	100	44	83	66
Tripura	71	58	53	56	38	38	32	52	38	89	38	86	71
Uttar Pradesh	48	43	25	53	27	55	23	55	29	38	37	55	61
Uttarakhand	65	53	36	68	41	78	55	67	33	62	41	100	86
West Bengal	57	50	66	51	40	54	40	63	45	76	25	88	72
A & N Islands	57	38	60	69	58	71	56	60	0	69	64	84	72
Chandigarh	39	70	23	85	51	100	96	82	76	52	40	83	90
Daman & Diu	58	42	47	46	38	99	84	91	0	100	49	84	79
D&N Haveli	21	40	32	77	41	100	73	84	0	100	6	100	63
Delhi	30	72	47	58	37	62	51	86	100	80	39	77	68
Lakshadweep	43	47	64	62	35	100	60	60	0	100	Null	100	74
Puducherry	61	71	66	69	27	45	61	85	100	94	27	50	92
India	54	48	52	58	36	63	51	65	44	71	39	90	71

Source: NITI Aayog's SDG India Index Baseline Report, 2018

5.6 India's growth trajectory for achieving SDG 10 (Reduced Inequality) and SDG 15 (Life on Land) is impressive as compared to the other SDGs as several states have achieved 100 in these SDGs. This may be due to performance in worthy initiatives such as PMJDY, Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), the National Environment Policy, National Agro-forestry Policy and Green Highways Policy. India is struggling to achieve its targets of SDG 5 (Gender Equality) and SDG 11 (Sustainable Cities and Communities) as large number of states are in the 'Aspirants' category'. Goa, a front runner among all the States and UTs in SDG 11, has been doing exceptionally well in waste management.

5.7 NITI Aayog has also developed a composite index for each State/UT which aggregates progress towards each SDG. Kerala and Himachal Pradesh are the front runners amongst all the states with a score of 69. Tamil Nadu is also

Figure 1: Performance of States and UTs on SDG Composite India Index



Source: NITI Aayog's SDG India Index Baseline Report, 2018

progressing very fast. Among the UTs, Chandigarh and Puducherry are the front runners with a score of 68 and 65 respectively (Figure 1). Kerala's good performance is attributable to the provision of good health, reducing hunger, achieving gender equality and providing quality education. Himachal Pradesh has performed well on providing clean water and sanitation along with reducing inequalities and preserving mountain ecosystem. Chandigarh, among other UTs, has performed well in providing clean water and sanitation along with affordable clean energy and quality education.

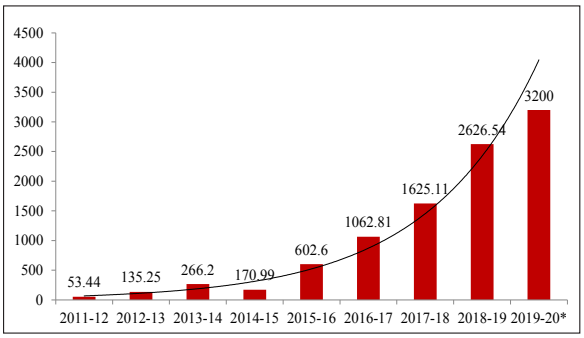
5.8 A close collaboration between the national and sub-national governments as well as active participation of all other relevant stakeholders are required for meeting the challenges of financing, technical support and continuous monitoring of the progress of each state and UT to achieve the National Sustainable Development Agenda.

GANGA – THE LIFELINE OF INDIA

5.9 A key policy priority of the Government towards achieving the SDG 6 (Ensure availability and sustainable management of water and sanitation for all) has been the cleanliness of mighty River Ganga through Namami Gange Mission. The mission was launched as a priority programme with a budget outlay of ₹20,000 crore for the period 2015-2020. During the period 2014-15 to 2018-19, a total amount of ₹6,106.25 crore has been spent on the programme indicating a substantial jump over earlier similar programmes (Figure 2).

5.10 For effective implementation and proper synchronization with the State and Local Bodies, National Mission for Clean Ganga (NMCG) was empowered as an Authority under the Environment (Protection) Act, 1986 for fast track implementation and to formulate policies for long term sustainability of the Ganga rejuvenation efforts.

Figure 2: Financial Progress of National Mission for Clean Ganga (Actual Expenditure in ₹ crore)



Source: National Mission for Clean Ganga

Note: The figure for 2019-20 is projected expenditure based on current liabilities of sanctioned projects.

Major Components of Namami Gange Mission

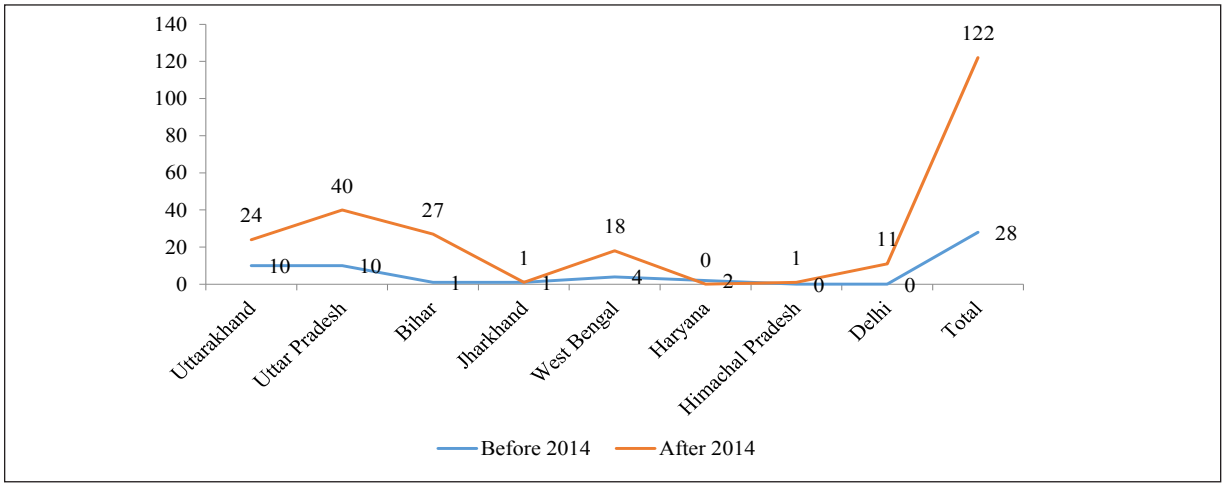
i. **Sewerage Project Management:** For sewerage projects, the policy decision to use Public-Private Partnership (PPP) approach of Hybrid Annuity Mode (HAM) and 15 years long-term Operation & Maintenance (O&M) included in the project cost and improved governance through 'One City One Operator' approach ensured competitive and positive market participation along with synergy in implementation.

ii. **Urban Sanitation:** A report prepared by the Consortium of 7 IITs identified 10 cities that contributed more than 60 per cent pollution load in Ganga. The Mission extended a comprehensive coverage of these cities with construction and rehabilitation of Sewage Treatment Plants (STPs) for a prospective year of 2035, inception and diversion of drains, solid waste management through cleanliness drives on *ghats* and deployment of skimmers for river surface cleaning.

iii. **Sewerage Infrastructure:** 150 sewerage projects (111 on Ganga stem & 39 in

tributaries) at sanctioned cost of ₹23,130.95 crore has been approved for creation of new STP capacity of 3,729.92 Millions of Litres per day (MLD), 1,114.39 MLD rehabilitated STP capacity and laying of around 4,972.35 km sewerage networks (Figure 3).

