



Sovereign Green Bonds Allocation Report 2022-23

**Infrastructure Finance Secretariat
Department of Economic Affairs, Ministry of Finance
Government of India**

ABBREVIATIONS

GFWC	Green Finance Working Committee
CICERO	Center for International Climate Research
ESG	Environmental, Social, and Governance
GHG	Green House Gas
GOBARdhan	Galvanizing Organic Bio-Agro Resources Dhan
ICMA	The International Capital Market Association
MISHTI	Mangrove Initiative for Shoreline Habitats & Tangible Incomes
NDCs	Nationally Determined Contributions
RBI	Reserve Bank of India
RRTS	Regional Rapid Transit System
SDG	Sustainable Developmental Goal
SGrB	Sovereign Green Bonds
UNFCCC	United Nations Framework Convention on Climate Change
CPI	Climate Change Performance Index
GDP	Gross Domestic Product
LIFE	Lifestyle for Environment
ISA	International Solar Alliance
CDRI	Coalition for Disaster Resilient Infrastructure
LeadIT	Leadership Group for Industry Transition
IRIS	Infrastructure for Resilient Island States
GGI-OSOWOG	Green Grids Initiative-One Sun One World One Grid
NAPCC	National Action Plan on Climate Change

PAT	Perform Achieve and Trade
GEC	Green Energy Corridor
PLI	Production-Linked-Incentive
ACC	Advanced Chemistry Cell
FAME	Faster Adoption and Manufacturing of Electric Vehicles
SLNP	Street Lighting National Programme
PM-KUSUM	Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan
UJALA	Unnat Jyoti by Affordable LEDs for All
PMUY	Pradhan Mantri Ujjwala Yojana
IREDA	Indian Renewable Energy Development Agency
CCTS	Carbon Credit Trading Scheme
SEBI	Securities and Exchange Board of India
PSL	Priority Sector Lending
CNG	Compressed Natural Gas
SLR	Statutory Liquidity Ratio
LCCR	Low-Carbon Climate Resilient
DMRC	Delhi Metro Rail Corporation
JICA	Japan International Cooperation Agency
GIM	Green India Mission
CAMPA	Compensatory Afforestation Fund Management and Planning Authority
₹	Indian Rupees

Executive Summary

The Government of India has taken a number of measures to combat climate change, along with growth and development aspirations, to create a climate-resilient and inclusive society. In this context, the Government of India recognizes the socio-economic imperatives of climate and environmental action and the crucial role that capital markets can play in financing public and private investments in creating sustainable and resilient infrastructure. The Union Budget 2022-23 announced that the Sovereign Green Bonds will be issued for mobilizing resources for green infrastructure. The proceeds from the issue were to be deployed in public sector projects that help reduce the intensity of the economy's emissions. The issue of sovereign green bonds was an important step towards deepening the green bonds market.

The Government of India, through auctions conducted by the Reserve Bank of India, issued Sovereign Green Bonds worth ₹16,000 crore (~US \$2 billion) during January and February 2023 in two tranches of ₹8,000 crores each. Each tranche comprised bonds worth ₹4,000 crores with maturity

periods of 5-years and 10-years each.

An annual report on the allocation of proceeds from the issue of the SGrBs to the eligible projects, along with a description of projects financed, the status of implementation, and unallocated proceeds (if any), is to be brought out under the supervision of the Green Finance Working Committee (GFWC). This is the first allocation report since the publication of the sovereign green bond framework and the issue of SGrBs in 2023, and it corresponds to the financial year 2022-23. This Report also contains a few case studies on projects financed during the financial year 2022-23 to discuss the potential environmental impacts and social co-benefits of schemes/projects. The first impact report will be published in FY 2024-25. As stated in the Framework, the impact report would include the expected quantitative climate, environmental and social indicators to the extent possible, indicating a reduction in carbon intensity, other environmental benefits and, where possible, social co-benefits.

