

A White Paper on Navigating India's Climate and Sustainability Transition

June 2024

Unveiled at
TIMES
NETWORK
India
Climate
summit 2024



A Whitepaper on
**Navigating India's Climate and
Sustainability Transition**

Presented by
Times Network & EY (Ernst and Young)
at India Climate Summit 2024

Foreword

India is witnessing the real and undeniable threats of the climate crisis – weather change, environmental hazards, instability and increased natural disasters. With the constantly rising threat of climate change, India has undertaken the mission to counter the threat with an aspiration towards a net-zero economy by the year 2040. It is not enough to just discuss the crisis that is befalling upon the nation, but imperative that India takes action towards this aspiration.

Times Network has taken the initiative towards climate action for the nation through an impact-focused platform – India Climate Summit, with a mission to not only discuss climate issues, but to charter the pathway towards a sustainable nation. Bringing together all major climate stakeholders from the political, business and social landscape, India Climate Summit will drive an actionable agenda.

Keeping in mind that knowledge is the first step towards action, Times Network and EY join hands to uncover the criticality in the mission and bring forth the true effects of climate change on the business and socio-economic landscape of India through this white paper. Additionally, with our commitment towards climate action, the white paper also features implementable solutions towards mitigating climate change.

We thank you for your support in this mission of national importance and invite you to take a stride towards driving real and measurable change towards a new India – Climate Conscious India.



Vineet Jain
Managing Director, The Times Group



Foreword

"Per ardua, ad astra"

This latin proverb - which translates to "through adversity, to the stars" - summarizes the generational opportunity that our Nation finds itself faced with, in the face of ever -expanding challenges. Geo-political conflicts, environmental hazards, financial uncertainty and global politico-economic transitions are but a few challenges that the world faces today. In this complex environment, India stands uniquely well-positioned to capture tremendous societal and economic value. India has shown great leadership in committing to the Clean Climate Agenda and driving towards its Net Zero goals by 2070 with well-defined Nationally Determined Contributions (NDCs). This has been followed through, with robust policy making targeted at catalyzing the clean climate transition in the country.

We - at EY - are committed to enabling the Nation and our Clients execute on the Clean Climate Agenda and realize goals. Our focus on Value-led Sustainability is founded on three broad principles - data-centric sustainability awareness, definition of India-specific climate transition pathways and robust eco-system activation on sustainability initiatives. This epochal transition calls for active co-creation and collaboration among policy makers, corporates, development institutions and individuals alike.

EY is delighted to partner with Times Network under the aegis of the India Climate Summit platform towards driving impact through Value-led Sustainability.

We hope the platform and our White Paper provide an impetus and a call for action towards taking meaningful strides on India's Climate and Sustainability Transition.



Rajiv Memani
Chairman and CEO, EY India

Foreword

The entire world is experiencing a shift characterized by a string of severe and complex problems influenced by a number of unprecedented crises. These issues come in the form of relentless disaster risks, geo-political turmoil, global financial instabilities, environmental hazards, and widespread trust deficit. This has been the status quo for a substantial period of time and the situation is deteriorated further by the global average temperature, which has climbed beyond 1.2° C compared to pre-industrial levels; a threshold beyond human tolerance.

Since time immemorial, India has demonstrated remarkable resilience in the face of various predicaments. The country has showcased dynamic global leadership, putting sustainability and the push towards a decarbonised future right at the centre of its agenda. However, individual and national efforts need to be amplified and complemented by a global initiative. To overcome these crises, it is of utmost importance that we unify and capitalize on solution-oriented methodologies. We need to identify effective solutions to these existing global challenges; and this necessitates a platform where Indian leaders can engage in thorough discussions and negotiations with global counterparts.

In this spirit of thought leadership, we aim to deliver a comprehensive analysis that brings in a global perspective and juxtaposes it with India's ongoing march towards sustainability. This will shed light on how our nation aspires to make its mark and contribute to the health of our planet, both at a national and corporate level. This collaborative approach forms the basis of our pursuit of a healthier and more sustainable world.

Sustainability is everybody's business.

EY is committed to helping business create value for sustainability as well as helping sustainability create value for business - reframing how business approaches sustainability and putting it at the center of how value is created.

We call this Value-Led Sustainability - a way of protecting and creating new sources of value - for business, people, society and the world as a whole. And that makes it everybody's business. To navigate this transformative path, India must seize the opportunities presented by sustainable practices across multiple fronts, like energy transition, sustainability mobility, eco-friendly agriculture, sustainable finance, and innovative technology.



Nitesh Mehrotra
EY India Partner | Sustainability and ESG



Table of **Contents**

01.

Executive
summary

02.

Our climate
compass

03.

India climate
change scenarios

- ▶ Physical risk scenarios
- ▶ Transition scenarios & pathways

05.

How can data be the
microscope & telescope?

06.

Mitigation actions

07.

Adaptation –
leading practices

08.

Knowledge resources

Executive summary

Climate change presents a unique set of challenges to India's policy framework. Managing to uplift the living conditions of an approximately 1.8 billion populace while concurrently playing a vital role in reducing the world's greenhouse gas (GHG) emissions is a formidable task.

Despite the numerous policies that have been put in place to foster the growth of renewable energy sources and gradually transition away from coal, there is a pressing need to further accelerate these processes to meet India's net-zero goal by 2070. Recognizing that short-term growth might be impacted negatively by the reduction of GHG emissions, the broader perspective reveals the far graver cost of inaction over the impending decades.

As India tries to meet the housing needs of its burgeoning population, striking a balance between economic development and environmental sustainability is primordial. Investments in renewable energy, enhancements in energy efficiency, and the transformation of transportation networks are the crucial components of this balance. The role of financial institutions in launching innovative funding mechanisms for sustainable projects is pivotal here, along with a strategic reassessment of tax frameworks and energy pricing to align with the transition to a greener economy.

The presented research also underscores the necessity of bridging the financing gap and managing climate adaptation. This report concludes on the note that the path to sustainability does not merely lie in prioritizing and regulation enforcement, but also pushing financial resources to make India a climate resilient country.





■ 02.

Our climate action compass today: emerging trends and changing landscape

We are at +1.2°C global warming and need to dramatically change the way we perform our economic activities



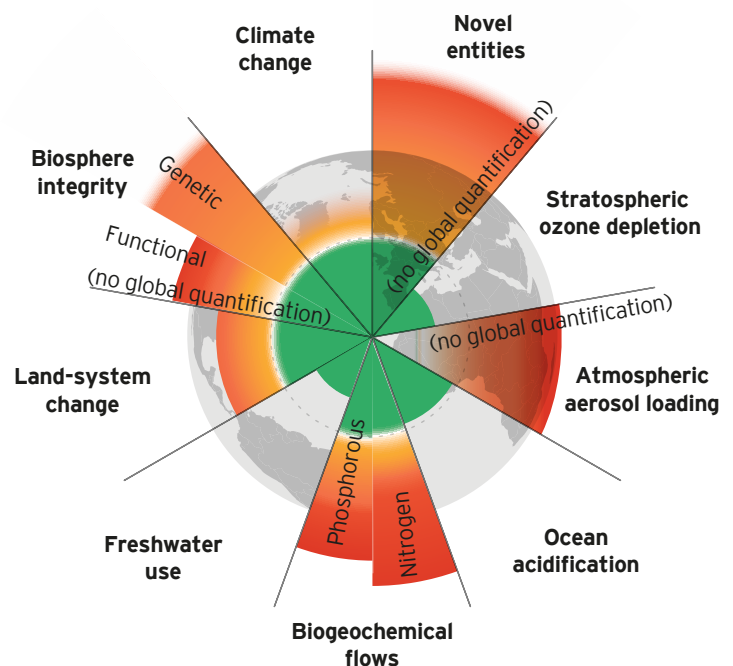
What is the climate action urgency?

2023 recorded the three hottest days on average in 100,000 years!

