Demand for Grants 2025-26 Analysis
Environment, Forests and Climate Change

The Ministry of Environment, Forest, and Climate Change (MoEFCC) is responsible for planning, promoting, and coordinating environmental policies and programs.[1] It oversees the conservation of natural resources, afforestation, pollution control, and biodiversity management. It also plays a key role in implementing India's commitments under international environmental agreements such as the Paris Agreement and the Convention on Biological Diversity.[1]

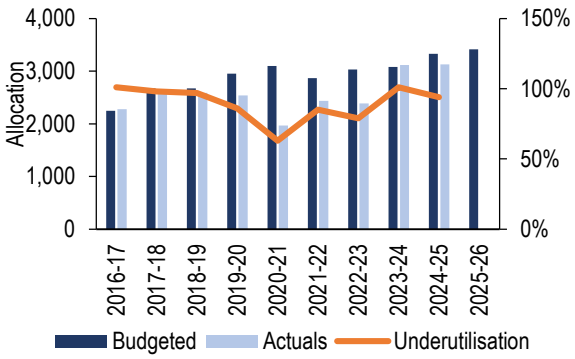
MoEFCC manages flagship programs like the National Afforestation Programme, Green India Mission, and National Clean Air Programme to address environmental degradation and climate challenges. It regulates pollution through frameworks like the Environmental Protection Act, 1986, and supervises compliance with air, water, and soil quality standards.

This note analyses the budget of the Ministry, examines the programmes it is implementing and the issues and challenges prevalent in the sector.

Overview of Finances

In 2025-26, the Ministry of Environment, Forests and Climate Change has been allocated Rs 3,413 crore, a 9% increase over the revised estimates of 2024-25.[2] This includes revenue expenditure of Rs 3,277 crore (96% of total) and capital expenditure of Rs 136 crore (4% of total). Compared to the revised estimates of 2024-25, in 2025-26, revenue expenditure has increased by 8% and capital expenditure by 46%.

Figure 1: Budgetary allocation to the Ministry (in Rs crore)



Note: Revised estimate for 2024-25. Utilisation as ratio of actual to budgeted, RE for 2024-25.
Sources: Demand for Grants (2012-13 to 2025-26), Ministry of Environment, Forests and Climate Change; PRS.

Major budgetary allocation of the Ministry in 2025-26 include: (i) Establishment expenditure of the Central government (28%) which includes expenditure towards National Green Tribunal, Botanical Survey of India, and Forest Survey of India, (ii) pollution control (25%), which includes assistance to pollution control boards and funding for the National Clean Air Programme (NCAP), (iii) environment, forestry and wildlife (21%) that includes Green India Mission, and Project Tiger and Elephant.[2] The Ministry also supports autonomous institutions engaged in research and development, including the Indian Institute of Forestry Management and Indian Council of Forestry Research and Education.

Table 1: Key Allocations to the Ministry (in Rs crore)

	2023-24 Actuals	2024-25 RE	2025-26 BE	% change (24-25 RE to 25-26 BE)
Establishment Expenditure of the Centre	780	881	946	7%
Pollution Control	845	858	854	0%
Environment, Forestry and Wildlife	530	590	720	22%
Autonomous Bodies	562	437	455	4%
Statutory and Regulatory Bodies	158	187	232	24%
Environmental Knowledge and Capacity Building	74	100	103	3%
National Coastal Mission	32	8	2	-75%
Others	132	65	102	57%
Total	**3,114**	**3,126**	**3,413**	**9%**

Note: RE is Revised Estimate, BE is Budget Estimate. Others includes Environment Education, Awareness, Research and Skill Development, centrally sponsored schemes, Economic Services and Grant-in-aids.
Sources: Demand for Grants, 2025-26, Ministry of Environment, Forests and Climate Change; PRS.

Utilisation of funds

Barring three years (2016-17 to 2018-19), between 2012 and 2022, the Ministry did not fully utilise the allocated funds. In its reply to the Standing Committee on Science and Technology, Environment, Forests and Climate Change (2023), the Ministry had cited a technicality in the manner of disbursement of funds for delay in utilisation in 2022-23.[3] The Committee recommended that the Ministry clear pending dues and ensure that project completion is not affected by fund unavailability.[4]

Issues to Consider

Climate Change and Energy Transition

As per India's fourth Biannual report to UNFCCC, 2024, in 2020, India's total GHG emissions were 2,959 million tonne of carbon dioxide equivalent (CO_2e).[5] This excludes the Land Use, Land Use Change and Forestry (LULUCF) sector which acts as a carbon sink. Including the LULUCF sector, India's GHG emissions decrease to 2,437 million tonne of CO_2e.[5] Between 1994 and 2020, total CO_2 emissions, excluding LULUCF, rose by 144%.[5]

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February 19, 2025

India's Climate Change Factsheet[8]

Rising Temperatures

- India's average temperature increased by 0.7°C between 1901 and 2018.
- By the end of the 21st century, India's average temperature is projected to rise by 4.4°C (relative to 1976–2005 levels) without significant actions.
- The frequency of summer heat waves is expected to increase 3–4 times by the end of the century as compared to the 1976–2005 baseline period.

Rainfall Patterns and Monsoons

- Summer monsoon rainfall (June-September) has declined by 6% from 1951 to 2015, particularly over the Indo-Gangetic Plains and the Western Ghats.
- There has been an increase in extreme rainfall events, with daily rainfall exceeding 150 mm rising by 75% over central India (1950–2015).
- Monsoon variability is projected to increase, with more intense wet and dry spells expected.

Droughts

- The area affected by drought has increased by 1.3% per decade between 1951 and 2016.
- Central India, the southwest coast, southern peninsula, and north-eastern India experience more than two droughts per decade on average.
- By the end of the 21st century, India is likely to see an increase in drought frequency and intensity.

Indian Ocean Warming and Sea Level Rise

- The Indian Ocean has warmed by 1°C (1951–2015), which is higher than the global average of 0.7°C.
- Sea levels in the North Indian Ocean have risen at 3.3 mm per year (1993–2017), a significant acceleration from previous decades.
- By 2100, sea levels in the North Indian Ocean are projected to rise by 300mm.

Tropical Cyclones

- While the overall number of tropical cyclones in the North Indian Ocean has declined, the frequency of very severe cyclonic storms has increased (+1 event per decade, 2000–2018).
- Climate models predict that cyclone intensity will rise in the future due to ocean warming.