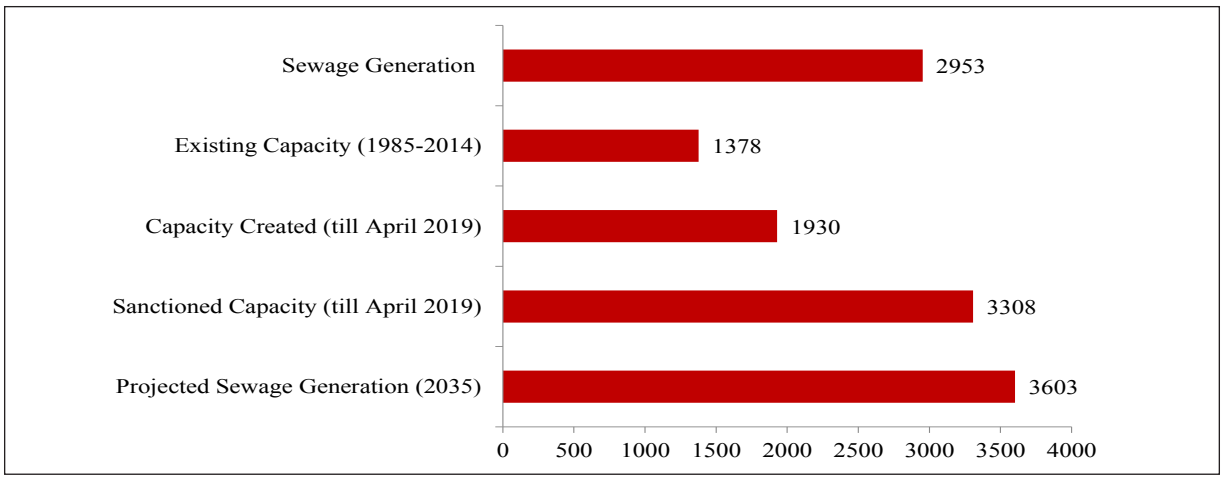
Figure 3: Number of Sewerage Projects before and after 2014 taken up in Namami Gange Program



Source: National Mission for Clean Ganga

As of May 2019, 43 of these projects have been completed, which has resulted in laying of 2,645.6 km sewer networks and of 575.84 MLD of STP capacities in Ganga basin (Figure 4).

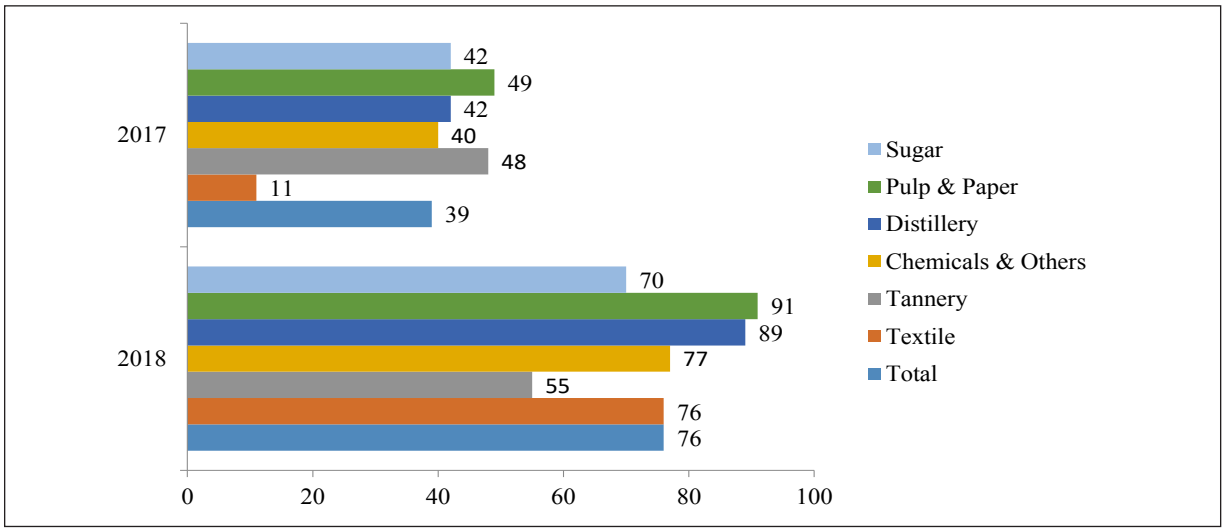
Figure 4: Sewage Generation vs. Treatment Capacity in 97 Ganga Towns



Source: National Mission for Clean Ganga

iv. Industrial Pollution: To ensure proper inventorisation and inspection of point source pollution from industrial units, 1,109 Grossly Polluting Industries (GPIs) were identified and surveyed independently by 12 Technical Institutions. The compliance of the operational GPIs in 2017 as against 2018 improved from 39 per cent to 76 per cent (Figure 5).

Figure 5: Percentage Compliance of GPIs (as of May 2019)

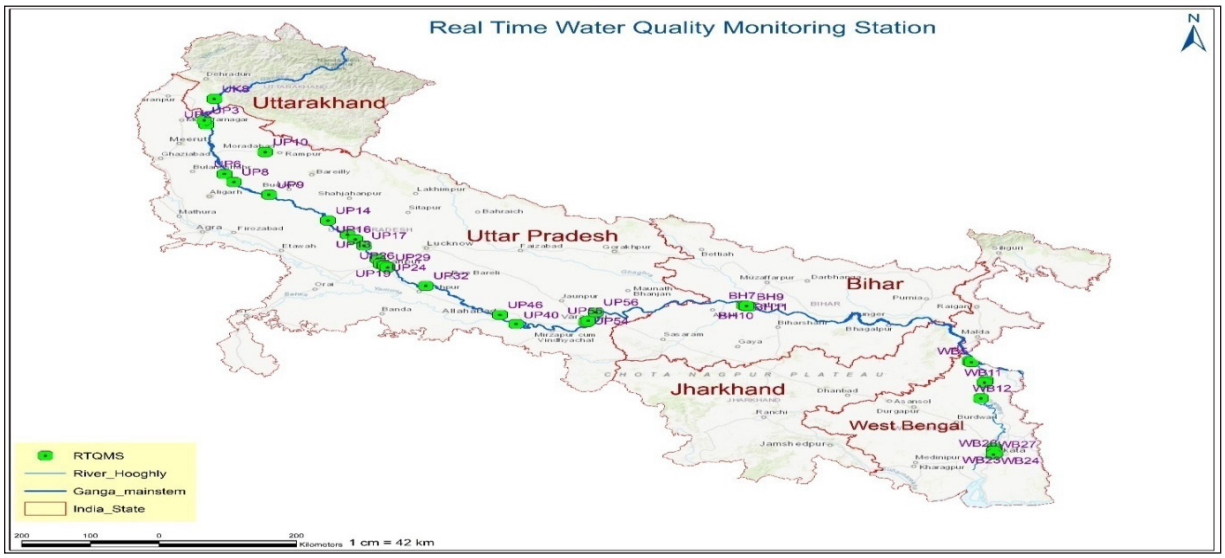


Source: National Mission for Clean Ganga

Online Continuous Effluent Monitoring Systems (OCEMS) of all operating GPIs have been connected with Central Pollution Control Board (CPCB) & State Pollution Control Board (SPCB) servers and a system of SMS alerts have been initiated to non-complying GPIs, district officials and State Project Management Groups (SPMGs). Besides, zero black liquor discharge has been achieved in Paper and Pulp industry and in distillery.

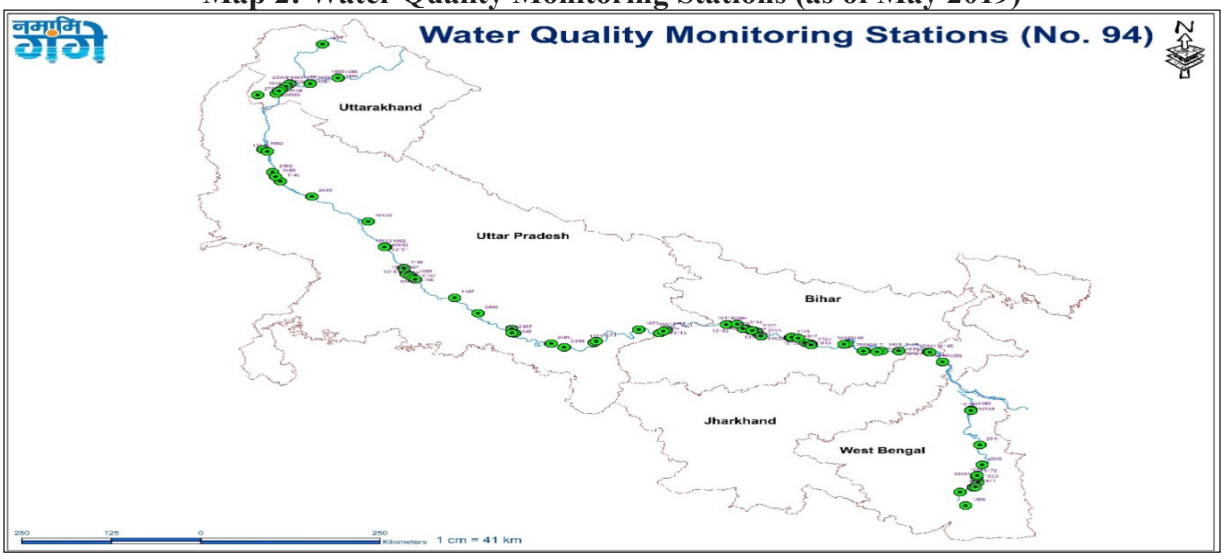
v. Water Quality: 36 Real Time Water Quality Monitoring Stations (RTWQMS) are operational under Namami Gange Programme (Map 1).

