

Centre for Social and Economic Progress | CSEP

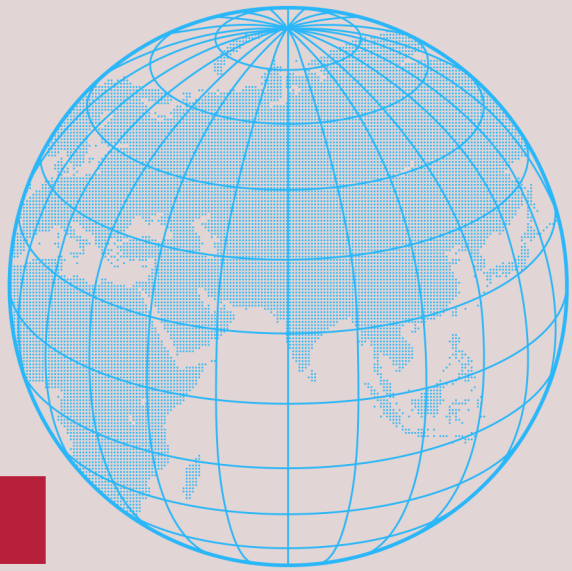
Independence | Integrity | Impact

WORKING PAPER - 127
NOVEMBER 2026

Resource Mobilisation for Climate Action in India

Possible Sources

Janak Raj
Rakesh Mohan
Priti Dubey



CSEP RESEARCH

Copyright © Janak Raj, Rakesh Mohan and Priti Dubey

Centre for Social and Economic Progress (CSEP)
CSEP Research Foundation
6, Dr Jose P. Rizal Marg, Chanakyapuri,
New Delhi - 110021, India

Recommended citation:
Raj, J.; Mohan, R. & Dubey, P. (2026). *Resource mobilisation for climate action in India: Possible sources* (CSEP Working Paper 127). Centre for Social and Economic Progress.

The Centre for Social and Economic Progress (CSEP) conducts in-depth, policy-relevant research and provides evidence-based recommendations to the challenges facing India and the world. It draws on the expertise of its researchers, extensive interactions with policymakers as well as convening power to enhance the impact of research. CSEP is based in New Delhi and registered as a company limited by shares and not for profit, under Section 8 of the Companies Act, 1956.

All content reflects the individual views of the authors, who bear full responsibility for the accuracy and originality of the data, analysis, and conclusions presented. The Centre for Social and Economic Progress (CSEP) does not hold an institutional view on any subject.

CSEP working papers are circulated for discussion and comment purposes. The views expressed herein are those of the author(s). All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including copyright notice, is given to the source.

Resource Mobilisation for Climate Action in India

Possible Sources

Janak Raj
Senior Fellow
Centre for Social and Economic Progress
New Delhi, India

Rakesh Mohan
President Emeritus and Distinguished Fellow
Centre for Social and Economic Progress
New Delhi, India

Priti Dubey
Former Research Associate
Centre for Social and Economic Progress
New Delhi, India

Acknowledgements: The authors are grateful for the assistance rendered by Valbha Shakya and Aashi Gupta in finalising this paper.

Table of Contents

Abbreviations 6

Executive Summary 8

Policy Recommendations 11

1. Introduction 12

2. Sources of Financing Climate Action—Macroeconomic Framework 15

3. Climate Finance Requirements and Macroeconomic Consistency 20

3.1 Climate Finance Requirements 20

3.2 Macroeconomic Consistency of Climate Finance Estimates 21

4. Assessment of Possible Sources of Climate Finance 22

4.1 External Sources 22

4.2 Domestic Sources 27

5. Catalysing Private Capital—Role of Innovative Financial Instruments 48

6. Climate Finance Needs—Public versus Private Sectors 52

7. Conclusion 55

References 58

Appendices 63

List of Figures

Figure ES–1: Overall Ex-Ante Saving–Investment Gap in Significant Private Corporate Capital Expenditure Revival Scenario 10

Figure ES–2: Overall Ex-Ante Saving–Investment Gap in Sharp Private Corporate Capital Expenditure Revival Scenario 10

Figure 1: External Capital Flows—Macroeconomic Impact 16

Figure 2: Climate Finance Requirement for India: 2025–2030 21

Figure 3: Monetary Base and External Financial Flows—Projections 22

Figure 4: Household Sector Saving Rate: 2004–2005 to 2024–2025 28

Figure 5: General Government—Revenue Deficit: 2003–2026 36

Figure 6: Private Corporate Sector: Savings and Gross Fixed Capital Formation. 38

List of Tables

Table 1: Sustainable Current Account Deficit—Assumptions and Results 24

Table 2: Annual Climate Finance by Multilateral Development Banks 26

Table 3: Climate Finance (Mitigation) by Multilateral Development Banks—Projections 26

Table 4: Household Sector Saving Rate—Projections (Business-as-Usual Scenario) . . . 29

Table 5: Gross Financial Savings of the Household Sector—Components (Business-as-Usual Scenario) 30

Table 6: Gross Financial Savings of the Household Sector—Components (Business-as-Usual Scenario) 31

Table 7: Gross Financial Savings of the Household Sector (Enhanced Saving Rate Scenario) 32

Table 8: Gross Financial Savings of the Household Sector—Components (Enhanced Saving Rate Scenario) 33
Table 9: Financial Instruments for Mobilising Incremental Savings for Climate Action 35
Table 10: General Government Revenue Deficit—Projections 37
Table 11: Assumptions Underlying Projections of Private Corporate Sector Investment: 2025–2030 40
Table 12: Assumptions Underlying Projections of Savings—Private Corporate and Government Sectors 41
Table 13: Private Corporate Sector: Ex-Ante Saving–Investment Gap—Scenario 1. 42
Table 14: Overall Ex-Ante Saving–Investment Gap—Scenario 1 43
Table 15: Private Corporate Sector: Ex-Ante Saving–Investment Gap—Scenario 2 44
Table 16: Overall Ex-Ante Saving–Investment Gap—Scenario 2 45
Table 17: Overall Ex-Ante Saving–Investment Gap—Significant Private Corporate Capital Expenditure Revival Scenario and Business-as-Usual Government Savings . . . 45
Table 18: Private Corporate Sector: Ex-Ante Saving–Investment Gap—Scenario 3 46
Table 19: Overall Ex-Ante Saving–Investment Gap—Scenario 3 47
Table 20: Climate Finance Flows—By Instrument 49
Table 21: Total Domestic Investment—Select Sectors: 2023–2024 52
Table 22: Climate Finance Requirements Relative to Gross Fixed Capital Formation . . . 53
Table 23: Power and Road Transport—Shares of Public and Private Sectors 53
Table 24: Climate Finance Requirements—Public versus Private Sectors 54
Table 25: Foreign Direct Investment—Select Sectors 2020–2025 54
Table 26: Foreign Direct Investment Investment—Select for Select Sectors 2025–2030 55

Abbreviations

ACF	Additional Capital Finance
AIIB	Asian Infrastructure Investment Bank
ARIMA	Autoregressive Integrated Moving Average
BAU	Business-as-Usual
BE	Budget Estimate
CAB	Current Account Balance
CAD	Current Account Deficit
CAGR	Compound Annual Growth Rate
CBDR	Common but Differentiated Responsibilities
CBLO	Collateralised Borrowing and Lending Obligation
CCS	Carbon Capture and Storage
CEA	Central Electricity Authority
CO_2	Carbon Dioxide
COP	Conference of the Parties
CRR	Cash Reserve Ratio
DFI	Development Finance Institution
DISCOM	Distribution Company
EME	Emerging-Market Economy
EPFO	Employees' Provident Fund Organisation
ETF	Exchange-Traded Fund
FDI	Foreign Direct Investment
FII	Foreign Institutional Investor
FRBM Act	Fiscal Responsibility and Budget Management Act
FY	Financial Year
GCF	Green Climate Fund
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GST	Goods and Services Tax

IBEF	India Brand Equity Foundation
IEA	International Energy Agency
IMF	International Monetary Fund
IRDAI	Insurance Regulatory and Development Authority of India
IREDA	Indian Renewable Energy Development Authority
MDB	Multilateral Development Bank
MSS	Market Stabilisation Scheme
NAFC	North Atlantic Financial Crisis
NBFC	Non-Banking Financial Company
NDA	Net Domestic Asset
NDB	New Development Bank
NDC	Nationally Determined Contribution
NDTL	Net Demand and Time Liabilities
NFA	Net Foreign Asset
NPS	National Pension System
PFC	Power Finance Corporation
PLI	Production-Linked Incentive
PSL	Priority Sector Lending
RBI	Reserve Bank of India
RE	Renewable Energy
RHS	Right-Hand Side
S-I	Saving–Investment
SEBI	Securities and Exchange Board of India
SGrB	Sovereign Green Bond
SIDBI	Small Industries Development Bank of India
SLR	Statutory Liquidity Ratio
TA	Technical Assistance
UNFCCC	United Nations Framework Convention on Climate Change

Executive Summary

Financing climate action has emerged as one of the most critical policy challenges for emerging market economies, including India. India submitted its first Nationally Determined Contribution (NDC) in 2016 and announced its commitment in 2021 to achieve net-zero by 2070. In its updated NDC in March 2026, India has committed to achieve 60% of cumulative installed electric power capacity from non-fossil fuel sources by 2035, reduce the emissions intensity of its gross domestic product (GDP) by 47% by 2035 from 2005 levels, and create an additional carbon sink of 3.5 to 4 billion tonnes of CO_2 equivalent through additional forest and tree cover by 2035. Achieving these goals will require mobilising large financial resources. While several studies have estimated India's climate finance requirements, hardly any study has examined whether these requirements can be met from the economy's projected resource availability under a business-as-usual (BAU) scenario, and whether additional savings will be required to finance climate action without crowding out investment in other sectors.

The study addresses this gap. It comprehensively examines all possible sources of funding, domestic and external, within a macroeconomic framework under different scenarios for financing climate mitigation action in India. Though the resource needs are estimated for four sectors—power, road transport, steel, and cement—up to 2030, the framework can be applied to different levels of climate finance requirements.

Climate finance requirements estimated by Raj and Mohan (2025) were US$467 billion for 2022–2030 (annual average of US$54 billion or 1.3% of GDP, annually) for four sectors—power, road transport, steel, and cement. While the overall climate finance requirement remains broadly the same at US$455 billion for the period 2025–2030, it will now have to be met in fewer years, thus increasing the annual requirement to US$91 billion or 1.5% of GDP.

This study focuses on two aspects. First, given that external climate finance is a critical component of India's climate financing strategy, the study examines the climate finance needs that can be met by external sources without impinging on macroeconomic stability. Second, the study examines whether the projected domestic savings under alternative scenarios can meet the climate finance needs without crowding out investment in other sectors, and if not, how much additional savings would be required.

Key Findings

External Climate Finance

The study estimates that India's current account deficit (CAD) can be expanded up to 2.5% of GDP without impinging on its sustainability. Compared to the BAU annual average CAD estimate of 2.0% of GDP during 2025–2030, this implies an

additional headroom of 0.5% of GDP annually for external climate finance flows. Within this absorptive capacity, multilateral development banks (MDBs) are projected to provide climate mitigation finance of 0.2% of GDP annually, leaving a headroom of 0.3% of GDP to absorb climate finance from other external sources.

Domestic Climate Finance

After accounting for 0.5% of GDP from external sources, the remaining financing gap of 1.0% of GDP will need to be met domestically. Climate finance represents additional investment over and above BAU investment. A straightforward solution could be to raise the domestic saving rate commensurately to avoid crowding out of other sectors. However, in practice, saving and investment decisions differ across the household, private corporate, and government sectors, which together shape the overall saving–investment (S-I) gap in the economy. To assess the overall S-I gap, including the gap for climate action, the study, therefore, analyses S-I behaviour across all three sectors. While this study examines how different instruments could help fund climate action if the saving rate rises, its broader focus is on the economy-wide S-I behaviour up to 2030, which will show how far climate finance needs can be met from existing resources and how far additional savings are required to avoid crowding out of other productive sectors.

If climate finance needs are met by additional household saving of 1.0% of GDP, it would translate into government securities (0.36% of GDP), equity and bonds (0.34% of GDP), and bank credit (0.29% of GDP, of which 0.11% of GDP will be through priority sector lending).

However, in practice, there is constant interplay between saving and investment among the three sectors, viz., household, corporate, and government. The study, therefore, assesses the economy-wide ex-ante S-I gap in the BAU scenario up to 2030 based on the interplay of saving and investment behaviour of all three sectors. For this purpose, the study considers three scenarios, distinguished largely by varying degrees of revival in private corporate sector investment.

In Scenario 1, domestic saving is estimated to exceed investment, including the climate finance requirement, by 0.6% of GDP. This scenario assumes that the private corporate capital expenditure (capex) will revive moderately by 20% annually during 2025–2030, which is half the growth rate observed in private capex during the last robust cycle of 2003–2008.

In Scenario 2 as well, domestic saving is estimated to exceed investment, leaving a surplus of 0.3% of GDP even after financing climate action (Figure ES–1). In this scenario, it is assumed that the private corporate sector's capex will pick up significantly, growing at an annual average rate of 25% during 2025–2030, which is about 62% of the growth rate in private capex observed during 2003–2008.

Figure ES–1: Overall Ex-Ante Saving–Investment Gap in Significant Private Corporate Capital Expenditure Revival Scenario

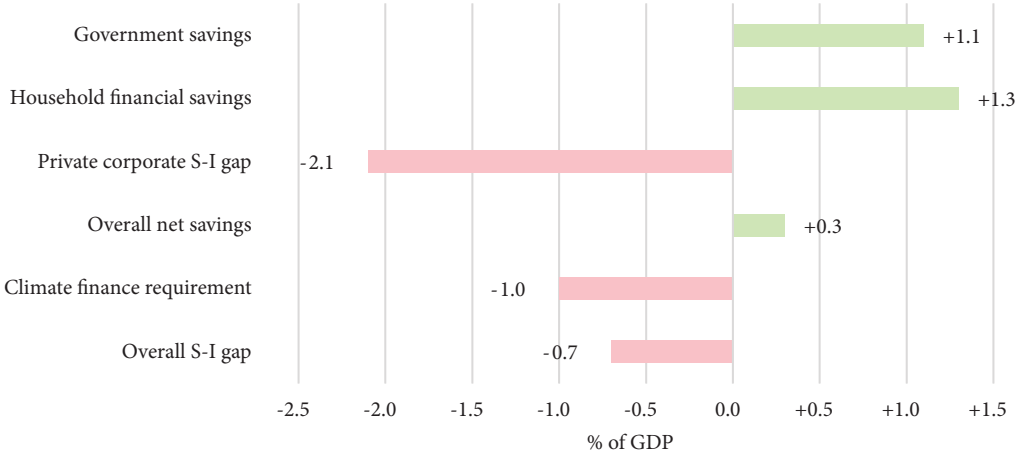


Source: Authors' calculations.

Note: S-I = saving–investment; GDP = gross domestic product.

In Scenario 3, domestic saving will exceed investment in the BAU but is estimated to fall short of the climate finance needs by 0.7% of GDP (Figure ES–2). This scenario assumes that private corporate capex will revive sharply by 30% annually to peak at 16.8% of GDP by 2029–2030, which was the peak level of the private corporate capex cycle during 2003–2008. Thus, in this scenario, the saving rate will have to rise by 0.7% of GDP if crowding out of other sectors is to be avoided.

Figure ES–2: Overall Ex-Ante Saving–Investment Gap in Sharp Private Corporate Capital Expenditure Revival Scenario



Source: Authors' calculations.

Note: S-I = saving–investment; GDP = gross domestic product.

Policy Recommendations

In the case of a sharp revival of private corporate investment, there may be a need to raise the saving rate of the household sector such as by (i) deepening banking penetration; (ii) expanding social security network through life insurance policies and pension/provident funds; and (iii) improving post-tax returns on small savings. The availability of financial resources may also not automatically flow to climate-related projects due to associated risks. Therefore, several policy interventions could be necessary to reduce such risks and mobilise private capital for climate action. These interventions, among others, could include the following:

- Ensuring policy certainty to reduce perceived risk associated with new and emerging technologies.
- Leveraging blended finance instruments to improve the risk–return profile of climate-related projects.
- Introducing a green equity framework.
- Augmenting lending capacity of development finance institutions (DFIs) engaged in climate action.

1. Introduction

Both developing and developed countries need to reduce global carbon emissions. India's share of global CO_2 emissions doubled to 8% in 2024 from 4% in 2000. This share will likely keep growing because India is one of the fastest-growing emerging market economies. More people are moving to cities, industries like steel and cement are getting bigger, and the country needs to build more power plants, roads, and city infrastructure. Since these sectors release a lot of carbon and are set to grow, India's actions on climate change will significantly influence the rest of the world.

India officially joined the global climate effort in 2016 when it submitted its climate plan (NDC) to the United Nations. In March 2026, India updated this plan and set stronger goals for 2035. India aims to achieve 60% of its total installed power capacity from clean sources like solar and wind. By 2035, it also plans to cut the carbon intensity of its GDP—the amount of CO_2 it releases for every unit of economic output—by 47% compared to the 2005 level. India has also committed to create a carbon sink equivalent to 3.5 to 4 billion tonnes of CO_2 by expanding forests and tree cover.