Himalayan region

- The Hindu Kush Himalayas have warmed by 1.3°C between 1951 and 2014. By 2100, the region is projected to experience a 5.2°C rise in average temperature and decreased snowfall.
- Glacier retreat and reduced snowfall have been observed across many areas, except in the Karakoram Himalayas, where winter snowfall has increased.

Sources: Assessment of Climate Change over the Indian Region, Ministry of Earth Sciences, 2023; PRS.

The energy sector was the largest contributor to this rise, with an increase of 201% over the same period.[5] In comparison, the agriculture sector saw only an 18% increase in emissions.[5]

The waste sector, influenced by population growth and increased industrial activity, saw a 226% rise in emissions between 1994 and 2020.[5] However, the sector's contribution to overall emissions remains around 3%. The industrial processes and product use sector also contributed to emissions growth, increasing by 132% from 1994 to 2020.[5]

In 2023, India became the third largest source of global emissions, with 2.8 gigatons emissions.[6] However, India has contributed only about 4% of the global cumulative greenhouse gas emissions between 1850 and 2019.[7] Similarly, as per International Energy Agency (IEA), in 2023, India's CO_2 emissions per capita were 2 tonne while European Union, China, and United States had CO_2 emissions of 5.4 tonne, 8.9 tonne and 13.3 tonne respectively.[6]

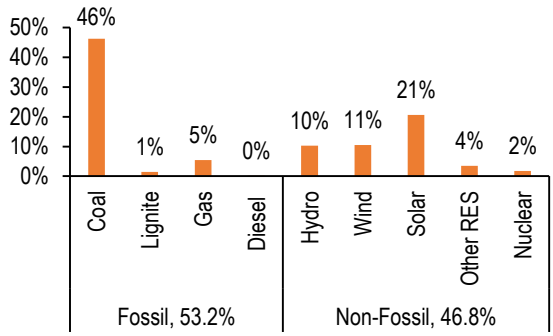
While dealing with climate change, there is a need to focus on both mitigation and adaptation.[9] Under mitigation measures, countries can take actions to reduce CO_2 emissions to limit the rise in global temperature.[10] For adaptation, they can work to minimise the effects of climate change such as damages from extreme weather events.

Climate action in India is guided by its Nationally Determined Contributions (NDCs). These goals cut across various sectors of the economy.[11] The National Action Plan on Climate Change provides the overarching framework for all climate actions. This includes missions in solar energy, energy efficiency, sustainable habitat, water, sustaining Himalayan ecosystems, sustainable agriculture, human health and strategic knowledge for climate change. All these missions are implemented by their respective nodal ministries. The MoEFCC is implementing the Climate Change Action Programme and the National Adaptation Fund for Climate Change to help address climate change.[11]

India's Climate Commitments

Under the United National Framework Convention on Climate Change, India has set following NDC targets: (i) achieving 500 GW of installed capacity of power generation from non-fossil sources by 2030, (ii) meeting 50% electricity requirement from renewable sources by 2030, (iii) reducing carbon emissions by one billion tonnes between 2005 and 2030, and (iv) achieving net zero emissions by 2070.[12]

Figure 2: India's installed generation capacity (as on November 30, 2024)

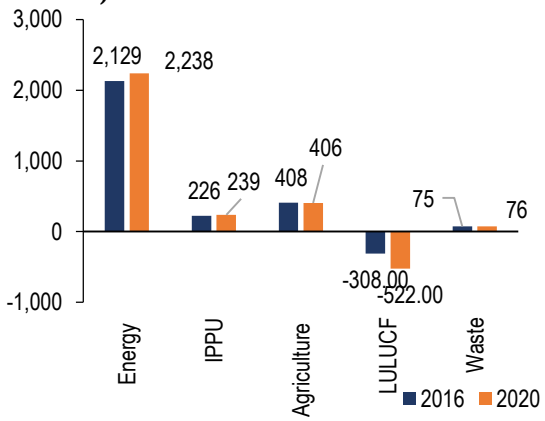


Sources: Central Electricity Authority, 2024; PRS.

Between 2005 and 2021, an additional carbon sink of 2.3 billion tonne has been created. Emission intensity, which refers to the ratio of emissions to GDP, reduced by 36% between 2005 and 2020.[5] As of December 2024, renewable energy capacity was 209 GW, which is 45% of the total installed capacity (462 GW).[13] This comprises sources such as solar, wind, hydro, and waste-to-energy projects.

However, solar and wind energy are intermittent in nature and have lower capacity utilisation than thermal and hydro power. In 2023-24, renewable sources contributed to 21% of electricity generation.[14] Power generation and related activities contribute to approximately 53% of India's total CO_2 emissions.[15]

Figure 3: Energy generation contributes the most to emissions (equivalent to MT CO_2 emissions)



Note: IPPU is Industrial Processes and Product Use, LULUCF is Land Use, Land Use Change and Forestry.
Sources: India's Biannual Update to UNFCCC, 2024; PRS.

Electricity demand is affected by rising temperature and inconsistent weather patterns.[16] As per the IEA estimates (2023), CO_2 emissions in India grew at a rate of more than 7% in 2023.[17] In 2023, due to poor monsoons, electricity demand went up in the agriculture sector, driven by demand for pumping water for irrigation. The IEA estimates that demand in monsoon months was 12% higher compared to the same period in 2022.[17] Poor monsoons also affected hydro power production, where the output fell nearly 15%. It is estimated that poor monsoons contributed to 60% increase in electricity sector emissions in 2023.[17]

Financing energy transition

A key challenge to energy transition is financial constraints in the renewable energy sector. The Standing Committee on Energy (2023) has noted that there is a huge gap between the required and actual investment for renewable capacity addition.[18] Against the required annual investment of Rs 1.5-2 lakh crore, the actual annual investment in the last few years was Rs 75,000 crore.[18]

To facilitate credit, the Ministry of New and Renewable Energy has requested banks to treat renewable energy as a separate category in their sectoral credit allocation.[18] The Reserve Bank of India has included small renewable energy projects costing up to Rs 30 crore under priority sector lending.[19] The Standing Committee on Energy (2023) has made several suggestions to enhance investment in the sector.[18] These include: (i) prescribing renewable finance obligations for banks along the line of renewable purchase obligations, and (ii) ensuring alternate financing mechanisms such as Infrastructure Investment Funds.