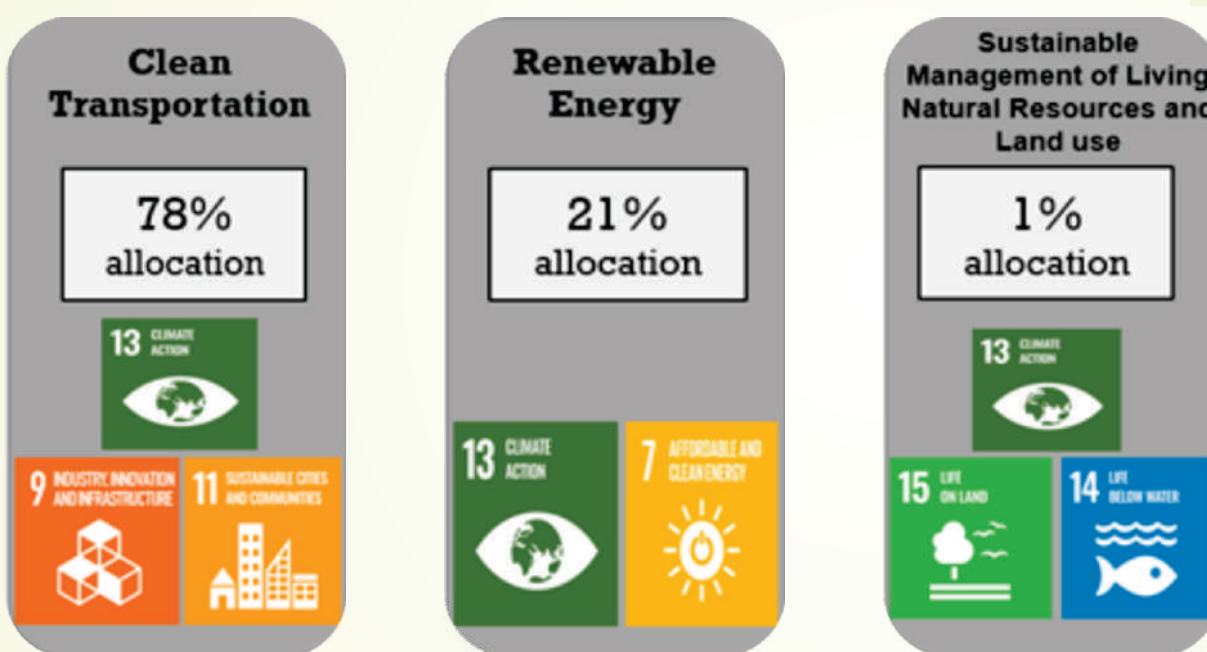


Figure 1: Broad Allocation and associated SDGs

Chapter - 1

India's Climate Commitments

Critical environmental challenges, such as pollution, deforestation, and climate change, have far-reaching economic and social implications. These challenges affect the biodiversity, ecosystems, health, and well-being of people, disrupt economic activities, and exacerbate social inequities. Therefore, concerted efforts are required from all the stakeholders to minimise the threat of such environmental problems, especially climate change.

India is at the forefront of the sustainable development agenda with an ambitious target of becoming a net zero-emission economy by 2070. India is ranked 7th in the Climate change Performance Index CPI 2024¹ which reflects India's fast-paced implementation of energy transition programmes.

India submitted its NDC to the United Nations Framework Convention on Climate Change (UNFCCC) on 2nd October 2015, outlining the climate actions intended to be taken under the Paris Agreement. The NDCs were updated and submitted to the UNFCCC in August 2022 to strengthen India's commitment to climate action further and usher in low emissions growth pathways. As per the updated NDC, India now stands committed to reducing the Emissions Intensity of its GDP by 45 per cent by 2030 from the 2005 level and achieving about 50 per cent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.

India has already met the targets of building non-fossil fuel-installed electricity capacity, reaching 43.9 per cent in November 2023². The reduction in the emission intensity of the GDP was 33 per cent by 2019 from 2005 level³. Further, an additional carbon

sink of 1.97 billion tonnes of CO₂-eq has been created by 2019, which is higher than the 2005 level. The speedy implementation of the targets has been possible due to the ambitious expansion in the installed non-fossil fuel power generation capacity in India, which has more than doubled in the last nine years, increasing to 187.06 GW⁴ in November 2023.

The updated NDC also has a target to put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation, including through a mass movement for 'LiFE'— 'Lifestyle for Environment' as a key to combating climate change.

Mission LiFE is envisioned as a global mass movement that will nudge individual and collective action, to adopt an approach that focuses on mindful and deliberate utilization of natural resources instead of mindless and destructive consumption. To help tackle climate change, India is also spearheading global platforms, such as the International Solar Alliance (ISA), Coalition for Disaster Resilient Infrastructure (CDRI), Leadership Group for Industry Transition (LeadIT), and the initiatives such as Infrastructure for Resilient Island States (IRIS), Green Grids Initiative—One Sun One World One Grid (GGI-OSOWOG).

The Government's National Action Plan on Climate Change (NAPCC) outlined a national strategy to enable the country to adapt to climate change and enhance the ecological sustainability of India's development path. Nine National Missions form the core of the National Action Plan, focusing on areas of solar energy, water, energy efficiency, Green India, sustainable habitat, sustainable agriculture,

¹Climate performance indicated in <https://ccpi.org/country/ind/>) is assessed based on four parameters - greenhouse gas (GHG) emissions, renewable energy, energy use, and climate policy

²https://powermin.gov.in/sites/default/files/uploads/power_sector_at_glance_Nov_2023.pdf

³India's Third National Communication submitted to UNFCCC in November 2023.

⁴https://powermin.gov.in/sites/default/files/uploads/power_sector_at_glance_Nov_2023.pdf

Himalayan ecosystem, strategic knowledge for climate change and human health. Furthering its efforts to reduce the emission intensity of the country's GDP, the government has undertaken several initiatives such as the Perform Achieve and Trade (PAT) scheme - an energy savings-based market mechanism, Development of Solar Parks and Ultra Mega Solar Power Projects, Rooftop Solar Scheme, Green Energy Corridor (GEC), Production-Linked-Incentive (PLI) scheme for manufacturing 'High-Efficiency Solar PV Modules' and PLI scheme for 'National Programme on Advanced Chemistry Cell (ACC) Battery Storage', Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme under the National Electric Mobility Mission, the Smart Meter National Program, Integrated Power Development Scheme, Street Lighting National Programme (SLNP) – which have helped in energy saving and a shift to non-fossil fuel energy. The Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan (PM-KUSUM), Unnat Jyoti by Affordable LEDs for All (UJALA), Pradhan Mantri Ujjwala Yojana (PMUY) are some of the recent major schemes introduced to promote energy efficiency. A dedicated financial institution, the Indian Renewable Energy Development Agency (IREDA), provides concessional financing to the Renewable Energy sector. It has financed the wind sector to the tune of ₹ 26,137 crores and provided ₹ 25,493 crores of finance to the solar energy sector between FY 2015-16 and FY 2019-20 alone.