Map 1: Real Time Water Quality Monitoring Station (as of May 2019)



Manual water quality monitoring is carried out at 94 locations. Dissolved Oxygen levels being the indicator of the river health improved at 36 locations, Biological Oxygen Demand (BOD) decreased at 42 locations and coliform bacteria count decreased at 47 locations (2017 vs 2018 data) (Map 2).

Map 2: Water Quality Monitoring Stations (as of May 2019)



The organic pollution load on the river has decreased from 263 kg/MLD in 2011-12 to 65.24 kg/MLD in 2018-19 due to the various constructive steps taken in this direction such as implementation of Charters for water recycling and pollution prevention in the respective sector, adoption of cleaner technologies and practices and regular inspection of the compliance status. This can be seen in the data on the effluent generation and pollution load from the GPIs on the main stem of river Ganga and its major tributaries before and during the implementation of the Namami Gange Programme as given in Table 2.

Table 2: Data on the effluent generation and the pollution load before and during the implementation of the Namami Gange Programme

Sectors	No. of units			Effluent generation (MLD)			Organic Pollution Load (TPD)		
Year	2011-12	2016-17	2018-19	2011-12	2016-17	2018-19	2011-12	2016-17	2018-19
Pulp & Paper	67	90	85	201	173.5	87.88	76.5	8.9	5.78
Distillery	35	48	50	37	9.6	3.59	22.2	2.9	0.06
Sugar	67	88	85	96	61.5	63.18	12.5	8.4	5.41
Textile	63	242	193	11	28.2	22.97	0.5	2.3	1.21
Tanneries	442	489	409	22	17.8	10.52	6.4	2.9	3.08
Chemicals & others	90	152	139	134	378.5	133.73	13.6	41.8	5.45
Total	764	1109	961	501	669.1	321.87	131.7	67.2	21.00
MLD=Million Litres Per Day TPD= Tons Per Day							(263 kg/ MLD)	(100 kg/ MLD)	(65.24 kg/MLD)

Source: Central Pollution Control Board

vi. River as Public Space: 143 ghats have been taken up under the Mission out of which 100 have been completed. Under the Mission, 54 crematories have also been taken up for ensuring safe crematory rituals. Supporting the sanitation initiative during Kumbh 2019, NMCG sanctioned financial assistance of ₹116.6 crore for the construction of 27,500 toilets, 20,000 urinals and 16,000 dustbins and lining bags. Innovative campaigns of 'Paint My City' and other exhibitions to connect people with the city and the river were also organized.

vii. Rural Sanitation: Under Namami Gange, 4,465 villages on the Ganga stem have been declared ODF with completion of construction of about 11 lakh independent toilets. Support is also being extended to 1,662 Gram Panchayats along Ganga for solid and liquid waste management.

viii. Ecosystem Conservation: Afforestation along banks of Ganga has been taken up scientifically with the help of Forest Research Institute, Dehradun. Local communities have been involved in massive afforestation drive undertaken in the five Ganga States with total plantation of 96,46,607 leading to increase in forested area of 8,631 hectares.

ix. Urban River Management: NMCG, in partnership with National Institute of Urban Affairs (NIUA), is preparing an Urban River Management Plan to protect and enhance the status of river health within the city, to prevent their deterioration and to ensure sustainable use of water resources. A comprehensive survey for generating high-resolution Light Detection and Ranging (LIDAR) maps of the entire Ganga stretch to create a baseline of its spatial status has also been initiated.

x. Water Use Efficiency: A market for reuse of treated wastewater is being developed and the re-use of 20 MLD of treated wastewater in Mathura Refinery is a milestone in propagating this waste-to-wealth approach as well as saving the water-stressed Yamuna river.

xi. Clean Ganga Fund: Clean Ganga Fund has been set up for encouraging and facilitating corporates and individuals to join the efforts of rejuvenation of Ganga by contributing to this Fund and sponsoring certain projects. A total of ₹371 crore has been received in the Clean Ganga Fund as of April 2019 of which, ₹101.59 crore has been received in 2018-19.

RESOURCE EFFICIENCY

5.11 Resource Efficiency (RE) has emerged as one of the key strategies towards the 2030 Agenda of achieving the SDGs. SDG 12 aims to 'Ensure Sustainable Consumption and Production Patterns' along with the eight other SDG goals (2, 6, 7, 8, 9, 11, 14 and 15) have a bearing on resource efficiency. Sustainable consumption and production is also a priority for the Government of India and is reflected in various policies/programme announcements like Make in India, Zero Effect-Zero Defect Scheme, Smart Cities, Swachh Bharat, and Ganga Rejuvenation Mission. A resource efficient development approach essentially means a transition of the management of natural resources with a progressive minimization of waste in both consumption and production processes through various policies and measures.

5.12 Economic growth and urbanization in India have spurred the demand for natural resources. This growing demand has resulted in high imports, in particular, imports of fossil fuels and metals. Against this background, the availability and accessibility of primary raw materials have become major concerns. Integrated, concerted and collaborative policy of resource efficiency could be a suitable response strategy to address resource security and the growing demand with the limited

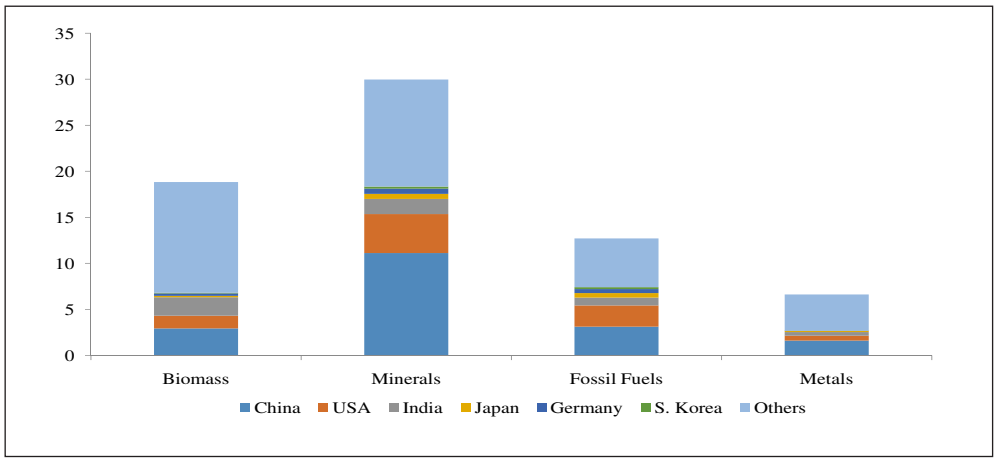
supply of the materials and at the same time ensures environmental sustainability.