Climate related challenges in urban areas

According to the Ministry of Housing and Urban Affairs estimates, in 2025, 40% of India's population will reside in urban areas.[20] Urbanisation contributes significantly to warming in Indian cities through increased energy demands, reduced vegetation, and use of heat-retaining construction materials.[21]

According to the Intergovernmental Panel on Climate Change (IPCC), cities in India are particularly vulnerable to extreme weather events such as heatwaves, flooding, and cyclones, which are intensifying due to climate change.[22] Moreover, urban areas are increasingly affected by the urban heat island effect, where urban surfaces absorb and retain more heat than natural landscapes.[22] This leads to higher temperatures and increased energy demand for cooling, further intensifying the urban climate crisis.[22] Urban areas in India also witness poor air quality, particularly bigger cities like Delhi, Mumbai, and Kolkata.

Table 2: Deaths due to extreme weather events in country, 2019-2023

	Cold Wave	Cyclone	Floods and Heavy Rain	Heat Wave
2019	291	60	1,297	505
2020	162	119	995	25
2021	11	174	779	*
2022	1	6	1,046	30
2023	5	36	890	181

Note: * Data not provided. Data for both rural and urban areas.
Sources: Unstarred Question No 1832, Lok Sabha, December 11, 2024; PRS.

Urban systems are critical for achieving deep emissions reductions and advancing climate resilient development.[22] Infrastructure such as urban forestry, green roofs, ponds and lakes, and river restoration can mitigate climate change through carbon uptake and storage, avoided emissions, and reduced energy use.[22] This may help reduce risk from extreme events such as heatwaves, heavy precipitation and droughts.

Climate Change and Agriculture

Climate change has profound repercussions on rainfall patterns, significantly affecting agricultural practices that rely on consistent and predictable weather conditions.[8] It exacerbates weather variability, with dry spells during the summer

monsoon season becoming 27% more frequent from 1981 to 2011 compared to 1951 to 1980.[8] Projections indicate a 7% increase in annual rainfall by 2099, which could lead to an 8-12% decline in India's agricultural productivity.[8] Heat stress further harms crop yields, with impacts worsening over time.[8]

Table 3: Projected reduction in crop yield (%)

Crop Type	2050	2080
Rainfed Rice	20%	47%
Irrigated Rice	3.5%	5%
Wheat	19.3%	40%
Kharif Maize	18%	23%

Sources: Unstarred Question No. 2011, Ministry of Agriculture and Farmers Welfare, Lok Sabha August 1, 2023; PRS.

Forests and Wildlife

The National Forest Policy, 2006 envisions having a minimum of one third of the total land area of the country under forest or tree cover.[23] The policy further envisions two-third of the area under such cover in the hills and in mountainous regions, to prevent erosion.[23] According to the India State of Forest Report (ISFR) 2023, the country has a forest and tree cover of 25.2% (forest cover of 21.8%, and tree cover of 3.4%).[24]

In addition to supporting livelihoods, forests play an important role in efforts to combat climate change. Healthy forests function as effective carbon sinks as they can absorb and store more carbon than any other terrestrial ecosystem.[25] Under India's Nationally Determined Contributions, the country has set a target to create an additional carbon sink of 2.5 to 3.0 billion tonne from 2005 to 2030. During 2005 to 2021, additional carbon sink of 2.3 billion tonnes of CO_2 equivalent has been created.[5]

Table 4: Classification of forests in ISFR

Type of Forest	Lands with tree canopy density
Very Dense	70% and above
Moderately Dense	40% and above
Open Forest	10% and above but less than 40%

Sources: India State of Forest Report 2021, Ministry of Environment, Forest, and Climate Change; PRS.

Between 2021 to 2023, forest cover has seen a net increase of 156 km^2 and total forest and tree cover has increased by 1,446 km^2, including scrubs. Very Dense Forest increased by 3,465 km^2, whereas Moderately Dense Forest and Open Forest decreased by 1,043 km^2 and 2,480 km^2, respectively.[24]

The density of forest cover affects the level of carbon stock that a forest can hold. According to the India Forest Report (2017), open forests can hold carbon stock of 48 tonne per hectare, while moderately dense forests can hold carbon stock of 135.6 tonne per hectare.[26] The report had noted that to achieve the Nationally Determined Contribution targets, forests falling under the Open Forest category need to be improved to moderately dense forests. This would increase their capacity for carbon storage.

Table 5: Forest cover as % of geographical area

Category	2013	2017	2023
Forest Cover	21.2	21.5	21.8
Very Dense Forest*	2.5	3	-
Moderately Dense Forest*	9.7	9.4	-
Open Forest*	9	9.2	-
Tree Cover**	2.8	-	3.4
Scrub	1.3	1.4	1.3
Non-Forest	77.5	77.1	73.5

*Some data not provided for 2023 **Tree cover included in forest cover
Sources: State of the Forest Reports of the respective years; PRS.

Diversion of forest land

Under the Forest (Conservation) Act, 1980, to divert forest land for non-forest use, users are required to undertake afforestation activities to compensate for the loss.[27] The State Compensatory Afforestation Fund Management and Planning Authority (CAMPA) receive and disburse funds collected from user agencies towards compensatory afforestation.[23] National CAMPA approved the Annual Plans of Operation for of the various state CAMPAs. Rules for compensatory afforestation dictate that for diversion of forest land, afforestation should be taken up on suitable non-forest land equivalent to the area proposed for diversion.[28] This non-forest land should preferably be close to a reserve or protected forest. If such land is not available, afforestation may be carried out over degraded forest land twice the size of the area being diverted.[28] A high level committee recommended double compensatory afforestation area in revenue land and three times compensatory afforestation area in degraded forest land.[29]

Between April 2019 to March 2024, a total of 95,725 hectare forest area has been diverted for non-forestry purpose.[30] According to the Ministry, under CAMPA, afforestation has been conducted over a total area of 7.8 lakh hectares between 2017-18 and 2021-22.[31] However, the sites used for afforestation are mostly degraded in nature.[32] It takes a long time on such lands for trees to evolve into forest like vegetation.[32]

Comptroller and Auditor General (CAG) reports have noted poor survival rate of plants under the programme across states.[33,34] A CAG audit (2023) in Madhya Pradesh found the survival rate of plants across five sites to range between 6% to 62%.[33] Madhya Pradesh also incurred expenditure of Rs 53.3 crore on ineligible activities which could not be linked to any of the Compensatory Afforestation activities.[33] In Tripura, the survival rate of plants under the programme ranged between 40% and 85% during 2016-17, and 75% and 97% in 2019-

20.[34] Another CAG audit found that in Odisha, CAMPA funds are being utilised for construction works and purchase of furniture.[35] Some CAMPA funds were also being diverted to other state schemes, which is in violation of Fund rules.[35]