The difference between 1.5°C and 2°C is massive, 3°C is existential

	1.5°C	2°C	>3°C
World population at risk from extreme heat	14%	37%	2.6x worse
Tropical coral reef destroyed	70-90%	>99%	~100%
Species losing >50% range	8%	18%	3x worse
Climate feedbacks	Low risk	High risk	Amazon collapse, permafrost loss, methane hydrate destabilization

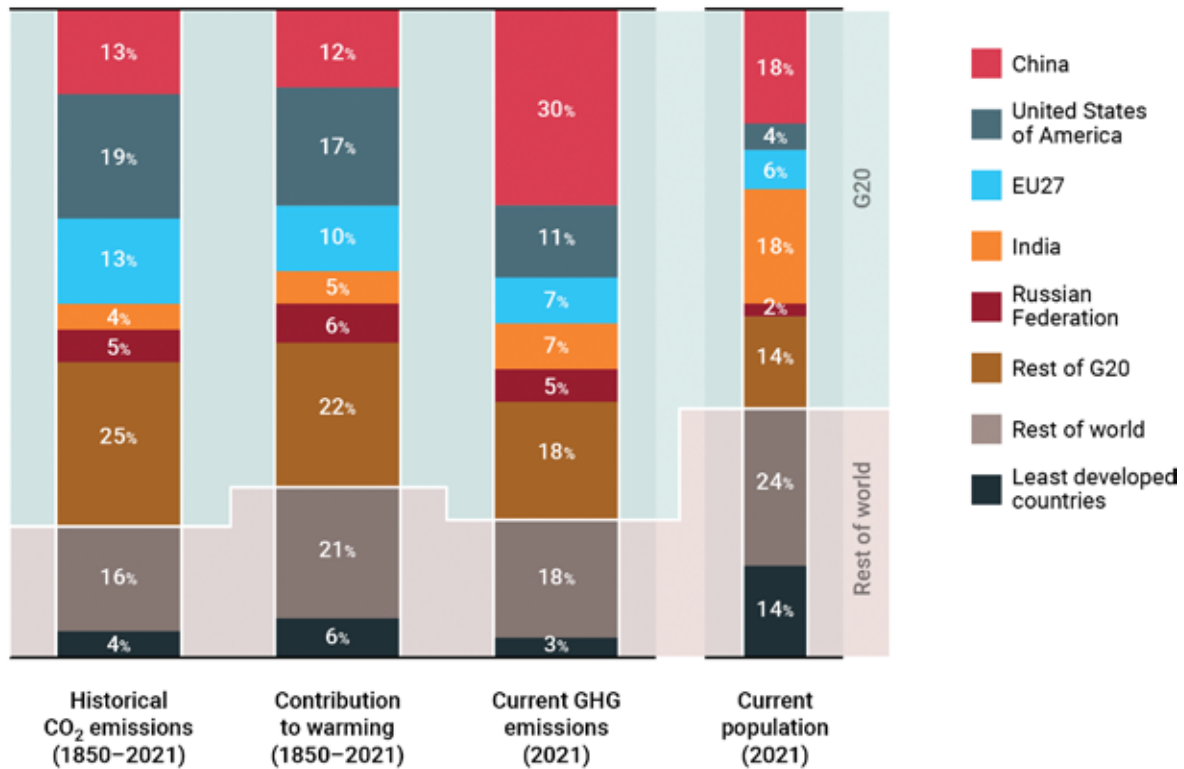
How do we get back within the planetary boundaries?



Source: Planetary boundaries - Stockholm Resilience Centre

Current & historic contributions to climate change

Current and historic contributions to climate change
(% share by countries or regions)



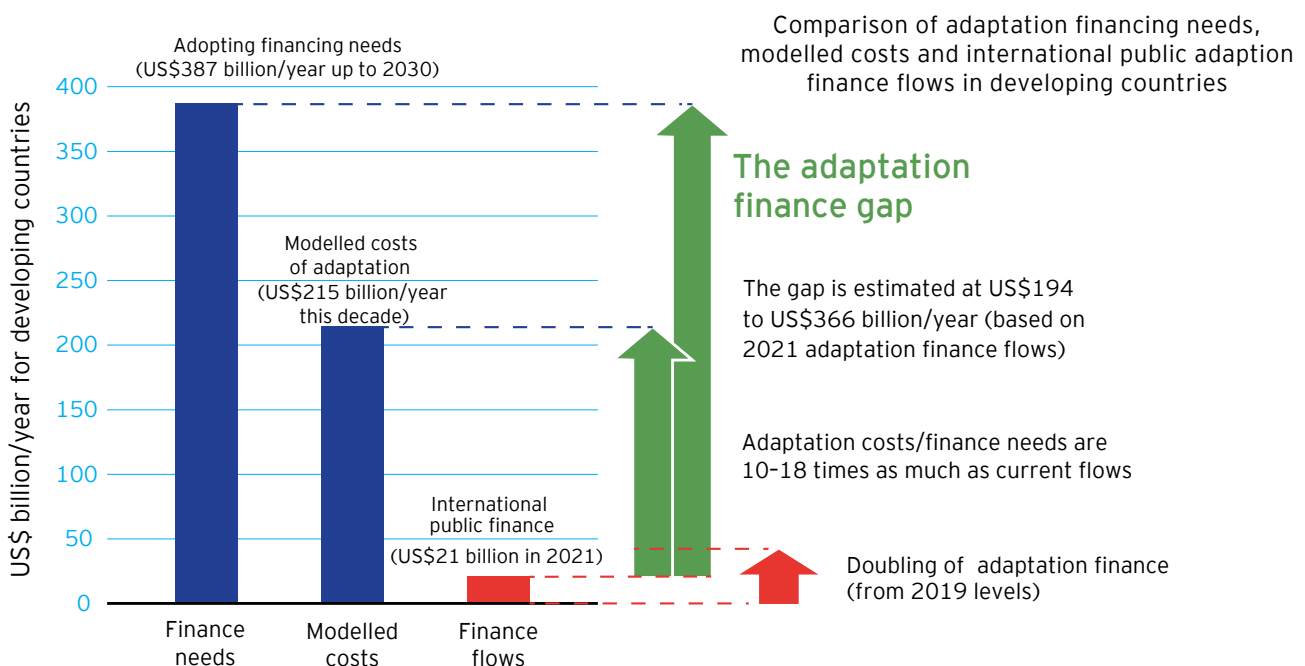
Source: UNEP Emissions Gap Report 2023

- **Both Russia and the US emit more than double the world average of 6.5 ton of CO₂ equivalent (tCO₂e), while those in India remain under half of it.**
- Globally, the 10% of the population with the highest income accounted for nearly half (48%) of emissions, with two-thirds of this group living in developed countries. The **bottom 50% of the world population contributed only 12% of total emissions.**
- **Nearly 80% of historical cumulative fossil and LULUCF CO₂ emissions came from G20 countries, with the largest contributions from China, the United States of America and the European Union, while least developed countries contributed 4%.**



Sectoral adaptation costs

- ▶ Resilience building in energy and transport sectors will cost US\$56 billion/year, with costs increasing significantly towards 2050
- ▶ Coastal protection and beach nourishment to cost US\$56 billion per year between 2020 and 2030
- ▶ Riverine flood protection to cost US\$54 billion per year between 2010 and 2050
- ▶ Universal early warning systems to cost US\$16 billion annually
- ▶ Addressing climate impact on chronic hunger to cost US\$16 billion per year between 2015 and 2050
- ▶ Controlling climate-related disease and heat-related mortality to cost US\$11 billion per year
- ▶ Addressing changes in fish catch potential to cost US\$5 billion per year in the 2020s, rising towards 2050s



Note: Values for needs and flows are for this decade, while international public finance flows are for 2021. Domestic and private finance flows are excluded.

Source: UNEP Adaptation Gap Report (2023)

Sectoral emissions in India

Under current practices, **more than half of India's projected carbon dioxide emissions in 2040 will come from buildings, appliances, factories and vehicles that do not yet exist.**

Road Ahead

- ▶ India aims for 40% of its installed electricity capacity to be renewable or nuclear by 2030.
- ▶ Plans to increase tree cover to create an additional cumulative carbon sink of 2,500-3,000MtCO₂e by 2030 – roughly on a par with its total emissions across one year.
- ▶ India's emissions intensity in 2030 will be around 50% below 2005 levels, far ahead of the 33-35% target.
- ▶ The government currently projects there will be 238GW of coal capacity in 2027, as India still remains a heavily coal powered country
- ▶ The price of solar has fallen by almost two-thirds since 2014, while the price of onshore wind has halved

| Global perspective: GDP & life

The world stands to lose up to 7% to 10% of GDP by mid-century from the physical risks of climate change if global warming stays on its current trajectory

Climate
investments

Over US\$270t

in climate investments
is needed to meet 2050
net-zero targets

GDP
benefit

7%-10%

of potential GDP losses
can be mitigated by
closing the investment
gap by 2050

Susceptible
population

3.6 billion

people already live in
areas highly susceptible
to climate change

Adaptation finance gap

5%

of total climate finance
makes up for climate
adaptation goals.

Developing countries

US\$212b

per year is required by
developing countries for
adaptation finance. US\$56b
were tracked for adaptation
in 2021-2022.

Cost to health

US\$2-4b

per year by 2030 is
estimated to be the
direct damage to health
cost

Death due to climate change

250,000

additional deaths are
expected per year
between 2030 to 2050
due to climate change

Heat deaths

70%

increase in heat-related
deaths of those over 65
years of age in the last
two decades

Source: Swiss Re Business Report (2023), WHO - Climate Change (2023), Global Centre on Adaptation - State and Trends in Climate Adaptation (2023)

A hand holding a small green seedling with dark soil, with a butterfly in the background.

■ 03.

