

A high-speed train, white with blue accents, is shown in motion on a track. The train is moving from left to right. The background features green trees and a cloudy sky. A text overlay is present in the upper left, and a 'Zone' label is in the bottom right.

MANUAL OF INSTRUCTIONS
FOR
GHG DATA COLLECTION

Zone



Contents

Section 1: General Information and Operational Data	3
1. Introduction	3
2. General Guidelines.....	3
3. General Information Section.....	3
3.1 Budget and Expenditure	3
4. Contact Details Section	4
5. Operational Data Section.....	4
5.1 Number of Employees	4
5.2 Passenger Traffic	4
5.3 Freight Traffic.....	5
6. Installed Renewable Energy Capacity in Railway facilities.....	5
7. Waste management.....	6
Section 2: GHG Data Collection Scope-wise and Fuel Data (Division/Zone)	7
1. Fuel Consumption Data Collection.....	7
1.1 Fuel Consumption (Locomotive).....	7
1.2 Fuel Consumption (Non-Locomotive).....	8
2. Refrigerant Refilling Data	9
2.1 Refrigerant filling (Train services)	9
2.2 Refrigerant filling (Stationary services).....	9
3. CO ₂ Based Fire Extinguisher	9
3.1 CO ₂ Based Fire Extinguisher (Train services).....	9
3.2 CO ₂ Based Fire Extinguisher (Stationary services).....	10
4. Fugitive emissions (SF ₆ leakage).....	10
4.1 Process Emissions	11
5. Scope 1 - Onsite Waste treatment.....	11
5.1 Waste Water.....	11
6. Electricity consumption	12
6.1 Electricity Use in Locomotives.....	12
7. Scope 1 - Land related.....	13
7.1 Tree plantation.....	13
8. Source wise electricity consumption Break-up.....	14
8.1. Traction	14



8.2 Non – Traction..... 14

Section 3: Potential Carbon offset Projects for Indian Railways 15

1. Project Categories 15

2. Completed Projects (2021-2025) 16

3. Planned Projects (2025 Onwards till 2040)..... 17



Section 1: General Information and Operational Data

1. Introduction

The purpose of this **GHG Data Collection Template** is to facilitate Indian Railways in systematically documenting **greenhouse gas (GHG) emissions**. The collected data will contribute to measuring emissions from various sources, monitoring energy consumption, and supporting compliance with sustainability goals.

This document serves as a structured guide for personnel, ensuring that data is entered accurately and comprehensively.

2. General Guidelines

- All entries should be **accurate, current, and aligned with official records**.
- Enter numerical values in the **specified units** only.
- If a particular data point is **not available (NA)**, it should be indicated appropriately rather than left blank.
- Data should be recorded in accordance with the **quarterly and annual reporting cycles**.
- For fields with **drop-down options**, users should select the most appropriate value from the list.
- If additional data types need to be included, users may add rows as required.

3. General Information Section

This section requires users to provide **fundamental location details**, encompassing financial and operational aspects.

Field Name	Description & Guidelines
Location Name	Enter the name of the railway station, workshop, depot, or facility.
Location Type	Select the appropriate option from the drop-down menu (e.g., Division, Other, PU, Workshop, Zone).
Address	Enter the full postal address, including city, state, and PIN code.

3.1 Budget and Expenditure

Field Name	Description & Guidelines
Budget Allocation	Total Budget allocation to be reported including all departments
Annual Expenditure	Total expenditure to be reported including all departments

4. Contact Details Section

This section captures information about the key personnel responsible for data collection and verification.

Field Name	Description & Guidelines
Contact 1 (Location Head)	Provide the name, official email, and contact number of the location's head officer.
Contact 2 & 3 (Coordinator)	Include details of coordinators responsible for data entry, validation, and submission.

General Information					
Location Name					
Location Type	Division				
Address					
Budget and Expenditure	Description	UOM	FY 2021-22	FY 2022-23	FY 2023-24
Budget allocation	Total Budget allocation to be reported including all departments	(In INR Crs)			
Annual expenditure	Total expenditure to be reported including all departments	(In INR Crs)			
Contact Details	Name	Designation	Email	Phone/Mobile	
Contact 1 (Location Head)					
Contact 2 (Coordinator)					
Contact 3 (Coordinator)					

5. Operational Data Section

This section records workforce details and locomotive operational data for both passenger and freight transportation.

5.1 Number of Employees

Users should enter the number of employees working in different capacities over the given fiscal years.