India has made significant progress in fulfilling these commitments across all three quantitative targets. The target of meeting 50% of the installed capacity from non-fossil-fuel sources has been achieved well ahead of the 2030 deadline (Central Electricity Authority, 2026). The emissions intensity of India's GDP also declined by 36% between 2005 and 2020 (Government of India, 2024a). Lastly, an additional carbon sink equivalent to 2.3 billion tonnes of CO_2 was created between 2005 and 2019 (Government of India, 2024b).

Achieving India's climate goals hinges on mitigating carbon emissions from some of the major carbon-emitting sectors. The power sector contributed 39% of India's total emissions, followed by steel (12%), road transport (9%), and cement (7%) (Government of India, 2022, 2024a). These four sectors cumulatively account for 67% of India's total emissions. Consequently, decarbonising these four sectors is imperative for achieving India's climate goals in a timely manner.

While India's climate finance needs are largely known, there is hardly any study that provides a comprehensive assessment of how the financial resources can be realistically mobilised for climate action. Various studies estimate the climate finance needs of India up to 2030 and 2050. The climate finance estimates range from US$160 billion to US$288 billion annually (Srinivasan et al., 2023; International Energy Agency, 2022; Singh & Sidhu, 2021; Sinha et al., 2020; McCollum et al., 2018; Ministry of Environment, Forest and Climate Change, 2015). However, these estimates do not consider the transport, steel, and cement sectors, which are necessary for leading the decarbonisation efforts.

Raj and Mohan (2025) estimated the climate finance requirement for India at US$467 billion (US$54 billion or 1.3% of GDP annually) for the period 2022–2030, much lower than previous estimates. Drawing from Raj and Mohan's (2025) approach, this study updates the climate finance needs of the four key carbon-emitting sectors

(power, road transport, steel, and cement) for the period 2025–2030. The revised estimate works out to US$455 billion, US$91 billion, or 1.5% of GDP annually.

This study assesses, within a macroeconomic framework, both domestic and external sources for financing climate mitigation action up to 2029–2030 in the four sectors in India. External sources of climate finance include MDBs, commitments made by developed economies at COP29 in 2024 under common but differentiated responsibilities (CBDR) to deliver US$300 billion annually to developing countries, and the international capital market. However, how far a country can absorb external capital flows, including external climate finance, depends on the extent of its sustainable CAD. A country can also manage capital flows even exceeding the CAD, up to the expansion needed in its monetary base or reserve money consistent with the needs of a growing economy. Though such excess capital flows can be managed, they create their own complications.[1]

Domestically, raising the saving rate is one way to finance climate action. In practice, however, we need to examine the saving and investment decisions of households, the private corporate sector, and the government to assess whether climate action can be financed from BAU savings or whether additional savings will be required. Therefore, although this study illustrates how a higher savings rate could support climate finance in a simplified setting, its main focus is on the interaction of S-I behaviour across all three sectors to estimate the economy-wide ex-ante S-I gap and whether additional resources are needed for climate action. In India, the household sector is the net saver, while the other two sectors, viz., the government sector and the private corporate sector, are net borrowers. This study assumes three scenarios, which are distinguished mainly by the extent of the revival of the private corporate capex cycle. These scenarios are built largely on the possible varying degrees of revival of the private capex cycle, while keeping in mind that the private capex cycle during 2003–2008 was exceptional. The revival of the private capex cycle also had a salutary effect on their own savings due to ploughing back of profits, as well as on general government finances due to improved tax buoyancy. These have, therefore, been considered appropriately while assessing the overall ex-ante S-I gap.

This is a real economy exercise based on the S-I gap; i.e., we project economy-wide S-I gap to assess whether additional saving would be needed to finance climate action. Regarding money market (LM side), it is assumed to be always in equilibrium.

Scenario 1 assumes that the private corporate capex cycle will revive moderately by 20% annually up to 2029–2030 (which is half the growth rate of private corporate investment observed during 2003–2008). Scenario 2 assumes that private corporate investment will rise significantly by 25% annually, which is about 62% of the private corporate investment growth rate during 2003–2008. Scenario 3 assumes that private corporate investment will pick up sharply (at an average annual rate of 30%)

[1] An expansion in the monetary base can take place by acquiring foreign assets and/or domestic assets. A larger share of net foreign assets (NFAs) implies a corresponding decline in net domestic assets (NDAs), which can constrain market-based liquidity absorption operations. In the face of persistently large liquidity, this constraint could become binding (Raj et al., 2018).

to peak at 16.8% of GDP in 2029–2030, as during the peak of the 2003–2008 private capex cycle.

Several key findings emerge from the study. First, while India's CAD in the last 20 years averaged 1.7% of GDP annually, it is projected to rise to an average of 2% of GDP up to 2030 in the BAU scenario (Raj & Mohan, 2025). It is estimated that India's CAD could be expanded up to 2.5% of GDP without jeopardising its sustainability.[2] Thus, there will be room to absorb additional external climate finance of up to 0.5% of GDP during the period 2025–2030. Climate mitigation finance flows from MDBs to India are projected at about 0.2% of GDP, on an annual average basis up to 2029–2030. Thus, the country can absorb external climate finance flows up to the remaining headroom of 0.3% of GDP from other external sources. Moreover, if the capital flows projected in the BAU scenario do not materialise, the economy could absorb even greater resources from the external sector for financing climate action.

The remaining climate finance requirement of 1.0% of GDP would need to be met from domestic sources. Existing household savings are invested in bank and non-bank deposits, shares and debentures, small savings and life insurance, and provident and pension funds. If it is assumed that the entire climate finance requirement will be met by stepping up the household sector saving rate, this would need to translate into funding green activities through government securities (0.36% of GDP), equity and bonds (0.34% of GDP), and bank credit (0.29% of GDP, of which 0.11% of GDP is estimated to come from priority sector lending).

In the BAU scenario, it is estimated that net financial saving of the household sector will increase, on an annual average, by 1.3% during 2025–2030 over the 2024–2025 level. Over the same period, dissaving of the government sector is estimated to decrease on an annual average basis by 0.7% of GDP (revenue deficit decreasing from 2.0% of GDP in 2024–2025 to 1.3% of GDP during 2025–2030), suggesting that savings of the general government would increase to that extent. In the event of revival of the private capex, general government saving is expected to be higher at 1.1% of GDP. These increases in the saving of the household and government sectors have been incorporated into the three scenarios, as explained below.

In Scenario 1 (which assumes that private corporate investment rise at an annual average rate of 20% up to 2029–2030), climate finance needs can be funded without stepping up the saving rate. At the economy level, saving is expected to exceed investment needs by 0.6% of GDP even after financing climate action. In Scenario 2 (which assumes that private corporate investment will increase at an annual average rate of 25%), economy-wide saving is estimated to exceed investment needs by 0.3% of GDP even after financing climate action. In Scenario 3 (which assumes that private corporate investment will increase at annual average rate 30% to peak at 16.8% of GDP), overall economy-wide saving will fall short of investment, including climate finance needs, by 0.7% of GDP, which will require an increase in the saving rate if crowding out of other sectors of the economy are to be avoided. It

[2] The sustainable level of CAD has been estimated assuming that the current West Asia war is transitory.

is significant that the S-I gap is ex-ante. Ex-post, saving and investment will match. If savings exceed investment, interest rates will fall to equate the two and vice versa. In an open economy, a part of the adjustment can also occur through higher CAD and capital inflows. Since external financing has already been capped at 0.5% of GDP in this study to maintain macro stability, the residual gap would have to be met by the higher domestic saving rate to avoid crowding out.

The four sectors covered in the study are largely privately owned, with the public sector having a substantial presence only in the power sector. Given the predominance of the private sector, it is estimated that 85% of climate finance requirements will need to be met by the private sector and the remaining 15% by the public sector.

This study is organised into seven sections. Section 2 sets out the theoretical underpinnings of the possible sources of financing investment in a macroeconomic framework. Section 3 provides a revised estimate of India's climate finance requirement based on the framework provided by Raj and Mohan (2025) and the assessment of macroeconomic consistency of climate finance estimates. Section 4 assesses the possible external and domestic sources for financing climate action in India. Section 5 delineates how to catalyse private capital for financing climate mitigation efforts. Section 6 indicates the climate finance needs that are required to be met by the public and private sectors. Section 7 concludes with the key findings of the study.

2. Sources of Financing Climate Action—Macroeconomic Framework

Resource mobilisation for climate action, or for that matter any other investment, can occur through a combination of domestic and external sources. Sources of external climate finance flows are MDBs, bilateral government agreements for climate action, and the international capital market.

External climate finance is critical for meeting climate finance needs, especially because the scale of resources required is quite large. However, it is important to be cognisant of the extent of external capital flows that a country can absorb or manage effectively without jeopardising its macroeconomic stability, such as export competitiveness and/or domestic inflation; i.e. financing from external sources needs to meet the criterion of macroeconomic consistency.

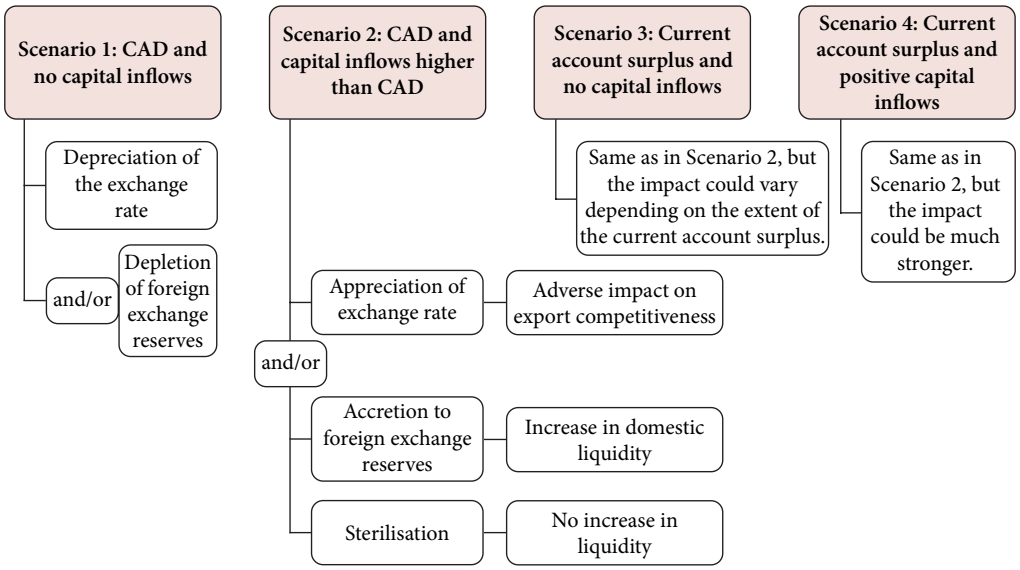
A country needs capital flows to finance the gap between domestic savings and investment, as reflected in the CAD. Capital flows over and above the CAD cannot be absorbed in the domestic economy, but if bought by the central bank, they are added to its foreign exchange reserves. However, even in such a scenario, capital flows exceeding the CAD can be managed to the extent that the balance sheet of a central bank needs to expand to meet the demand for reserve money or monetary base as the economy grows.

Excessive intervention in the forex market, whereby it leads to an increase in domestic liquidity beyond the required increase in reserve money for the growing economy, can result in inflation. Therefore, an expansion in domestic liquidity more than the required increase in reserve money may require sterilisation, as unsterilised intervention on a large scale can lead to a surfeit of liquidity with attendant implications for domestic inflation, a rise in domestic interest rates, a widening of the interest-rate differential, and the risk of further capital inflows, thereby defeating the very purpose of unsterilised intervention (Figure 1). Therefore, emerging-market central banks often undertake sterilised intervention.

There are, however, limits to sterilised intervention, which, among other factors, are determined by the stock of government securities held by the central bank in its portfolio. Therefore, several other instruments have also been used by central banks with varying degrees of success. For instance, India introduced the Market Stabilisation Scheme (MSS) in April 2004, to manage large capital inflows during 2003–2008.

Forex market intervention has other implications as well. Increased forex market intervention also means an increased share of net foreign assets (NFAs) in the central bank's balance sheet. A larger relative share of NFAs consequently implies a corresponding decline in net domestic assets (NDAs), which can constrain market-based liquidity absorption operations. In the face of persistently large liquidity, this constraint could become binding (Raj et al., 2018). A relatively large share of NFAs in the balance sheet of a central bank also makes it more sensitive to global interest rates and exposes it to exchange rate risk.

Figure 1: External Capital Flows—Macroeconomic Impact



Source: Raj and Mohan (2025).

Note: CAD = current account deficit.

To absorb higher external capital flows for climate action, one option is to widen the CAD through greater imports needed for climate mitigation (carbon capture and storage [CCS] technology, critical minerals, green hydrogen plant equipment, and battery cells). This, however, could also pose macroeconomic challenges, unless the additional capital inflows required for climate action are sustainable and managed appropriately, as indicated above. An expanding CAD could raise concerns about debt sustainability and overall external balance, as larger deficits often require increased external borrowing and/or equity flows. This could raise concerns about a country's ability to service its international debt and other obligations. Exchange rate stability also comes under pressure when the CAD widens beyond the needed amount, as larger deficits require continued foreign capital inflows to finance them, creating vulnerability to sudden stops or reversals in external capital flows.

The level of CAD that a country can finance easily without putting stress on its macroeconomic fundamentals is termed the sustainable CAD, implying that the economy can continue to finance its international debt and other obligations from external capital flows without putting pressure on its macroeconomic fundamentals. In other words, the CAD exceeding the sustainable level can create vulnerabilities, including exchange rate volatility, inflation risks, and a potential balance-of-payments crisis.

While external financing sources provide essential support, they are unlikely to meet all of India's climate finance needs. The gap in financing climate action beyond external sources needs to be met from domestic sources as detailed below:

- **Household Sector:** Household financial savings represent the aggregate financial resources saved by individuals and households within an economy (Box 1). In India, the household sector is the net saver, i.e., it saves more than it borrows. These savings are systematically pooled and channelled through various financial institutions, markets, and instruments such as bank and non-bank deposits, provident and pension funds, life insurance policies, small saving schemes of the government, and bonds and equity.

Box 1: Household Sector Savings—Concepts

Gross Household Saving is the excess of gross disposable income over final consumption expenditure:

Gross Household Savings = Gross Disposable Income – Final Consumption Expenditure

Household savings are held in physical assets such as land, buildings, and agricultural machinery, and in financial assets such as currency, bank and non-bank deposits, life insurance funds, provident and pension funds, small saving schemes, and shares and debentures.

Gross financial savings are gross savings less savings in physical assets:

Gross Household Financial Savings = Gross Household Savings – Physical Savings

Households also borrow from institutional lenders such as banks and non-banking financial companies, and non-institutional lenders for investment, such as housing, or for consumption.

Net Financial Savings reflect the household sector's residual savings in financial assets after deducting financial liabilities, consisting of debt obligations owed to institutional and non-institutional lenders:

Net Household Financial Savings = Gross Household Financial Savings – Financial Liabilities

- **Private Corporate Sector:** The private non-financial corporate sector generates savings primarily through retained earnings, i.e., a portion of profits that companies plough back for future investment, instead of distributing them as dividend to shareholders.
- **Government Sector:** Government sector savings emerge from fiscal operations of the state and central governments (general government) and are the net outcome of revenue receipts (tax and non-tax receipts such as interest and dividends) and revenue expenditure (such as salaries, pensions, and interest on debt). Box 2 explains the fiscal indicators of the government.

Box 2: Fiscal Deficit, Revenue Deficit, and Government Savings—Concepts

Fiscal deficit is the excess of the government's total expenditure over revenue receipts and non-debt capital receipts. This represents the gap that the government needs to finance by borrowing from the market. A surplus arises if receipts are more than expenditure.

Fiscal Deficit = (Revenue Expenditure + Capital Expenditure) – (Revenue Receipts + Non-debt Capital Receipts)

Non-debt capital receipts are non-recurring inflows that do not create liabilities. They include disinvestment proceeds and recovery of loans. Capital expenditure represents long-term investment for acquiring, upgrading, and constructing physical assets such as roads, bridges, and machinery. Revenue deficit is the difference between revenue expenditure and revenue receipts.

Revenue Deficit = Revenue Expenditure – Revenue Receipts

Revenue receipts are recurring income earned by the government through operational activities, which neither creates liabilities nor reduces assets. They consist primarily of tax revenue, both direct and indirect, and non-tax revenue including fees, dividends and interest earned. Revenue expenditure is recurring spending on day-to-day operations of the government, such as salaries, pensions, subsidies, and interest payments. These expenses are essential for running government departments but do not create productive assets or reduce liabilities.

A high revenue deficit often requires borrowing for consumption rather than investment, which can strain future debt servicing. Government savings represent the excess of current receipts over current expenditure.

It is the saving and investment decisions of the three sectors that ultimately determine whether the country has a positive S-I gap, where saving exceed investment, or a negative S-I gap, where investment exceeds saving, both of which are reflected in the current account balance. The CAD suggests a negative domestic S-I gap and vice versa.

While there have been various estimates of the climate finance requirement for India, there is no study that examines all the possible sources for financing climate action. There is a broad consensus that developing countries must build domestic financing capabilities for climate action in addition to international climate finance that may become available (Arif, 2024; Bhattacharya et al., 2024). The current climate finance flows for mitigation also confirm that 83% of all climate finance in India is mobilised from domestic sources (Chakravarty et al., 2024). Raj and Mohan (2025) underscore that India will have to carefully manage climate finance

flows from external sources and that most of the climate finance requirements will need to be met from domestic sources. However, no empirical analysis has been conducted with regard to how India's climate finance requirement can be met in a macro-consistent framework. This is the first study that analyses how the climate finance requirement can be met from external and domestic sources in an overall macroeconomic framework.