India climate change scenarios

India's total emissions (2015-2022)

Power	9,093.30M Tonnes CO ₂ e100	30.85%
Agriculture	6,809.13M Tonnes CO ₂ e100	23.10%
Manufacturing	5,682.66M Tonnes CO ₂ e100	19.28%
Transportation	2,495.50M Tonnes CO ₂ e100	8.47%
Waste	1,778.04M Tonnes CO ₂ e100	6.03%
Buildings	1,568.09M Tonnes CO ₂ e100	5.32%
Fluorinated gases	422.30M Tonnes CO ₂ e100	1.43%
Fossil Fuel operations	1,430.56M Tonnes CO ₂ e100	4.85%
Mineral Extraction	198.98M Tonnes CO ₂ e100	0.67%

Emissions total exclude LULUCF. Emissions from forestry and land use change are excluded from the country totals. LULUCF: Land use, land-use change, and forestry

Source: Climate Trace

India emissions profile

29.48
billion tonnes CO₂e100

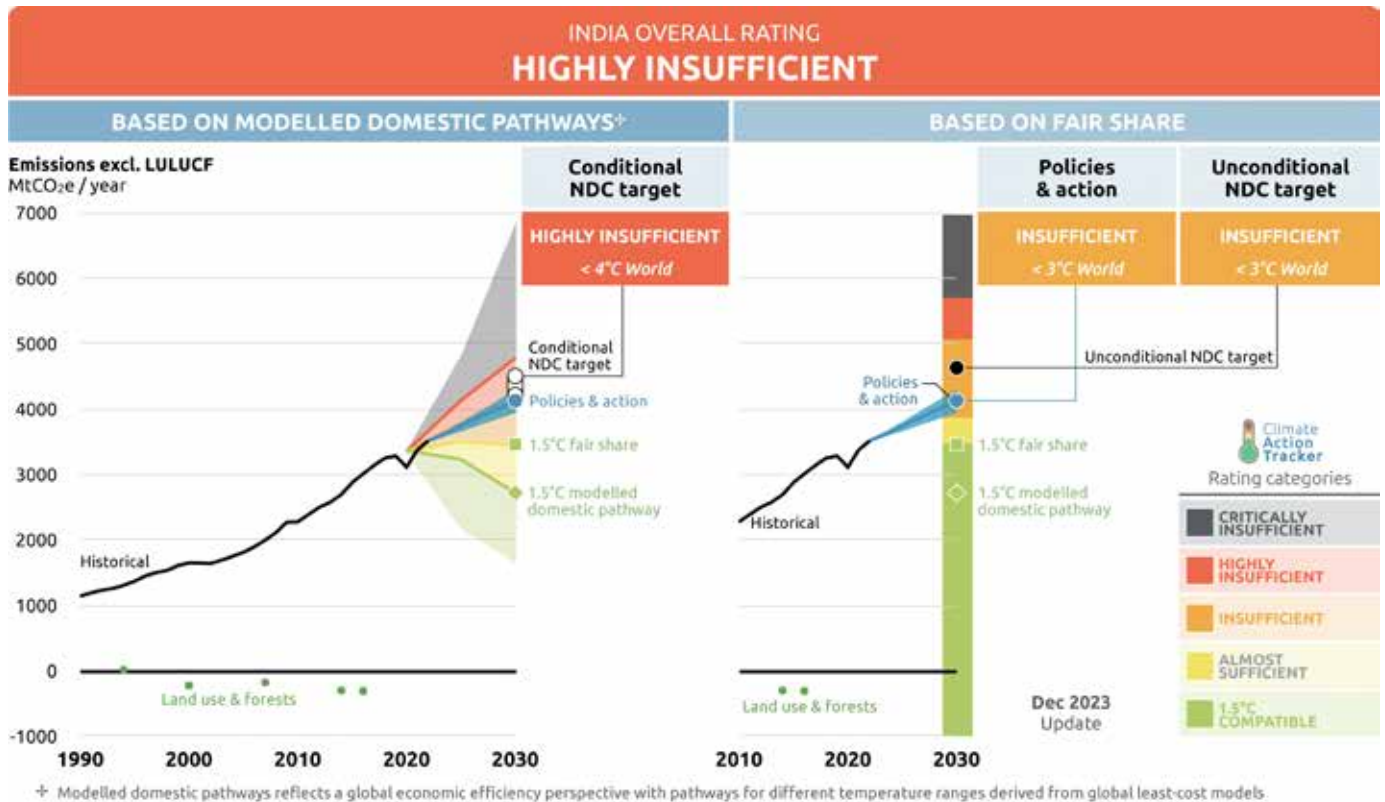
- ▶ The rapid growth in fossil energy consumption has also meant India's annual CO₂ emissions have risen to become the **third highest in the world**. However, the average Indian household consumes a tenth as much electricity as the average household in the United States.
- ▶ The **industrial sector would account for the largest share of India's final energy use** at 54.6% by 2050.
- ▶ The **share of solar energy in the generation mix would increase from being negligible in 2015 to 26% in 2050 and 46% in 2100**
- ▶ The **industrial sector would account for the largest share of India's final energy use** at 54.6% by 2050.
- ▶ **Transport sector's share in final energy would grow much faster than any other sector** and would account for 31% of India's energy demand by the end of the century.



Impact of climate change in India: key projections

- ▶ Length of heatwaves will increase by 2,515%, driving heat-related **deaths 25 times higher** than 1990.
- ▶ Extreme river and flooding will cost **over 6,00,00,000 crore in damages**.
- ▶ Rising sea levels, coastal erosion and changing storm patterns will expose **21 million people exposed to devastating floods by 2050**
- ▶ India stands to **lose 5.21% of its GDP by 2050. That rises to 9.9% by 2100.**
- ▶ India could face **annual average losses of between \$132 billion and \$224 billion under moderate-to-worst-case climate change scenarios**

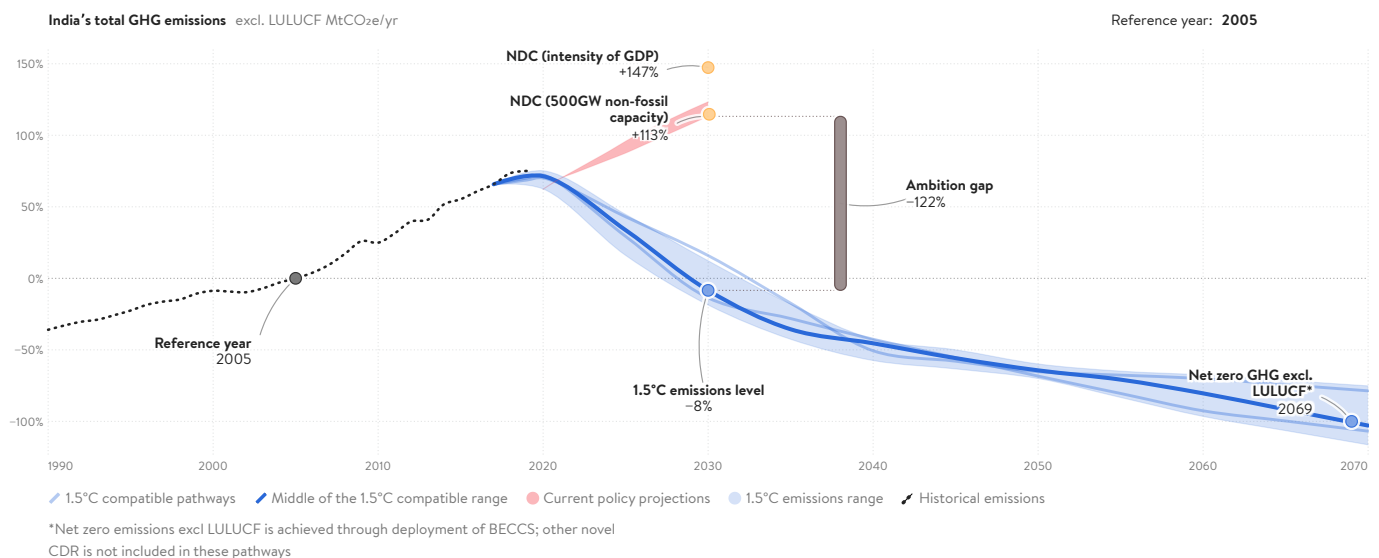
Source: G20 Climate Risk Atlas (2021)



Source: Climate Action Tracker - India Summary (2023)

India's pathway to limit global warming to 1.5°C?

For India's domestic emissions to be in line with 1.5°C, they would need to peak soon and reduce as early as possible, aiming for a 2030 emissions level of 1.6 GtCO₂e/yr, equivalent to 16% below 2005 levels (range of 23-1%) below 2005 levels.