As a further step to the PAT scheme, the Energy Conservation Act was amended in 2022 to pave the way for establishing a domestic carbon market - the Carbon Credit Trading Scheme (CCTS), which will further deepen the efforts to incentivise energy saving, reduction and abatement of emissions.

Green Financing in India

India's green initiatives needs have so far been largely

financed from domestic sources, with banks and financial institutions playing a vital role in meeting the investment targets. Several regulatory measures and policies have been introduced to mainstream climate into the financial economy. SEBI has been one of the early adopters of sustainability reporting for listed entities and has required mandatory ESG-related disclosures for the top 100 listed entities (by market capitalisation). Steps like the introduction of the regulatory framework for issuing green debt securities, 'Framework for Acceptance of Green Deposits' by RBI, the inclusion of mitigation projects such as those in renewable energy in the Priority Sector Lending (PSL) rules, issue of Sovereign Green Bonds and rules for financial disclosures and reporting of non-financial data, including information on sustainability impacts by top companies, have helped to foster and develop a green finance ecosystem in the country. One of the instruments being widely used to finance green investments and policies is Green Bonds. SEBI's 'Framework for Green Bonds' facilitates the creation of depth in the Green Bond Market.

In India, corporates and urban local bodies have issued green bonds amounting to a total of ₹ 10,213 crore as on 29.02.2024⁵. Some major players in green debt securities markets are Indian Renewable Energy Development Agency Limited, L&T Infrastructure Finance Company Ltd and Avaada Solarise Energy Private Limited. Ghaziabad Nagar Nigam, which is a civic body in the State of Uttar Pradesh (India), issued green bonds worth ₹150 crore⁶ for setting up a tertiary water treatment plant. Similarly, Indore Municipal Corporation, an urban local body in the state of Madhya Pradesh (India), issued green bonds to raise ₹244 crore⁷ for setting up a 60 MW solar power plant.

⁵<https://www.sebi.gov.in/statistics/greenbonds.html>

⁶SEBI Green Bonds issuances as on 31st Dec 2023

⁷Economic Times Article - Indore Municipal Corporation's green bonds generate over INR 720 crore, Feb 2023

Chapter - 2

India's Sovereign Green Bonds (SGrBs) Framework



Figure 2 CICERO Rating

To strengthen the commitment towards the NDC targets and reduce the emission intensity of the economy, India introduced its first Sovereign Green Bonds (SGrBs) framework in November 2022, in alignment with the ICMA

Green Bond Principles (2021). This will further create investor awareness about the national focus on green projects. The framework has been rated as '**Medium Green**' with a '**Good**' governance score by CICERO⁸, a Norway-based Second Party Opinion provider, highlighting India's credibility and readiness to issue sovereign green bonds. It elaborates on the eligible categories of public sector projects that can be financed through proceeds from sovereign green bonds. Besides, it also establishes the process for selection and evaluation of eligible public sector projects to ensure green-end use and has instituted a governance mechanism for effective management of proceeds.

The framework identifies 9 eligible project categories (Figure 3) for green financing. These categories have been selected with the objective of ensuring climate change mitigation, environment protection, and conservation of natural resources and biodiversity. Eligible green expenditures as per the framework include public expenditure undertaken by the Government in the form of investment, subsidies, Grants-in-aid, or tax foregone (or a combination of all or some of these) or select

operational expenditures, R&D expenditures in public sector projects that help in reducing the emission intensity of the country's GDP. On the other hand, expenditures involving extraction, production, and distribution of fossil fuels or where the core energy source is fossil-fuel-based will not be financed through sovereign green bond proceeds. However,



Figure 3 Eligible green categories identified in SGrBs Framework

investments or expenditures aimed at relatively cleaner fuel, such as Compressed Natural Gas (CNG), may be considered 'eligible' when used in public transportation projects only.