3. Climate Finance Requirements and Macroeconomic Consistency

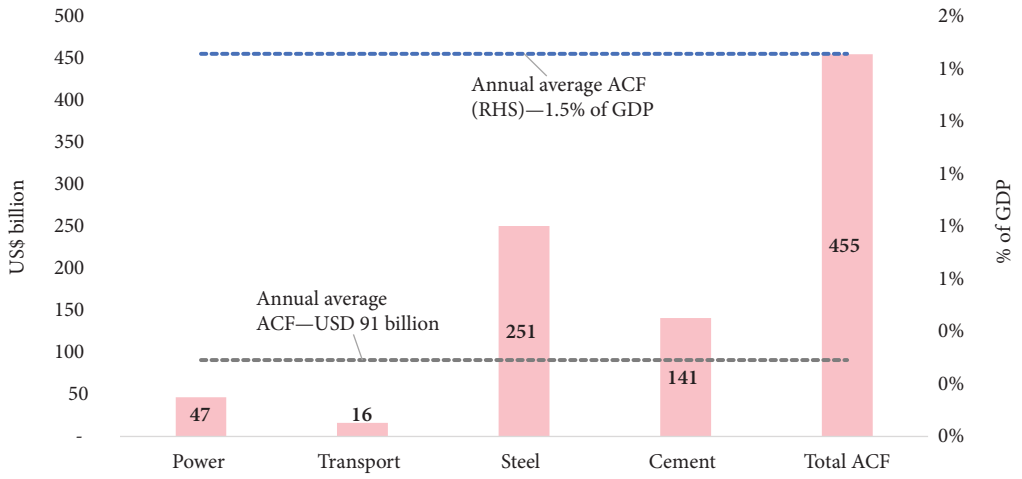
3.1 Climate Finance Requirements

Raj and Mohan (2025) estimated the climate finance requirement of India for the four major carbon-emitting sectors (power, road transport, steel, and cement) at US$467 billion during the period 2022–2030, an annual average of US$54 billion or 1.3% of GDP. As the period up to 2024–2025 has already elapsed, it was considered necessary to update these estimates. The power and transport sectors have made measurable progress through capital expenditure on renewable energy (RE), battery storage, and electric vehicles. On the other hand, there has been hardly any progress in decarbonising the steel and cement sectors, mainly because of the non-availability of affordable technologies for carbon capture in these sectors.

Accordingly, climate finance estimates for the power and transport sectors were considered for the period 2025–2026 to 2029–2030. For the steel and cement sectors, the capital expenditure originally estimated for the period up to 2022–2030 was divided across the remaining five years (2025–2026 to 2029–2030).

The revised climate finance requirement for India across the four sectors is estimated at US$455 billion for the period 2025–2030, an annual average of US$91 billion or 1.5% of GDP. It is significant that while the overall climate finance requirement remains broadly the same, it will now have to be met in fewer years, thus increasing the annual average requirement from 1.3% of GDP to 1.5% of GDP. Of the four sectors, the largest requirement is estimated for the steel sector at US$251 billion, followed by cement (US$141 billion), power (US$47 billion), and road transport (US$16 billion)—see Figure 2.

Figure 2: Climate Finance Requirement for India: 2025–2030



Source: Raj and Mohan (2025).

Note: ACF = additional capital finance; GDP = gross domestic product; RHS = right-hand side.

3.2 Macroeconomic Consistency of Climate Finance Estimates

As discussed earlier, an expanding CAD could raise concerns about debt sustainability, overall external balance, and exchange rate stability. As India normally runs a CAD, we project the evolution of key macroeconomic variables—current account balance, capital and financial flows, and monetary base or reserve money—in the BAU scenario up to 2030 (Appendix 3).

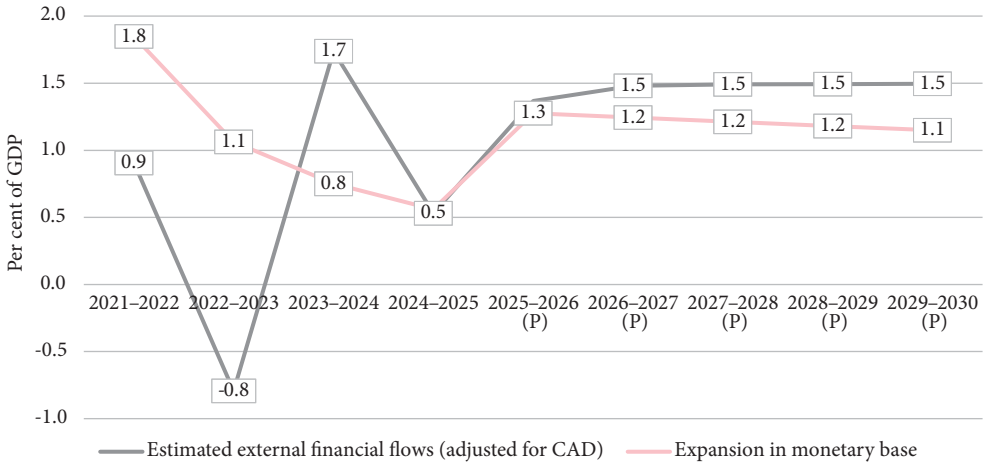
The CAD is projected to range from 0.7% of GDP (US$32 billion) to 3% of GDP (US$199 billion) up to 2030. Until last few years, India received adequate capital and financial flows, which are much more than its CAD and which, therefore, had to be managed (Mohan, 2006, 2008). India's foreign exchange reserves were about 16.2% of GDP in 2024–2025. To arrive at the capital and financial inflows needed for climate finance, it is assumed that India will continue to maintain a similar level of foreign exchange reserves in the future. Considering this, external financial flows (after adjusting for the CAD) are estimated at US$405 billion during 2025–2030, ranging from US$62 billion (1.4% of GDP) to US$99 billion (1.5% of GDP) annually.

In the last 25 years, India's monetary base has expanded broadly in line with the nominal GDP growth rate. Assuming a nominal GDP growth rate of 10.5%, the annual accretions in India's monetary base range from US$55 billion (1.3% of GDP) to US$76 billion (1.1% of GDP) up to 2030, aggregating about US$333 billion by 2030. It may be noted that external financial flows of US$405 billion up to 2030 are projected to be more than the projected expansion in the monetary base.

The annual external financial flows (after adjusting for CAD) in the BAU scenario are projected to exceed the desired expansion in the monetary base up to 2030

(Figure 3). Thus, it would be a challenge to manage external financial flows in the BAU scenario along with large climate financial flows, should they arise from external sources. Thus, for absorbing climate finance flows from external sources, it needs to be assessed whether the CAD can be expanded without jeopardising its sustainability.

Figure 3: Monetary Base and External Financial Flows—Projections



Source: Authors' calculations.

Note: GDP = gross domestic product; P = projection.

4. Assessment of Possible Sources of Climate Finance

In this section, we empirically examine what the sustainable level of the CAD in India is and whether it can be expanded without compromising its sustainability and then provide estimates of climate finance that could flow to India from MDBs. After establishing the absorptive capacity of external climate finance flows, we then turn to estimating the domestic sources of financing for climate action.

4.1 External Sources

External climate finance represents a critical component of India's overall climate financing strategy, comprising flows from MDBs, climate funds, bilateral agreements, and the international capital market.

Climate finance flows from MDBs increased by 75% between 2017–2018 and 2022–2023. Foreign direct investment (FDI) in the non-conventional energy sector grew four-fold in the last ten years, averaging about US$1.8 billion annually (Government of India, 2025). Climate finance flows from dedicated climate funds to India are dominated by the Green Climate Fund (GCF), which has funded 16 climate projects (of which five are mitigation-specific) in India with cumulative financial support of US$1.1 billion between 2017 and 2026 (GCF, 2025).

While climate finance flows from external sources are increasing annually, they are still short of India's large climate finance requirement. There is a need for larger external capital flows in India to finance climate action, but these flows will need to be consistent with a sustainable level of CAD.

There are various estimates of sustainable CAD in India. The Report of the Committee on Capital Account Convertibility (Chairman: S. S. Tarapore) in 1997 pegged the sustainable level of CAD at 2% of GDP, which was later changed to 3% by the Second Tarapore Committee report of 2006. The International Monetary Fund (IMF) in 2001 estimated the sustainable CAD for India in the range of 1.5–2.5% of GDP, depending on the prevailing GDP growth and other economic circumstances such as interest rates. Goyal (2012) found that India's sustainable CAD should be in the range of 2.4–2.8% of GDP, given a GDP growth rate of 6–8%, inflation of 5%, and interest rates and capital flows following past trends. The IMF (2013) assessed the CAD that stabilises India's NFA position and found it at 2.3% of GDP. Ramakrishnan et al. (2020) assessed the threshold level of CAD in India to be in the range of 2.1–3.4%, beyond which it can adversely affect the GDP growth rate.

We examine the level of sustainable CAD considering the current economic scenario, the methodology of which is set out in Box 3.

Box 3: Methodology for Estimating Sustainable Current Account Deficit

This study uses the External Sustainability (ES) approach by the IMF.

$$CAB_{sustainable} = \frac{(g + \pi (1 + g))}{(1 + g)(1 + \pi)} NFA_{threshold}$$

$CAB_{sustainable}$ = sustainable current account balance (% of GDP);

g = real GDP growth rate;

π = inflation rate;

$NFA_{threshold}$ = threshold level of net foreign assets (% of GDP).

This methodology estimates the current account balance that stabilises the net foreign assets (total foreign assets less total foreign liabilities) at its threshold level, assuming continuation of prevailing macroeconomic conditions. The threshold level of net foreign assets is crucial because low or negative net foreign assets beyond a critical threshold can make it difficult to secure external financing and leave the economy susceptible to debt crises. Hence, before calculating sustainable CAD, it is important to arrive at the threshold level of net foreign assets. Following Goyal (2012), who estimated the threshold net foreign assets for India at –24% of GDP, we use the same as benchmark.

Higher economic growth enables India to sustain a larger CAD without jeopardising macroeconomic stability. A lower or more negative NFA threshold reduces the level of CAD that a country can sustain, in practice.

To evaluate the sustainable level of CAD, a scenario-based analysis is conducted. This assessment relies on specific assumptions made under three distinct scenarios, each reflecting different economic conditions that could influence India's external financial position. The difference among the three scenarios is the real GDP growth rate in India (Table 1).

Table 1: Sustainable Current Account Deficit—Assumptions and Results

Assumptions	Baseline Scenario	Alternative Scenario 1	Alternative Scenario 2
Real GDP growth rate (%)	6.5	7.0	7.5
Inflation rate (%)	4.0	4.0	4.0
Threshold net foreign assets (% of GDP)	24.0	24.0	24.0
Sustainable CAD (% of GDP)	**2.5**	**2.6**	**2.7**

Source: Authors' calculations.

Note: GDP = gross domestic product; CAD = current account deficit.

The results suggest that under the baseline scenario, assuming that the Indian economy grows at 6.5% and the inflation rate is 4%, the sustainable level of CAD is estimated at 2.5% of GDP. In an alternative Scenario 1, sustainable CAD can be expanded up to 2.6% of GDP due to a higher real GDP growth rate than in the baseline scenario. On the other hand, if the growth rate rises to 7.5%, then sustainable CAD also increases to 2.7% of GDP. Thus, the level of CAD that India can sustain without destabilising its macroeconomic fundamentals is estimated at 2.5–2.7% of GDP.

Taking a conservative approach, we adopt the baseline scenario as the sustainable CAD level (2.5% of GDP) for subsequent analysis.

The CAD projections presented in this study are based on a BAU scenario. However, the recent rise in oil prices and its adverse impact on the CAD and portfolio outflows due to the West Asia war make India's external sector vulnerable and may require revisiting the estimates if the conflict persists (Box 4).

Box 4: External Sector Sustainability—Some Caveats

India's heavy reliance on oil imports, at about 85% of domestic consumption, makes it highly vulnerable to oil price shocks. A disruption of supplies, such as a closure of the Strait of Hormuz, pushes up crude prices. This widens the CAD and often triggers simultaneous portfolio outflows, as foreign investors reassess emerging-market risk. The resulting pressure on the rupee exchange rate also raises import costs, fuels inflation, and dampens domestic consumption.

During the recent West Asia conflict, foreign institutional investors (FIIs) pulled out US$24 billion from Indian equities in just three months (March 2026 to May 2026) after tensions escalated on February 28, 2026. Even before the conflict, FII flows had turned negative as risk–return perceptions shifted in favour of other markets, with net outflows of US$19 billion in 2025 and US$24 billion in 2026.

The current account sustainability analysis in this paper has been conducted in the BAU scenario without considering any impact of the recent West Asia war. If the conflict is resolved soon, crude oil prices are likely to decline, though they may not return to pre-war levels given the damage to energy-related infrastructure in West Asia.

It is, therefore, imperative to monitor external sector developments closely and regularly. If oil prices do not decline or portfolio outflows continue, external sector sustainability may warrant a reassessment.

Climate Finance from Multilateral Development Banks

Finance provided by MDBs constitutes a critical component of the external sources of climate finance. India receives significant climate finance flows from the World Bank Group, the Asian Development Bank, the Asian Infrastructure Investment Bank (AIIB), and the New Development Bank (NDB).

In 2022–2023, annual climate finance extended by MDBs to India was US$6.5 billion, increasing from US$3.7 billion in 2017–2018 at a compound annual growth rate (CAGR) of 12%. In 2022–2023, MDBs' climate finance flows to all economies were unevenly distributed between mitigation and adaptation measures, with mitigation constituting almost 78% of the total finance. Assuming a similar composition of climate finance flows to India, climate finance flows for mitigation from MDBs to India are estimated at US$5.1 billion in 2022–2023, up from US$2.9 billion in 2017–2018. In terms of percentage of GDP, these annual mitigation flows were in the range of 0.09–0.14% of GDP (Table 2).

Table 2: Annual Climate Finance by Multilateral Development Banks

Year	Annual Climate Finance by MDBs (US$ billion)	Annual Mitigation Finance by MDBs (US$ billion)	Annual Mitigation Finance (% of GDP)
2017–2018	3.7	2.9	0.11
2018–2019	3.7	2.9	0.10
2019–2020	3.5	2.8	0.10
2020–2021	3.7	2.9	0.09
2021–2022	3.7	2.9	0.09
2022–2023	6.5	5.1	0.14

Source: Joint Report on Multilateral Development Banks' Climate Finance (2024).

Note: MDB = multilateral development bank; GDP = gross domestic product.

In this study, we estimate annual mitigation finance flows by MDBs to India up to 2029–2030 based on the last five-year CAGR of 12%.[3] It is estimated that annual mitigation finance by MDBs will increase from US$5.1 billion in 2022–2023 to US$11.1 billion in 2029–2030. This accounts for 0.2% of GDP, on average, for the period 2025–2030 (Table 3). It is expected to meet 15% of the total climate finance requirement between 2025–2026 and 2029–2030 (Raj & Mohan, 2025).

Table 3: Climate Finance (Mitigation) by Multilateral Development Banks—Projections

	Year	Annual Mitigation Finance by MDBs	
		US$ billion	% of GDP
Actual	2021–2022	2.9	0.09
	2022–2023	5.1	0.14
Projection	2023–2024	5.7	0.14
	2024–2025	6.3	0.15
	2025–2026	7.1	0.16
	2026–2027	7.9	0.16
	2027–2028	8.9	0.16
	2028–2029	9.9	0.16
	2029–2030	11.1	0.16
Average	**2025–2030**	**9.0**	**0.16**

Source: Authors' calculations.

Note: MDB = multilateral development bank; GDP = gross domestic product.

[3] The projections are based on a historical trend under the BAU scenario (see Box 4).

Of the estimated CAD expansion of 0.5% of GDP (as alluded to before), 0.2% is projected to be absorbed by increased flows from MDBs. The remaining headroom of CAD of 0.3% of GDP can be utilised to absorb climate finance flows from other external sources. If external capital flows projected in the BAU do not materialise, there will be greater room to absorb external climate finance flows.

4.2 Domestic Sources

Given India's total climate finance requirement of 1.5% of GDP during 2025–2030, there will be a funding gap of 1.0% of GDP that would need to be met from domestic sources, after accounting for potential external financing of 0.5% of GDP. Since the climate finance requirement is over and above the investment needed in the BAU scenario, one straightforward option is to step up the domestic saving rate. Since the household sector is the only net saver in the economy, enhanced financial savings of the household sector would ensure that climate action is financed without crowding out other productive sectors. In this case, any changes in the saving and investment of the private corporate and public sectors are assumed to be mutually offsetting. While an increase in household financial saving creates the necessary macro space, its flow to climate projects is not automatic and will depend on intermediation through banks, bonds, equity, small savings, insurance, and pension funds invested in green instruments. In this paper, we examine the available instruments through which this could be channelled if the financial saving rate of the household sector is to rise by 1.0% of GDP.

However, in reality, the S-I behaviour of all three sectors—household, private corporate, and government—is quite dynamic. It is, therefore, important to understand this changing behaviour to assess whether additional savings are indeed needed to meet the estimated climate finance requirements. Assessing the scenario where the entire funding gap is met by stepping up household savings provides a simplified framework before we illustrate the complexity arising from the dynamic S-I behaviour of all the three sectors.