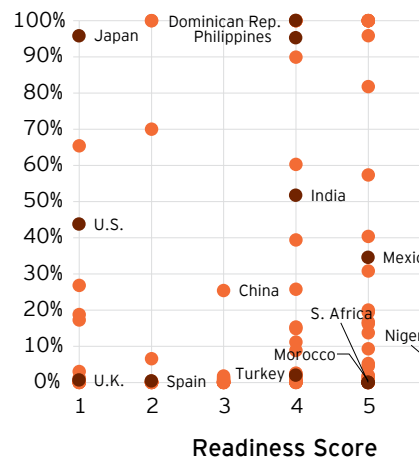


Source: Climate Analytics - 1.5°C National Pathway Explorer

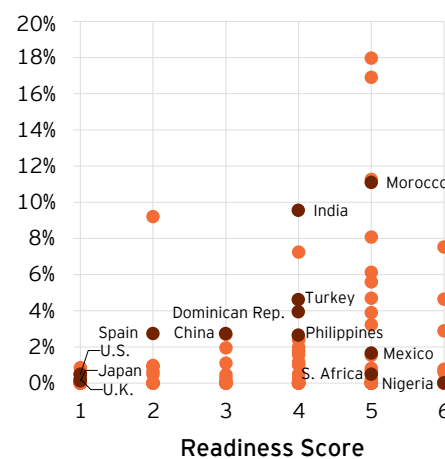
Physical risk

Under A Moderate Stress (RCP4.5) Scenario And Readiness, 2050

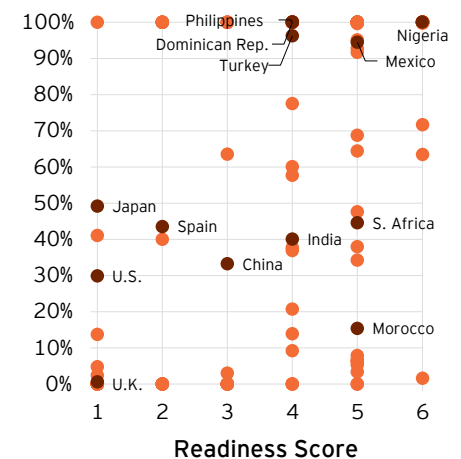
GDP Exposure To Wildfire, Flood, Sea Level Rise, Or Storms*
Percentage of GDP



GDP Exposure To Agricultural land at risk of Water Stress
Percentage of GDP



Population Exposure To Heat Waves
Percentage of population



Source: S&P Global - Weather Warning: Assessing Countries' Vulnerability To Economic Losses From Physical Climate Risks

In an exploratory scenario analysis of the vulnerability and readiness of 135 countries to climate change over the next 30 years, S&P Global Ratings finds that physical climate risks could expose 3.3%, 4%, and 4.5% of world GDP to losses by 2050 under climate pathways RCP2.6 (Paris Agreement), RCP4.5 (current policies), and RCP8.5, assuming no adaptation and all risks materialize simultaneously.

Countries In South Asia In 2050 Under A Moderate Stress (RCP4.5) Scenario

Percentage of GDP exposure to one or more physical risks, agricultural land to water stress, and population exposure to heat waves

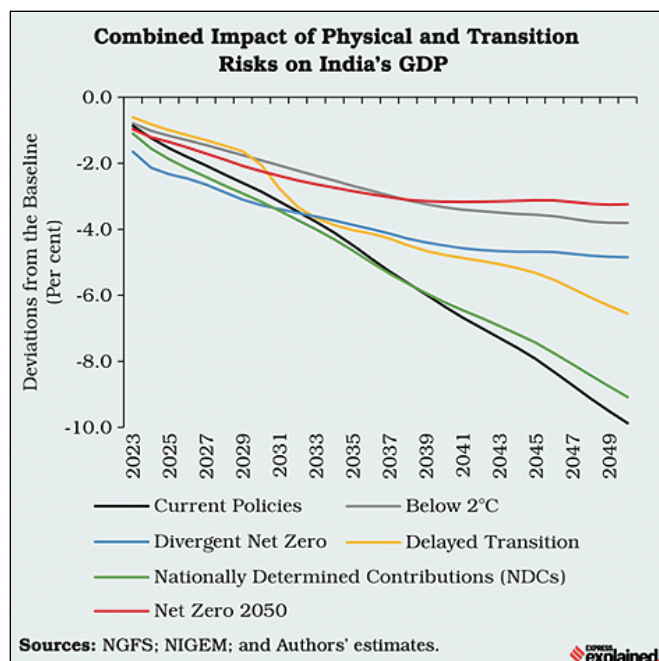
Sovereign	Readiness assessment	Total GDP exposure (wildfire, flood, sea level rise or storms)	GDP exposure based on agricultural land at risk of water stress	Agricultural land exposed to water stress	Population exposure (heat waves)
Bangladesh	4	90%	0%	0%	21%
India	4	52%	10%	62%	40%
Pakistan	5	20%	17%	81%	48%
Sri Lanka	5	5%	5%	73%	100%

Note: Wildfire, flood, sea level rise, or storms--storms exposure taken as baseline only. Region classification based on World Bank data. Data sorted by greatest exposure to acute physical risks (column 3: high to low).

Readiness of South Asian countries is also in the medium to lower part of the range. India and Bangladesh are assessed to be better prepared to face those risks owing to stronger economies and institutions.

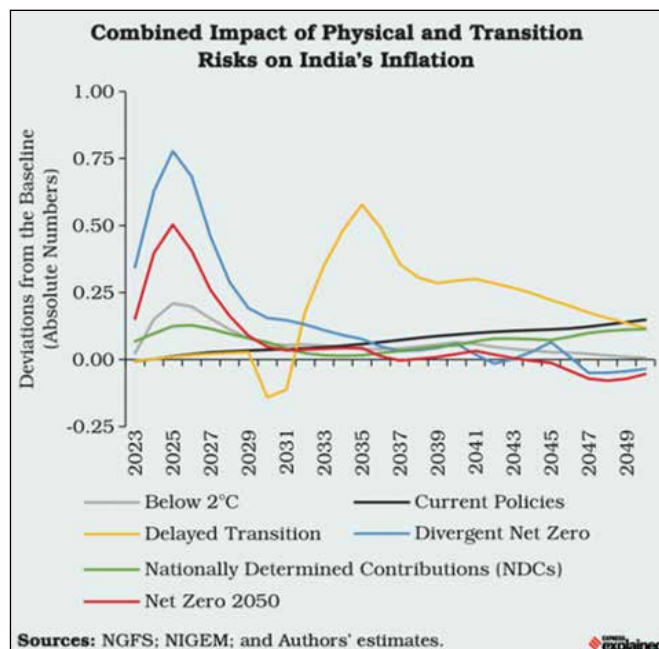
Source: S&P Global - Weather Warning: Assessing Countries' Vulnerability To Economic Losses From Physical Climate Risks

Transition risk



Policy actions have a negative impact on India's GDP, no matter what. However, global scenarios of "current policies" and "nationally determined contributions (or NDCs)" have the highest negative impact on output, whereas rapidly moving towards Net Zero by 2050 will contain the hit to GDP.

Source: Indian Express (2023)



Moving towards net zero by 2050 will spike inflation far more in the immediate future than continuing current policies

Scenario analysis

India's vulnerability to climate change introduces policy concerns regarding growth and inflation. . Scenario analysis suggests that the Indian economy could experience significant impacts, with Indian companies playing a huge role. While a lenient mitigation plan might increase inflation and decrease output, risk-mitigating domestic policies and global efforts can help limit these adverse impacts.

Framework	Total adopters/supporters/early adopters	No. of supporters/adopters (India)	% supporters/adopters (India)
TCFD	4929	102	2.07 %
TNFD	319	2	0.63 %
SASB	3217	30	0.93 %
SBTi	7381	289	3.92 %

- **India has been ranked the world's fifth most vulnerable country to climate change impacts, indicating an urgent need for adopting adaptation strategies.** By 2030, climate change would significantly affect agricultural productivity and water availability in major river basins.
- **One-thirds of the Indian Companies also recognize Climate Strategy as one of the top three material issues.**

Source: S&P Global (2023)

Environmental management is one of the top three material issues for 38% of Indian companies as per S&P Global, compared with about 20% globally.

- **About one-quarter of major Indian companies have a plan to adapt to the physical impacts of climate change, higher than the global average.**