Methodology for shortlisting projects

A Green Finance Working Committee (GFWC) has been constituted under the SGrB framework for the selection and evaluation of eligible green projects. The Committee comprises representatives from the Ministry of Environment, Forests and Climate Change, the Ministry of New and Renewable Energy, a climate specialist from NITI Aayog and members from the Ministry of Finance. The committee can co-opt

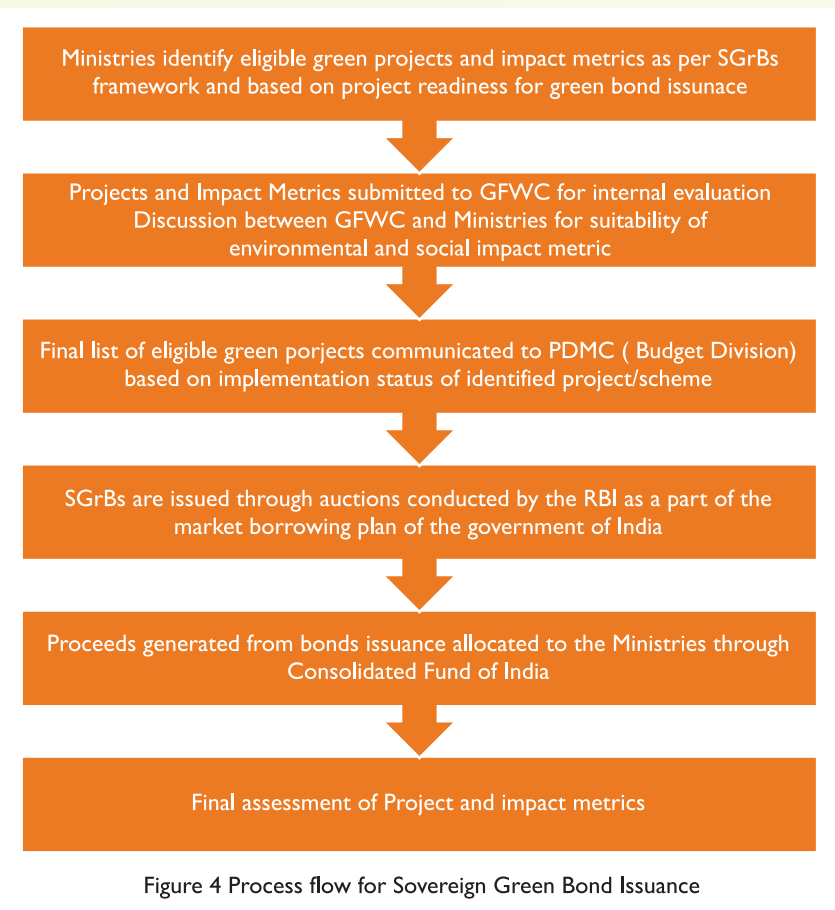
⁸CICERO is an independent and globally renowned agency which was appointed to evaluate India's Sovereign Green Bonds Framework

members from other ministries from time to time to ensure appropriate project selection.

Initial assessment of green-eligible projects is undertaken by the concerned Ministries/ Departments submitting the project based on the level of project preparedness. The projects are evaluated for their adherence to the framework and alignment with the green objectives. It is ensured that green expenditure aligns with the objectives of the National Conservation Strategy and Policy on Environment and Development (1992), National Forest Policy (1988) and Draft National Forest Policy

(2018), The Forest (Conservation) Amendment Act (2023), Policy Statement on Abatement of Pollution (1992), and National Environment Policy (2006). Furthermore, such expenditures adhere to the minimum social safeguards provisioned under Indian laws, and they do not run the risk of "double counting" through any other mechanism/financing instrument.

An indicative process of selection is shown in Figure 4. Upon finalisation, the eligible green projects, as approved by GFWC, are communicated to RBI for issuance of green bonds in the domestic markets.



Chapter - 3

Overview of Issuances

To support the transition to a low-carbon economy and foster momentum in the domestic bonds market, the Government of India issued sovereign green bonds in FY 2022-23. The proceeds generated from these issuances were to be allocated to green infrastructure projects in the public sector⁹ to reduce the emission intensity of the country's GDP. To this end, the Government of India, through auctions conducted by the Reserve Bank of India, issued sovereign green bonds worth ₹16,000 crore (~US \$2 billion) during January & February 2023 in two tranches of ₹8,000 crore each. The issuance

the notified amount of sale was reserved for retail investors¹⁵. The SGrBs are eligible for Repurchase Transactions (Repo)¹⁶ and are reckoned as eligible investments for the purpose of maintaining Statutory Liquidity Ratio (SLR). These bonds are also eligible for trading in the secondary market and have been designated as specified securities under the 'Fully Accessible Route' for investment in Government Securities by non-residents. These measures will enhance their liquidity, thereby making them attractive to investors.

Table-I Details of India's Sovereign Green Bond Issuance

Issuance Timeline	1 st Tranche - Jan 2023 ¹⁰		2 nd Tranche - Feb 2023 ¹¹	
Bond Tenor	5-Year	10-Year	5-Year	10-Year
Maturity Date	27 th Jan 2028	27 th Jan 2033	27 th Jan 2028	27 th Jan 2033
Notified Amount (₹ crore)	4000	4000	4000	4000
Competitive Bids Received	96	170	62	91
Competitive Bids Accepted	32	57	24	24
Cut-off Yield	7.10%	7.29%	7.23%	7.30%
Weighted Average Price	100	100	99.46	99.95
Weighted Average Yield	7.10%	7.29%	7.23%	7.30%
Listing	Sovereign Green Bond Indices National Stock Exchange (NSE), India			

comprised bonds for ₹ 4,000 crore in each tranche with a 5-year and 10-year maturity period.