5.13 The International Resource Panel estimated that efficient resource policies in G7 countries could reduce the global use of natural resource by 28 per cent, diminish greenhouse gas (GHG) emissions by an additional 15 to 20 per cent and deliver annual economic benefits of US$2 trillion globally by 2050 relative to existing trends (UNEP, 2018). Around the world, several countries have introduced various policies specific to the different stages of material life cycle. Iceland and United Kingdom have focused on reducing the use of primary raw materials and impact of material extraction respectively in the stage of 'Extraction of Raw Materials'. France has introduced the strategy of integrating the environmental aspects into designing of the products whereas Ireland has tried to extend the lifespan of the products. Both the strategies were introduced with respect to the stage of designing. Waste prevention and recycling are the most common strategies adopted worldwide. For instance, Croatia has stressed on collection of metal and bio-waste to improve recycling rates and Poland has initiated the Transform waste into resources (UNEP, 2018).

Current and Future Projections for India

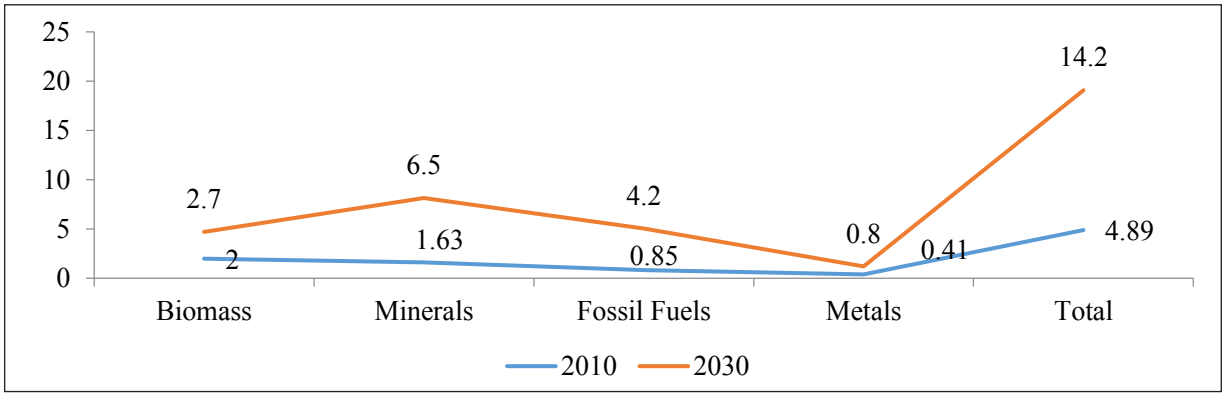
5.14 In 2010, India accounted for 7.2 per cent consumption of globally extracted raw materials. India's average share of material cost in the total production cost was estimated to be more than 70 per cent and rate of recycling is very low as compared to other developed economies which siginifies an urgent need for improving productivity and efficiency (TERI, 2019). The consumption of key natural resources by the major countries in the year 2010 has been showcased in Figure 6. As per the NITI Aayog's Strategy Paper on Resource Efficiency 2017, India consumed 5 billion tonnes of biomass, fossil fuels, minerals and metals in 2010 and was the third largest consumer after China (21.5 billion tonnes) and USA (6.1 billion tonnes). It is projected that India's demand for total material will more than double by 2030 under the assumption of continued economic growth of 8 per cent till 2030 and possible slowing down to 5 per cent thereafter till 2050 and medium growth in population. India would be requiring around 6.5 billion tonnes of minerals in order to sustain the demand of growing population (Figure 7).

Figure 6: Consumption of key natural resources (in billion tonnes in 2010)



Source: TERI, 2019

Figure 7: Projections for the consumption of key natural resources in India (in billion tonnes)



Source: TERI, 2019

Assessment of Priority Sectors for enhancing Resource Efficiency in India

5.15 For the formulation of effective RE strategy for the country, a detailed assessment for each of the sector contributing to the national income, its consumption of the raw materials as key inputs and its import dependence, volume of wastes/scrap generated and recycled and availability of relevant technologies must be undertaken. Various studies have analyzed the economic impact of effective RE strategy and identified that ₹6000 crore can be saved in the manufacturing sector with its implementation (IGEP, 2013). Estimates suggest that US$1 billion worth of gold can be extracted with mining of urban e-waste. Effective waste management policies can generate 14 lakh jobs and nearly US$2.7 billion opportunity can be created from the extraction of eight million tonnes of steel from the end of life vehicles (TERI, 2019). Table 3 highlights the contribution to the national income of different sectors in the economy, their consumption base of raw materials and import dependency.

5.16 Indian auto industry is fourth largest in the world (TERI, 2019) and India's transport sector is being dominated by internal combustion engine (ICE) based vehicles. Studies estimate that Indian auto industry will consume around 70-80 million tonnes of iron and steel by 2030 which is around 70-80 per cent of the total steel production capacity in India. As India has a fragmented process of scrap collection, nearly 6-7 million tonnes per annum of steel scrap are being imported. Research suggest around 2,18,95,439 vehicles will reach End of Life by 2025 which would generate more than 10 million tonnes of steel scrap (TERI, 2019).

5.17 India consumed nearly 14.5 million tonnes of plastic in 2016 (TERI, 2019). Due to flexibility, low price and high durability, plastic polymers are widely used in the country. Collection and recycling of plastics is majorly being performed by unorganized sector (nearly 4,000 recycling units) and organized sector (around 3,500 recycling units) (FICCI, 2017).

5.18 Increased usage of Electronics in the recent times has given impetus to their demand. Estimates reveal that the demand of electronic products will reach US$400 billion in 2020 and Compound Annual Growth Rate (CAGR) of 41 per cent from 2016 to 2020 from the CAGR of 9.6 per cent in 2010-2016 periods with the production facility to increase at the CAGR of 16 per cent from

2012 to 2020. Global E-waste Monitor, 2017 estimated that India was the fifth largest producer of e-waste by generating nearly 2 million metric tons of e-waste in 2016 and can earn the value of raw materials to the tune of 55 billion Euros if e-waste was properly mined. A great potential exists for RE in this sector by utilizing recycling opportunities that exist. It is estimated that the steel production in India will reach 128.6 Million Tonnes (MT) by 2021 and its consumption will increase to 140 MT by 2023. Thus, there is a need to augment the steel production capacity to 300 Million Tonnes Per Annum (MTPA) from 125 MTPA by 2030-31 which will require ₹10 lakh crore of investment. It is estimated that 1.4 tonnes of iron ore, 0.6-0.7 tonnes of coking coal and around 0.2-0.3 tonnes of fluxes can be saved from recycling of one tonnes of steel scrap and thus indirectly will reduce the production which saves around 16-17 per cent of energy (TERI, 2019).

Table 3: Contribution of selected sectors to the national income, consumption base of raw materials and import dependency

Sl. No	Economic Sectors	Share in national income (in %)	Selected raw materials	Import dependency (in %)
1.	Automobile sector (incl. electric vehicles)	7.1	ICE: Steel, Copper, Aluminium, Zinc, nickel, lead, glass, rubber, various plastics/synthetics E-vehicles: Lithium, Cobalt, Nickel, Rare Earths, various plastics/synthetics, Steel, Copper, Aluminium	Copper (50-60) Lithium (100) Co (100) Aluminium scrap (90) Steel scrap (20-25) Lead (75) Rare Earths (100)
2.	Chemicals (plastics)	2 (0.5 - 0.8)	Crude oil	Oil (80)
3.	Construction & Demolition	9	Cement, Limestone, clay bricks, steel, aluminium, Copper	Aluminium scraps (90) Steel scrap (20-25), Copper (50-60)
4.	Electronics (including E-waste)	1.8	Gold, Silver, Rare Earths, Plastics, Platinum, Copper	Silver (75), Rare Earths (100), Gold (90), Platinum (95), Copper (50-60)
5.	Steel	2	Iron ore, Molybdenum, Nickel, Tugsten	Steel scrap (20-25), Molybdenum (100), Nickel (100), Tugsten (100)
6	Aluminium	0.8	Bauxite, Aluminium Scrap	Aluminium scraps (90)
7	Solar PV	2.1	Aluminium, Silver, Copper, Silicon	Aluminium scraps (90), Silver (75), and Copper (50-60)

Source: TERI, 2019
Note: Numbers in parenthesis indicates share of plastics in chemicals.