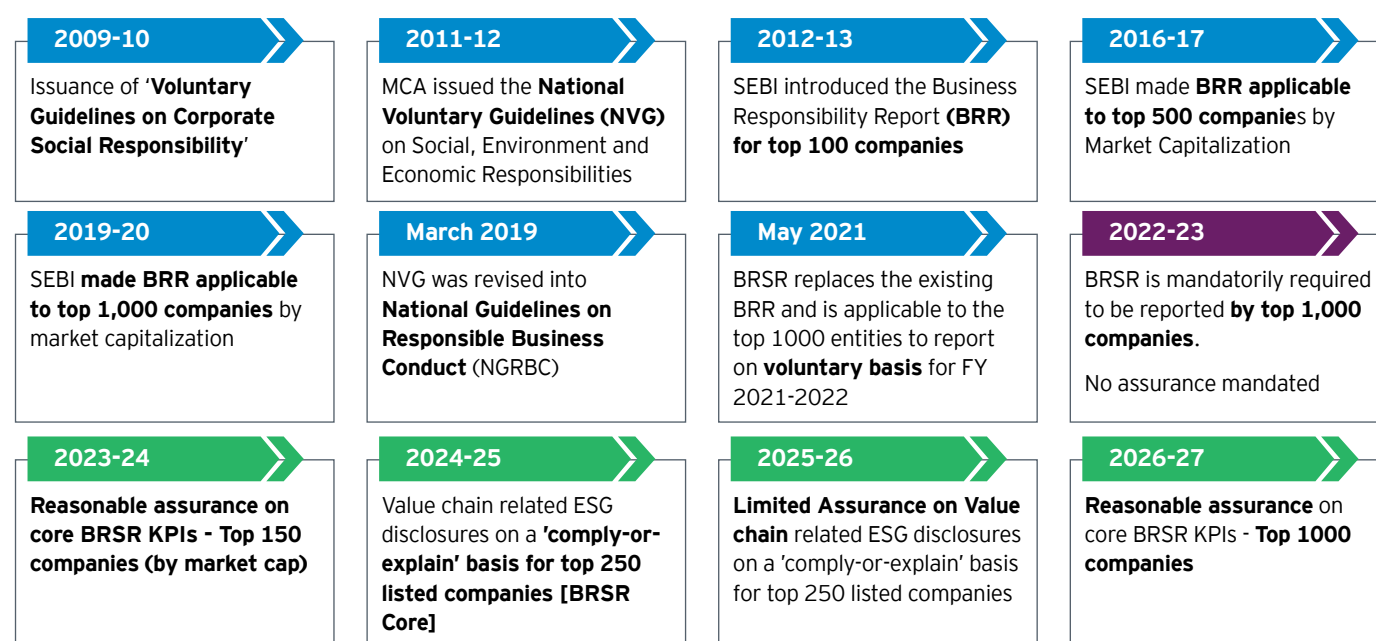
India Inc's response to climate change

- ▶ Fewer than 20% of the world's top 1000 companies had science-based targets aligned with a 1.5 degrees Celsius pathway.
- ▶ Almost 40% had no net-zero commitment.
- ▶ A survey of over 100 Forum partners with a cumulative market value of over \$20 trillion and revenue of \$8 trillion in 2022 reported that the impact of climate change is equivalent in cost to 10% of annual sales and 4% of market value.
- ▶ 57% Indian CxOs consider climate change a "top three priority" compared to 42% of global CxOs.
- ▶ Nearly 40% of India-headquartered companies conduct physical risk assessments, based on analysis of S&P global environmental, social and governance data.

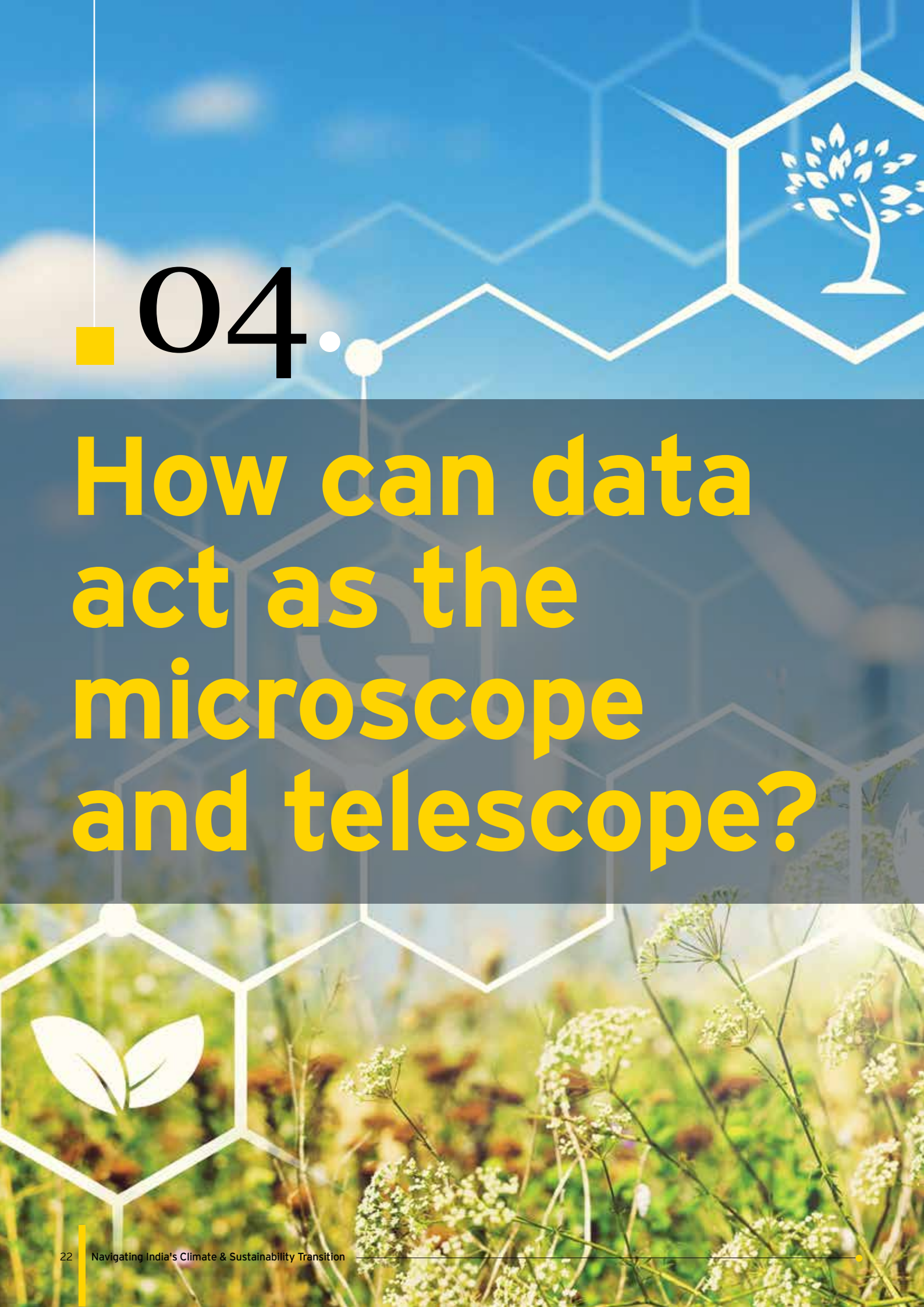
Alignment	Current temperature alignment	No. of companies	% Mix
Aligned (27%)	<1.5°C	157	22
	1.5-2°C	39	5
Misaligned (16%)	2-2.7°C	2	0
	>2.7°C	4	1
	2-3°C	108	15
Strongly Misaligned (56%)	3-4°C	37	5
	4-5°C	30	4
	>5°C	340	47
Grand Total		717	100

Source: World Economic Forum (2024), Fortune India (2024), S & P Global (2023)

Sustainability reporting journey @ India Inc



■ Past ■ Present ■ Future



■ 04.

How can data act as the microscope and telescope?

ESG dashboard @ India Inc

[FY 22-23 ESG performance - across key sectors]

ESG Data model - India Inc



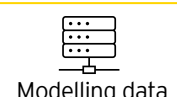
ESG data model

- ▶ FY 22-23: **1,000+** companies
- ▶ **1,200+** KPIs analyzed
- ▶ **Climate, Social & Governance**



Completeness

- ▶ **20+** Sector wise analyses
- ▶ **19%** revenue from exports



Modelling data

- ▶ Carbon exposure: ~ **US\$ 70 billion**



Sector insights

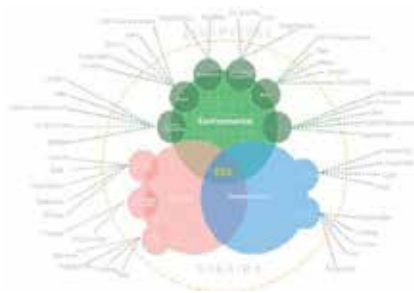


Performance



Analytics

(As of Oct 2023)



Environmental - Climate action

11%	56%	60%
% energy consumption from renewable sources	% of Inputs sourced sustainably ↑	% companies that have implemented Zero Liquid Discharge (ZLD) ↑
72%	1.4	14.4
% companies that have procedures for sustainable sourcing	Total Scope 1 and Scope 2 emissions (billion tonnes of CO2e)	Total volume of water withdrawal (trillion litres)

Social

11.7 million	18%	19%	40,463	21%
Total workforce (employees and workers)	% female workforce (employees and workers)	% female board of directors	No. of differently abled employees (<0.6%)	Turnover/attrition rate of permanent employees ↓

Governance

85%	84%	16%	14%
% companies reporting on a standalone basis	% companies having committee of board on ESG ↑	% of environmental and social spend in R&D	% of environmental and social spend within capex

How can emerging technologies/AI create real time alerts ?

AI enabled ESG data discovery



Predicting climate scenarios



ESG analytics and benchmarking



ESG sector intelligence



Supply chain intelligence



ESG chat bot and upskilling

A generative AI based sustainability search assistant.

Use the assistant to get answers to sustainability questions. The assistant is backed by powerful models like GPT3 and robots based which allow the user to perform complex search operations.

- GPT3 Based** - Use the power of GPT3 to get answers to your questions
- Powerful Search Model** - Generative question-answering model (BART) (PQA) trained on custom data to answer questions more accurately.
- Dedicated Use Cases** - Quickly perform contextual search on specific data and reports like BRSR and SASB using the fine-tuned roberta-base



A large green tree with a thick trunk and a full canopy of leaves stands on a mound of dark brown soil. The mound is placed on a glowing blue circuit board with intricate white lines. The background is a deep blue with a bokeh effect of light spots. A yellow square is positioned to the left of the number '05'.