The auction for sale of SGrBs was governed by government's specific notification¹² on Sale of SGrBs and general notification on Sale of Government of India Securities¹³. Bonds were issued through Uniform Price Auction method¹⁴ and 5% of

Auctions of both tranches of SGrBs registered robust demand from the market participants, with an average bid-to-cover ratio of 3.04 for the 5-year SGrBs and 3.93 for the 10-year SGrBs. The average cut-off yields for the 5-year and 10-year SGrBs were 4.26 bps and 3.53 bps, respectively, below the prevailing secondary market yields of the conventional government securities of the respective tenors¹⁷.

⁹Para 103 of Union Budget Speech 2022-23

¹⁰Sovereign Green Bonds Full Auction Results – 25th Jan 2023, RBI

¹¹Sovereign Green Bonds Full Auction Results – 9th Feb 2023, RBI

¹²<https://pib.gov.in/PressReleasePage.aspx?PRID=1874788>

¹³General Notification No. F.4(2)-VW&M/2018 dated March 27, 2018

¹⁴Press Communique, Department of Economic Affairs, Ministry of Finance

¹⁵According to the 'Scheme for Non-competitive Bidding Facility in the Auctions of Government of India Dated Securities and Treasury Bills'.

¹⁶As per the terms and conditions mentioned in Repurchase Transactions (Repo) (Reserve Bank) Directions, 2018

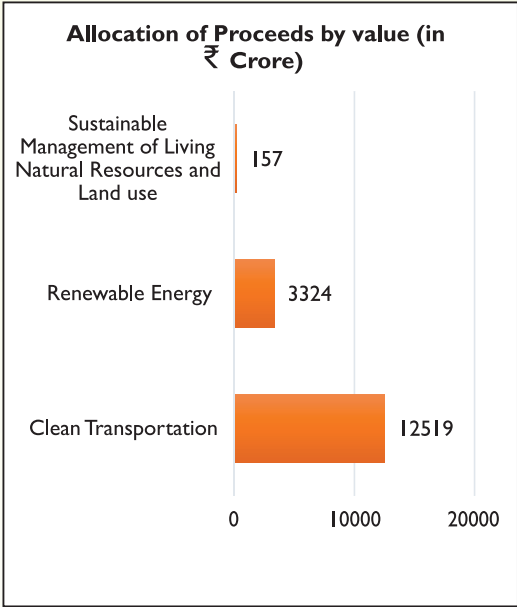
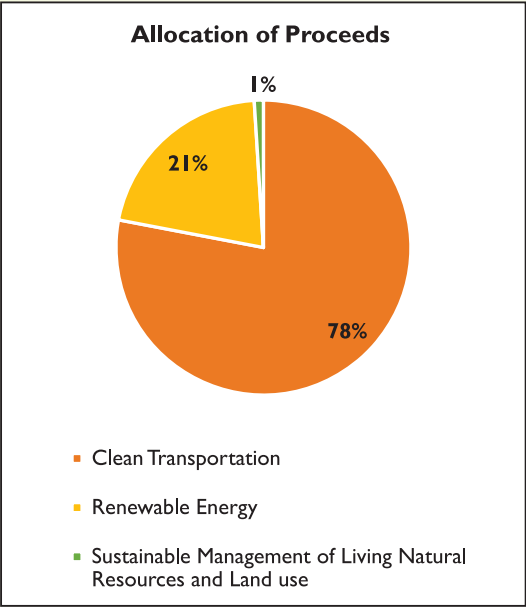
¹⁷Reserve Bank of India Annual report 2022-23.

Chapter - 4

Allocation of Proceeds

Proceeds of ₹16,000 crores generated from the issuance of Sovereign Green Bonds were allocated to finance environmentally sustainable projects qualifying under the green categories of 'Renewable Energy', 'Clean transportation', and 'Sustainable Management of Living Natural Resources and Land use' which have been identified in the SGrBs framework. These

green, Light green, Yellow, Orange, and Red. The Shades are a scale that reflects how consistent an activity is with achieving an LCCR future. For example, Dark green activities will likely be consistent with achieving an LCCR future, while Red activities are likely to impede the world's ability to achieve an LCCR future.



categories are oriented towards the objectives of climate change mitigation and Natural resource conservation. As part of the issuance in FY 2022-23, the majority allocation was made towards 'Clean Transportation' category followed by 'Renewable energy' and 'Sustainable Management of Living Natural Resources and Land Use', respectively.

CICERO Shade of Green (now part of S&P Global) represents a qualitative opinion of how consistent an economic activity or financial investment is with a low-carbon climate resilient (LCCR) future, with the possibility of designating six possible shades to an activity: Dark green, Medium

Renewable energy project category is assigned 'Medium to Dark Green' shading by CICERO, with Solar, Wind and Hydropower projects considered as Dark Green. Expenditure in renewable energy projects at both small and large scale, connecting renewable generation capacity to the grid and supporting research into new technologies, would contribute to increasing India's renewable energy capacity and generation. Clean transportation category is also assigned 'Medium to Dark Green' shading and key expenditures under this category include metro expansion projects in cities and electrification/ upgradation as well as expansion of Railway network.