Field Name	Description & Guidelines
Permanent Employees	Employees who have a long-term service agreement with the railway and are entitled to job security, benefits, and pensions.

5.2 Passenger Traffic

This section records key metrics related to passenger train operations.

Field Name	Description & Guidelines
Revenue (₹)	The total earnings generated from passenger transportation, including ticket sales, reservation fees, and other charges.

No. of Passengers (Nos)	The total number of passengers who traveled using railway services during a specific period.
Passenger-km	A unit of measurement representing the transport of one passenger over a distance of one kilometer.

5.3 Freight Traffic

This section captures freight operations and transportation metrics.

Field Name	Description & Guidelines
Revenue (₹)	The total earnings generated from freight transportation, including freight charges, surcharges, and additional logistics services.
Total Tonnage Freight	The total weight of goods transported via railway freight services over a specific period.
Freight Net Tonne-Km	A unit of measurement representing the transport of one tonne of freight over a distance of one kilometer. It indicates the efficiency of freight transportation.

Operational Data					
Number of Employees	Definition	UOM	FY 2021-22	FY 2022-23	FY 2023-24
Permanent	Employees who have a long-term service agreement with the railway and are entitled to job security, benefits, and pensions.	Nos			

Passenger Traffic								
	Definition	UOM	FY 2021-22	FY 2022-23	FY 2023-24	Q1 (Apr'24-June'24)	Q2 (July'24-Sept'24)	Q3 (Oct'24-Dec'24)
Revenue	The total earnings generated from passenger transportation, including ticket sales, reservation fees, and other charges.	INR (₹) Crores						
No of passengers	The total number of passengers who traveled using railway services during a specific period.	Nos						
Passenger-km	A unit of measurement representing the transport of one passenger over a distance of one kilometer.	Passenger-km						

Freight Traffic								
	Definition	UOM	FY 2021-22	FY 2022-23	FY 2023-24	Q1 (Apr'24-June'24)	Q2 (July'24-Sept'24)	Q3 (Oct'24-Dec'24)
Revenue (₹)	The total earnings generated from freight transportation, including freight charges, surcharges, and additional logistics services.	INR (₹) Crores						
Total Tonnage freight	The total weight of goods transported via railway freight services over a specific period.	Tonnes						
Freight Net tonne-km	A unit of measurement representing the transport of one tonne of freight over a distance of one kilometer. It indicates the efficiency of freight transportation.	Nett tonne-km						

6. Installed Renewable Energy Capacity in Railway facilities

Field Name	Description & Guidelines
Solar (Rooftop/ Ground mounted)	The installed capacity of solar power plants in kilowatt-peak (KWp), representing the maximum output under ideal conditions.
Wind	The installed wind power capacity in kilowatt-peak, reflecting the railway's wind energy generation potential

Volume of biogas produced	The volume of biogas produced per day, typically from organic waste eg. Food, Human bio waste, Garden waste
Any other type please add rows and mention with unit of measurement (UOM)	Any Other Type (Please Add Rows and Mention with UOM): A placeholder for additional renewable energy sources, specifying the unit of measurement (UOM).

7. Waste management

Field Name	Description & Guidelines
Installed capacity of Effluent Treatment Plant	The maximum amount of industrial wastewater that can be treated per day.
Installed capacity of Sewage Treatment Plant	The maximum amount of sewage that can be treated per day.
Volume of recycled water	The total amount of treated water that is reused per day.
Installed Capacity (Waste treatment facility for Bio toilets / Food Waste/Organic waste)	The capacity of waste treatment facilities for biodegradable waste, measured in kilograms.

Installed Renewable Energy Capacity in Railway facilities	Definition	UOM	FY 2021-22	FY 2022-23	FY 2023-24	Q1 (Apr'24-June'24)	Q2 (July'24-Sept'24)	Q3 (Oct'24-Dec'24)
Solar (Rooftop/ Ground mounted)	The installed capacity of solar power plants in kilowatt-peak (KWp), representing the maximum output under ideal conditions.	(KWp)						
Wind	The installed wind power capacity in kilowatt-peak, reflecting the railway's wind energy generation potential.	(KWp)						
Volume of biogas produced	The volume of biogas produced per day, typically from organic waste eg. Food, Human bio waste, Garden.	(m ³) / day						
Any other type please add rows and mention with unit of measurement (UOM)	Any Other Type (Please Add Rows and Mention with UOM): A placeholder for additional renewable energy sources, specifying the unit of measurement (UOM).							
Waste management	Definition	UOM	FY 2021-22	FY 2022-23	FY 2023-24	Q1 (Apr'24-June'24)	Q2 (July'24-Sept'24)	Q3 (Oct'24-Dec'24)
Installed capacity of Effluent Treatment Plant	The maximum amount of industrial wastewater that can be treated per day.	(KL/ day)						
Installed capacity of Sewage Treatment Plant	The maximum amount of sewage that can be treated per day.	(KL/ day)						
Volume of recycled water	The total amount of treated water that is reused per day.	(KL/ day)						
Installed Capacity (Waste treatment facility for Bio toilets / Food Waste/Organic waste)	The capacity of waste treatment facilities for biodegradable waste, measured in kilograms.	Kgs						