■ 05.

Mitigation actions

India: mitigation overview

- ▶ India's total **greenhouse gas emissions have increased by 182% (1990-2019)**. In the same period, its total methane emissions have increased by 10%.
- ▶ **India's energy mix was still dominated by fossil fuels (74%)**, and the carbon intensity has remained almost constant at around 58 tCO₂/TJ over the last 5 years. The share of renewable energy in total primary energy supply was 13%, mostly composed of biomass.
- ▶ Despite achieving substantial progress in installing renewable energy capacity, securing the fourth position globally in 2022, India's dependence on fossil fuels is still on the rise as it directs coal and gas-fired power plants to operate at peak capacity to meet the rise in seasonal electricity demand brought on by record-hot summers.

What is India doing to tackle climate change?

- ▶ India's domestic policy on climate and environmental action includes protecting regional glaciers, greening the railway system, reducing single-use plastic and producing clean cooking fuel. **India aims to reach net zero by 2070 and has been able to decouple its economic growth from its emissions. According to the 2022 IPCC report, it has a good track record of low emissions per capita in comparison to other major world economies.**
- ▶ India has condensed the targets of its Nationally Determined Contributions (NDCs) for the achievement of the Paris Agreement into a set of 'enhanced targets' to reach net zero by 2070.
- ▶ A just transition approach to phasing out coal - which would aim to address regional disparities and manage job losses in an equitable and inclusive manner - is yet to be embedded in Indian policy.

Source: London School of Economics - Graham Institute (2022)

Source: Climate Transparency Report (2022)



Mitigation targets: Nationally Determined Contributions (NDCs)

Nationally Determined Contributions (NDCs) are crucial for mitigation as they represent countries' commitments to reduce greenhouse gas emissions under the Paris Agreement, aiding global efforts to combat climate change.

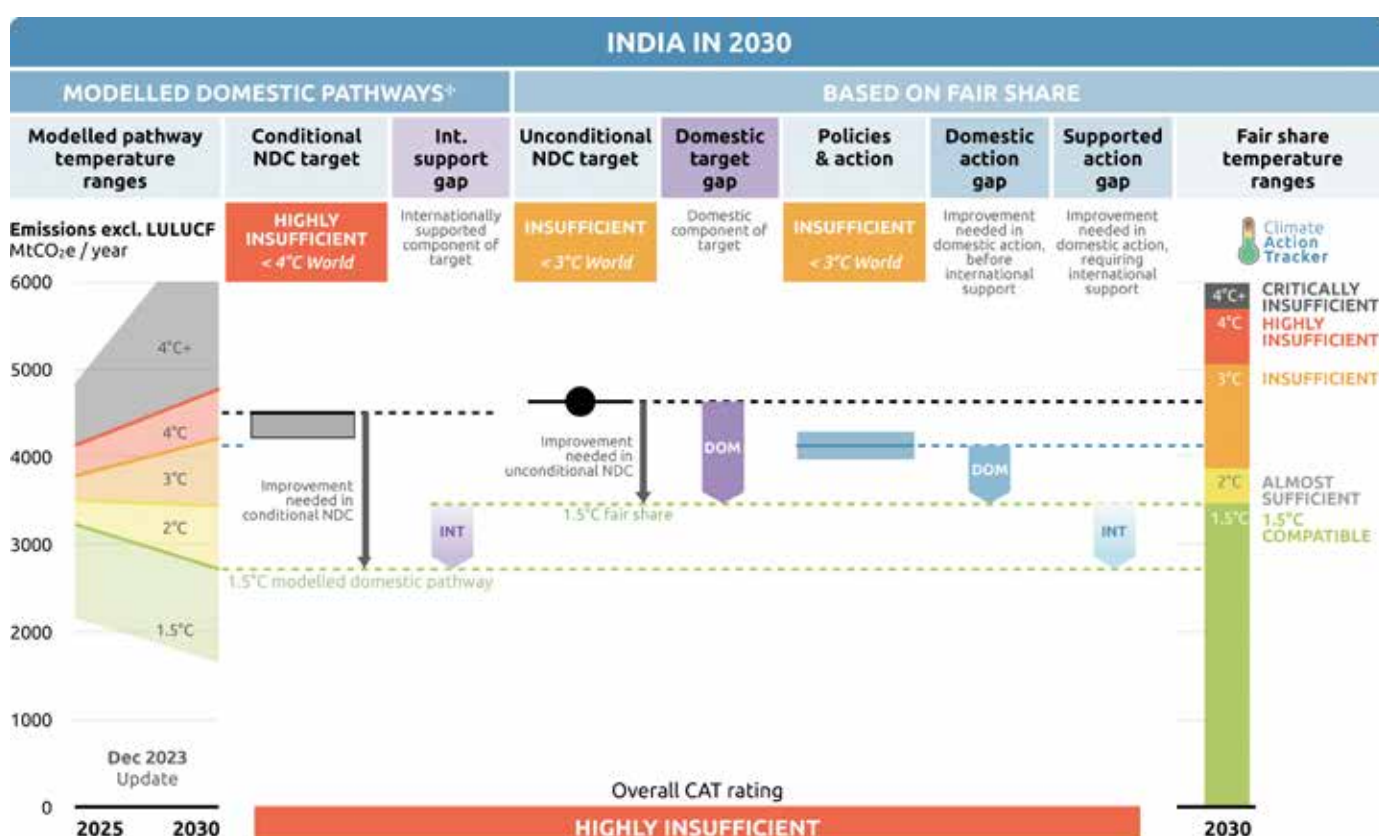
Targets

- ▶ India now stands committed to reduce Emissions Intensity of its GDP by 45 percent by 2030, from 2005 level and achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.
- ▶ At least 50% of non-fossil-fuel electric power capacity by 2030.

Actions

- ▶ Promotion of greater use of renewables in the energy mix along with the expansion of renewable installed capacity
- ▶ Enhancing energy efficiency
- ▶ Development of resilient urban centers
- ▶ Waste to energy
- ▶ Sustainable green transportation network
- ▶ Planned afforestation

Source: Press Information Bureau (2022)



Source: Climate Action Tracker - India Summary (2023)





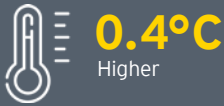
06.

Adaptation – leading practices

India: adaptation overview

Impacts of a changing climate

Exposure to warming



Between 2017 to 2021, the average summer temperatures experienced by people in India were 0.4°C higher than the 1986-2005 average global mean temperature increase of 0.3°C.

Changes in the ability to work due to exposure to excessive heat



In 2021, heat exposure in India led to the loss of 167 billion potential labour hours, a 39% increase from 1990-1999.

Loss of earnings from heat-related labour capacity reduction



Extreme heat can make it unbearable or even dangerous to work in a range of economically important sectors. The potential income loss in 2021 - in the service industry, manufacturing, agriculture, and construction sectors - from labour capacity reduction due to extreme heat was USD 159bn in 2021 in India, or 5.4% of its GDP.

Romanello et al., 2022; World Meteorological Organization, 2022

- **More than 80% of India's people live in districts that are at risk of climate-induced disasters.** India was an early adopter of the climate change adaptation and awareness strategies. It has also fostered the debate on global warming in international politics.
- **Indian rice production could decrease by 10-30%, and maize production could drop by 25-70% with temperature increases in a range of 1°C-4°C.**
- **Approximately 33% of India is drought prone and 50% of these areas face chronic drought.** These droughts have not only intensified but also increased in frequency over the last few decades.

Source: World Bank (2023) & Climate Transparency (2022)

Barriers towards India's climate risk adaptation

- The country needs to auction around 40 GW of renewable energy projects annually, but to date has only been able to auction about 20 GW annually. Additionally, the Parliamentary Standing Committee on Energy (2021-22) indicated that **investments in the renewable energy sector have been, at most, half of what is India's 2030 target of 500 GW renewable energy.**
- **Abating emissions in the industrial sector, particularly for heavy industries,** is significantly more challenging than in other sectors given the capital-intensive nature of the sector and the high energy-intensity of many production processes.
- There appears to be less effort to decarbonize the agriculture industry relative to other industries in India, largely due to its unique position in the Indian economy. **With small farms and low margins, the cost to adopting new technologies that lower emissions are high.**
- Shifting away from coal is a formidable challenge, and the Indian government is taking a multipronged approach. **The Indian economy relies heavily on coal which powers over 70% of electricity generation, and accounts for almost 40% of India's CO2 emissions.**

Source: International Monetary Fund (2023)

Adaptation targets: Nationally Determined Contributions (NDCs)

Nationally Determined Contributions (NDCs) are crucial for mitigation as they represent countries' commitments to reduce greenhouse gas emissions under the Paris Agreement, aiding global efforts to combat climate change.

ADAPTATION POLICIES

National Adaptation Strategies

Document name	Publication year	Fields of action (sectors)												Monitoring & evaluation process	
		Agriculture	Biodiversity	Coastal areas and fishing	Education and research	Energy and industry	Finance and insurance	Forestry	Health	Infrastructure	Tourism	Transport	Urbanism		Water
National Action Plan for Climate Change (NAPCC)	2008	✓	✓	✓	✓	✓		✓	✓	✓		✓		✓	NA

Nationally Determined Contribution (NDC): Adaptation

TARGETS

No specific target for adaptation in NDC.