On the other hand, green project category- 'Sustainable Management of Living Natural Resources and Land Use' is assigned 'Light to Medium Green' shading by CICERO. Key allocation under this category include sustainable forest management projects (including afforestation and reforestation,

biodiversity conservation, and improving the productivity of forest plantations), which are implemented in accordance with India's Draft National Forestry Policy 2018¹⁸. The projects identified for allocation of funds raised under SGrBs across the eligible green categories have been listed in Table 2.

Table-2 Project-wise allocation/utilization of Sovereign Green Bond proceeds in FY 2022-23

SN	Scheme/ Programme	Project Name/ Description	Funds allocated (₹crore)	Type of Expenditure*	Project Implementation Status [#]
I	Clean Transportation				
i.	MRTS and Metro Projects	Delhi Metro Rail Project Phase-IV (3 Priority Corridors)	1,025	Equity	Under Implementation
ii.		Patna Metro Rail Project	348	Equity	Under Implementation
iii.		Bangalore Metro Rail Project Phase - 2A & 2B	506	Equity	Under Implementation
iv.		Ahmedabad Metro Rail Project Phase - I & 2	87	Equity	Under Implementation
v.		Surat Metro Rail Project	274	Equity	Under Implementation
vi.		Bhopal Metro Rail Project	43	Equity	Under Implementation
vii.		Indore Metro Rail Project	200	Equity	Under Implementation
viii.		Kanpur Metro Rail Project	416	Equity	Under Implementation
ix.		Agra Metro Rail Project	304	Equity	Under Implementation
x.	Suburban Railways	Joka-BBD Bagh	794	Capex	Under Implementation
xi.		New Garia (Kavi Subhas) - Biman Bandar	904	Capex	Under Implementation
xii.	Clean Transportation	Production of energy efficient three -phase electric locos – 657 nos. electric locos	7,618	Capex	Under Implementation
Sub-total (₹crore)			12,519		
2	Renewable Energy				
i.	Generation based incentive Scheme for Wind Power	Wind Energy Projects	1,267	Subsidy	Under Implementation

¹⁸PIB—Draft Forest Policy 2018

*mention the type of expenditure- in the form of investment, subsidies, Grants-in-aid, or tax foregone (or a combination of all or some of these) or selected operational expenditures, R&D expenditures

[#]Implementation status- Planning Stage, Under-implementation and Completed

SN	Scheme/ Programme	Project Name/ Description	Funds allocated (₹ crore)	Type of Expenditure*	Project Implementation Status [#]
ii.	PM-KUSUM (Kisan Urja Suraksha evam Utthaan Mahabhiyan) Scheme	<ul style="list-style-type: none"> 10,000 MW of decentralized ground mounted grid connected solar power plant Installation of 20 lakh standalone Solar Powered Agriculture Pumps Solarization of 15 lakh Grid-connected Agriculture Pumps 	801	Grant- in Aid	Under Implementation
iii.	Grid connected rooftop scheme	Phase-II of Grid connected Rooftop Solar (RTS) programme	1,256	Grant- in Aid	Under Implementation
Sub-total (₹ crore)			3,324		
3	Sustainable Management of Living Natural Resources and Land use				
i.	Green India Mission	Enhancing quality of forest cover and improving ecosystem services	157	Grants released to the States for taking up the Eco-restoration activities as per the approved Annual Plan of Operations for the particular year In addition to the administrative costs of the Mission Directorate	Under Implementation
Sub-total (₹ crore)			157		
Grand Total (₹ crore)			16,000		

* mention the type of expenditure- in the form of investment, subsidies, Grants-in-aid, or tax foregone (or a combination of all or some of these) or selected operational expenditures, R&D expenditures

[#]Implementation status- Planning Stage, Under-implementation and Completed

CASE STUDIES

Clean Transportation

I. Construction of Metro Railway from Joka to Binoy Badal Dinesh (BBD) Bagh via Majerhat

This project is part of the originally conceived Master plan for Metro Railway Network at Kolkata. The alignment aims to provide connectivity to various important destinations in the densely populated areas of Joka and Majerhat, such as BBD Bagh, Esplanade, Eden Garden, High Court and Khidirpore area. The green objectives to be achieved are the shift to low/zero emission vehicles and the promotion of the decarbonisation of heavy transport vehicles.

An indicative peak hour peak direction traffic (PHPDT) of 8,500 persons has been estimated between Majerhat-Joka, with a potential sharp increase in future given the existing heavy traffic on this route. The project also aims to connect other important routes and modes of transport like:

- Ballygunge-Budge Budge Suburban EMU section at Majerhat
- North-South Metro Corridor at Esplanade
- Bus Terminal and Tram Depot at Esplanade
- The East/West Metro Corridor

The project is also expected to generate employment in the areas.

II. New Garia (Kavi Subhash) – Bimanbandar project

This project was conceived as part of the Metro Railway Master plan of Kolkata. The alignment aims to provide connectivity to EM bypass road and serve adjacent areas like Ruby Hospital, Science City,

Chingrihata, urban settlements at Rajerhat and the Airport area.