However, any step-up in the financial saving rate of the household sector during the period 2025–2030 would need to be built on the saving rate in the BAU scenario. Therefore, we first assess how the financial saving rate of the household sector in the BAU is likely to evolve up to 2030.

Household Sector Savings in the Business-as-Usual Scenario

The gross saving rate (% of GDP) of the household sector moved in a narrow range of 23–25% during the period 2004–2010 but declined sharply to 16.3% by 2016–2017. It gradually increased to 21.7% by 2024–2025 but remained below pre-2010 levels. The gross financial saving rate of the household sector (after adjusting for physical savings) also fell sharply from 16.3% of GDP in 2009–2010 to 12.0% in 2024–2025. The net financial saving rate (gross financial savings minus financial liabilities of the

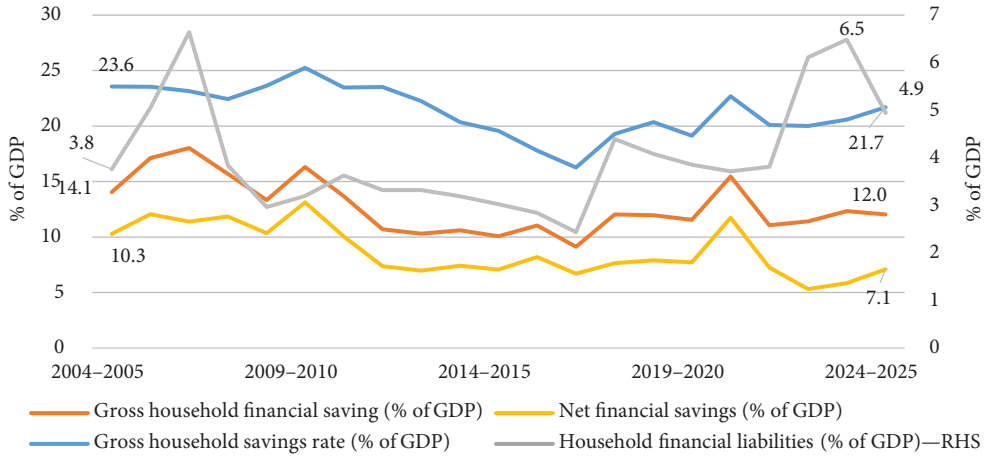
household sector) moved mostly in tandem with the gross household financial saving rate, declining sharply from 13.1% of GDP in 2009–2010 to 7.1% by 2024–2025.

A declining net financial saving rate of the household sector is concerning, as lower savings constrain the resources available for investment. This gives rise to a fundamental trade-off between the need to drive economic growth through higher consumption and the need to maintain a level of savings adequate to support investment activity.

A key driver of the decline in financial savings of households is the increasing financial liabilities, held at 3–4% of GDP from 2007–2008 to 2021–2022 before peaking at 6.5% in 2023–2024—driven by retail credit push by lenders and growing personal credit demand from young borrowers—before moderating to 4.9% in 2024–2025 (Figure 4).

Alongside rising liabilities, a structural shift in the composition of household savings has further weighed on net financial savings. Households are increasingly channelling their savings into physical assets, which tend to largely move in line with the residential real estate cycle (Raj, 2024). The share of physical savings in gross household savings touched 73% in 2022–2023, a significant increase compared to historical levels, which had typically been in the range of 48–60%. This behavioural shift is accompanied by a steady erosion of bank and non-bank deposits, which declined from 10% of GDP in 2006–2007 to 4% in 2024–2025.

Figure 4: Household Sector Saving Rate: 2004–2005 to 2024–2025



Source: Reserve Bank of India (n.d.).

Note: GDP = gross domestic product; RHS = right-hand side.

In the BAU scenario, gross household savings are projected to rise from 21.7% of GDP in 2024–2025 to 22.5% of GDP in 2029–2030, with an annual average rate of

22.1% of GDP.[4] The gross financial saving rate of the household sector is projected to rise marginally from 12.0% of GDP in 2024–2025 to 12.8% of GDP in 2029–2030 (annual average of 12.6% of GDP). The net financial saving (i.e., gross financial savings minus financial liabilities) of the household sector are estimated to increase from 7.1% of GDP in 2024–2025 to 8.7% of GDP in 2029–2030, at an annual average of 8.4% of GDP (Table 4).

Table 4: Household Sector Saving Rate—Projections (Business-as-Usual Scenario)

(% of GDP)

	Year	Gross Household Saving Rate	Gross Financial Saving Rate	Household Financial Liabilities	Net Financial Saving Rate
Actual	2020–2021	22.7	15.4	3.7	11.7
	2021–2022	20.1	11.1	3.8	7.3
	2022–2023	20.0	11.4	6.1	5.3
	2023–2024	20.6	12.3	6.5	5.9
	2024–2025	21.7	12.0	4.9	7.1
Projection	2025–2026	21.8	12.3	4.5	7.8
	2026–2027	21.9	12.5	4.3	8.2
	2027–2028	21.9	12.6	4.2	8.4
	2028–2029	22.2	12.7	4.1	8.6
	2029–2030	22.5	12.8	4.1	8.7
Average	**2025–2030**	**22.1**	**12.6**	**4.2**	**8.4**

Source: Ministry of Statistics and Programme Implementation (n.d.), Reserve Bank of India (n.d.), and authors' calculations.

GDP = gross domestic product.

Gross financial savings of the household sector are deployed in various instruments: currency, bank and non-bank deposits, life insurance policies, provident and pension funds, and shares and debentures.

Bank and non-bank deposits are estimated[5] to remain the most preferred saving instrument of households with a share of 35% of total gross financial saving during the period (2025–2030). The share of provident and pension funds is projected to

[4] To project the household saving rate under the BAU scenario, an autoregressive integrated moving average with exogenous variables (ARIMA-X) model was initially estimated, incorporating exogenous variables—per capita GDP, inflation rate, term deposit rate, and age dependency ratio. However, empirical results indicated statistically insignificant exogenous variables and autoregressive components. Accordingly, the household saving rate projections were derived using an ARIMA model.

[5] Savings in various instruments were arrived at by using the ARIMA model.

increase gradually from 22% of gross financial saving of households in 2024–2025 to 23% in 2029–2030, averaging 23% over the estimated period. The share of life insurance funds is projected to increase from 15% in 2024–2025 to 17% by 2029–2030, an average share of 16% during 2025–2030. Savings in shares and debentures are expected to increase from 15% in 2024–2025 to 16% in 2029–2030, averaging 16% over the period. The shares of currency holdings and claims on the government in gross financial savings of households are projected to decline by 1 percentage point of gross financial savings, respectively, during the period (Table 5).

Table 5: Gross Financial Savings of the Household Sector—Components (Business-as-Usual Scenario)

(% of Gross Financial Savings)

	Year	Currency	Bank and Non-Bank Deposits	Life Insurance Funds	Provident and Pension Funds	Claims on Government	Shares and Debentures
Actual	2020–2021	12	41	19	16	9	3
	2021–2022	10	32	19	21	10	8
	2022–2023	8	38	19	21	7	7
	2023–2024	3	40	19	21	9	9
	2024–2025	6	35	15	22	7	15
Projection	2025–2026	5	35	16	22	7	15
	2026–2027	5	35	16	22	6	16
	2027–2028	4	35	16	23	6	16
	2028–2029	4	35	16	23	6	16
	2029–2030	4	35	17	23	6	16
Average	**2025–2030**	4	**35**	**16**	**23**	**6**	**16**

Source: Ministry of Statistics and Programme Implementation (n.d.) and authors' calculations.

Note: Figures may not add up due to rounding off.

As a percentage of GDP, the shares of bank and non-bank deposits, life insurance funds, and shares and debentures are expected to rise by 0.3% each from 2024–2025 to 2029–2030. Savings through provident and pension funds are expected to rise by 0.2% over the same period. However, savings in the form of currency and claims on the government are expected to decline by 0.2% and 0.1%, respectively.

On average, savings through bank and non-bank deposits, life insurance policies, provident and pension funds, and shares and debentures are estimated to rise by 0.2% of GDP each year during 2025–2030, while currency and claims on the government are expected to decline by 0.1% of GDP each year. Thus, the overall gross financial savings of households are projected to rise on average by 0.6 percentage points of GDP during 2025–2030 (Table 6). Since the climate finance requirement is over and above the investment in the BAU scenario, there would be a need to assess how to meet that gap. Therefore, in the following analysis, we estimate the

savings instruments that could finance climate action if the entire climate finance requirement is met by stepping up the savings rate of households.

Table 6: Gross Financial Savings of the Household Sector—Components (Business-as-Usual Scenario)

(% of GDP)

	Year	Currency	Bank and Non-Bank Deposits	Life Insurance Funds	Provident and Pension Funds	Claims on Government	Shares and Debentures	Gross Household Financial Savings
Actual	2020–2021	1.9	6.3	2.9	2.5	1.3	0.5	15.4
	2021–2022	1.1	3.5	2.1	2.3	1.1	0.9	11.1
	2022–2023	0.9	4.3	2.1	2.4	0.8	0.9	11.4
	2023–2024	0.4	4.8	2.3	2.6	1.1	1.1	12.3
	2024–2025	0.7	4.2	1.8	2.7	0.8	1.8	12.0
Projection	2025–2026	0.6	4.3	1.9	2.8	0.8	1.9	12.3
	2026–2027	0.6	4.4	2.0	2.8	0.7	2.0	12.5
	2027–2028	0.6	4.4	2.0	2.9	0.7	2.0	12.6
	2028–2029	0.5	4.5	2.1	2.9	0.7	2.0	12.7
	2029–2030	0.5	4.5	2.1	2.9	0.7	2.1	12.8
Average	**2025–2030**	**0.6**	**4.4**	**2.0**	**2.9**	**0.7**	**2.0**	**12.6**

Source: Ministry of Statistics and Programme Implementation (n.d.) and authors' calculations.

Note: Figures may not add up due to rounding off.

GDP = gross domestic product.

The projected rise in bank and non-bank deposits reflects the deepening of financial inclusion driven by digital banking infrastructure and the expansion of the *Pradhan Mantri Jan Dhan Yojana*. The uptick in savings through life insurance is likely to be driven by a growing risk awareness among India's expanding middle class, amidst rising healthcare costs and exemption of Goods and Services Tax (GST) on life insurance and health insurance policies to broaden insurance penetration. The projected increase in provident and pension fund savings mirrors the gradual formalisation of the labour market and growing social security coverage (Press Information Bureau, 2025). The continuous upward trend in savings through shares and debentures reflects a behavioural shift towards capital market instruments, with a surge in contributions to mutual funds since December 2020 and fintech enabling direct and faster access to capital markets (CFA Institute, 2025; India Brand Equity Foundation, 2024). Conversely, the projected decline in currency holdings is a direct behavioural consequence of the accelerating adoption of digital payment platforms, which have reduced the transaction demand for physical cash. The expected decline in claims on government reflects a reallocation of funds away from low-yield small savings schemes such as post office deposits to instruments generating relatively higher returns.

Financing Climate Action—Stepping Up Household Sector Savings

To meet the climate finance requirement, one option is to raise the gross household financial saving rate, on average, by 1.0 percentage point of GDP from 12.6% of GDP in the BAU scenario to 13.6% of GDP during 2025–2030, assuming financial liabilities of the household sector remain unchanged from the 2024–2025 level (Table 7).

Table 7: Gross Financial Savings of the Household Sector (Enhanced Saving Rate Scenario)

(% of GDP)

	Year	Gross Household Financial Savings Under BAU Scenario	Incremental Gross Household Financial Savings for Climate Action	Gross Household Financial Savings Under Enhanced Savings Scenario
Actual	2021–2022	11.1	0	11.1
	2022–2023	11.4	0	11.4
	2023–2024	12.3	0	12.3
	2024–2025	12.0	0	12.0
Projection	2025–2026	12.3	0.8	13.1
	2026–2027	12.5	0.9	13.4
	2027–2028	12.6	1.0	13.6
	2028–2029	12.7	1.1	13.8
	2029–2030	12.8	1.2	14.0
Average	**2025–2030**	**12.6**	**1.0**	**13.6**

Source: Authors' calculations.

Note: BAU = business-as-usual; GDP = gross domestic product.

In such a scenario, it is estimated that of the 1.0 percentage point increase in gross financial savings, 0.4 percentage point of GDP will need to come from bank and non-bank deposits, followed by 0.2 percentage point of GDP each from provident and pension funds and life insurance funds, and 0.1 percentage point of GDP each from shares and debentures and claims on government (Table 8).

Table 8: Gross Financial Savings of the Household Sector—Components (Enhanced Saving Rate Scenario)

(% of GDP)

FY	Currency	Bank and Non-Bank Deposits	Life Insurance Funds	Provident and Pension Funds	Claims on Government	Shares and Debentures	Enhanced Gross Household Financial Savings	BAU Gross Household Financial Savings
2025–2026	0.7	4.7	2.0	2.9	0.8	2.0	13.1	12.3
2026–2027	0.7	4.7	2.1	3.0	0.8	2.1	13.4	12.5
2027–2028	0.6	4.8	2.2	3.0	0.8	2.2	13.6	12.6
2028–2029	0.6	4.9	2.2	3.1	0.8	2.2	13.8	12.7
2029–2030	0.6	4.9	2.3	3.2	0.8	2.2	14.0	12.8
A. Average (2025–2030)	**0.6**	**4.8**	**2.2**	**3.1**	**0.8**	**2.1**	**13.6**	
B. Average under BAU (2025–2030)	**0.6**	**4.4**	**2.0**	**2.9**	**0.7**	**2.0**		**12.6**
Incremental (A-B)	**0**	**0.4**	**0.2**	**0.2**	**0.1**	**0.1**	**1.0**	

Source: Authors' calculations.

Note: FY = financial year; BAU = business-as-usual; GDP = gross domestic product.

The enhanced savings will be intermediated through banks and non-banking financial companies (NBFCs) and institutions, and/or invested directly in capital market instruments. Therefore, now, we assess how the estimated increased financial savings will be channelled to finance climate-related requirements through different instruments.

As of September 2025, scheduled commercial banks in India are mandated to maintain a statutory liquidity ratio (SLR) of 18% of their net demand and time liabilities (NDTLs), which largely comprise deposits. The regulatory requirement of SLR ensures that banks hold a minimum percentage of their net demand and time liabilities in liquid assets, i.e., government securities. Thus, for every deposit of Rs 100, Rs 18 are deployed in government securities. Hence, it is assumed that 18% of estimated additional bank deposits will be invested in government securities, which could be used by the government for green projects. In addition, banks are also required to maintain a cash reserve ratio (CRR) of 3% of their NDTLs. Therefore, after meeting the SLR and CRR requirements, remaining deposits would be utilised by banks to extend bank credit for green projects. Banks are required to direct 40% of adjusted net bank credit to priority sector lending (PSL). Thus, of the credit extended by banks, 40% would be used for lending to the priority sector (which includes lending to RE projects up to Rs 35 crore and to individuals up to Rs 10 lakh). Therefore, bank credit has been segregated into PSL and non-PSL categories.

Life insurance companies are mandated to invest at least 55% of their corpus in government securities and approved securities[6] and the remaining in market-linked approved securities (IRDAI, 2025). In the absence of a break-up of government and approved securities, it is assumed that the entire 55% of life insurance funds is invested in government securities. Therefore, 55% of savings through life insurance funds are projected to be invested in government securities, and the remaining in equity and bonds.

Provident funds and pension funds are mandated to invest at least 45% and 65% of the corpus, respectively, in government and approved securities (Pension Fund Regulatory and Development Authority, 2023; Ministry of Labour and Employment, 2015). In addition, while the National Pension System (NPS) can invest in equity and related instruments, the Employees' Provident Fund Organisation (EPFO) can invest in the equity market only through exchange-traded funds (ETFs). Thus, it is assumed that the mandated funds are deployed in government securities and the remaining in equity, ETFs, and bonds. Savings through claims on the government are largely in the form of small savings instruments.

As of March-end 2025, commercial banks held the largest share of government securities (36%), followed by insurance companies (24%), provident funds (11%), RBI (8%), and pension funds (5%).

Of the additional saving of 1.0% of GDP required for climate action from 2025–2026 to 2029–2030, 0.36% of GDP is estimated to be financed by government securities, 0.34% of GDP by investment in green bonds/shares, and 0.29% of GDP by bank credit,[7] of which 0.11% of GDP is estimated to be through priority sector lending (Table 9). In absolute terms, estimated additional saving will translate into about Rs 1,90,000 crore in green government securities, Rs 1,75,000 crore in green equity and bonds, and Rs 1,50,000 crore in green bank credit (of which Rs 58,000 crore is expected to be in priority sector lending)—see Appendix 1.

[6] Approved securities include secured loans, secured debentures, secured bonds, other secured debt instruments, shares and preference shares, and debt instruments issued by All India Financial Institutions recognised by RBI; Collateralised Borrowing and Lending Obligation (CBLO) created by the Clearing Corporation of India Limited recognised by RBI; commercial papers issued by a company or All India Financial Institutions recognised by RBI; and treasury bills issued by RBI, inter-bank repos of RBI, and bills rediscounting.

[7] Of the estimated additional savings, CRR maintained by banks will constitute a minuscule share of 0.01% of GDP, which, therefore, has been ignored.