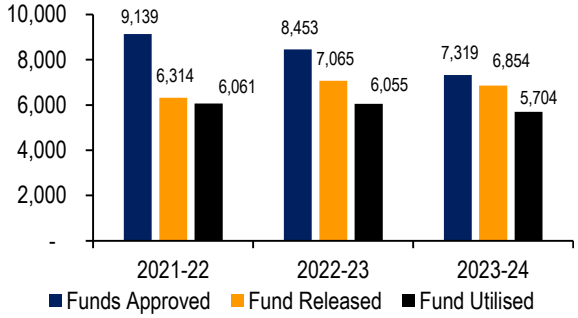
Table 6: Area planted (in Ha) and funds spent (Rs crore) on compensatory afforestation

Year	Area Planted	Funds Spent
2019-20	35,718	3,389
2020-21	36,001	4,910
2021-22	42,151	5,896
2022-23	39,263	6,150
2023-24*	29,440	5,205
Total	**1,82,573**	**25,550**

Note *Data until July 2024
Sources: Lok Sabha, Unstarred Question No 109, Answered on July 22, 2024; PRS.

Until December 2024, an amount of Rs 94,844 crore has been received from various user agencies as compensation in lieu of diversion of forest land for non-forest use.[36] Out of the collected amount, only Rs 26,002 crore has been utilised during financial years 2019-20 to 2023-24.[36]

Figure 4: Funds approved, released and utilised by State/ UT Forest Departments under CAMPA (in Rs crore)



Source: Unstarred Question No 2767, Rajya Sabha, December 19, 2024

Financing through Sovereign Green Bonds

Funds for the Green India Mission's National Afforestation Programme are being met from the Sovereign Green Fund. In 2025-26, the Ministry has budgeted an expenditure of Rs 170 crore under this head.[37] The programme is implemented to promote regeneration of degraded forests.

The government issued the Framework for Sovereign Green Bonds in 2022.[38] Government of India uses the proceeds raised from Sovereign Green Bonds to finance and/or refinance eligible green projects. As per the Economic Survey 2024-25, the government issued Sovereign Green Bonds worth Rs 20,000 crore in 2022-2023 and bonds worth Rs 20,000 crore in 2023-24.[39] These proceeds would be part of the government's overall market borrowings. The proceeds would be deployed in public sector projects that can help reduce the carbon intensity of GDP such as: (i) electrification of public transportation, (ii) promotion of water efficient irrigation systems, and (iii) targeting greenhouse gas reduction.[40]

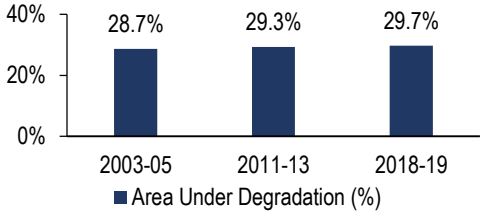
Desertification and Land Degradation

In 2001, India developed its National Action Plan to Combat Desertification, which was revised in 2022.[41] The Plan states the country's commitment to restore 26 million hectares of degraded land through forestry by 2030.[41]

With a population of over 1.4 billion people, India holds 18% of the world's population on 2.4% of the world's total land.[42] It also holds 15% of the world's livestock population.[42] Given the pressure of sustenance, land resources in India are prone to unsustainable use and inappropriate management practices, deforestation, grazing and other anthropogenic impacts.

Land degradation is decline in productivity of land in terms of bio-diversity and economy, leading to loss of ecosystem.[43] The term desertification refers to land degradation occurring in dryland regions.[43] The Land Degradation and Desertification Atlas of India estimated that 98 million hectare area of the country is undergoing land degradation (29.8% of the total geographic area) during 2018-19.[43] A study estimated that the economic losses from land degradation and change of land use in 2014-15 stood at 2.5% of India's GDP or Rs 3,17,739 crores for that year.[41] Land degradation alone accounted for 82% of those costs.[41]

Figure 5: Land area undergoing degradation



Sources: Desertification and Land Degradation Atlas of India, 2021; PRS.

Further, the area undergoing desertification and land degradation has increased by 1.5 million hectares (0.4% of the total geographical area) from 2011-13 to 2018-19.[43] The total geographical area undergoing desertification/land degradation is highest in Jharkhand (69%), Rajasthan (62%), followed by Gujarat (52%), Maharashtra (46%), Ladakh UT (42%), Karnataka (36%), Odisha (34%), and Telangana (32%) and Madhya Pradesh (13%).[43] Water erosion has emerged as the most significant process of desertification/ land degradation in the country, followed by vegetation degradation and wind erosion.[43]

The Forest Survey of India (2019) estimated that the largest potential of creating additional carbon sinks lies in the restoration of open forest areas included degraded lands, afforestation on wastelands and agroforestry.[42] These activities of eco-restoration through forestry interventions can contribute up to 60% of the total carbon sink that may be achieved by 2030.[42]

Forest Fires

Forest fires significantly contribute to forest degradation and lead to a loss of timber, carbon, microflora and fauna, habitat, and fodder for animals.[24] Majority of fires are caused by human activities.[24]

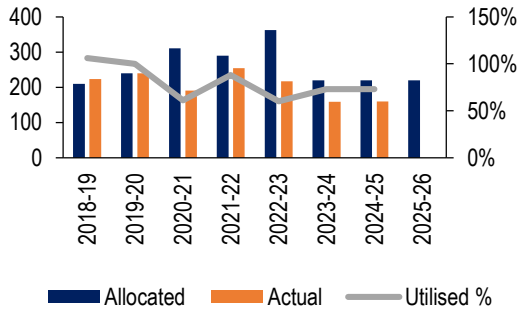
As per ISFR 2021, more than 36% of the country's forest cover was estimated to be prone to frequent forest fires.[44] Of the country's forest cover, 2.8% was extremely prone to fires, whereas 7.9% of forest cover is found to be very highly fire prone.[44] During the forest fire season 2023-24, 2.04 lakh hotspots were detected as compared to 2.23 lakh hotspots in 2021-22.[24] Fire hotspots are locations where a fire event is detected by satellites.

Currently, Forest Survey of India has been alerting state forest departments about forest fire incidences detected by sensors and satellites.[24] However, between 01:30 am to 10:30 am and from 1:30 pm to 10:30 pm, there is no satellite pass.[24] So, during these gap periods, no fire hotspots can be detected and disseminated to the state forest departments.[24]

Green India Mission

The National Mission for a Green India is one of the eight Missions under the National Action Plan on Climate Change.[45] It seeks to protect, restore, and enhance India's forest cover. In 2025-26, the Mission has been allocated Rs 220 crore, an increase of 38% over the revised estimates of 2024-25. However, in 2024-25, of the Rs 220 crore allocated to the mission in the budget, Rs 160 crore (73%) will be spent (as per revised estimates).