The project would provide direct connectivity from various residential pockets of the city to CBD, thereby easing travel of ~6 lakh people. The rail-based transport service would link important destinations in East Kolkata areas to the Airport, apart from connecting other important routes, destinations, and modes of transport like:

- Sealdah - Sonarpur - Canning EMU section at Garia and Dum Dum
- Sealdah - Sonarpur - Diamond Harbour EMU section at Garia and Dum Dum
- Sealdah - Sonarpur - Kakdwip EMU section at Garia and Dum Dum
- North South Metro Corridor at Dum Dum and New Garia
- East West Metro Corridor at Salt Lake and Airport and
- Dum Dum, Rajerhat, Salt Lake, Airport and New Garia Bus stand.

The green objectives to be achieved is the shift to low/zero emission vehicles and promoting decarbonization of heavy transport vehicles.

III. Production of 657 nos. energy efficient three-phase electric locomotives

Indian Railways has envisioned net zero carbon emissions by year 2030. To achieve this target, railways has been replacing its diesel locomotives with electric locomotives in a phased manner. Electric locomotives are energy efficient, more powerful and help in reducing carbon emissions.

The green objectives to be achieved is the shift to low/zero emission vehicles and promoting decarbonization of heavy transport vehicles.



IV. Delhi Metro Rail Project, Phase IV

Delhi metro rail system is being developed by Delhi Metro Rail Corporation (DMRC). The Phase IV of the project, which is being financed through SGrBs, comprises three priority corridors with a cumulative length of 65 km. The project is expected to be completed by year 2026 at an estimated cost of

~₹25,000 crore. As of November 2023, the project has achieved 43% of physical progress and 37% of financial progress. The first section (Janakpuri West to Krishna Park Extension stretch of 2.8 km of the Magenta Line extension of length 29 km from Janakpuri West-RK Ashram Marg) of the project is set to be commissioned by July 2024.

The project is funded by Central government, Delhi government, external loan from JICA and other sources. Over its operational years, DMRC has also generated funds from various climate change initiatives that have helped in monetization of several carbon offset projects. This project (Phase IV of Delhi Metro Rail Project) aims to reduce the environmental impact of urban transport.

The green objectives to be achieved in terms of passenger kms covered by metro and consequent reduction in private modes of transport, and consequent certified emission reductions and reduction in fossil fuel consumption.

CASE STUDIES

Sustainable Management of Living Natural Resources and Land use

V. National Green India Mission

National Mission for a Green India (GIM) is one of the nine Missions outlined under the National Action Plan on Climate Change (NAPCC)¹⁹. It recognises the crucial impact of forestry on ecological sustainability, biodiversity conservation and food, water and livelihood-security and aims to safeguard the biological resources and associated livelihoods against the threat of adverse climate change, by undertaking plantation activities in forest and non-forest areas. The mission focusses on multiple ecosystem services such as biodiversity, water, biomass, preserving mangroves, wetlands, critical habitats etc.along with carbon sequestration.

This project strives to enhance carbon sinks in sustainably managed forests and other ecosystems and enable adaptation of vulnerable species/ ecosystems to the changing climate.This is being done by increasing forest/tree cover with improved quality of forests on forest/non-forest lands, improving ecosystem services like biodiversity, carbon sequestration and hydrological services along with provisioning services like fuel, fodder, and timber and non-timber forest produces. The project also

promotes the adaptation of forest-dependent communities by stimulating an increase in forest-based livelihood income of households living in and around the forests.

The mission was initially launched in 2014 and has been extended from 2021-22 to 2029-30.As per the revised Mission document, the total outlay of National Mission for a Green India is ₹12,150 Crore (₹5,000 from Central Sponsored Scheme & ₹7,150 Crore from CAMPA) for a period of 10 years.Till date, the project has been taken up in 17 States and 1 UT based on their respective perspective plans submitted to the Centre for evaluation and availability of funds under the mission²⁰. Between 2016 to 2021, States achieved plantation on 1.18 million hectare of land under GIM.All States/ UTs are now being encouraged to implement the GIM. In FY 2022-23, an amount of ₹362²¹ crore was allocated by the Centre towards GIM, witnessing an increase of 25% from the previous financial year (₹290 crore was allocated in FY 2021-22).

The green objectives to be achieved are the preservation of natural ecosystems and quantified in terms of forest cover increase (in hectares).

¹⁹India Science, Technology, and Innovation

²⁰PIB – Green India Mission, July 2023

²¹PIB – Budget Allocations, Feb 2022

CASE STUDIES

Renewable Energy

VI. Success Story of the component- 'B' of the PM-KUSUM in the state of Jharkhand

PM KUSUM is the flagship scheme of the Ministry of New and Renewable Energy, that aims to de-dieselize the agriculture sector by installing 14 lakhs standalone off-grid solar pumps in the country. Under the Component B of PM KUSUM scheme, 10,000 solar pumps have been sanctioned during 2019-20 for Jharkhand. Jharkhand Renewable Energy Development Agency (JREDA), as the State Nodal Agency for implementation of the scheme, has taken an unparalleled effort for decarbonising the agriculture sector in the state. By virtue of the scheme, farmers received an overall subsidy of 96% from state and central governments (of which 30% is supported by Central Financial Assistance), thereby

reducing farmer financing to only 4%, which translates to ₹ 5000 to be borne by farmers for a 2 HP pump, ₹ 7000 for a 3 HP pump and ₹ 10000 for a 5HP pump. The state has helped to create awareness about the pump costing, which has helped farmers to be sure of the corresponding costs as per the nature of the pump, reducing the cases of forgery & manipulation.