ACTIONS

Actions are planned in relation to agriculture, water, biodiversity, coastal areas and fishing, education and research, energy and industry, health, infrastructure.

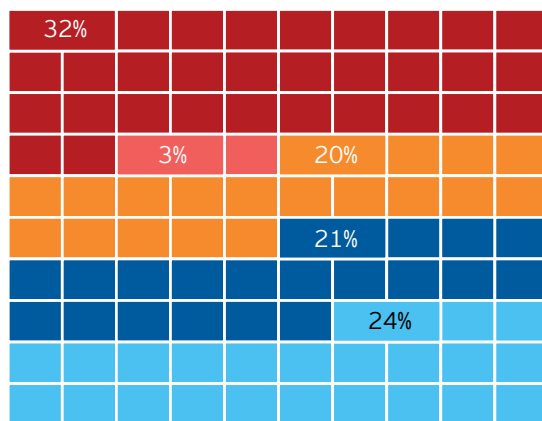
- India has also focused on creating a regulatory environment that promotes sustainability, led by regulators like the Securities and Exchange Board of India (SEBI) and the Reserve Bank of India (RBI). In 2022, India approved the country's first Sovereign Green Bonds (SGrB) Framework, the proceeds from which will be used to finance green projects under themes like renewable energy and climate change adaptation. Alongside this, the RBI also issued a host of enabling guidelines to mobilize financing for tackling the challenges associated with climate change.
- The GoI will use the proceeds raised from Sovereign Green Bonds (SGrBs) to finance and/or refinance expenditure for green projects in categories including renewable energy, energy efficiency, clean transportation, and climate change adaptation

Source: How India can balance growth and sustainability in its net zero journey (2023)

Climate adaptation gap in India

- Climate change threatens to cost the Indian economy approximately US\$35 trillion in absence of any mitigation measures.
- India's green finance flows are far below the country's needs. In 2019/2020, green finance amounted to INR 3,09,000 crore (~US\$44 billion) per year, only a quarter of what India requires. According to the study 'Landscape of Green Finance', India needs approximately INR11 lakh crore (US\$170 billion) 55 per year to meet its climate goals.

Current landscape of green finance mobilized – by source



Green finance by domestic sources FY 2020

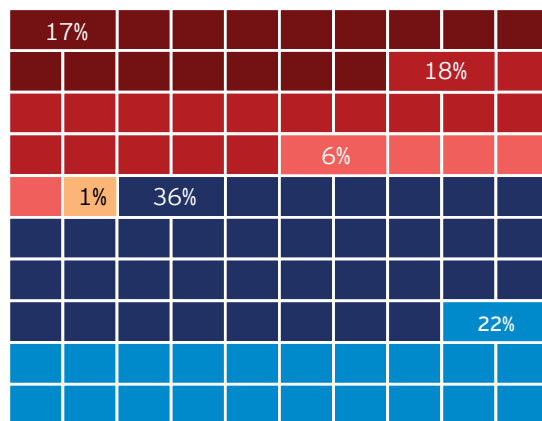
Private

- Commercial FIs (187,157)
- Corporation (36,515)
- Residential, Commercial & Institutional (90,269)

Public

- Public Sector Undertaking (98,488)
- Union & State Government Budgets (114,953)

Unit: INR thousand crores FY20



Green finance by international sources FY 2020

Private

- Foreign Direct Investment (9,081)
- Commercial FIs (6,435)
- Corporations (2,638)
- Philanthropy (284)

Public

- Bilateral DFIs, 16,247
- Multilateral DFIs, 11,027

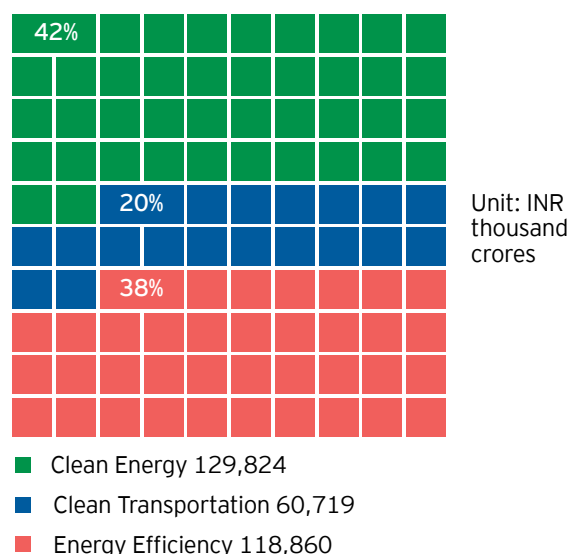
Unit: INR thousand crores FY20

Source: How India can balance growth and sustainability in its net zero journey (2023)

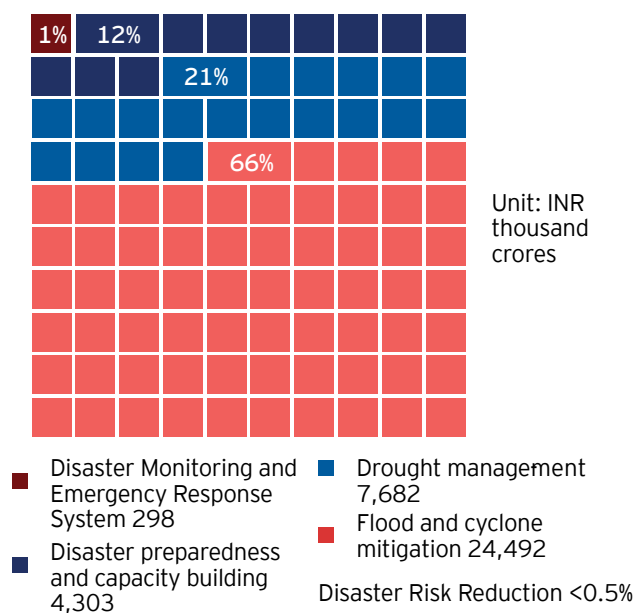
Since FY17-18, green finance flows have increased by 150% in FY19-20. Public sector flows grew by 179%, and private sector flows by 130%. Going forward, the mobilization of private sector finance should outpace that of the public sector. Domestic players consistently accounted for approximately 85% of the total flows over the four-year period from FY17 to FY20. Reporting remains limited, especially in the private sector, affecting the understanding of the current level of green finance mobilization. While there was a decrease in domestic flows to green finance from FY19 to FY20, international sources of finance increased by around 27%. The growth can be attributed to a significant increase in finance flows from commercial financial institutions and bilateral development finance institutions, demonstrating growing confidence in India's commitment to meeting its NDCs. However, green finance still represents only about 3% of total FDI inflows to India.



Green finance flows to sectors



Flow to adaptation sector by sector



- The funds allocated for mitigation were evenly distributed between clean energy and energy efficiency sectors, with clean transport receiving a smaller share.
- Domestic sources dominated the financing of energy sectors, with public and private contributions playing significant roles.
- Solar projects received the largest share of investments in the clean energy sector.
- Clean transportation received substantial funding from public sources, while the private sector drove financing in the energy efficiency sector.
- Funding for electric vehicles showed significant growth.

Most funds for adaptation sectors came from domestic sources, specifically from the central and state government budgets. Closing the green financing gap requires increased private sector finance and improved reporting. While public sector finance has shown promising growth, private sector finance mobilization must outpace it to meet India's ambitious climate goals.

Source: How India can balance growth and sustainability in its net zero journey (2023)