Section 2: GHG Data Collection Scope-wise and Fuel Data (Division/Zone)

1. Fuel Consumption Data Collection

1.1 Fuel Consumption (Locomotive)

You need to collect fuel consumption data for assessing Scope 1 GHG emissions from locomotive operations. Please provide the following details:

Field Name	Description & Guidelines
Locomotives Passenger	This refers to the fuel consumption associated with locomotives used for passenger services. It includes trains that transport people between stations. The data for fuel consumption here should include all types of passenger trains, such as long-distance express trains, local trains, DEMU, MEMU and high-speed trains. Data to be provided - Type of fuel and quantity
Locomotives Goods	This refers to the fuel consumed by freight or goods trains that transport cargo or goods (such as raw materials, coal, and finished products).
Power Cars	Power Cars
Shunting including Siding	Shunting refers to the movement of locomotives or trains within a rail yard or station to assemble or disassemble trains, or move them between tracks for maintenance, storage, or other purposes. Siding refers to a short track used for loading, unloading, or storing trains. This category tracks the fuel consumption for locomotives used for yard operations like moving trains within terminals or sidings.
Departmental	Departmental locomotives are typically used for non-revenue services related to railway operations, such as maintenance, track inspection, or construction activities. These locomotives support the operation of the railway network but do not carry passengers or goods for revenue.
Miscellaneous	This category includes any other locomotive services that do not fall under the standard categories of passenger, goods, mixed, shunting, or departmental services. It can encompass special services, emergency response, temporary services, or any out-of-scope operations.

Rail car internal combustion engine propelled and Tower car/wagons	This refers to rail cars or self-propelled carriages that have an internal combustion engine instead of being hauled by a locomotive. These rail cars are typically smaller and can operate independently, used in passenger or freight services.
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Fuel consumption (LOCOMOTIVE)	DEFINITION	Type of the fuel	Quantity (UOM)
Fuel Consumed on mobile services	This refers to the total fuel consumption by locomotives operating on Indian Railways as part of their mobile combustion activities. Mobile combustion involves the use of fuel to power locomotives and rail cars, where the fuel is burned within an engine to generate power for movement.		
Locomotives Passenger	This refers to the fuel consumption associated with locomotives used for passenger services. It includes trains that transport people between stations. The data for fuel consumption here should include all types of passenger trains, such as long-distance express trains, local trains, DEMU, MEMU and high-speed trains. Data to be provided - Type of fuel and quantity	<input type="text" value=""/>	<input type="text" value=""/>
Locomotives Goods	This refers to the fuel consumed by freight or goods trains that transport cargo or goods (such as raw materials, coal, and finished products).	High Speed Diesel CNG Coal	<input type="text" value=""/>
Power Cars	Power Cars		
Shunting including siding	Shunting refers to the movement of locomotives or trains within a rail yard or station to assemble or disassemble trains, or move them between tracks for maintenance, storage, or other purposes. Siding refers to a short track used for loading, unloading, or storing trains. This category tracks the fuel consumption for locomotives used for yard operations like moving trains within terminals or sidings.	<input type="text" value=""/>	<input type="text" value=""/>
Departmental	Departmental locomotives are typically used for non-revenue services related to railway operations, such as maintenance, track inspection, or construction activities. These locomotives support the operation of the railway network but do not carry passengers or goods for revenue.		
Miscellaneous	This category includes any other locomotive services that do not fall under the standard categories of passenger, goods, mixed, shunting, or departmental services. It can encompass special services, emergency response, temporary services, or any out-of-scope operations.		
Rail car internal combustion engine propelled and Tower car/wagons	This refers to rail cars or self-propelled carriages that have an internal combustion engine instead of being hauled by a locomotive. These rail cars are typically smaller and can operate independently, used in passenger or freight services.		