Table 9: Financial Instruments for Mobilising Incremental Savings for Climate Action

(% of GDP)

Year	Government Securities				Bank Credit		Equity and Bonds		
	Bank and Non-Bank Deposits	Life Insurance Funds	Provident and Pension Funds	Claims on Government	PSL	Excluding RE Credit under PSL	Shares and Debentures	Life Insurance Funds	Provident and Pension Funds
2025–2026	0.05	0.08	0.11	0.05	0.09	0.15	0.12	0.06	0.08
2026–2027	0.06	0.09	0.13	0.05	0.10	0.17	0.14	0.06	0.09
2027–2028	0.06	0.10	0.14	0.06	0.11	0.18	0.16	0.08	0.10
2028–2029	0.07	0.11	0.15	0.06	0.12	0.20	0.18	0.09	0.11
2029–2030	0.08	0.13	0.17	0.07	0.13	0.22	0.19	0.09	0.12
Average (2025–2030)	**0.06**	**0.10**	**0.14**	**0.06**	**0.11**	**0.18**	**0.16**	**0.08**	**0.10**
Category Total	**0.36**				**0.29**		**0.34**		

Source: Authors' calculations.

Note: PSL = priority sector lending; RE = renewable energy; GDP = gross domestic product.

Evolving Dynamics of Saving–Investment Behaviour

We now turn to the dynamic behaviour of the household, government, and private corporate sectors.

Household Sector

The saving behaviour of the household sector has been assumed to be the same as in the BAU scenario, in which financial saving of the household sector is estimated to increase on average by 1.3% of GDP during 2025–2030 over the 2024–2025 level.

Government Sector

The government sector possesses the most direct tools to adjust its fiscal position through deliberate policy decisions, whereas influencing household savings behaviour or corporate retained earnings policy is more indirect and uncertain. Fiscal consolidation by the general government (centre and states) frees up resources and can play a key role in financing climate action.

Government saving or dissaving is typically measured as the difference between revenue receipts and revenue expenditure. Before we estimate the likely behaviour of general government's (centre and state) revenue deficit, it is important to assess how the revenue deficit of the general government evolved during the 2003–2008 private corporate investment cycle (Box 2).

The revenue deficit of the general government declined drastically from 5.6% of GDP in 2003–2004 to 0.2% of GDP by 2007–2008, facilitated by increased tax buoyancy and a higher tax–GDP ratio. Tax buoyancy of direct taxes was 2 during

the period 2003–2008, significantly higher than 1.5 observed during 1996–2003. Correspondingly, the tax–GDP ratio increased to 16% from 14% during 1996–2003.

The general government revenue deficit, which peaked at 9.2% of GDP in 2020–2021 due to the onset of COVID-19, declined to 2.0% in 2024–2025 (Figure 5). The general government revenue deficit is budgeted at 1.7% of GDP for 2025–2026 (revised estimate of 1.5% of GDP for the central government and budget estimate of 0.2% of GDP for the state governments).

Figure 5: General Government—Revenue Deficit: 2003–2026



Source: Ministry of Statistics and Programme Implementation (n.d.).

Note: BE = budget estimate; GDP = gross domestic product.

The Fiscal Responsibility and Budget Management (FRBM) Review Committee (2017) recommended that the central government achieve the revenue deficit target of 0.8% of GDP by 2022–2023. However, due to the onset of COVID-19, this revenue deficit target could not be met. Therefore, in the BAU scenario, it is now projected that this target will be achieved by 2029–2030. The 16th Finance Commission—whose recently released report has been accepted by the central government—has recommended that the fiscal deficit of the central government be reduced to 3.5% of GDP by the end of the award period, which is 2030–2031 (Ministry of Finance, 2025). Accordingly, the revenue deficit of the general government is projected to decline gradually to reach 0.8% of GDP by end-March 2030.

In the Union Budget 2025–2026, the fiscal anchor was changed from targeting the gross fiscal deficit to the debt–GDP ratio. It indicated that the debt–GDP ratio will be reduced from 57% to 50% ±1 by end-March 2031. Under the current growth rate and interest rate scenario,[8] this will require a reduction in the primary deficit from -1.3% of GDP to -0.3% of GDP, i.e., a reduction in the primary deficit by

[8] It is based on a nominal GDP growth of 10% and a nominal interest rate of 6%.

one percentage point of GDP. This will also translate to a reduction in the revenue deficit to the same extent. However, given the more precarious debt dynamics of states,[9] we have assumed a slightly higher degree of revenue deficit reduction for the state governments. Under an accelerated pace of reduction in the revenue deficit, it is assumed that the revenue deficit of the general government will reach zero in 2029–2030. However, this would require significant efforts both from the central and state governments.

Considering all the three developments above, the revenue deficit of the general government is estimated to decline from 1.7% of GDP in 2025–2026 to zero by 2029–2030. This will be an accelerated pace of fiscal consolidation, which has also been taken into account for the purpose of our analysis.

In the BAU scenario, the average revenue deficit of the general government for the period 2025–2030 works out to 1.3% of GDP. This implies an increase in average government savings of 0.7 percentage points of GDP during 2025–2030 over the 2024–2025 level. In the case of an accelerated pace of reduction in the revenue deficit, the average revenue deficit is estimated at 0.9% of GDP during the same period, implying an average increase of 1.1 percentage points of GDP over 2024–2025 (Table 10).

Table 10: General Government Revenue Deficit—Projections

	Year	Revenue Deficit (% of GDP)	
		BAU Scenario	**Accelerated Pace of Reduction**
Actual	2021–2022	4.8	4.8
	2022–2023	4.2	4.2
	2023–2024	3.3	3.3
	2024–2025	2.0	2.0
	2025–2026	1.7	1.7
Projection	2026–2027	1.5	1.3
	2027–2028	1.3	0.9
	2028–2029	1.0	0.4
	2029–2030	0.8	0.0
Average	**2025–2030**	**1.3**	**0.9**

Source: Authors' calculations.

Note: BAU = business-as-usual; GDP = gross domestic product.

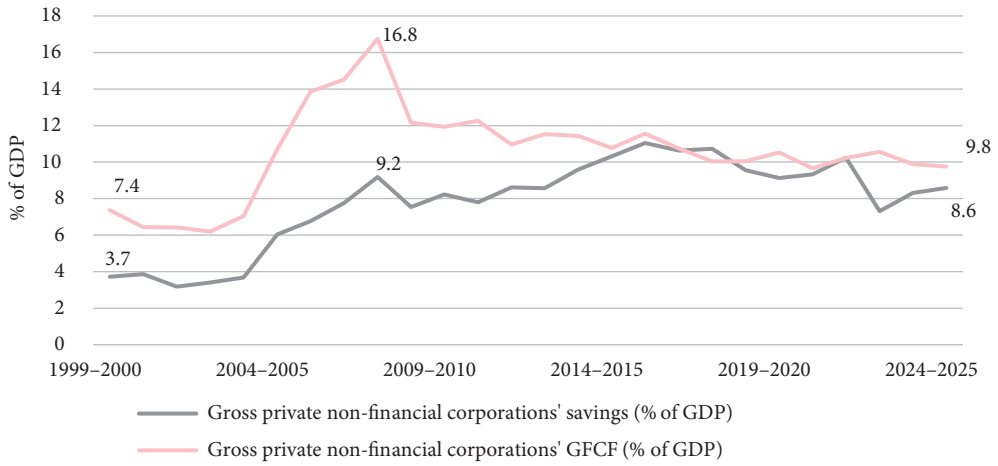
[9] The favourable effect of a negative interest rate–growth differential (r–g) will be less pronounced in the case of states relative to that of the centre because the debt–GDP ratio of the states at 28% of GDP is almost half of that of the centre.

Private Corporate Sector

For assessing the revival of the private corporate sector investment we are guided by the private capex cycle during 2003–2008. GFCF of the private non-financial corporate sector, as a percentage of GDP, rose from 6–7% in the early 2000s to peak at 16.8% in 2007–2008. This growth was largely driven by the robust global economy, which grew at an average annual rate of 4.9% during 2003–2007 and significant foreign investment in India, with net FDI flows growing at the rate of 160% in 2006–2007. However, following the North Atlantic Financial Crisis (NAFC) in 2008, private corporate GFCF declined sharply to 11.0% of GDP in 2011–2012. There is also evidence that there was a structural break in private corporate investment in 2011–2012 (Raj & Gupta, 2025). Since then, GFCF of the private corporate sector has moved within a narrow range of 9–12% of GDP (Figure 6). Several factors—such as weak consumption, increased imports from China, slowdown in global trade, and reduced FDI inflows—have contributed to the sluggish private capex cycle (Raj & Gupta, 2025).

It is significant that the savings of the private (non-financial) corporate sector rose from around 3–4% of GDP in the early 2000s to 9.2% of GDP in 2007–2008. Higher investment strengthens private corporate sector profitability. This leads to higher retained earnings by the private corporate sector firms, which can then be reinvested for capacity expansion and business growth. Thus, about half of the increase in private corporate investment during the 2003–2008 capex cycle (an increase of 10.6% of GDP in investment and of 5.8% of GDP in savings) was financed by an increase in their own savings. The saving rate of the private corporate sector declined to 7.6% in 2008–2009, but rose to 11.1% in 2015–2016, before moderating to 8.6% in 2024–2025 (Figure 6).

Figure 6: Private Corporate Sector: Savings and Gross Fixed Capital Formation



Source: Ministry of Statistics and Programme Implementation (n.d.).

Note: GFCF = gross fixed capital formation; GDP = gross domestic product.

Private corporate investment increased sharply at an average annual rate of 40.7% during the 2003–2008 cycle. However, this was on a low base, as private corporate investment was 6.2% of GDP in 2002–2003. With private corporate investment at 9.8% of GDP in 2024–2025, a 40% growth rate would take the private corporate investment-GDP ratio to 25.9% in 2029–2030, which is not considered plausible. We have, therefore, considered more reasonable rates of private corporate investment growth across different scenarios.

Based on the analysis of private capex cycle during the 2003–2008, we have considered three scenarios up to 2030 as detailed in the following section.

Investment and Saving: Assumptions

S-I behaviour of the three sectors is dynamic in nature, as these sectors continue to strategically evolve based on the prevailing macroeconomic conditions. Thus, we analyse three scenarios that consider this dynamic relationship and assess the economy's overall ex-ante S-I gap and whether there would be a need for additional savings to finance climate action.

Ex-ante saving and investment refer to the planned levels based on expected income and consumption. Ex-post saving and investment, by contrast, are the actual realised levels once all economic outcomes are known. In an open economy, ex-post saving always equals investment through adjustments in interest rates, income, and/or external capital flows. The estimates in this study are based on projections and could be termed ex-ante and rest on assumptions about future S-I behaviour of households, the private corporate sector, and government. The actual ex-post economy-wide S-I gap may, therefore, differ from that estimated in this study.

Three scenarios of dynamic S-I behaviour of the three sectors, which we analyse, are differentiated mainly by the degree of revival of the private corporate investment cycle and the reduction in dissaving by the general government. Private corporate gross fixed capital formation (GFCF) has remained sluggish for the last several years. However, a recovery appears likely in the near term, driven by several recent policy measures introduced by the government. These measures aim to spur consumption through direct tax relief and the rationalisation of GST rates. Further supporting this outlook, India has also signed free trade agreements with the European Union and several other nations, strengthening the prospects for a near-term recovery. It is also suggested that government investment in infrastructure, coupled with the introduction of the production-linked incentive (PLI) scheme in emerging segments, is likely to crowd in private corporate investment (Joshi et al., 2024). If the private corporate sector investment cycle revives, it will raise the demand for investible funds. Table 11 outlines the assumptions for the revival of the private corporate capex cycle.

Table 11: Assumptions Underlying Projections of Private Corporate Sector Investment: 2025–2030

	Scenario 1	Scenario 2	Scenario 3
Non-Financial Private Corporate Sector Investment—GFCF	Moderate increase of 20% annually (half of the investment rate during 2003–2008)	Significant increase of 25% annually (62% of the investment rate during 2003–2008)	Sharp increase of 30% annually, (75% of the investment rate during 2003–2008) assuming that the investment rate peaks at 16.8% of GDP in 2029–2030, as was observed during the 2003–2008 cycle

Source: Authors' calculations.

Note: GDP = gross domestic product; GFCF = gross fixed capital formation.

Companies are able to plough back a large share of their profits into their businesses when the economy is doing well, which is expected when the private capex cycle picks up. Therefore, as during the 2003–2008 private capex cycle, it has been assumed that half of the increase in corporate investment would be financed by an increase in their own savings.

During the last robust capex cycle (2003–2008), the dissaving by the general government declined sharply by 5.4 percentage points of GDP (from 5.6% of GDP in 2002–2003 to 0.2% of GDP in 2007–2008) as alluded to before. This is because when the private corporate sector performs well, the overall growth rate also accelerates, and tax buoyancy and the tax–GDP ratio improve, enabling the government to reduce the revenue deficit. Therefore, as private corporate investment increases, it is expected that the general government will reduce its dissavings. Table 12 details the assumptions for private corporate and government sectors' savings under the three scenarios.

Table 12: Assumptions Underlying Projections of Savings—Private Corporate and Government Sectors

	Scenario 1	Scenario 2	Scenario 3
Government Sector—Revenue Deficit	Decreases from 2.0% of GDP in 2024–2025 to 0.8% of GDP in 2029–2030	Decreases from 2.0% of GDP in 2024–2025 to zero in 2029–2030	Same as in Scenario 2
Non-Financial Private Corporate Sector—Gross Savings	Corporate savings are assumed to increase by 1 percentage point of GDP between 2024–2025 and 2029–2030, which will finance 50% of the incremental GFCF during 2025–2030 (as indicated in Scenario 1 in Table 11)	Corporate savings are assumed to increase by 2.3 percentage points of GDP between 2024–2025 and 2029–2030, which will finance 50% of the incremental GFCF during 2025–2030 (as indicated in Scenario 2 in Table 11)	Corporate savings are assumed to increase by 3.5 percentage points of GDP between 2024–2025 and 2029–2030, which will finance 50% of the incremental GFCF during 2025–2030 (as indicated in Scenario 3 in Table 11)

Source: Authors' calculations.

Note: GDP = gross domestic product; GFCF = gross fixed capital formation.

Overall Saving–Investment Gap: Three Scenarios

Scenario 1: Private Corporate Sector—Moderate Revival of Capital Expenditure Cycle

In Scenario 1, it is assumed that the private capex will grow moderately at an annual average rate of 20%, as alluded to before. At this rate, the private corporate investment rate is expected to reach 11.7% of GDP in 2029–2030 (annual average investment rate of 10.8% of GDP during 2025–2030). How would this increased level of investment be financed? A formal exercise[10] indicated that private corporate savings in the BAU scenario will decline by 2030, reflecting the recent decline in corporate savings (from 11.1% of GDP in 2015–2016 to 8.6% of GDP in 2024–2025). This was found implausible, given the sharp increase in the saving rate of the corporate sector when the private capex cycle picked up during 2003–2008. Therefore, it has been assumed that the increase in private corporate investment would be partially financed by their own savings, as explained earlier.

[10] Private corporate sector savings and GFCF in the BAU scenario were estimated using the ARIMA model. However, the results showed a declining trend in both series.

Private corporate savings are also projected to rise from 8.6% of GDP in 2024–2025 to 9.6% of GDP by 2029–2030, with an annual average saving rate of 9.2% of GDP during 2025–2030. This would leave an ex-ante S-I gap of 1.6% of GDP, on average, during 2025–2030 (Table 13).

Table 13: Private Corporate Sector: Ex-Ante Saving–Investment Gap—Scenario 1

(% of GDP)

Year	Non-Financial Corporations Gross Savings	Non-Financial Corporations Gross Fixed Capital Formation	Saving–Investment Gap
(1)	**(2)**	**(3)**	**(4) = (2-3)**
2024–2025*	8.6	9.8	-1.2
2025–2026	8.8	10.8	-2.0
2026–2027	9.0	10.0	-1.0
2027–2028	9.2	10.5	-1.3
2028–2029	9.4	11.1	-1.7
2029–2030	9.6	11.7	-2.1
Average (2025–2030)	**9.2**	**10.8**	**-1.6**

Source: Authors' calculations.

*Note: * denotes actual.*

GDP = gross domestic product.

Table 14 presents the ex-ante S-I gap across all three sectors in Scenario 1. The ex-ante S-I gap of the private corporate sector during 2025–2030 over the 2024–2025 level is estimated to increase by 0.4 percentage points of GDP. However, household-sector savings are projected to increase by 1.3 percentage points of GDP during the same period, while general government dissaving is projected to decline by 0.7 percentage points of GDP. The revenue deficit of the general government in the BAU scenario on average is estimated at 1.3% of GDP during 2025–2030 compared with 2.0% of GDP in 2024–2025. Overall, economy-wide net domestic saving is estimated to exceed investment by 1.6 percentage points of GDP. Since climate finance requirements to be funded from domestic sources are estimated at 1.0% of GDP, overall saving is still estimated to exceed overall investment needs by 0.6 percentage points of GDP.

Table 14: Overall Ex-Ante Saving–Investment Gap—Scenario 1

(% of GDP)

Year	Decrease in Dissaving—General Government (BAU scenario)	Net Household Financial Savings in the BAU Scenario	Private Non-Financial Corporations Saving–Investment Gap	Overall Net Savings	Climate Finance Requirement	Saving–Investment Gap
(1)	**(2)**	**(3)**	**(4)**	**(5) = (2+3+4)**	**(6)**	**(7) = (5-6)**
A. 2024–2025	2.0	7.1	-1.2	-	-	-
B. Average (2025–2030)	1.3	8.4	-1.6	-	-	-
Change in Savings	**0.7**	**1.3**	**-0.4**	**1.6**	**1.0**	**0.6**

Source: Authors' calculations.