Reserve Bank of India proposal for climate-related disclosures

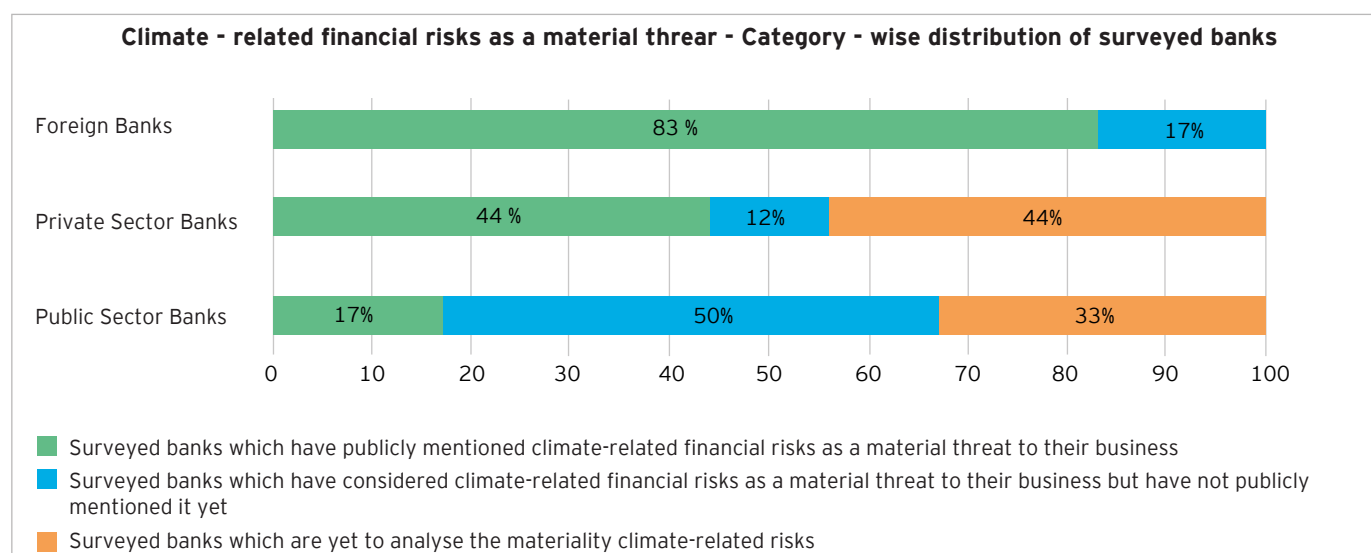
The Reserve Bank of India (RBI) has proposed a framework for the management and disclosure of climate-related financial risks. The framework reflects RBI's evolving focus on environmental risks affecting financial stability. The proposals intend to highlight the physical and transition risks that could have significant effects on banks and non-banking finance companies (NBFCs). RBI's disclosure framework encourages firms to align their strategies with climate goals and includes adopting the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. The proposal suggests a 'comply or explain' approach, promoting more informed decision-making by stakeholders. The shift towards emphasising climate risk management ensures financial stability and fosters sustainable economic growth.

Implementation Timeline

Governance, Strategy and Risk Management		Metrics and Targets
SCBs, AIFIs, Top and Upper layer NBFCs	FY 2025-26 onwards	FY 2027-28 onwards
Tier IV UCBs	FY 2026-27 onwards	FY 2028-29 onwards
Disclosure requirements for the other REs shall be announced in due course		

From the 2025-2026 tax year forwards, the regulations will be enforced upon commercial banks, financial institutions, and sizable financial corporations. Large cooperative banks will fall under these rules a year later. These rules mandate that these institutions include these disclosures as part of their financial reports and also make them accessible online.

The draft outlines specifications on how banks should elaborate their application of scenario analysis, internal targets establishment, and their progress in fulfilling any legal targets. The required disclosures should encompass scope 1, 2, and 3 of greenhouse gas emissions, which cover emissions directly tied to the bank's operations, emissions related to its energy consumption, and emissions for which the bank is indirectly accountable throughout its value chain.



Source: RBI Climate Risk Survey (2022)

■ 07.

Knowledge resources



Useful links

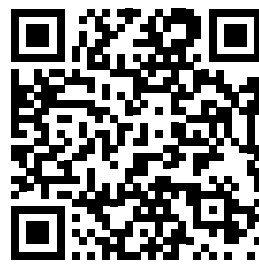
- ▶ EY ESG Compass - Innovation to transform sustainability journey
- ▶ Sustainability in business | Insights & trends (ey.com)
- ▶ EY Sustainability Reporting Maturity Assessment
- ▶ Taskforce on Climate - Related Financial Disclosures Report (ey.com)
- ▶ Corporate Sustainability Reporting Directive (CSRD) maturity assessment | EY India
- ▶ What right questions CFOs need to answer for ESG-driven transformation (ey.com)
- ▶ How can data build the roadmap for a sustainability revolution (ey.com)
- ▶ EY annual report 2023 | Value Realized | EY - Global
- ▶ Transformation Realized: How can sustainability and ESG metrics create competitive differentiation? (ey.com)
- ▶ Green finance is gaining traction for net zero transition in India (ey.com)
- ▶ Why HR leaders need to put people at the center of the sustainability agenda (ey.com)
- ▶ How to accelerate transition finance for net zero | EY - Global
- ▶ Sustainability in business | Insights & trends | EY - Global
- ▶ 2023 EY Climate Risk Disclosure Barometer | EY - Global
- ▶ How can we accelerate climate action? | EY - Global



ESG Compass



CSRD Maturity Assessment



ESG Maturity Assessment



EY Sustainability Academy India

Recent thought leadership reports and enablers

How India can balance growth and sustainability in its net zero journey



How is Generative AI transforming ESG strategies of companies?



How focus on ESG can shape business of the future



As ESG reporting becomes mainstream, complex challenges persist



How Generative AI can build an organization's ESG roadmap



Scan for actionable insights



EY offices

Ahmedabad

22nd Floor, B Wing, Privilon
Ambli BRT Road, Behind Iskcon Temple
Off SG Highway
Ahmedabad - 380 059
Tel: + 91 79 6608 3800

Bengaluru

12th & 13th Floor
"UB City", Canberra Block
No.24 Vittal Mallya Road
Bengaluru - 560 001
Tel: + 91 80 6727 5000

Ground & 1st Floor
11, 'A' wing
Divyasree Chambers
Langford Town
Bengaluru - 560 025
Tel: + 91 80 6727 5000

Bhubaneswar

8th Floor, O-Hub, Tower A
Chandaka SEZ, Bhubaneswar
Odisha - 751024
Tel: + 91 674 274 4490

Chandigarh

Elante offices, Unit No. B-613 & 614
6th Floor, Plot No- 178-178A
Industrial & Business Park, Phase-I
Chandigarh - 160 002
Tel: + 91 172 6717800

Chennai

6th & 7th Floor, A Block,
Tidel Park, No.4, Rajiv Gandhi Salai
Taramani, Chennai - 600 113
Tel: + 91 44 6654 8100

Delhi NCR

Ground Floor
67, Institutional Area
Sector 44, Gurugram - 122 003
Haryana
Tel: +91 124 443 4000

3rd & 6th Floor, Worldmark-1
IGI Airport Hospitality District
Aerocity, New Delhi - 110 037
Tel: + 91 11 4731 8000

4th & 5th Floor, Plot No 2B
Tower 2, Sector 126
Gautam Budh Nagar, U.P.
Noida - 201 304
Tel: + 91 120 671 7000

Hyderabad

THE SKYVIEW 10
18th Floor, "SOUTH LOBBY"
Survey No 83/1, Raidurgam
Hyderabad - 500 032
Tel: + 91 40 6736 2000

Jaipur

9th floor, Jewel of India
Horizon Tower, JLN Marg
Opp Jaipur Stock Exchange
Jaipur, Rajasthan - 302018

Kochi

9th Floor, ABAD Nucleus
NH-49, Maradu PO
Kochi - 682 304
Tel: + 91 484 433 4000

Kolkata

22 Camac Street
3rd Floor, Block 'C'
Kolkata - 700 016
Tel: + 91 33 6615 3400

Mumbai

14th Floor, The Ruby
29 Senapati Bapat Marg
Dadar (W), Mumbai - 400 028
Tel: + 91 22 6192 0000

5th Floor, Block B-2
Nirlon Knowledge Park
Off. Western Express Highway
Goregaon (E)
Mumbai - 400 063
Tel: + 91 22 6192 0000

3rd Floor, Unit No 301
Building No. 1
Mindspace Airoli West (Gigaplex)
Located at Plot No. IT-5
MIDC Knowledge Corridor
Airoli (West)
Navi Mumbai - 400708
Tel: + 91 22 6192 0003

Pune

C-401, 4th Floor
Panchshil Tech Park, Yerwada
(Near Don Bosco School)
Pune - 411 006
Tel: + 91 20 4912 6000

10th Floor, Smartworks
M-Agile, Pan Card Club Road
Baner, Taluka Haveli
Pune - 411 045
Tel: + 91 20 4912 6800

Ernst & Young LLP

EY | Building a better working world

EY exists to build a better working world, helping to create long-term value for clients, people and society and build trust in the capital markets.

Enabled by data and technology, diverse EY teams in over 150 countries provide trust through assurance and help clients grow, transform and operate.

Working across assurance, consulting, law, strategy, tax and transactions, EY teams ask better questions to find new answers for the complex issues facing our world today.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. Information about how EY collects and uses personal data and a description of the rights individuals have under data protection legislation are available via ey.com/privacy. EYG member firms do not practice law where prohibited by local laws. For more information about our organization, please visit ey.com.

Ernst & Young LLP is one of the Indian client serving member firms of EYGM Limited. For more information about our organization, please visit www.ey.com/en_in.

Ernst & Young LLP is a Limited Liability Partnership, registered under the Limited Liability Partnership Act, 2008 in India, having its registered office at Ground Floor, Plot No. 67, Institutional Area, Sector - 44, Gurugram, Haryana - 122 003, India.

©2024 Ernst & Young LLP. Published in India.
All Rights Reserved.

EYIN2404-009
ED None

This publication contains information in summary form and is therefore intended for general guidance only. It is not intended to be a substitute for detailed research or the exercise of professional judgment. Neither EYGM Limited nor any other member of the global Ernst & Young organization can accept any responsibility for loss occasioned to any person acting or refraining from action as a result of any material in this publication. On any specific matter, reference should be made to the appropriate advisor.

SJ

ey.com/en_in