5.19 NITI Aayog's Status Paper "Circular Economy (CE) and Resource Efficiency (RE)- Current Status and Way Forward" (January, 2019) has reviewed the status, concerns and opportunities of four focus sectors/areas- steel, aluminium, e-waste and construction & demolition (C&D) waste in fulfilling the goals of RE. The paper suggests a way forward to achieve RE with sustainability of the growth process. While there are already provisions made to promote RE in some of the national policies (national mineral policy, national steel policy, national housing and habitat policy, etc.), in many cases these policy elements are implicit and may need to be explicitly stated. The Paper argues in favour of a harmonized overarching national policy on RE, building upon the existing policies to address multiple sectors. Specific recommendations have been made by NITI Aayog for mainstreaming RE approach in the development pathway for achieving SDGs and also steering a new paradigm of economic development by generating wealth from waste and for promoting recycling industry (Box 1).

Box 1: Six Pillars for a Resource Efficiency Framework in India

Policies

i. Formulate a national policy on RE for all types of resources (biotic, abiotic) addressing various lifecycle stages and key stakeholders

ii. Formulate a national policy on Sustainable Public Procurement (SPP) to minimize consumption of resources, reduce waste generation and GHG emissions, as well as contribute to innovation in materials and technology in the space of RE.

iii. Strengthen existing sectoral policies and programmes of Ministry of Mines by incorporating RE principles.

iv. Formulate a national policy for End-of-Life Vehicles (ELVs).

v. Formulate a Waste to Resource Management Directive based on existing waste and hazardous substance management rules/regulations following a lifecycle approach targeting relevant stakeholders and focusing on RE.

Programmes and Mainstreaming

i. Mainstream RE initiatives by leveraging existing flagship programmes and schemes like Swachh Bharat Abhiyan, Smart Cities, Make in India, Start-up India, Digital India and others.

ii. Industry may leverage Corporate Social Responsibility (CSR), Corporate Environmental Responsibility (CER) and Extended Producer Responsibility (EPR) for RE initiatives.

iii. Build on the National Chemical Management Plan being drafted by Ministry of Environment, Forest and Climate Change (MoEF&CC) to develop a strategy, framework and guidelines for the safe and circular management of chemicals.

iv. Leverage the national clean energy and environment fund to finance infrastructure, clean technologies and related RE initiatives.

Regulations

i. Establish a national coordinating body- Bureau of Resource Efficiency (BRE) between various ministries to identify, implement and achieve national RE goals.

ii. Establish State Level coordinating bodies to identify, implement and achieve State level RE goals.

iii. Large and resource intensive industries and bulk waste generators may be mandated to file the Resource Use and Efficiency Statement.

iv. Establish and mandate a 'Consent to Close' requirement for medium and large industries in the 'RED' category to ensure that waste streams are responsibly managed and recycled before closure.

v. Rationalise tax regime on critical virgin raw materials to make secondary raw materials price competitive.

Setting up a Dynamic Recycling Industry

i. Promote the establishment of Material Recovery Facilities (MRFs) with the allocation of land in urban areas and industrial estates.

ii. Facilitate Urban Local Bodies (ULBs) to undertake urban mining and create secure landfills.

iii. Facilitate the establishment of Producer Responsibility Organizations (PRO) for waste recycling and for engagement with the informal sector.

iv. Facilitate innovation to enhance resource recovery and improve working conditions by integrating the informal sector into the waste value chain.

v. Establish a remanufacturing council or association to catalyse the growth of the remanufacturing industry.

vi. Establish and manage platforms for waste exchange by expanding the SBM portal.

R&D and Technology Development

i. Support R&D to develop scalable technologies for RE.

ii. Create and manage knowledge platforms that facilitate open innovation, provide access to experts, and engage academia to support the transition towards RE.

iii. Leverage technologies like Artificial Intelligence (AI), robotics, block-chain etc. for the recycling industry.

Capacity Development, Outreach & Monitoring

i. Facilitate creation of accredited laboratories that could conduct testing (especially for recycled products) as well as provide advisory services.

ii. Provide capacity development support on RE for ministries/departments at the National and State levels.

iii. Develop and promote programmes and certifications for informal sector skill development in RE.

iv. Develop and launch citizen awareness programmes on RE.

v. Foster inter-governmental collaboration and knowledge exchange with the G20, RE dialogue and other bodies like International Resource Panel and other national and international forums.

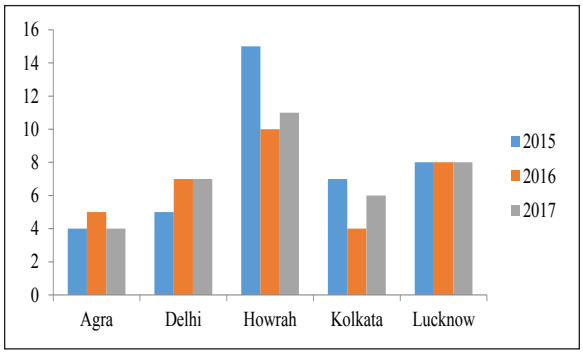
vi. Develop monitoring and outcome indicators for tracking progress on RE.

vii. Establish and mandate the certification for operators managing waste-to-resource recycling centres to ensure safe, efficient, and net positive operations.

AIR POLLUTION

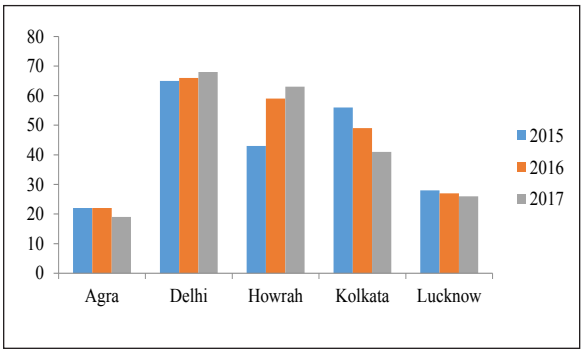
5.20 Air pollution is one of the biggest global environmental challenges of today. Air pollution is a serious issue in India also. Government is executing National Air Quality Monitoring Programme (NAMP) covering 312 cities/towns in 29 states and 6 Union Territories of the country. Under NAMP, four major air pollutants viz. Sulphur Dioxide (SO_2), Oxides of Nitrogen as NO_2, Suspended Particulate Matter (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$) have been identified for regular monitoring at all the locations. The smaller $PM_{2.5}$ is particularly deadly as it can penetrate deeper into the lungs. For PM $_{2.5,}$ as per the available statistics in year 2017, few cities have been selected to show the concentration of various pollutants from 2015-17. Figure 8, 9, 10, and 11 shows the concentration of SO_2, NO_2, PM_{10} and $PM_{2.5}$ for the selected cities from 2015 to 2017.

Figure 8: SO_2 Concentrations in Major Cities



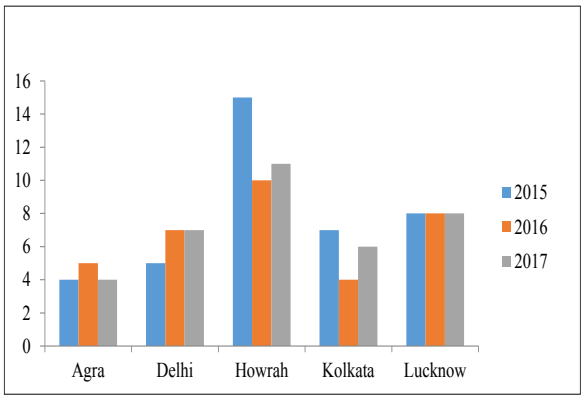
Source: MoEF&CC

Figure 9: NO_2 Concentrations in Major Cities



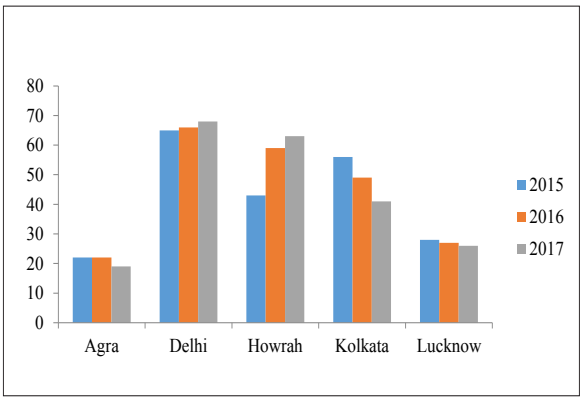
Source: MoEF&CC

Figure 10: PM_{10} Concentrations in Major Cities



Source: MoEF&CC

Figure 11: $PM_{2.5}$ Concentrations in Major Cities



Source: MoEF&CC

Major Government Initiatives

5.21 To tackle the increasing air pollution problem across the country in a comprehensive manner, a number of initiatives have been launched. National Ambient Air Quality Standards (NAAQS) are the standards for ambient air quality with reference to various identified pollutant notified by the CPCB under the Air (Prevention and Control of Pollution) Act, 1981. Major objectives of NAAQS are (i) to indicate necessary air quality levels and appropriate margins required to ensure the protection of vegetation, health and property (ii) to provide a uniform yardstick for

assessment of air quality at the national level.