Note: BAU = business-as-usual; GDP = gross domestic product.

Scenario 2: Private Corporate Sector—Significant Revival of Capital Expenditure Cycle

In this scenario, it is assumed that the private capex will grow at an annual average rate of 25% to reach 14.3% of GDP by 2029–2030 (12.3% of GDP on an annual-average basis).

Assuming that half of the increase in investment will be funded by its own savings, private corporate savings are estimated to increase from 8.6% of GDP in 2024–2025 to 10.9% of GDP in 2029–2030, with an annual average saving rate of 10.0% of GDP during 2025–2030. This would result in an ex-ante investment–saving gap of 2.3% of GDP, on average (Table 15).

Table 15: Private Corporate Sector: Ex-Ante Saving–Investment Gap—Scenario 2

(% of GDP)

Year	Non-Financial Corporations Gross Savings	Non-Financial Corporations Gross Fixed Capital Formation	Saving–Investment Gap
(1)	**(2)**	**(3)**	**(4) = (2-3)**
2024–2025*	8.6	9.8	-1.2
2025–2026	9.1	11.3	-2.2
2026–2027	9.5	10.8	-1.3
2027–2028	10.0	11.9	-1.9
2028–2029	10.4	13.1	-2.7
2029–2030	10.9	14.3	-3.4
Average (2025–2030)	**10.0**	**12.3**	**-2.3**

Source: Authors' calculations.

*Note: * denotes actual.*

GDP = gross domestic product.

Table 16 summarises the ex-ante S-I gap across all three sectors in Scenario 2. The ex-ante investment–saving gap of the private corporate sector during 2025–2030 over the 2024–2025 level works out to 1.1 percentage points of GDP. The increase in household-sector savings during the same period is estimated at 1.3 percentage points of GDP, as in Scenario 1. General government dissaving is assumed to decline significantly by 1.1 percentage points of GDP during 2025–2030, with the general government revenue deficit falling to zero by 2029–2030. Overall, even after financing the significant increase in private corporate investment, net domestic saving is estimated to exceed investment by 1.3 percentage points of GDP. Thus, after meeting the climate finance requirement estimated at 1.0% of GDP, overall saving is still estimated to exceed investment needs by 0.3 percentage points of GDP.

Table 16: Overall Ex-Ante Saving–Investment Gap—Scenario 2

(% of GDP)

Year	Decrease in Dissaving—General Government (Accelerated Savings)	Net Household Financial Savings in the BAU Scenario	Private Non-Financial Corporations Saving–Investment Gap	Overall Net Savings	Climate Finance Requirement	Saving–Investment Gap
(1)	**(2)**	**(3)**	**(4)**	**(5) = (2+3+4)**	**(6)**	**(7) = (5-6)**
A. 2024–2025	2.0	7.1	-1.2	–	–	–
B. Average (2025–2030)	0.9	8.4	-2.3	–	–	–
Change in Savings	**1.1**	**1.3**	**-1.1**	**1.3**	**1.0**	**0.3**

Source: Authors' calculations.

Note: BAU = business-as-usual; GDP = gross domestic product.

However, if the general government's revenue deficit falls to a lower extent by 2029–2030, as measured in Scenario 1, the overall ex-ante S-I gap will be −0.1 percentage point of GDP after meeting the climate finance requirement (Table 17).

Table 17: Overall Ex-Ante Saving–Investment Gap—Significant Private Corporate Capital Expenditure Revival Scenario and Business-as-Usual Government Savings

(% of GDP)

Year	Decrease in Dissaving—General Government (BAU Scenario)	Net Household Financial Savings in the BAU Scenario	Private Non-Financial Corporations Saving–Investment Gap	Overall Net Savings	Climate Finance Requirement	Saving–Investment Gap
(1)	**(2)**	**(3)**	**(4)**	**(5) = (2+3+4)**	**(6)**	**(7) = (5-6)**
A. 2024–2025	2.0	7.1	-1.2	–	–	–
B. Average (2025–2030)	1.3	8.4	-2.3	–	–	–
Change in Savings	**0.7**	**1.3**	**-1.1**	**0.9**	**1.0**	**-0.1**

Source: Authors' calculations.

Note: BAU = business-as-usual; GDP = gross domestic product.

Scenario 3: Private Corporate Sector—Sharp Revival of Capital Expenditure Cycle

In this scenario, it is assumed that private capital expenditure will recover sharply from 9.8% of GDP in 2024–2025 to peak at 16.8% of GDP by 2029–2030, *i.e.*, the same peak level as in the last capex cycle of 2003–2008. In this case, private corporate investment will grow at an annual average growth rate of 30%. Though this appears unlikely, this scenario has been assumed to account for an extreme situation when the private corporate capex cycle picks up sharply.

Private corporate saving (assumed to finance half of the increase in private capex needs) is estimated to rise from 8.6% of GDP to 10.7% of GDP (annual average) during the same period, leaving an ex-ante investment–saving gap of 3.3% of GDP (Table 18).

Table 18: Private Corporate Sector: Ex-Ante Saving–Investment Gap—Scenario 3

(% of GDP)

Year	Private Non-Financial Corporations Gross Savings	Private Non-Financial Corporations Gross Fixed Capital Formation	Saving–Investment Gap
(1)	**(2)**	**(3)**	**(4) = (2-3)**
2024–2025*	8.6	9.8	-1.2
2025–2026	9.3	11.2	-1.9
2026–2027	10.0	12.6	-2.6
2027–2028	10.7	14.0	-3.3
2028–2029	11.4	15.4	-4.0
2029–2030	12.1	16.8	-4.7
Average (2025–2030)	**10.7**	**14.0**	**-3.3**

Source: Authors' calculations.

*Note: * denotes actual.*

GDP = gross domestic product.

Table 19 summarises the ex-ante S-I gap across all three sectors in Scenario 3. The ex-ante investment–saving gap of the private corporate sector during 2025–2030 over the 2024–2025 level is estimated to increase by 2.1 percentage points of GDP. Household-sector saving is estimated to increase by 1.3 percentage points of GDP during the same period, as in Scenarios 1 and 2. General government dissaving is projected to decline by 1.0 percentage point of GDP during 2025–2030, as in Scenario 2.

In Scenario 3, climate-related capex needs exceed net domestic savings by 0.7 percentage point of GDP (Table 19).

Table 19: Overall Ex-Ante Saving–Investment Gap—Scenario 3

(% of GDP)

Year	Decrease in Dissaving—General Government (Accelerated Savings)	Net Household Financial Savings in the BAU Scenario	Private Non-Financial Corporations Saving–Investment Gap	Overall Net Savings	Climate Finance Requirement	Saving–Investment Gap
(1)	**(2)**	**(3)**	**(4)**	**(5) = (2+3+4)**	**(6)**	**(7) = (5-6)**
A. 2024–2025	2.0	7.1	-1.2	–	–	–
B. Average (2025–2030)	0.9	8.4	-3.3	–	–	–
Change in Savings	**1.1**	**1.3**	**-2.1**	**0.3**	**1.0**	**-0.7**

Source: Authors' calculations.

Note: BAU = business-as-usual; GDP = gross domestic product.

To ensure that financing climate action does not crowd out private corporate investment, a corresponding rise in the net financial savings of the household sector may be needed. Achieving this would require policy interventions aimed at incentivising households to allocate more of their savings to financial assets.

Since deposits are estimated to be the largest contributor to the incremental savings needed to finance climate action, policy must focus on deepening banking penetration. Enhancing savings through a social security network, including life insurance, provident funds, and pension funds, would require increased awareness among gig workers and informal sector workers as the platform economy expands. The government has taken notable steps in covering a larger population under the social security net through (i) NPS Vatsalya in 2024 to build retirement savings for minors; (ii) NPS e-Shramik in 2025 to extend pension benefits to gig and platform workers; and (iii) Ayushman Bharat–Pradhan Mantri Jan Arogya Yojana in 2018 to provide poor and vulnerable families with healthcare coverage. However, the efficacy of these schemes will be determined by the extent of enrolment and sustained contributions over the years, underscoring the need for targeted outreach efforts among the poor and informal sector population.

Saving through small savings schemes—which have long served as the preferred instruments for risk-averse households—could be increased by improving real post-tax returns.

5. Catalysing Private Capital—Role of Innovative Financial Instruments

Estimating the climate finance requirements and finding possible avenues for raising resources are only part of the problem. Another bigger challenge is to ensure that resources flow smoothly for climate action. This is because green financing is a relatively new area, and it carries greater risks. Therefore, banks and private investors may be reluctant to finance such projects. As such, there is a need to de-risk climate-related projects so that private funds flow seamlessly.

Several green financing mechanisms have already been gaining traction in India, as detailed below.

(i) As of 2023–2024, cumulative green debt (including bonds and loans) in India was US$46.6 billion (Climate Bonds Initiative, 2025). Of this, US$28.6 billion was raised through green bonds and the remaining through loans. Most of the green bonds (82% of the total) were issued for funding low-carbon energy, followed by low-carbon transport (9%) and low-carbon buildings (3%). The private corporate sector, mainly RE developers, was the primary issuer of green bonds for funding climate-related projects. From 2017–2018 to 2024–2025, RE developers raised US$13 billion through green bond issuances (Council on Energy, Environment and Water, 2026).

(ii) In addition to raising funds from the capital markets, the private sector relies heavily on the banking system to finance RE projects. Scheduled commercial banks are mandated to extend credit to RE projects up to Rs 35 crore per borrower under the RBI's PSL scheme. As of 2024–2025, outstanding bank credit to RE under PSL was reported at Rs 10,325 crore (about US$1.2 billion).

(iii) Development finance institutions (DFIs) play an important role in bridging the green financing gap. As of end-March 2025, DFIs Indian Renewable Energy Development Agency [IREDA], the Power Finance Corporation [PFC], and the Small Industries Development Bank of India [SIDBI] held a combined loan book for green projects (including RE, energy efficiency, and green mobility) of Rs 1.7 trillion (about US$20 billion), 31% higher than that of end-March 2024, Rs 1.3 trillion (or US$15 billion).

(iv) In 2023, the RBI released a framework for the acceptance of green deposits by regulated entities to raise funds from depositors earmarked for lending to green activities/projects. As of March-end 2025, commercial banks raised Rs 1,857 crore in green deposits, of which Rs 1,815 crore was raised in 2024–2025.

(v) The Government of India and urban local bodies have also issued green bonds. The proceeds of sovereign green bonds (SGrBs) are directed towards nine green project categories, including RE, energy efficiency and clean transportation, among others. Between 2022–2023 and 2025–2026, the Government of India raised Rs 727 billion or US$9 billion (0.06% of GDP) through SGrBs (Government of India, 2026). In addition, municipalities raised funds for climate projects

through municipal green bonds. Since 1997, there have been 50 municipal green bond issuances in India, amounting to Rs 6,933 crore (approximately US$850 million)—Table 20. However, these issuances remain limited to a few states: Gujarat, Maharashtra, Tamil Nadu, Madhya Pradesh, Telangana, Karnataka, Uttar Pradesh, and Andhra Pradesh (Bibhudatta & Rathee, 2025).

Table 20: Climate Finance Flows—By Instrument

Instrument	Period	Amount (US$ billion)
Total Green Bonds	As of 2023–2024	28.6
Sovereign Green Bonds	Between 2022–2023 and 2025–2026	9
Municipal Green Bonds	As of 2024–2025	0.9
Green Bond Issuances by RE Developers	Between 2017–2018 and 2024–2025	13
Bank Credit Under Priority Sector Lending	As of 2024–2025	1.2
Loans From DFIs	As of 2024–2025	20
Green Deposits	As of 2024–2025	0.2

Source: Authors' compilation.

Note: The table is not exhaustive and reflects only a subset of climate finance flows from domestic sources.

RE = renewable energy; DFI = development finance institution.

Notwithstanding a significant improvement in raising resources for climate action as alluded to previously, there are still several critical gaps that need to be filled. Private investors naturally gravitate towards projects that have a proven track record of delivering lucrative returns. This creates a significant barrier to private sector participation in climate-mitigation projects. Coordinated efforts by financial institutions, policymakers, and regulators are needed to mobilise greater private capital for climate action.

First, policy certainty is extremely important for catalysing private capital because frequent policy changes can increase the perceived risk, drive up the cost of capital and also lead to other complications such as stalling or cancellation of a project. A unified, legally binding taxonomy aligned with global standards is crucial for India's climate finance ecosystem. It will reduce greenwashing risks, increase investor confidence, and prevent misallocation of funds. RBI and Securities and Exchange Board of India (SEBI) frameworks on taxonomy need to be integrated into this national taxonomy. The draft taxonomy framework, issued in May 2025, needs to be finalised and released expeditiously.

Second, blended finance instruments offer a solution to improve the risk–return profile of the projects for private investors. Blended finance refers to the strategic use

of public or philanthropic sources of capital to attract private investment (Grantham Research Institute on Climate Change and the Environment, 2022). Some of the blended finance instruments that can be used to mobilise private capital for climate action are as follows:

(i) **Grants and technical assistance (TA):** Grants are financial tools in the form of cash or consideration for which no repayment is required. Since transfers in the form of grants do not increase the debt liability of the recipient, they reduce the overall cost of financing the project. Additionally, grants aid in making projects financially viable by covering large upfront transaction costs and reducing the uncertainty around becoming operational. TA is typically a grant-like resource provided in the initial stages of projects to help make the project operational or investment-ready.

(ii) **Guarantee or first-loss capital**: A guaranteed mechanism provides third-party assurance that partial or full capital losses will be covered in the event of debt default by the borrower. Consequently, the assurance provider absorbs the initial losses in exchange for a fee charged below market rates. This mechanism acts as a risk buffer, making the project attractive to private investors.

(iii) **Concessional debt:** Government or philanthropic organisations provide capital at below-market interest rates to reduce the cost of financing the project. This is usually senior debt, as they need to be repaid on a priority basis.

(iv) **Results-based financing:** These are financing instruments that provide funding at a lower cost of borrowing if the desired impact outcomes are achieved. This tool is especially used in high-impact projects that do not generate lucrative financial returns.

In 2021–2022, the blended finance market in India was US$1,115 million, growing at a CAGR of 19% from 2009–2010 to 2021–2022 (Asha Impact Trust & Impact Investors Council, 2023). Of the total blended finance market of US$5.6 billion from 2009–2010 to 2021–2022, guarantees and insurance constituted 39%, followed by grants and TA (24%), subordinate and concessional debt (21%), and equity (12%). These blended finance instruments had a leverage ratio of 5.06 (an investment of US$1 billion in blended finance instruments can mobilise US$5.06 billion in private capital).

NBFCs led the blended finance transactions (51%), followed by banks and financial institutions (27%) (Asha Impact Trust & Impact Investors Council, 2023). DFIs and MDBs accounted for only 7% of the total transactions.

Third, although the green debt market is gaining traction in India, the green equity segment is still in its infancy. This is because while there is a robust green debt framework that provides investor confidence through clear standards of reliability, accountability, and transparency, there is no such framework for green equity. It is, therefore, important to also put in place a green equity framework.

Fourth, MDBs can play a critical role in catalysing private capital. They de-risk projects so that private investors, including pension funds, commercial banks, and sovereign wealth funds, are willing to commit capital at a lower cost and longer tenors. This catalytic role is a core part of the global climate finance architecture. However, MDBs have been facing constraints in providing capital on a scale expected of them. MDBs need to think of innovative ways to expand their balance sheets. This will augment their lending capacity and help them unlock more private capital for emerging-market economies (EMEs), including India.

Fifth, while MDBs play a crucial role globally, DFIs or national development banks can drive similar changes at a national level. The capital of national development banks, especially those focused exclusively on providing climate finance, needs to be augmented significantly. Public resources are limited. It is, therefore, important to ensure maximum impact from public-sector climate funding. The strengthening of DFIs such as IREDA is the way to go. With a multiplier effect of more than 7, IREDA can expand its lending capacity by more than seven times for every one rupee of additional capital. With strong balance sheets, DFIs can crowd in private capital and drive climate action.

Sixth, the RBI has allowed banks to lend up to Rs 35 crore to borrowers for installing renewable sources of power as part of their priority sector loan obligations. For an individual household, the loan limit is Rs 10 lakh. However, the scale of bank lending under PSL remains significantly lower than the sector's actual financing needs. Currently, only 0.1% of total priority sector lending by banks is flowing into RE. There is a need to significantly increase the flow of resources for climate change from the banking sector. The RBI needs to consider whether financing of renewables under the priority sector could be prescribed as some percentage of the priority-sector target.

Finally, modifying investment norms suitably for life insurers and pension funds to earmark a certain percentage of incremental investments for sustainable and green projects could be a major step forward for financing climate action. This would not only boost climate finance but also help these institutions diversify their portfolios and better manage climate-related risks. Insurance companies and provident and pension funds have long-term liabilities. Therefore, they are better suited for financing long-term climate-related projects than commercial banks.

To conclude, mobilising capital for climate action requires a systemic overhaul that leverages all tools. Boosting overall financial resources in the economy will ease the constraints on financing green projects. However, unlocking private capital for green projects will require a green taxonomy, stronger MDBs and DFIs, and the de-risking of investments.