Figure 6: Fund utilisation under the Green India Mission (in Rs crore)



Note: Revised estimates for 2024-25 taken as actuals.
Sources: Budget documents; PRS.

Under the Mission, Rs 625 crore has been released to states and union territories between 2019-20 and 2023-24. Of this Rs 575 crore (92%) has been utilised.[46] Out of the target of creating plantation of two lakh hectare, 1.5 lakh hectare (74%) has been achieved as of August 2023.[47] The target achievement has been slow in states like Andhra Pradesh, Madhya Pradesh, Manipur and the Union Territory of Jammu and Kashmir.[47]

An evaluation of the scheme by the NITI Aayog in 2022-23 noted that though the scheme is designed to enhance carbon capture and storage through increased forest cover, states do not monitor the level of carbon sequestration achieved under the scheme.[48]

Coasts and Wetlands

Wetlands and coastal ecosystems are critical for biodiversity, climate regulation, and livelihoods. India's total wetland area is estimated at 16 million hectares, which is around 4.9% of the total geographic area of the country.[49]

India is a Party to the Ramsar Convention on Wetlands of International Importance.[50] The Convention collaborates with governments and organizations to promote wetland conservation, raise public awareness, encourage sustainable policies, and secure funding to combat wetland loss and degradation.[50] India has declared 89 wetlands as Ramsar Sites.[50]

Table 7: Length of shoreline shifted between 1990 & 2018 (km)

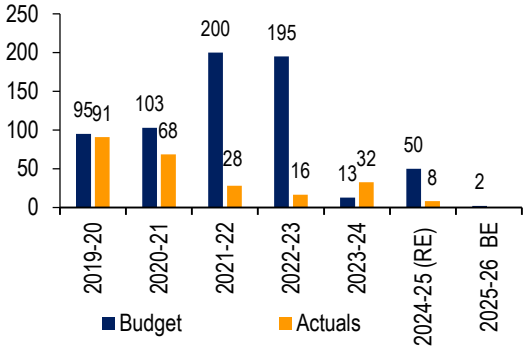
Coast	Coast Length	Erosion	Stable	Accretion
West Coast	3,763	1,113	1,959	691
East Coast	3,145	1,205	775	1,165
Total	6,907	2,318	2,734	1,855
% Share		33.6%	39.6%	26.9%

Note: Erosion implies loss above 0.5 meter per year; Stable is a shift below 0.5 meters per year, Accretion means gain over 0.5 meter per year.
Sources: National Centre for Coastal Research, 2022; PRS.

The IPCC (2022) had noted that coastal risks will increase due to rising sea levels impacting ecosystems, infrastructure, and livelihoods at the coast.[51] Between 1990 and 2018, from 6,907 km of coast line in India, 33% has experienced coastal erosion.[52] Of this, more than 40% erosion is noticed in three states/UTs - West Bengal (60%), Tamil Nadu (42%), Kerala (46%) and Pondicherry (56%).[53] Of the rest, 40% is stable and 27% is undergoing accretion. A report by the National Centre for Coastal Research (2018) had noted that shoreline changes are a result of both natural and human activities.[54] It had added that receding coastline will cause loss of land, habitat and would affect the livelihood of fishermen.[55]

The National Coastal Mission (launched in 2014) seeks to address the impact of climate change on coastal and marine ecosystems. The budgetary allocation for the programme was drastically reduced in 2023-24 after few years of significant underspending (see Figure 7). In 2024-25, only eight crore rupees has been spent (revised estimates), as compared to budget allocation of Rs 50 crore. The allocation in 2025-26 has been reduced further to two crore rupees, a decrease of 75% from the revised estimates of 2024-25.[2]

Figure 7: Budgetary allocation to National Coastal Mission (in Rs crore)



Note: Revised estimates for 2024-25 used as Actuals.
Sources: Budget documents; PRS.

The NCM has both externally aided project (EAP) and non-EAP components. The Ministry had noted that the reduction in expenditure was due to withdrawal of funding support from the World Bank.[56] The World Bank was supporting conservation efforts in coastal states such as Gujarat, West Bengal and Odisha under the Integrated Coastal Zone Management Project. The Standing Committee (2023) had recommended that the Ministry make efforts to raise the deficit funds.[56]

Mangrove Initiative for Shoreline Habitats and Tangible Incomes

Mangrove forests are an integral part of the coastal ecosystem. They have significant capacity to store carbon, prevent coastal erosion, and support marine biodiversity.[57] For protection of mangroves, the Ministry implements the Conservation and Management of Mangroves and Coral Reefs scheme under the National Coastal Mission.

In 2023, the Ministry launched the Mangrove Initiative for Shoreline Habitats and Tangible Incomes (MISHTI).[58] The programme has the objective of restoring mangrove coverage of 540 sq. km across nine states and three Union Territories. Under the initiative, the government will provide financial assistance to local communities to carry out mangrove plantation activities.[59] Funding for the scheme is provided through CAMPA. As of 2023, India has 4,992 sq. km of mangrove cover.[60] This is a reduction of 0.15% from 2021, when mangrove cover was 4,999 sq. km.[24]

Wildlife and Biodiversity

India is one of the world's 17 megadiverse nations, hosting nearly 7-8% of all recorded species.[61] However, rapid urbanisation, deforestation, habitat destruction, pollution, and climate change are a serious threat to India's wildlife and ecosystems. While State of Forest Report, 2023 reports a marginal increase in forest cover, there has been a decline in moderately dense forests, which are crucial for biodiversity.[24]

Deforestation and loss of biodiversity are also linked to some zoonotic diseases which can be transmitted from animals to people.[62] Healthy ecosystems can help control diseases by supporting a variety of species, making it harder for a single germ to spread, multiply, or take over.[62] National Biodiversity Authority was allocated 17 crore for 2025-26, similar to the revised estimates of 2024-25.[2]

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services highlighted that India is seeing a rapid decline in pollinators (such as bees, butterflies), soil biodiversity, and freshwater species, which are essential for food security and ecosystem stability.[63]

The central government provides financial support to states and union territories for management of wildlife and their habitats. In 2025-26, Rs 450 crore has been allocated for the centrally sponsored scheme on Integrated Development of Wildlife Habitats. In 2025-26, Rs 290 crore (64%) has been allocated for Project Tiger and Elephant, an 18% increase from the revised estimates of 2024-25.[64] As per the Tiger Census report of 2023, India is home to 75% of the world's tiger population.[65] Under Project Tiger and Elephant, funding support is provided to states for protection of tigers, elephants, and preservation of their habitats.[66]

Table 8: Human casualties due to tiger and elephant attacks

Year	Casualties due to elephant attacks	Casualties due to tiger attacks
2018-19	457	49
2019-20	587	51
2020-21	471	59
2021-22	557	110
2022-23	610	82
2023-24*	628	44

Note: *Data until June 2024.
Sources: Unstarred Question No 193, Lok Sabha, November 25, 2024; PRS.