5.22 Air Quality Index (AQI) is a tool for effective communication of air quality status to people in terms, which are easy to understand. It transforms complex air quality data of various pollutants into a single number (index value), nomenclature and colour. There are six AQI categories, namely - Good, Satisfactory, Moderately Polluted, Poor, Very Poor and Severe.

5.23 CPCB has issued a comprehensive set of directions under section 18 (1) (b) of Air (Prevention and Control of Pollution) Act, 1986 for implementation of forty-two measures to mitigate air pollution in major cities including Delhi and National Capital Region (NCR) comprising of action points to counter air pollution which include control and mitigation measures related to vehicular emissions, re-suspension of road dust and other fugitive emissions, bio-mass/municipal solid waste burning, industrial pollution, construction and demolition activities and other general steps.

5.24 The Government has notified a Graded Response Action Plan for Delhi and NCR, which comprises of the graded measures for each source framed according to the AQI categories. It also takes note of the broad health advisory for each level of AQI that was adopted by the Government of India along with the AQI. The proposal has been framed keeping in view the key pollution sources in Delhi and NCR.

5.25 In order to address the increasing air pollution across the country in a comprehensive manner, MoEF&CC has launched NCAP in 2019 as a pan India time bound national level strategy. A budgetary allocation of ₹150 crore has been made under NCAP during the financial year 2019-20. Overall objective of the NCAP is comprehensive management plan for prevention, control and abatement of air pollution besides augmenting the air quality monitoring network across the country. The tentative national level target of 20-30 per cent reduction of $PM_{2.5}$ and PM_{10} concentration by 2024 is proposed under the NCAP with 2017 as the base year for comparison of concentration. This will be mid-term five (5) years action plan beginning from 2019.

CLIMATE CHANGE

5.26 Since the adoption of United Nations Framework Convention on Climate Change (UNFCCC) in 1992, the global community has strengthened the response mechanisms to the threat of climate change through various milestones. The journey since then witnessed the adoption of various related instruments to address climate change including the adoption of Kyoto Protocol in 1997 and the latest most ambitious one being the Paris Agreement. The ultimate objective of UNFCCC is to stabilize GHG concentration in the atmosphere at a level that will prevent dangerous human interference with the climate system, in a time frame which allows ecosystems to adapt naturally and enables sustainable development. The main aim of the Paris Agreement is to hold the increase in the global average temperature well below 2^{o}C above pre-industrial levels and pursuing efforts to limit the temperature increase even further to 1.5^{o}C above pre-industrial levels. The Paris Agreement sets a roadmap for all nations in the world to take actions against climate change in the post-2020 period.

5.27 Human anthropogenic activities have raised the global average temperature. As per the recent Intergovernmental Panel on Climate Change (IPCC) Special Report on Global warming of 1.5^{o}C, human-induced warming reached approximately 1°C (likely between 0.8°C and 1.2°C) above pre-industrial levels in 2017, increasing at 0.2°C (likely between 0.1°C and 0.3°C)

per decade (high confidence). The report has warned of a warmer planet and has raised the demand for unprecedented efforts to reduce GHG emissions. In line with the global trends, during the year 2018, annual mean surface air temperature of India was +0.41°C, significantly above normal. The year 2018 was the sixth warmest year on record since the nation-wide records commenced in 1901.

India's Climate Actions

5.28 India has continuously demonstrated its responsibility towards acknowledging the emerging threats from climate change and implementing the climate actions on the basis of the principles of Equity and Common but Differentiated Responsiblities for improving efficiency of the economy and its engines of growth. India has been actively promoting clean energy and clean technology as well as continuing the flagship schemes on combating climate change in both adaptation and mitigation fronts. The major policies and plans include National Action Plan on Climate Change (NAPCC), launched in 2008, formulated in the backdrop of India's voluntary commitment to reduce emission intensity of its GDP by 20 to 25 per cent by 2020 over 2005 levels. It was also meant to focus on key adaptation requirements and creation of scientific knowledge and preparedness for dealing with climate change. States/Union Territories have also State Action Plans on Climate Change (SAPCC) in line with the NAPCC taking into account State's specific issues relating to climate change. So far, 33 States/ UTs have prepared their SAPCCs. Central sector scheme called Climate Change Action Programme (CCAP) has been launched in 2014 with a total cost of ₹290 crore, with the objective to build and support capacity at central and state levels, strengthening scientific and analytical capacity for climate change assessment, establishing appropriate institutional framework and implementing climate related actions in the context of sustainable development. The budget outlay of CCAP scheme for the period of three years from 2017-18 to 2019-20 is ₹132.40 crore. A National Adaptation Fund on Climate Change was established in 2015 to meet the cost of adaptation to climate change for the State and Union Territories that are particularly vulnerable to the adverse effects of climate change. The Scheme will continue till 31 March 2020 with a financial implication of ₹364 crore. Till date, 30 adaptation projects have been approved at a total cost of ₹847 crore covering vulnerable sectors such as Water, Agriculture and Animal Husbandry, Forestry Ecosystems and Biodiversity. Out of which, Government of India has released an amount of ₹437 crore. Renewable energy sources are strategic to India's national policies on effective climate action. A detailed analysis on this is elaborated in Economic Survey volume-1, Chapter 9.

5.29 The outcomes of these initiatives are reflected in India's Second Biennial Update Report (BUR) submitted to UNFCCC in December 2018 as per the reporting obligations under the Convention. The report shows that emission intensity of India's GDP came down by 21 per cent between 2005 & 2014 and its achievement of climate goal for pre-2020 period is on track. A total of 2.607 billion tons of CO_2 equivalent of GHGs were emitted from all activities (excluding Land use, Land-Use Change, and Forestry (LULUCF)) in India. Energy sector accounted for 73 per cent, Industrial Processes and Product Use (IPPU) 8 per cent, agriculture 16 per cent and waste sector 3 per cent. About 12 per cent of emissions were offset by the carbon sink action of forestland, cropland and settlements (Table 4).