6. Climate Finance Needs—Public Versus Private Sectors

Although we have made estimates of India's climate finance needs up to 2030 and conducted an assessment of resource mobilisation, it is also important to ascertain the level of climate finance relative to investment taking place in these sectors, as well as the relative shares of the public and private sectors.

Total GFCF in the four sectors—power, road transport, iron and steel, and cement—was US$50.9 billion or 1.4% of GDP in 2023–2024. Investment in the power sector was US$28.3 billion (including generation, transmission, and distribution), followed by iron and steel (US$10.7 billion), road transport (US$7.5 billion), and cement (US$4.4 billion)—Table 21.

Table 21: Total Domestic Investment—Select Sectors: 2023–2024

Sector	GFCF in 2023–2024	
	US$ billion	% of GDP
Power	28.3	0.8
Automobile/Road transport	7.5	0.2
Iron and Steel	10.7	0.3
Cement	4.4	0.1
Total	**50.9**	**1.4**

Source: CRISIL (2024, 2025a, 2025b) and Ministry of Statistics and Programme Implementation (n.d.).

Note: Converted INR to US$ using the 2023–2024 annual average exchange rate.

GFCF = gross fixed capital formation; GDP = gross domestic product.

India's climate finance requirements are large relative to investment taking place in the four sectors. On an annual-average basis, India's total climate finance requirement across the four sectors was estimated at 136% of GFCF of these sectors up to 2030 (Table 22).

Sector-wise, the picture is quite striking. The climate finance requirement in the steel and cement sectors, both hard-to-abate, on average, works out to 432% and 694%, respectively, of projected GFCF in these sectors up to 2030. That is, decarbonisation of these sectors requires four to seven times of projected investment in these sectors. This is mainly because of CCS technology, which is quite expensive to deploy. In contrast, road transport (43% of GFCF) and power (21% of GFCF) require much more manageable financing relative to their projected investment levels (Table 22).

Table 22: Climate Finance Requirements Relative to Gross Fixed Capital Formation

Year	GFCF					Climate Finance Requirement (% of GFCF)				
	Power	Road Transport	Steel	Cement	Total	Power	Road Transport	Steel	Cement	Total
	US$ billion					%				
2025–2026	47	8	11	4	69	13	13	428	695	119
2026–2027	45	8	11	4	68	16	20	429	755	126
2027–2028	44	8	12	4	67	20	32	431	715	134
2028–2029	42	8	12	4	66	25	54	433	677	144
2029–2030	41	8	12	5	65	35	94	436	642	159
Annual Average	**44**	**8**	**12**	**4**	**67**	**21**	**43**	**432**	**694**	**136**

Source: CRISIL (2025a, 2025b) and authors' calculations.

Note: Projections are based on the last 10-year CAGR.

CAGR = compound annual growth rate; GFCF = gross fixed capital formation.

Notably, power generation is split almost equally between the public and private sectors, whereas transmission and distribution remain predominantly under the public sector. In contrast, road transport, steel, and cement sectors are largely privately owned (Table 23).

Table 23: Power and Road Transport—Shares of Public and Private Sectors

Sector	Public Share	Private Share
Power	(%)	(%)
Generation (% of total installed capacity)	48	52
Transmission (% of total transmission lines—Achievement)	83	17
Distribution (% of total DISCOMs)	79	21
Road transport		
Passenger vehicles	—	100
Buses (% of total bus fleet)	6	94
Steel (% of total crude steel production)	16	84
Cement (% of total capacity)	2	98

Source: Central Electricity Authority (2026), Ministry of Power (2025), India Brand Equity Foundation (2025), Ministry of Steel (2026), and International Council on Clean Transportation (2025).

Note: DISCOM = distribution company.

Based on the large private sector presence in all four sectors, it is estimated that, of the total climate finance requirement, at least 85% will have to be contributed by the private sector and only 15% by the public sector (Table 24). It is significant to note that the share of the private sector is only expected to increase as private-sector participation in the power sector rises.

Table 24: Climate Finance Requirements—Public versus Private Sectors

Sector	Annual Climate Finance Requirements to be Met by		
	Public Sector (US$ billion)	Private Sector (US$ billion)	Total (US$ billion)
Power	4.5	4.9	9.4
Road Transport	0.1	3.1	3.2
Steel	8.0	42.2	50.2
Cement	0.6	27.6	28.2
Total	**13.2 (15)**	**77.8 (85)**	**91.0**

Source: Authors' calculations.

Note: Figures in parentheses represent the percentage share of the total annual climate finance requirement.

Beyond domestic resources, FDI in the power and automobile sectors is also likely to play a key role. In the last five years (2020–2025), the automobile sector attracted the largest annual-average FDI inflows of US$2.7 billion, followed by power (US$0.9 billion), and cement and gypsum products (US$0.5 billion)—Table 25.

Table 25: Foreign Direct Investment—Select Sectors 2020–2025

Year	Power (US$ billion)	Automobile (US$ billion)	Cement and Gypsum Products (US$ billion)
2020–2021	0.4	1.6	0.01
2021–2022	0.5	7.0	0.2
2022–2023	0.7	1.9	0.01
2023–2024	1.7	1.5	0.6
2024–2025	1.4	1.6	1.8
Average (2020–2025)	**0.9**	**2.7**	**0.5**

Source: Department for Promotion of Industry and Internal Trade (2025).

Note: FDI data for the steel sector are not available.

Table 26 depicts the FDI inflows in the three sectors, viz., power, automobile, and cement, projected up to 2029–2030.[11] Our estimates suggest that the automobile sector is likely to attract the highest FDI inflows of US$1.8 billion, followed by the power sector (US$0.9 billion), and cement and gypsum products (US$0.1 billion). While FDI inflows in the auto sector are substantial relative to the climate finance needed, those for the power and cement sectors are estimated to be relatively small.

Table 26: Foreign Direct Investment Investment—Select for Select Sectors 2025–2030

Year	Power (US$ billion)	Automobile (US$ billion)	Cement and Gypsum Products (US$ billion)
2025–2026	1.4	1.9	0.1
2026–2027	0.7	1.8	0.1
2027–2028	0.7	1.8	0.1
2028–2029	0.6	1.8	0.1
2029–2030	1.0	1.8	0.1
Average FDI (2025–2030)	**0.9**	**1.8**	**0.1**
Annual Average Climate Finance Requirement (2025–2030)	**9**	**3**	**28**

Source: Authors' calculations.

Note: FDI = foreign direct investment.

7. Conclusion

Financing climate action has become imperative for India to achieve the various targets set under the NDC. Various estimates place India's annual climate finance requirement in the range of US$160 billion to US$288 billion. However, a study by Raj and Mohan (2025) estimated that decarbonising the largest carbon-emitting sectors in India—power, road transport, steel, and cement, which collectively constitute 67% of national emissions—would require much lower climate finance of US$54 billion annually between 2022 and 2030 (1.3% of GDP). The updated climate finance estimates for 2025–2030 work out to US$91 billion annually or 1.5% of GDP. While there have been several studies estimating the magnitude of India's climate finance needs, hardly any study has examined whether these needs can be met from financial resources in the BAU scenario or whether additional resources will need to be raised for climate action. This study fills this gap by estimating the S-I gap in a macro-consistent framework.

[11] FDI inflows in the power, automobile, and cement and gypsum products sectors are projected using the ARIMA forecasting method based on the last 20 years of data.

Several key findings emerge from the study. India could expand its CAD up to 2.5% of GDP to increase its absorptive capacity from external sources without impinging on debt sustainability. In the BAU scenario, the annual average CAD up to 2029–2030 is estimated at 2.0% of GDP. That is, the expansion in the CAD would help absorb additional external climate finance flows up to 0.5% of GDP. It is estimated that MDBs can meet the climate finance requirement of 0.2% of GDP up to 2029–2030, suggesting that the country would have room to absorb an additional 0.3% of GDP of climate finance from other external sources such as the international capital market and/or bilateral deals with developed nations.

Of the estimated climate finance requirement of 1.5% of GDP, the remaining 1.0% of GDP (after adjusting for 0.5% of GDP from external sources), representing 67% of the climate finance requirement, would need to be met from domestic sources.

One straightforward option to finance climate action from domestic sources is to raise the economy's saving rate, reducing the risk of crowding out of other sectors. If the climate finance requirement is fully funded by stepping up the saving rate of the household sector, the additional savings of 1.0% of GDP would need to be channelled into climate-related projects through government securities (0.36% of GDP), equity and bonds (0.34% of GDP), and bank credit (0.29% of GDP, of which 0.11% of GDP is estimated to come from priority sector lending).

In practice, however, S-I behaviour is dynamic: households, the private corporate sector, and the government continuously adjust their S-I decisions in response to changing economic conditions. While the study examines instruments through which a higher saving rate could help fund climate action, its primary focus is on estimating the economy-wide ex-ante S-I gap, including for climate finance. For this, the study considered three scenarios, distinguished mainly by the degree of revival of private corporate investment.

In Scenario 1, it is assumed that the private capex cycle will pick up moderately by 20% annually (which is almost 50% of the capex growth observed during 2003–2008). Private corporate investment during 2025–2030 on average is expected to increase by 1.0 percentage point of GDP over the level in 2024–2025. Private corporate sector savings are also estimated to increase during the same period by 0.6 percentage point of GDP. This will lead to an increase in the ex-ante S-I gap of 0.4 percentage point of GDP of the private corporate sector during 2025–2030 over the 2024–2025 level. However, during the same period, net financial savings of the household sector are estimated to increase by 1.3 percentage points of GDP during 2025–2030 relative to 2024–2025, and dissaving of the general government is expected to decline by 0.7 percentage points of GDP. At the economy level, overall savings would exceed the investment requirement by 1.6% of GDP. As such, the climate finance requirement of 1.0% of GDP can be easily met in this scenario.

In Scenario 2, it is assumed that the private corporate sector's investment cycle will pick up significantly, growing by 25% during 2025–2030, which is about 62% of the

growth in private capex observed during 2003–2008. At this rate, average private corporate investment during 2025–2030 is expected to rise by 2.5 percentage points of GDP over the 2024–2025 level, while its saving is expected to increase by 1.4 percentage points of GDP, thus resulting in an ex-ante investment–saving gap of 1.1% of GDP. In this scenario, dissaving of the general government is expected to decline significantly by 1.1 percentage points over the 2024–2025 level. Household sector saving is estimated to increase by 1.3 percentage points of GDP, as assumed in Scenario 1. Thus, at the economy level, saving will exceed investment by 1.3% of GDP. Given that the climate finance requirement is 1.0% of GDP, there will still be an overall saving surplus of 0.3% of GDP.

In Scenario 3, it is assumed that private corporate investment will pick up sharply from 9.8% of GDP in 2024–25 to 16.8% of GDP by 2029–2030, which was the peak level of private corporate investment in 2007–2008. Private corporate investment is assumed to grow by 30%, which is 75% of the capex growth witnessed during the cycle of 2003–2008. On an average basis during 2025–2030, while investment of the private corporate sector is estimated to increase by 4.2 percentage points of GDP over the 2024–2025 level, its saving is estimated to increase by 2.1 percentage points of GDP, resulting in an ex-ante S-I gap of 2.1% of GDP. However, net financial saving by the household sector is estimated to rise by 1.3 percentage points of GDP and dissaving by the general government is estimated to reduce by 1.1 percentage points of GDP during the same period. Thus, at the economy level, savings would exceed investment needs by 0.3% of GDP. However, as the climate finance requirement is 1.0% of GDP, net domestic saving will fall short of climate finance needs by 0.7% of GDP. Thus, in the case of a sharp revival of private capex, the domestic saving rate will have to be stepped up, in the absence of which there is a risk of crowding out of other sectors of the economy.

The three scenarios have been built keeping in view mainly the different degrees of revival of the private capex cycle, in addition to the reduction in dissaving of the government sector and an increase in net financial savings of the household sector. However, it is difficult to gauge how the situation is likely to evolve. A key point to be noted is that climate-related requirements will be financed like any other investment, depending on the risk–return perception of investors. However, if there is a negative S-I gap in the economy with investment exceeding saving, then some sectors of the economy will be crowded out. Thus, in case there is a sharp revival of private corporate investment, there would be a need to incentivise households to increase their savings for financing investment needs.

Even as funds are available, there would be a need to de-risk private capital for financing climate action due to risks associated with such investment. Since private sector actors are the dominant players across all four sectors, it is estimated that 85% of total climate finance requirements will need to be met by the private sector and the remaining 15% by the public sector.

References

Arif, A. (2024). *Climate finance in India: Bridging the gap in international efforts for equitable allocation* [Discussion Paper]. Social Policy Research Foundation. https://sprf.in/wp-content/uploads/2024/12/Climate-Finance_edited.pdf

Asha Impact Trust & Impact Investors Council. (2023). *The blended finance India narrative: A decade of blended finance in India and what lies ahead*. https://iiic.in/wp-content/uploads/2023/05/The%20India%20Blended%20Finance%20Narrative%20Report.pdf

Bhattacharya, A., Songwe, V., Soubeyran, E., & Stern, N. (2024). *Raising ambition and accelerating delivery of climate finance*. Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science. https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2024/11/Raising-ambition-and-accelerating-delivery-of-climate-finance_Third-IHLEG-report.pdf

Bibhudatta, A., & Rathee, D. (2025). *Unlocking green finance for India's urban local bodies through municipal green bonds*. Council on Energy, Environment and Water – Green Finance Centre. https://www.ceew.in/gfc/publications/municipal_green_bonds_in_india

Council on Energy, Environment and Water. (2026). *CEEW-GFC market handbook*. Green Finance Centre. https://www.ceew.in/gfc/markets_and_trends/market-handbook/q2-2025-26

Central Electricity Authority. (2026). *Installed capacity report*. Ministry of Power, Government of India. https://cea.nic.in/installed-capacity-report/?lang=en

Chartered Financial Analyst (CFA) Institute. (2025). *India's equity revolution: How domestic investors are reshaping markets*. https://www.cfainstitute.org/insights/articles/india-stock-market-revolution-domestic-investors

Chakravarty, M., Pal, M., Kaur, J., Samal, A., Sikka, A., & Sen, V. (2024). *Landscape of green finance in India 2024*. Climate Policy Initiative. https://www.climatepolicyinitiative.org/publication/landscape-of-green-finance-in-india-2024/

Climate Bonds Initiative. (2025). *India sustainable debt: State of the market 2024*. https://www.climatebonds.net/files/documents/publications/Climate-Bonds_India_Sustainable_Debt_SotM_2024_Jun-2025.pdf

CRISIL. (2024). *Trends in household savings and debt after the pandemic*. https://www.crisil.com/content/dam/crisil/our-analysis/views-and-commentaries/quickonomics/2024/05/trends-in-household-savings-and-debt-after-the-pandemic.pdf

CRISIL. (2025a). Market Review of Indian Cement Sector: For JSW Cement. https://www.jswcement.in/pdf/offer-documents/CRISIL_Industry_Report_Final-Signed.pdf

CRISIL. (2025b). CRISIL Infrastructure Yearbook 2025. https://www.crisil.com/content/dam/crisilcom2-0/our-analysis/reports/crisil-intelligence/2025/01/crisil-infrastructure-yearbook-2025.pdf

European Commission. (2025). *GHG emissions of all world countries*. Emissions Database for Global Atmospheric Research. https://edgar.jrc.ec.europa.eu/report_2025?vis=co2tot#emissions_table

Fiscal Responsibility and Budget Management Review Committee. (2017). *Responsible growth: A debt and fiscal framework for 21st century India*. Department of Economic Affairs, Ministry of Finance. https://dea.gov.in/files/budget_division_documents/Volume_1_FRBM_Review_Committee_Report.pdf

Government of India. (2022). *Year-end review-2022, Ministry of Steel*. Press Information Bureau. https://www.pib.gov.in/PressReleasePage.aspx?PRID=1886625

Government of India. (2024a). *India fourth biennial update report to the United Nations Framework Convention on Climate Change*. United Nations Framework Convention on Climate Change. https://unfccc.int/sites/default/files/resource/India%20BUR-4.pdf

Government of India. (2024b). *Economic survey 2023-24*. Department of Economic Affairs, Ministry of Finance. https://www.indiabudget.gov.in/budget2024-25/economicsurvey/doc/echapter.pdf

Government of India. (2025). *Publications – FDI statistics*. Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry. https://www.dpiit.gov.in/documents/publications/foreign-direct-investment-in-india-annual-issue-2025-zYjM4ETMtQWa?pageTitle=FOREIGN-DIRECT-INVESTMENT-IN-INDIA-ANNUAL-ISSUE-2025

Government of India. (2026). *Economic survey 2025–26*. Department of Economic Affairs, Ministry of Finance. https://www.indiabudget.gov.in/economicsurvey/doc/echapter.pdf

Goyal, R. (2012). *Sustainable level of India's current account deficit* (RBI Working Paper Series 16/2012). Reserve Bank of India. https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/WPSSLI070812.PDF

Grantham Research Institute on Climate Change and the Environment. (2022). *How can 'blended finance' help fund climate action and development goals?* The London School of Economics and Political Science. https://www.lse.ac.uk/granthaminstitute/explainers/how-can-blended-finance-help-fund-climate-action-and-development-goals/

Green Climate Fund. (2025). *Republic of India: Projects and programmes*. https://www.greenclimate.fund/countries/india

India Brand Equity Foundation. (2024). *Rise of retail investors and domestic funds in India*. https://www.ibef.org/blogs/rise-of-retail-investors-and-domestic-funds-in-india.