The Project also aims to address the issue of human-animal conflicts. In 2022-23, across the country, 610 human casualties were reported in human-elephant conflicts and 82 casualties were attributed to human-tiger conflicts.[67] The Ministry has noted several reasons behind these conflicts, including: (i) degradation of wildlife habitats, (ii) depletion of natural prey base, (iii) increase in population of wild animals due to sustained protection efforts, and (iv) presence of stray cattle and dogs near forest ranges due to changing cropping pattern.[68]

Under the Development of Wildlife scheme and Project Tiger and Elephant, the Ministry is taking initiatives to prevent entry of wild animals into crop fields. The initiatives include construction of physical barriers such as barbed fences, erection of boundary walls and solar powered electric fences.[67]

Pollution Control

Air pollution

Air pollution refers to the presence of any solid, liquid, or gaseous substance present in such concentration that may be injurious to the environment and to human health.[69] Common air pollutants include Ozone (O_3), Nitrogen Dioxide (NO_2), and Sulphur Dioxide (SO_2). In addition to these, tiny particles such as dust, soot, and smoke are also carried through air and cause air pollution. These are referred to as particulate matter (PM).

Particulate matter refers to a mixture of solid particles and liquid droplets found in the air.[70] Particles smaller than 10 micrometre (PM_{10}) can penetrate and lodge deep inside the lungs, leading to respiratory or pulmonary diseases.[71] $PM_{2.5}$, which contains particulate matter of size less than 2.5 micrometre, is the most dangerous pollutant of these.[70] These are emitted from burning fossil fuels and crop residues, or from construction sites, roads and industrial plants.[72]

According to the World Bank (2024) most of India's population is exposed to unhealthy levels of ambient $PM_{2.5}$.[72] It also estimates that in 2019, air pollution was responsible for 17 lakh deaths (18% of total deaths) and economic losses of USD 36 billion, equivalent to 1.4% of GDP.[72]

In 2025-26, Rs 854 crore has been allocated for pollution control, which constitutes 25% of the total allocation to the Ministry, similar to the revised estimates of 2024-25.[2] Under this head, financial assistance is provided to pollution control boards and committees and National Clean Air Programme (NCAP). NCAP was launched by the Ministry in January 2019 to improve air quality in 130 cities with million-plus population.[73] This is specifically for cities that exceeded the National Ambient Air Quality Standards (NAAQS) consecutively for five years.[73]

The Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCB) are responsible for monitoring air and water pollution levels in the country. In 2025-26, CPCB has been allocated Rs 126 crore, an increase of 13% over the revised estimates of 2024-25 (Rs 112 crore).[2]

Table 9: Air Quality Guidelines WHO (2021) and India (2009)

Pollutant	Averaging Time	WHO guidelines (µg/m3)	NAAQS (µg/m3)
PM_{10}	Annual Mean	15	60
$PM_{2.5}$	Annual mean	5	40
O_3	8 hours mean	100	100
NO_2	Annual Mean	10	40
SO_2	24 hours mean	40	80

Source: WHO; CPCB; PRS.

Air Quality Management in Delhi-NCR

The Commission for Air Quality Management (CAQM) was established in 2021 to facilitate air quality management in the National Capital Region and the Adjoining Areas including Haryana, Punjab, Rajasthan, and Uttar Pradesh.[74]

One of the focus areas of CAQM has been prevention and control of air pollution caused by stubble burning.[75] Under directions from the Commission, states in the region prepare and implement their respective action plans to limit stubble burning. State governments have been advised to: (i) ensure procurement and optimum use of crop residue management machines, (ii) create awareness about ill-effects of stubble burning, and (iii) review and closely monitor activities at the state and district levels.[75] As a result of these efforts, crop residue burning events have decreased: (i) over 27% in Punjab, (ii) 37% in Haryana, and (iii) 27% in Delhi and NCR districts of Rajasthan between 2022 and 2023.[75]

Air pollution transcends administrative boundaries, necessitating coordinated, regional-level interventions. For instance, a 2018 study by the Energy and Resource Institute (TERI) shows that 33% of Delhi's $PM_{2.5}$ pollution originates from sources outside India.[76] Except for the CAQM, regulators currently cannot act against polluters that impact the air quality within their jurisdiction unless the polluters are also situated within their jurisdictional boundaries.

The power sector significantly contributes to India's air pollution, emitting large amounts of $PM_{2.5}$, NO_2, and SO_2.[77] Coal emissions dominate, accounting for 95% of power-related $PM_{2.5}$ emissions and 80% of power-related NO_2 emissions.[77] Thermal power plants alone are responsible for half of India's SO_2 emissions, with industrial activities adding another third.[77]

Process, Achieve, Trade (PAT) is a regulatory instrument to reduce specific energy consumption in energy intensive industries.[78] PAT is a market based mechanism to enhance the cost effectiveness through certification of excess energy saving which can be traded.[78] IEA 2021 analysis estimates that a continued and expanded PAT scheme could result in more than 80 Million Tonnes (Mt) of avoided CO_2 emissions in 2030 and 265 Mt CO_2 in 2040.[77] Converting the PAT scheme's energy saving to carbon saving certificates could further trigger fuel switching, which would contribute additional CO_2 emissions reductions. IEA also suggests that expanding the PAT scheme could save more than 10% SO_2 and NO_X pollution from large industry by 2040.[77]

Road transport presently accounts for 12% of India's energy-related CO_2 emissions and for 20-30% of urban air pollution.[79] In Delhi, TERI (2021) noted that vehicular emissions account for 47% of the total estimated $PM_{2.5}$ emissions.[80] Non-exhaust emissions, including road dust suspension and wear from brakes and tires, also exacerbate air pollution.[80] IEA (2024) recommends implementing

stringent fuel economy standards alongside incentives for zero-emission vehicles.[79] It also recommends strengthening EV adoption policies, including extending incentives under the Faster Adoption and Manufacturing of Electric Vehicles scheme beyond 2024 and maintaining favourable taxation. This has been done through PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) scheme.[81] The scheme aims to promote mass mobility through the support of public transportation systems, by offering upfront incentives for EV purchases and developing the charging infrastructure.[81]