Table 4: Total and net emissions in CO_2 equivalent (Gg) across various sectors

Category	CO_2 equivalent (Gg)
Energy	19,09,765.74
Industrial Process and Product Use	2,02,277.69
Agriculture	4,17,217.54
Waste	78,227.15
LULUCF**	-3,01,192.69
TOTAL without LULUCF	26,07,488.12
TOTAL with LULUCF (Net emissions)	23,06,295.43

Source : MoEF&CC

**negative emission value implies sink action i.e. net carbon removal from the atmosphere

Gg- Gigagram

Katowice Climate Package

5.30 Parties to the Paris Agreement made concerted efforts to develop the modalities, procedures and guidelines for implementing the Agreement and the Paris Agreement Work Programme (PAWP) was adopted at the 24th session of the UNFCCC Climate Change Conference, held from 2 to 15 December in 2018 in Katowice, Poland. India engaged positively and constructively in the negotiations while protecting its key interests including recognition of different starting points of developed and developing countries; flexibilities for developing countries and consideration of principles including equity and Common but Differentiated Responsibilities and Respective Capabilities (CBDR–RC). India reiterated its promise to implement the Paris Agreement in its spirit and to act collectively to address climate change. The key takeaways of Katowice package are the guidance on Nationally Determined Contributions (NDCs) that preserves the nationally determined nature of NDCs and provides for Parties to submit different types of contributions including adaptation. The overall guidance reflects the principles of the Paris Agreement and recognizes the leadership that developed countries have to display for achieving the objectives of the Paris Agreement; the guidance on adaptation recognizes the adaptation needs of developing countries; the differentiation has been operationalized by incorporating provisions on providing support for adaptation activities of developing country Parties; the Enhanced Transparency Framework builds upon the existing guidelines while providing flexibilities for developing countries; the guidance on finance provisions operationalizes the obligation of developed countries in providing means of implementation to developing countries and recognizes the need for climate finance to be new and additional and climate specific. Parties have also agreed to initiate the work on setting up the new collective finance goals post-2020 from the floor of US$100 billion; the overarching framework for technology recognizes the need for enhanced support towards operationalization of the framework and comprehensively covers all stages of technology development and transfer.

5.31 Provision of financial support to developing countries is an important pillar of climate change response. UNFCCC mandates

that countries in Annex-II (industrialized countries) provide financial resources, including for the transfer of technology, needed by the developing country Parties to take climate actions. Paris Agreement also emphasizes the role of climate finance in strengthening the global response to climate change. Though the international community witnessed various claims by developed countries about climate finance flows, the actual amount of flows is far from these claims. In fact, without sufficient climate finance, the proposed NDCs would not fructify. Yet there are calls for enhanced climate action by developing countries. However, the means to achieve the climate goals is not commensurate to the urgency shown, nor do we witness the seriousness required in the discourse on climate finance. Global action on climate change is contingent on the delivery of timely and adequate finance. The Scope, Scale and Speed of climate finance required to take climate actions effectively is lacking in the debate on climate actions (Box 2).

Box 2: Three Essential 'S's of Climate Finance

i) Scope

Climate finance should support both the adaptation and mitigation activities of the developing countries in accordance with the country needs and priorities. The Paris Agreement gives equal weightage to adaptation and mitigation. Under the UNFCCC, the intent and obligation of climate finance is unambiguous, that developed country Parties shall provide financial resources to developing countries; but what constitutes of financial resources and its key elements for climate finance itself are very broadly defined. The essential elements that need to be taken up as parameters for accounting climate finance are -public grants, unrequited equity and grant-equivalent values of loans. Also counting only such transfers of finance ex-post that are formalized in entry in a book of accounts as specifically climate finance and actual disbursements of such finance crossing borders in a particular year need to be ensured. Some more important parameters such as how to treat private climate finance flows that are 'mobilized' or 'leveraged', the clarity on "new and additional" also need to be understood in this context.

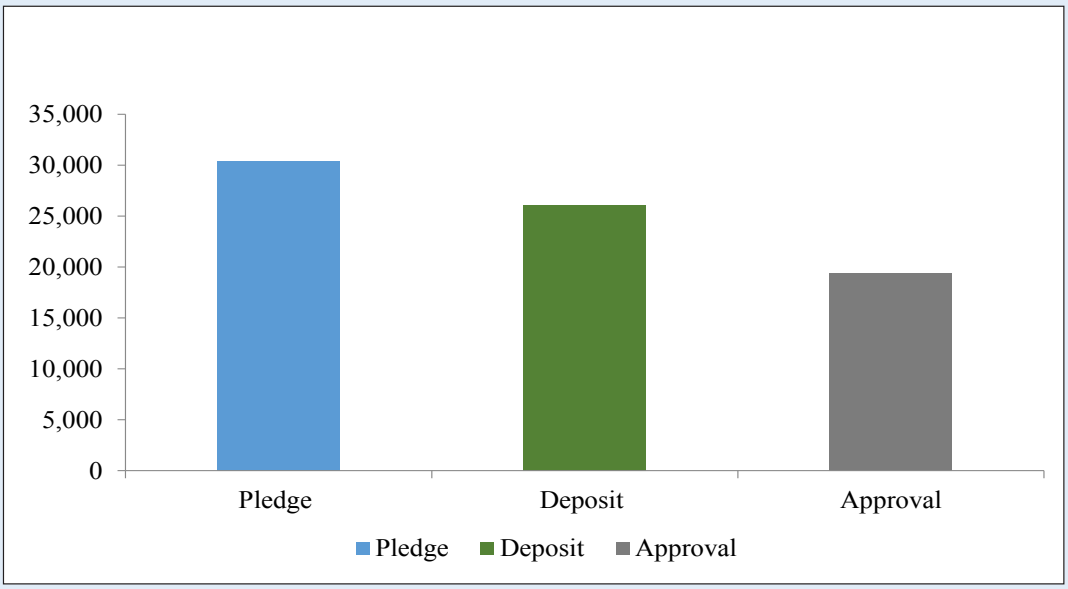
ii) Scale

Developing countries have myriad developmental challenges and climate change puts additional burden on the already scarce resources. The climate finance requirements of developing countries are likely to be enormous. Even preliminary estimates by simply summing the finance needs in NDCs with a conditional component, comes to around US$4.4 trillion (Weischer et al., 2016). A recent report by Oxfam, 2018 indicated, "People in poorer countries are on average five times more likely than people in rich countries to be displaced by extreme weather events. Adaptation costs in developing countries are expected to be US$140 - 300 billion a year by 2025/30. By mid-century, the costs of climate change to developing countries are estimated to exceed US$1trillion per year, even if global average temperature remains below 2°C."

iii) Speed

To answer the question, whether the speed of climate finance in the multilateral climate regime is sufficient, we need to understand if the developed countries have fulfilled their commitments and the progress of delivery of finance is from developed to developing countries. As of February 2019, the pledge and approval of multilateral climate change funds shows lagged performance.

Figure: Status of the Funds (in US$ million)



Source : Climate Funds update Feb 2019

Oxfam, 2018 provides an assessment of US$100 billion goal. What it states is that, the aggregated climate finance, estimated as net climate-specific assistance is far lower than the reported climate finance; new climate-specific assistance may be just US$16-21 billion. The value of loans is being over-reported. If the finance for development projects that only partially cover climate change were reported more accurately, annual bilateral flows of public climate finance could be between US$10 billion and US$15 billion lower than reported. Grant based assistance is too low and is rising too slowly; only an estimated US$11-13 billion was given as grants per year, forming just 23-27 per cent of the total, public climate finance amounted to 21 per cent of total global official development assistance (ODA) budgets in 2015-16.

The message is loud and clear – we need to establish more credible, accurate and verifiable numbers on the exact size of the climate finance flows from developed to developing countries. Paris Agreement and the NDC implementation will commence post 2020 and International public finance flows from developed to developing countries remain the critical enabler in ramping up these actions.

India's Nationally Determined Contribution (NDC)

5.32 An important feature of Paris Agreement is that it seeks to elicit ambitious action by each country by basing it on a country-driven approach with the contribution by each country to the global fight against climate change determined at national level. Each Party's successive NDC will have to be a progression of Party's previous efforts. India's NDC outlines the post-2020 climate actions India intends to undertake under the Paris Agreement on climate change adopted in December 2015. India ratified the Paris Agreement on October 2, 2016. At the national level, the roadmap for implementation of India's NDC is being prepared. An overall assessment and quantification of finance requirements for adaptation and mitigation for a country with so much diversity and demand is a difficult task given the rapid pace of changing technologies and innovation. India's NDC states, "Preliminary estimates indicate that India would need around US$206 billion (at 2014-15 prices) between 2015 and 2030 for implementing adaptation actions in key areas like agriculture, forestry,

fisheries infrastructure, water resources and ecosystems." Apart from this there will be additional investments needed for strengthening resilience and disaster management. NDC further provides the preliminary total estimates for meeting India's climate change actions between now and 2030 which is at US$2.5 trillion (at 2014-15 prices). Finding required financial resources is going to be a daunting challenge for the country.