India Brand Equity Foundation. (2025). *India's cement industry outlook 2025. https://www.scribd.com/document/867233758/1744101698-Cement-February-2025*

Insurance Regulatory and Development Authority. (2025). *IRDA regulation for investment*. https://www.sma.net.in/Archives/IRDA/Rules/ins_reg_investment.htm#3.%20Regulation%20of%20Investments

International Council on Clean Transportation. (2025). *Electrifying India's buses: Insights from public deployment and case studies of private intercity operators.* https://theicct.org/wp-content/uploads/2025/08/ID-431-%E2%80%93-India-intercity-buses_ZEBRA_final.pdf

International Energy Agency. (2022, January 10). *India's clean energy transition is rapidly underway, benefiting the entire world – Analysis*. https://iea.org/commentaries/india-s-clean-energy-transition-is-rapidly-underway-benefiting-the-entire-world

International Monetary Fund. (2001). *Assessing India's external position*. https://www.elibrary.imf.org/display/book/9781557759924/ch003.xml

International Monetary Fund. (2013). *India – 2013 Article IV consultation* (IMF Country Report No. 13/37). https://www.imf.org/external/pubs/ft/scr/2013/cr1337.pdf

International Monetary Fund. (2025). *World Economic Outlook-IMF Data Mapper. https://www.imf.org/external/datamapper/NGDPD@WEO/IND*

International Monetary Fund. (2026). *World Economic Outlook Update: Global Economy in Crosscurrents of War and Technology.* https://www.imf.org/-/media/files/publications/weo/2026/update/july/english/text.pdf

Joshi, D., Luchnikava-Schorsch, H., Lima, P., & Rana, V. (2024). *India's growing role in the global economy.* S&P Global. https://www.spglobal.com/content/dam/spglobal/global-assets/en/special-reports/india-forward/0924_IndiaForwardVolume1.pdf

McCollum, D. L., Zhou, W., Bertram, C., De Boer, H., Bosetti, V., Busch, S., Després, J., Drouet, L., Emmerling, J., Fay, M., Fricko, O., Fujimori, S., Gidden, M., Harmsen, M., Huppmann, D., Iyer, G., Krey, V., Kriegler, E., Nicolas, C., & Riahi, K. (2018). Energy investment needs for fulfilling the Paris Agreement and achieving the Sustainable Development Goals. *Nature Energy, 3*(7), 589–599. https://doi.org/10.1038/s41560-018-0179-z

Ministry of Environment, Forest and Climate Change. (2015). *India's intended nationally determined contribution is balanced and comprehensive: Environment Minister*. https://www.pib.gov.in/newsite/PrintRelease.aspx?relid=128403&reg=3&lang=2

Ministry of Finance. (2025). *Report of Sixteenth Finance Commission (Volume I).* https://fincomindia.nic.in/asset/doc/commission-reports/16th-FC/reports/Vol1-Main-Report.pdf

Ministry of Labour and Employment. (2015). *The Gazette of India, Notification No. 836*. https://labour.gov.in/sites/default/files/23.04.2015_epfo_investment_pattern_23rd_april_2015.pdf

Ministry of Power. (2025). *13th Annual integrated rating & ranking: Power distribution utilities.* https://www.pfcindia.co.in/DocumentRepository/ckfinder/files/GOI_INITIATIVE/Annual_Integrated_Ratings_of_State_DISCOMs/13th_IR_Report_Final_9_Jul_2025.pdf?utm_source=chatgpt.com

Ministry of Steel. (2026). *Annual report 2025-26. https://steel.gov.in/sites/default/files/2026-04/Final%20Annual%20Report%202025-26%20%28English%20Version%29.pdf*

Ministry of Statistics and Programme Implementation (n.d.). *e-Sankhyiki Portal.* https://esankhyiki.mospi.gov.in/

Mohan, R. (2006). Monetary policy and exchange rate frameworks: The Indian experience. *Reserve Bank of India Bulletin, June*. https://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/70695.pdf

Mohan, R. (2008). Growth record of the Indian economy, 1950-2008: A story of sustained savings and investment. *Economic and Political Weekly*, 61-71. https://www.epw.in/journal/2008/19/special-articles/growth-record-indian-economy-1950-2008-story-sustained-savings-and

Pension Fund Regulatory and Development Authority. (2023). *Master circular on investment guidelines for NPS/APY schemes – Central Government, State Government, Corporate CG, NPS Lite, Atal Pension Yojana and APY Fund Scheme*. https://www.pfrda.org.in/web/pfrda/w/master-circular-on-investment-guidelines-for-nps/apy-schemes-central-government-state-government-corporate-cg-nps-lite-atal-pension-yojana-and-apy-fund-scheme

Press Information Bureau. (2025). *Building the workforce: India adds~17 crore jobs in 6 years*. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2174773&reg=3&lang=2

Raj, J. (2024). The worrying trend in household savings. *Business Standard.* https://www.business-standard.com/opinion/columns/the-worrying-trend-in-household-savings-124072401399_1.html

Raj, J., & Gupta, A. (2025, October 27). Time to revive the animal spirits as private investment stays weak. *Business Standard*. https://www.business-standard.com/opinion/columns/time-to-revive-the-animal-spirits-as-private-investment-stays-weak-125102701363_1.html

Raj, J., & Mohan, R. (2025). *India's climate finance requirements: An assessment* (CSEP Working Paper 102). Centre for Social and Economic Progress. https://csep.org/wp-content/uploads/2025/08/Indias-Climate-Finance-Requirements-An-Assessment-1.pdf

Raj, J., Pattanaik, S., & Bhattacharya, I. (2018). *Forex market operations and liquidity management*. Reserve Bank of India. https://m.rbi.org.in/Scripts/BS_ViewBulletin.aspx?Id=17703

Ramakrishnan, R., Raghavender, R., & Gopakumar, U. (2020). Analysis of the sustainability of India's current account deficit. *Journal of International Economics, 11*(2). https://www.proquest.com/openview/d50cc283522a4c239e4dfb445222d1cf/1

Reserve Bank of India. (n.d.). *Handbook of statistics on Indian economy*. https://rbi.org.in/Scripts/AnnualPublications.aspx?head=Handbook%20of%20Statistics%20on%20Indian%20Economy

Reserve Bank of India (1997). *Report of the committee on fuller capital account convertibility*. https://the1991project.com/sites/default/files/2024-12/1997%20Tarapore%20Committee%20Report.pdf

Reserve Bank of India (2006). *Report of the committee on fuller capital account convertibility*. https://the1991project.com/sites/default/files/2023-07/2006%20Tarapore%20Committee%202%20Report.pdf

Singh, V. P., & Sidhu, G. (2021). *Investment sizing India's 2070 net-zero target*. Council on Energy Environment and Water. https://www.ceew.in/gfc/solutions-factory/publications/CEEW-CEF-Investment-Sizing-India%E2%80%99s-2070-Net-Zero-Target.pdf

Sinha, J., Jain, S., & Padmanabhi, R. (2020). *Landscape of green finance in India.* Climate Policy Initiative. https://www.climatepolicyinitiative.org/wp-content/uploads/2020/09/Landscape-of-Green-Finance-in-India-1-2.pdf

Srinivasan, M., Ghoge, K., Haldar, S., Bazaz, A., & Revi, A. (2023). *Climate finance in India 2023*. Indian Institute for Human Settlements Communications and Design & Indian Institute for Human Settlements Word Lab. https://iihs.co.in/knowledge-gateway/wp-content/uploads/2023/11/20231128_Climate-Finance-in-India2023.pdf

Appendices

Appendix 1: Financial Instruments for Mobilising Incremental Savings for Climate Action—Enhanced Saving Rate Scenario *(Rs crore)*

Year	Government Securities				Bank Credit		Equity and Bonds		
	Bank and Non-Bank Deposits	Life Insurance Funds	Provident and Pension Funds	Claims on Government	PSL	Excluding RE Credit under PSL	Shares and Debentures	Life Insurance Funds	Provident and Pension Funds
2025–2026	17,600	28,662	38,844	18,429	30,898	51,163	41,457	19,510	27,841
2026–2027	25,599	41,895	56,450	22,840	44,941	74,147	63,883	28,766	40,675
2027–2028	32,313	52,467	71,266	28,897	56,727	92,626	81,871	40,837	52,143
2028–2029	40,377	66,241	89,341	36,198	70,884	1,15,403	1,01,820	52,317	65,671
2029–2030	50,129	82,967	1,11,301	44,979	88,004	1,42,676	1,24,650	59,153	82,335
Average (2025–2030)	**33,204**	**54,446**	**73,440**	**30,268**	**58,291**	**95,203**	**82,736**	**40,117**	**53,733**
Category Total	**1,91,359**				**1,53,494**		**1,76,586**		

Source: Authors' calculations.
Note: PSL = priority sector lending; RE = renewable energy.

Appendix 2: Gross Domestic Product—Projections

Year	Gross Domestic Product (US$ billion)
2027	4,959
2028	5,462
2029	6,016
2030	6,628

Source: International Monetary Fund (2025).

Appendix 3: Key Macroeconomic Indicators—Projections Under the Business-as-Usual Scenario

	Year	CAB		Capital Inflows		External Financial Flows		Expansion in Monetary Base	
		(US$ billion)	(% of GDP)	(US$ billion)	(% of GDP)	(US$ billion)	(% of GDP)	(US$ billion)	(% of GDP)
Actuals	2016–2017	–38	–1.4	77	2.9	10	0.4		
	2017–2018	–66	–2.4	60	2.2	55	2.0	80	2.9
	2018–2019	–30	–1.0	87	3.1	–12	–0.4	51	1.8
	2019–2020	33	1.2	71	2.6	65	2.4	34	1.3
	2020–2021	–33	–1.1	100	3.2	99	3.1	78	2.4
	2021–2022	–39	–1.2	51	1.5	30	0.9	62	1.8
	2022–2023	–67	–1.8	71	1.9	–29	–0.8	39	1.1
	2023–2024	–26	–0.7	48	1.2	68	1.7	29	0.8
	2024–2025	–23	–0.6	22	0.5	22	0.5	23	0.6
Projections	2025–2026	–32	–0.7	93	2.1	62	1.4	58	1.3
	2026–2027	–55	–1.1	128	2.6	73	1.5	62	1.2
	2027–2028	–115	–2.1	196	3.6	81	1.5	66	1.2
	2028–2029	–180	–3.0	270	4.5	90	1.5	71	1.2
	2029–2030	–199	–3.0	298	4.5	99	1.5	76	1.1
Average of Projections (2025–2030)		–116	–2.0	197	3.4	81	1.5	67	1.2
Total of Projections (2025–2030)						405	1.5	333	1.2

Source: Reserve Bank of India (n.d.), World Economic Outlook (n.d.), International Monetary Fund (n.d.), World Bank Statistics (n.d.), and authors' calculations.

Note: Figures of monetary base in rupees were converted into US$ assuming that the local currency (rupee) depreciates by 3% every year.

CAB = current account balance; GDP = gross domestic product.

About the authors



Janak Raj is a Senior Fellow and leads the macroeconomic segment in the Growth, Finance and Development vertical at the Centre for Social and Economic Progress (CSEP). He specialises in climate-related issues, with a strong focus on climate finance, the reforms of multilateral development banks (MDBs) and the International Monetary Fund (IMF) to advance the climate finance agenda and the macroeconomic impact of climate change. In addition to his primary role at CSEP, he currently serves on the Board of Clearing Corporation of India Ltd. (CCIL) as an Independent Director. He is also a member of the Global Advisory Board of the Centre for Economic Transition Expertise (CETEx) hosted by the London School of Economics and Political Science, London and the Advisory Board of JM Financial Centre for Financial Research of Indian Institute of Management (IIM), Udaipur.



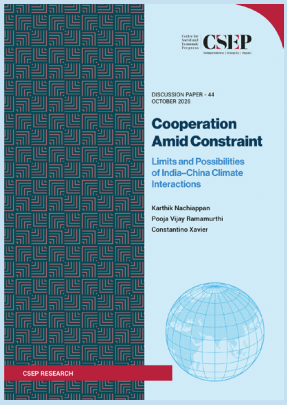
Dr Rakesh Mohan is President Emeritus and Distinguished Fellow at the Centre for Social and Economic Progress (CSEP).

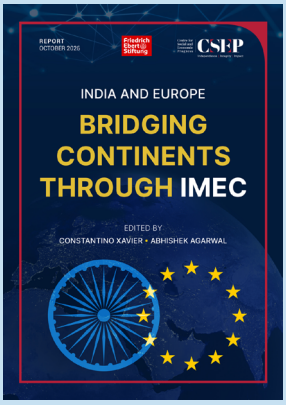
He served as President and Distinguished Fellow at CSEP from October 2020 to May 2023. Since October 2021, he has been a member of the Prime Minister's Economic Advisory Council (EAC-PM), and in March 2024, he was appointed to the World Bank Group's Economic Advisory Panel.

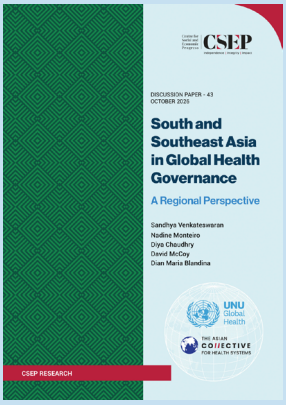


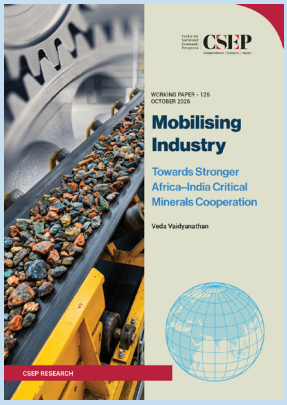
Priti Dubey is a Former Research Associate at CSEP. Her work focused on climate finance, economic frameworks, and leveraging econometric tools for research. She specialises in market research on financial instruments, transition finance frameworks, renewable energy financing, and policies that aid in low-carbon transition of the Indian economy including domestic carbon market and Article 6 of the Paris Agreement. She holds a PhD in Finance from Faculty of Management Studies, University of Delhi, and has authored five research papers in peer-reviewed ABDC journals.

Other publications



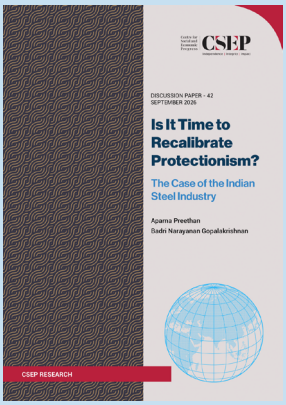


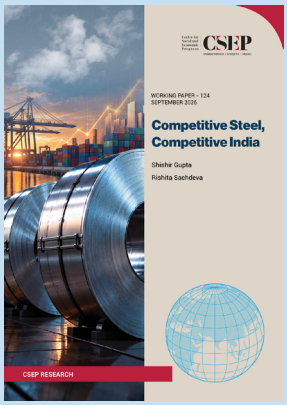


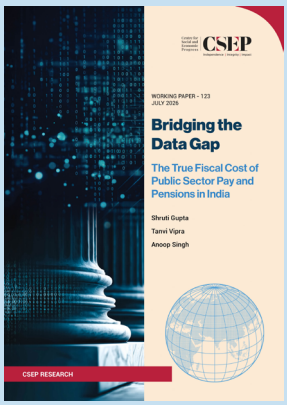


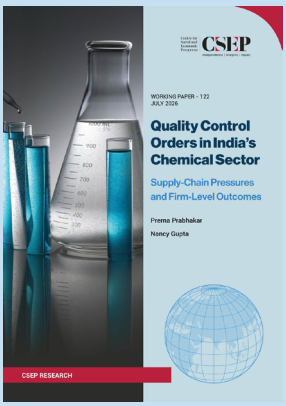




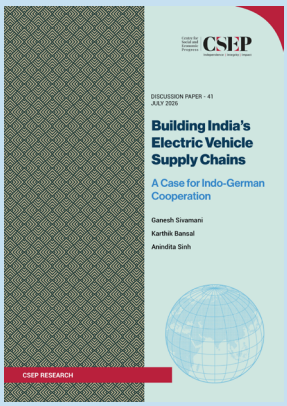


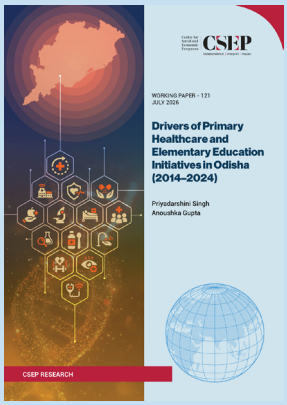






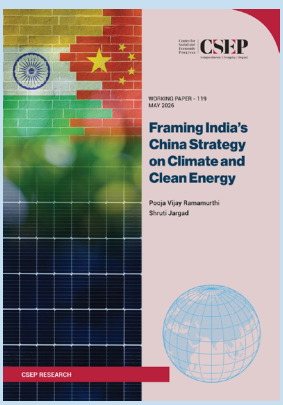












All CSEP publications are available at www.csep.org

Independence | Integrity | Impact

Centre for Social and Economic Progress

6, Dr Jose P. Rizal Marg, Chanakyapuri, New Delhi- 110021, India

Centre for Social and Economic Progress

@CSEP_Org

www.csep.org