NCAP targets reducing PM_{10} levels by up to 40% or achievement of national standards (60 microgram/cubic meter) by 2025-26.[82] However, only 18 cities out of 130 adhere to NAAQS in terms of particular matter concentrations during 2023-24.[83] 55 cities have achieved reduction of 20% and above in PM_{10} levels in 2023-24 with respect to the levels of 2017-18.[83]

Under NCAP, an amount of Rs 19,614 crore has been allocated for 130 cities from 2019-20 to 2025-26 and Rs 11,211 crore has been released to cities from 2019-20 t0 2023-24.[84]

The Standing Committee on Science and Technology, Environment, Forests and Climate Change (2023) had observed that though these cities are reporting improvement in air quality, experience of the people differs from the data collected by the agencies.[4] It also suggested making public experience a part of the air quality monitoring framework.[4]

Water pollution

With the rapid increase in population and the need to meet the increasing demands of irrigation, human and industrial consumption, the available water resources are getting depleted and the water quality has deteriorated.[85] Major factors contributing to pollution in rivers are: (i) discharge of untreated or partially treated sewage from cities/towns and industrial effluents, (ii) improper solid waste management, (iii) problems in operation and maintenance of sewage/effluent treatment plants, (iv) and other unidentified pollutants.[86]

The CPCB monitors level of water pollution under the National Water Quality Monitoring Programme.[87] As of February 2024, the agency had water quality monitoring networks at 4,736 locations across the country.[88] Of these networks, 45% (2,115) are dedicated to monitoring water quality in rivers.[88] Of the rest, 1,233 are for monitoring ground water quality and the remaining are for lakes, ponds, and canals.[88]

While monitoring water quality in rivers, the CPCB identifies polluted stretches by measuring the biochemical oxygen demand.[89] The biochemical oxygen demand represents the amount of dissolved oxygen needed to break down organic pollution in water. Polluted river stretches are identified when: (i) the biochemical oxygen demand at a location is more than 3 mg/L, and (ii) there are two or more such locations on the river in a sequence.[89] In 2022, the CPCB identified 311 polluted stretches on 279 rivers.[89] In comparison, in 2018, there were 351 polluted stretches on 323 rivers.[89]

Table 10: Number of polluted rivers stretches as monitored by CPCB

Year	Monitoring period	Polluted stretches	Polluted rivers
2009	2002-08	150	121
2015	2009-12	302	275
2018	2016-17	351	323
2022	2019 and 2021	311	279

Notes: Report excluded data for 2020 due to the pandemic.
Source: Polluted River Stretches for Restoration of Water Quality 2022, CPCB; PRS.

The CPCB has attributed the reduction in number of polluted stretches to: (i) sewage management, (ii) management of industrial effluent, and (iii) better enforcement of regulations.[89] Among states, Maharashtra has the highest number of polluted river stretches (55), followed by Madhya Pradesh (19), Bihar (18) and Kerala (18).[89] For water quality improvement in these stretches, states have formed River Rejuvenation Committees. These committees form action plans which include components such as: (i) industrial pollution control, (ii) adaptation of good irrigation practices, (iii) utilisation of treated sewage, and (iv) plantation.[90]

Table 11: Percentage of industries complying with environmental standards as of 2023

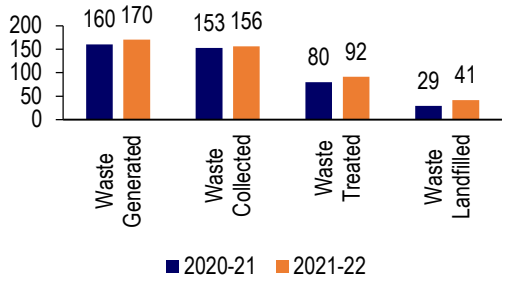
Year	% of industries complying
2018	86.3%
2019	91.7%
2020	91.8%
2021	91.3%
2022	89%
2023	90.3%

Source: EnviStats 2024, MoSPI; PRS.

A major source of water pollution is untreated sewage produced in cities. The untreated wastewater contains organic matter, pathogens, minerals, and toxic chemicals.[91] Without treatment, these elements cause water pollution and help spread infectious diseases.[91]

As per a report by the CPCB (2021), total volume of sewage generated in cities across the country amounts to 72,368 million litres per day (MLD).[92] The total installed capacity for sewage treatment in the country is 31,841 MLD (44% of total sewage generated), of which 20,236 MLD (28% of total sewage generated) gets treated.[92] In 2020-21, out of the 1,093 sewage treatment plants operational across states, 578 complied with all norms set by the central and state pollution control boards.[92]

Figure 8: Waste generated, collected, processed and landfilled (thousand tonne per day)



Source: Envi Stats, 2024, MoSPI; PRS.

Under the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), the Ministry of Housing and Urban Affairs is providing funding support for sewerage projects in cities.[93] As of August, 2024, work has been sanctioned for 313 sewage treatment plants with a total capacity of 6,232 MLD.[94] Out of this, 214 plants have been completed with a total capacity of 4,174 MLD. Under the second phase of the scheme (AMRUT 2.0) the Ministry has planned to add sewage treatment capacity of 5,792 MLD by 2025-26.[94]

The Central Ground Water Board (CGWB) monitors and collects data on occurrence of contaminants in ground water such as Nitrate, Fluoride, Arsenic, and Iron.[95] Nitrate concentration in ground water can increase due to: (i) pollution from septic and sewage discharges, and (ii) overuse of fertilisers and animal manure.[96] The Bureau of Indian Standards prescribes the maximum limit of nitrate concentration in ground water to be 45 mg/L.[96] In 2021-22, out of 26 states and UTs surveyed, the CGWB identified 20 states with nitrate concentration higher than the prescribed limit.[96] Similarly, fluoride concentration of higher than 1.5mg/L in drinking water results in staining of teeth enamel.[96] A higher concentration can cause bone stiffening. In 2021-22, out of the 26 states and Union Territories surveyed, the CGWB identified 19 states and UTs with fluoride concentration higher than that level.[96] To improve quality of groundwater available, CGWB is constructing wells for exploration and handing over contamination free wells to states. The state governments are also creating awareness and undertaking remediation measures to provide uncontaminated water.[96]