The main objective of the PM KUSUM scheme includes de-dieselisation of the farm sector, providing water and energy security to farmers, increasing the income of farmers, and curbing environmental pollution.

The green objectives to be achieved are the reduced reliance on fossil fuels and the promotion of decarbonization of agriculture.

External Review

Sovereign Green Bonds features in the Statement No. 9,13 &14 of the Union Government FinanceAccounts for FY 2022-23, which have been certified by the

Comptroller and Auditor General of India. The Certificate of Comptroller and Auditor General of India is produced below:

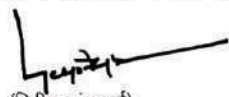
संघ सरकार के वर्ष 2022-2023 के वित्त लेखे
FINANCE ACCOUNTS OF THE UNION GOVERNMENT FOR THE YEAR 2022-2023
भारत के नियंत्रक एवं महालेखापरीक्षक का प्रमाण-पत्र
Certificate of the Comptroller and Auditor General of India

यह प्रमाणित किया जाता है कि वित्त लेखों की जांच भारत के संविधान के अनुच्छेद 149 और 151 तथा नियंत्रक और महालेखापरीक्षक (कर्तव्य, शक्तियां तथा सेवा की शर्तें) अधिनियम, 1971 की अपेक्षाओं के अनुसार मेरे निदेशन में की गई है। ये लेखे महालेखा नियंत्रक और सचिव, भारत सरकार, वित्त मंत्रालय, व्यय विभाग का दायित्व हैं। हमारा दायित्व हमारी लेखा परीक्षा के आधार पर इन लेखों पर मत व्यक्त करना है।

हमने भारत में सामान्य रूप से स्वीकृत लेखा परीक्षण मानकों के अनुसार लेखा परीक्षा की है। वे मानक यह अपेक्षा करते हैं कि हम इस आशय का तर्कसंगत आश्वासन प्राप्त करने के लिए लेखा परीक्षा की योजना तैयार करके उसका निष्पादन करें कि क्या ये लेखे वस्तुपरक गलत विवरण से मुक्त हैं। लेखा परीक्षा में, परीक्षण के आधार पर, राशियों के समर्थन में साक्ष्य और लेखों में प्रकटीकरण की जांच करना शामिल है। लेखा परीक्षा में प्रयुक्त लेखाकरण सिद्धांतों और तैयार किए गए महत्वपूर्ण अनुमानों का निर्धारण करना तथा साथ ही, लेखों के समग्र प्रस्तुतिकरण का मूल्यांकन करना शामिल है। हमारा मानना है कि हमारी लेखा परीक्षा हमारे मत का तार्किक आधार उपलब्ध कराती है।

मेरे अधिकारियों द्वारा मांगी गई और प्राप्त की गई सूचना और व्याख्या के आधार पर तथा लेखों की परीक्षण के तौर पर की गई लेखा परीक्षा के परिणामस्वरूप मेरी सर्वोत्तम जानकारी के अनुसार इस संकलन में की गई टिप्पणियों के साथ पठित, अब प्रस्तुत किए गए लेखे 31 मार्च, 2023 को समाप्त हुए वर्ष के लिए संघ सरकार के लेखों पर मेरे प्रतिवेदनों में दिए गए अभिमतों के अधीन रहते हुए संघ के वर्ष 2022-2023 के प्रयोजन के लिए प्राप्तियों और सवितरणों का सही और उचित निरीक्षण प्रस्तुत करते हैं।

स्थान : नई दिल्ली
 दिनांक : 17 DEC 2023

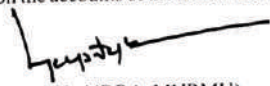

 (गिरिश चंद्र मुर्मू)
 भारत के नियंत्रक एवं महालेखापरीक्षक

It is certified that Finance Accounts have been examined under my direction in accordance with the requirements of Articles 149 and 151 of the Constitution of India and the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971. These accounts are the responsibility of the Controller General of Accounts, and the Secretary to the Government of India, Ministry of Finance, Department of Expenditure. Our responsibility is to express an opinion on these accounts based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in India. Those standards require that we plan and perform the audit to obtain reasonable assurance whether the accounts are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the accounts. An audit also includes assessing the accounting principles used and significant estimates made, as well as evaluating the overall presentation of accounts. We believe that our audit provides a reasonable basis for our opinion.

On the basis of the information and explanations that my officers required and have obtained, and according to the best of my information as a result of test audit of the accounts, the accounts now presented read with observations in this compilation give a true and fair view of the receipts and disbursements for the purpose of the Union for the year 2022-2023 subject to the observations in my Reports on the accounts of the Union Government for the year ended 31st March, 2023.

Place : New Delhi
 Dated : 17 DEC 2023


 (GIRISH CHANDRA MURMU)
 Comptroller and Auditor General of India
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