Developments in the Sustainable Finance Arena

5.33 Implementing 2030 Sustainable Development Agenda and the Paris Agreement requires investments of scale and size which is unprecedented. This essentially means that along with domestic public budgets and international public finance, resources would have to be mobilized from a variety of sources, in particular, private sector. Currently, private sector financing has been mostly done by the banks and resides on their balance sheets. However, in future to increase the scale of sustainable investments there may be funding capacity problems for the banks if they are the primary provider of sustainable debt. Therefore, capital market products are required to free-up the banks' balance sheet capacity and allow them to underwrite loans to meet the accelerating demands for new sustainable investments. Further, by doing so institutional investors and certain retail investors can get access to sustainable debt as institutional investors are well situated to hold long term sustainable debt and they look to match long term liability funding requirements with long term assets.

5.34 Globally, the green bond market has seen remarkable growth over the past 5 years as increasing number of investors have sought environmentally sustainable investments without having to sacrifice financial returns. In the first quarter (Q1) of 2019, green bond issuance reached US$47.9 billion, and surpassed Q1 2018 volume of US$33.8 billion by 42 per cent, on a clear upward trend. 81 per cent of volume came from developed markets issuers. USA, France and Canada topped the country rankings, accounting for 48 per cent of Q1 2019 global issuance.

5.35 In markets in which regulators have provided a favorable environment for green bonds, supply has increased. green bonds makes way for investors to create environmentally aware portfolios without having to compromise on risk and return objectives that may fit nicely into a core bond allocation. Over the past few years regulators, stock exchanges and market associations have stepped in to provide some guidance to market participants for the green debt issuance process. In India, SEBI has provided a regulatory environment for issuance of green bonds in May 2017, the fruits of which are reflected in the cumulative issuance of green bonds in India. India stands at 11th position in global country ranking and accounts for 33 per cent of the Certified Climate bonds by number in emerging markets. Going forward, possible capital market structures for sustainable finance may include Real Estate Investment Trusts (REITs) and Infrastructure Investment Trusts (InvITs) which can be leveraged for transfer of green and sustainable assets such as energy efficient buildings, renewable power projects, mass transportation systems, etc. to the institutional investors. Another option is that banks and financial institutions may securitize the future cash flows emanating from their existing set of assets, thereby selling such securitized debt instruments to the investors including institutional investors. This provides investors with an opportunity to invest in regular yielding investment which is backed by sustainable assets.

INTERNATIONAL SOLAR ALLIANCE (ISA)

5.36 ISA is the first treaty-based International Intergovernmental Organization launched by India and France on 30 November, 2015 in Paris and entered into force on 6 December, 2017. As on June 2019, 75 countries have signed and out of which, 52 countries have ratified the ISA Framework Agreement. The first Assembly of the ISA was convened on October 3, 2018. ISA's motto is, "let us together make the sun brighter". ISA has launched five programmes so far: 1) Scaling Solar Applications for Agriculture Use; 2) Affordable Finance at Scale; 3) Scaling Solar Mini Grids; 4) Scaling Solar Rooftop, and 5) Scaling Solar in E-mobility and Storage.

Key Initiatives

- ISA has been working with various financial institutions for scaling up financing, lowering the cost of capital, and designing innovative financial instruments to accelerate the massive deployment of solar energy. ISA's engagement with Indian Diplomatic Missions in member countries, financing by the Export Import Bank of India, among others, resulted in development of a portfolio of 27 solar projects in 15 countries. These projects are being supported with India's concessional financing of US$ 1.4 billion.
- In addition, "Action to Transaction" meets, an innovative platform where project developers and bankers were brought together, facilitated 238 projects in ISA countries. France has also committed 1.5 billion Euros for financing solar projects and thereby, 27 projects have been funded by the French Development Financing Agency for approximately 720 million Euros.
- A task force was constituted to design a Common Risk Mitigation Mechanism to reduce risks and financial cost of solar projects. Also, the World Bank and Agence Française de Dévelopment (AFD) are developing a joint Global Solar Risk Mitigation Initiative (SRMI), an integrated approach to tackle policy, technical and financial issues. As a first implementation phase of the SRMI, the World Bank has launched in April 2019, US$337 million risk mitigation fund for 23 West African countries focusing on Regional Off-grid Electrification Project (ROGEP).
- The ISA is also working with the European Investment Bank and the EU Commission to launch an off-grid fund, initially for four Asian member countries of the ISA, to rapidly scale up to Africa and Latin America.
- A project pipeline of US$5 billion in mini-grids and rooftops is created.
- ISA has forged financial partnerships with various MDBs, UN agencies, Climate Parliament, European Commission, Commonwealth Secretariat and other International and Intergovernmental organizations.
- ISA Solar Award has been instituted for Solar Scientists doing extraordinary work across ISA countries with a one-time corpus contribution of US$1.5 million from the Government of Haryana.

5.37 Efforts for mobilizing financial resources for ISA activities resulted in augmenting initial corpus of US$16 million (Government of India contribution) to US$27 million, wherein US$3 million came from Japanese and Chinese companies. True to its motto, ISA from scratch has now transformed into an action oriented international organization, scaling newer heights under the collective leadership and supervision of the member countries.

WAY FORWARD

5.38 India has been progressing rapidly towards achieving the SDGs. India's progress in achieving SDG 10 (Reduced Inequality) and SDG 15 (Life on Land) has been impressive. However, there has been a wide variation in the way different states have performed. It is important that in the race towards SDGs no State is left behind. At the global level, given the myriad developmental challenges faced by the developing economies, lack of adequate resources is a major challenge in achieving the SDGs and international cooperation is essential in achieving these goals.

5.39 Efficient utilization of resources also plays an important role. With increasing demand for resources to cater to the different developmental needs, policies need to nudge economic agents towards achieving the maximum output from the available resources. India's policies have already taken the correct initiatives in this direction.

5.41 India's NDC has set clear targets for achieving its climate goals. However, a substantial scaling up of financial resources and technology are needed to implement this target by 2030. The fulfillment of pledges by developed countries through provision of 'new and additional' financial resources is an important contingent factor. The developing countries like India will endeavor to do the best possible within their own domestic resources, keeping in mind the sustainable development imperatives. It is time for the global community to exhibit the requisite momentum to act upon their responsibilities on establishing the enabling environment for climate action.

CHAPTER AT A GLANCE

- India follows a holistic approach towards its 2030 SDG targets by launching various schemes.
- India's SDG Index Score ranges between 42 and 69 for States and between 57 and 68 for UTs.
- Kerala and Himachal Pradesh are the front runners amongst all the states with a score of 69, Chandigarh and Puducherry are the front runners with a score of 68 and 65 respectively among the UT's.
- Namami Gange Mission- a key policy priority towards achieving the SDG 6 - was launched as a priority programme with a budget outlay of ₹20,000 crore for the period 2015-2020.
- A harmonized overarching national policy on Resource Efficiency, building upon the existing policies to address multiple sectors should be devised for mainstreaming Resource Efficiency approach in the development pathway for achieving SDGs.
- In order to address the increasing air pollution across the country in a comprehensive manner, the Government of India has launched NCAP in 2019 as a pan India time bound national level strategy for prevention, control and abatement of air pollution besides augmenting the air quality monitoring network across the country.
- India has continuously demonstrated its responsibility towards acknowledging the emerging threats from climate change and implementing climate actions, on the basis of the principles of Equity and Common but Differentiated Responsibilities.

- India's positive engagement at CoP 24 negotiations in Katowice, Poland in 2018 resulted in protection of key interests including recognition of different starting points for developed and developing countries; flexibilities for developing countries and consideration of principles including equity and Common but Differentiated Responsibilities and Respective Capabilities.
- Paris Agreement also emphasizes the role of climate finance in strengthening the global response to climate change. Though the international community witnessed various claims by developed countries about climate finance flows, the actual amount of flows is far from these claims. In fact, without sufficient climate finance, the proposed NDCs would not fructify.
- Implementing India's NDC requires investments of scale and size which is unprecedented. This essentially means that along with domestic public budgets, international public finance and private sector resources would have to be mobilized from a variety of sources.

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