Waste management

The Ministry of Environment, Forest and Climate Change oversees regulation of management of wastes such as solid wastes, hazardous wastes, biomedical and e-wastes. These wastes, when disposed ineffectively, end up unprocessed in landfills. These unsanitary landfills contribute to contamination of air, drinking water and can facilitate transmission of diseases.[97]

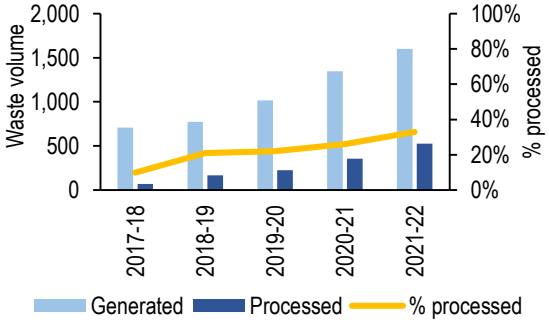
Table 12: Hazardous waste generated and treated (2017-18 to 2022-23)

Year	Waste generated per capita (in MT/ person)	Proportion of waste treated (%)
2017-18	7.2	0.5%
2018-19	6.5	0.6%
2019-20	6.5	0.6%
2020-21	6.8	0.6%
2021-22	9.0	3.8%
2022-23	9.3	3.6%

Sources: Progress on SDGs, MoSPI, 2024; PRS.

In India, the waste processing capacity has been insufficient across categories. In 2021-22, the average quantity of solid waste generated in the country was 1,70,338 tonne per day.[98] Out of which, 91,512 tonne per day (54%) was treated. Similarly, in 2022-23, plastic waste generated in the country was estimated to be 41.36 lakh tonne per annum.[99] However, as per data available for 20 states, the combined recycling capacity for plastic was 15.62 lakh tonne per annum (45%).[99]

Figure 9: One-third of e-waste generated is processed (in thousand tonne)



Notes: Processing includes collection, dismantling, recycling and disposal. Only includes data from authorised recyclers.
Sources: Unstarred question no 1339, Rajya Sabha, December 14, 2023; PRS.

The Ministry has introduced the principle of extended producer responsibility in 2022, for management of waste such as plastics and e-waste.[100] As per the principle, producers of plastics, electrical and electronic equipment are responsible for managing the waste generated by the equipment after its end of life. The Swachh Bharat Mission (Urban), implemented by the Ministry of Housing and Urban Affairs aims to ensure scientific management of all municipal solid waste generated.[101] Under the mission, as of November 2024, 80.3% of solid waste generated in urban areas is being processed.[102] The Mission also focuses on scientific management of waste in landfills. Under the Mission, 268 legacy dumpsites had been remediated as of March, 2023.[103]

Annexure

Table 13: Source-wise installed capacity and share in generation

Source	Installed Capacity As of December 2024,		Share in Generation in 2023-24
	In GW	% share	
Coal	219	47%	75%
Solar	98	21%	7%
Hydro	52	11%	9%
Wind	48	10%	5%
Oil & Gas	25	5%	2%
Bio Power	11	2%	1%
Nuclear	8	2%	3%

Sources: Central Electricity Authority; India's Climate and Energy Dashboard, Accessed on January 20, 2025; PRS.

Table 14: Key climate change negotiations

Negotiation	Highlights
1992: UN Framework Convention on Climate Change (UNFCCC)	▪ Established that any multilateral agreement must be in accordance with the larger principle of common but differentiated responsibilities and capabilities i.e., developed and developing countries may be treated differently on the basis of their historic responsibilities and national circumstances. ▪ Developed countries committed to stabilise emissions to 1990 levels by 2000.
1997: Kyoto Protocol	▪ 37 developed countries committed to reduce emissions by an average of 5% from the 1990 levels by 2008-2012.
2009: Copenhagen Summit	▪ 141 countries including USA, China, and India agreed on a non-binding recognition of the need to limit global temperature rise to no more than 2°C above 1900s levels. ▪ Developed countries agreed to provide developing countries USD 100 billion a year, by 2020, to help them cope with climate change.
2014: Lima Conference	▪ All parties decided that they can determine their contributions toward addressing climate change, and will submit their contributions by 2015. ▪ These contributions, called Intended Nationally Determined Contributions will become the foundation for the new agreement on climate change.
2015: Paris Conference	▪ Paris Agreement, 2015 was adopted which aims to limit the increase in the global average temperature to a level between 1.5°C to 2°C above pre-industrial levels by 2030. ▪ Creates two kinds of review mechanisms for tracking progress made with regard to climate change commitments, and financial obligations. These are: (i) transparency arrangements (such as biennial reports), and (ii) global stocktake, every five years from 2023 onwards.
2021: Glasgow Conference	▪ Glasgow Climate Pact aims to: (i) urge developed nations to provide financial support to developing nations for tackling climate change, (ii) reduce non-CO_2 greenhouse gas emissions including methane by 2030, (iii) accelerate development of clean power generation including phasing down of coal power, and (iv) phase out inefficient fossil fuel subsidies while providing support to the poor (refers to gradual removal of subsidies which lead to overuse of such fuels).
2022: Sharm el-Sheikh	▪ Key features of the Sharm el-Sheikh Implementation Plan include: (i) recognising the importance science for effective climate action and policymaking, (ii) accelerating the development and deployment of technologies for energy transition, and (iii) creating a loss and damage fund for developing nations to tackle effects of climate change.
2023: Dubai	▪ Highlights of COP28 include: (i) operationalisation of the loss and damage fund, (ii) UN Office for Disaster Risk Reduction and UN Office for Project Services to host the secretariat of Santiago Network for Loss and Damage, (iii) agreement on targets for the Global Goal on Adaptation and it's framework to promote resilience and capacity building, and (iv) discussions to continue on setting a new collective quantified goal on climate finance.
2024: Baku	▪ Highlights of COP29 may include: (i) Progress on the implementation of the Loss and Damage Fund established at COP28, (ii) Advancements in the Global Goal on Adaptation (GGA) framework, including measurable targets and funding mechanisms, (iii) Discussions on the New Collective Quantified Goal (NCQG) for climate finance post-2025, (iv) Enhanced commitments to renewable energy transition and phase-out of fossil fuels, (v) Strengthening of carbon markets and Article 6 mechanisms under the Paris Agreement, (vi) Focus on climate justice and equitable support for developing countries, particularly small island states and least developed countries (LDCs).

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