Select the appropriate **fuel type** from the drop-down menu

Select the appropriate **Quantity (UOM)** from the drop-down menu

1.2 Fuel Consumption (Non-Locomotive)

This section captures fuel consumption in **stationary and non-traction applications** such as:

Field Name	Description & Guidelines
Water Pumping Stations	This refers to Fuel consumed to operate water pumping stations
Electric Generating Stations	This refers to Fuel consumed to generate electricity using diesel generators or other fuel-based power generation systems.
Bridge Engineering & Signal Shops	This refers to Fuel consumed for activities related to bridge engineering, signal maintenance, and repair work.
Miscellaneous Purposes	This refers to Fuel consumed for other non-locomotive activities not covered in the above categories (e.g., administrative vehicles, emergency services, or small-scale operations)

2. Refrigerant Refilling Data

2.1 Refrigerant filling (Train services)

Field Name	Description & Guidelines
No of AC Coaches	The total number of air-conditioned coaches available in the railway fleet for passenger service.
Annual refrigerant re-fill	Enter data on refrigerant gas refilled in air conditioning (AC) systems for rail coaches.

2.2 Refrigerant filling (Stationary services)

Field Name	Description & Guidelines
Annual refrigerant re-fill	Enter data on refrigerant gas refilled in the air conditioning (AC) and cooling systems for all non-locomotive purposes (Canteen, Administrative buildings, Platforms etc.)
Annual refrigerant re-fill	

Refrigerant filling (Train services)				
	DEFINITION			Quant
No of AC Coaches	The total number of air-conditioned coaches available in the railway fleet for passenger service.			None
	DEFINITION	System type	RefrigerantType	Quantity (UOM)
Annual refrigerant re-fill	Refrigerant refilling refers to refilling the refrigerant gas in the air conditioning (AC) and cooling systems of locomotives.			
Refrigerant filling (Stationary services)				
Refrigerant Refilling	DEFINITION	System type		Quantity (UOM)
Annual refrigerant re-fill (Centralised HVAC systems -Facilities- e.g. buildings, storage facilities, conference halls, auditoriums, hospitals etc)	Refrigerant refilling refers to refilling the refrigerant gas in the air conditioning (AC) and cooling systems for all non-locomotive purposes (Canteen, Administrative buildings, Platforms etc)		R11 R12 R22 R32 R123 R134A R280 R404A	
Annual refrigerant re-fill (Standalone systems -e.g Window Acs, Split ACs, VRF Systems)				

Specify the system type, refrigerant type, and quantity (UOM) refilled.

3. CO₂ Based Fire Extinguisher

3.1 CO₂ Based Fire Extinguisher (Train services)

Field Name	Description & Guidelines
Passenger/ freight (Refill) only CO ₂ type	Refill of CO ₂ -based fire extinguishers installed in locomotive coaches. Non CO ₂ type should not be included

3.2 CO₂ Based Fire Extinguisher (Stationary services)

Field Name	Description & Guidelines
CO₂ Fire Extinguisher Refill for Non-Locomotive Purposes	Refill of CO ₂ fire extinguishers installed in all non-locomotive purposes (Canteen, Offices, and Platforms etc.). Non CO ₂ type should not be included

CO ₂ Based Fire Extinguisher (Train services)			
	DEFINITION		UOM
Passenger/freight (Refill) only CO ₂ type	This refers to refilling a fire extinguisher that uses carbon dioxide (CO ₂) as the extinguishing agent in all Locomotive Coaches. Provide Refill data for all CO ₂ based fire extinguishers. Non CO ₂ type should not be included		
CO ₂ Based Fire Extinguisher (Stationary services)			
	DEFINITION		UOM
Fire Extinguisher refill- for all non-locomotive purposes: only CO ₂ type	This refers to refilling data for all CO ₂ based fire extinguishers installed in all non-locomotive purposes (Canteen, Offices, Platforms etc). Non CO ₂ type should not be included		

4. Fugitive emissions (SF₆ leakage)

Field Name	Description & Guidelines
SF₆ Refill Data	Enter data on total refill of SF ₆ gas.
Total Quantity of circuit breaker in the electrical transmission and distribution systems	Enter data on total number of circuit breakers in the railway's electrical infrastructure that use SF ₆ gas. Data to Provide: The total count of circuit breakers that contain SF ₆ . Provide data for: 11kv-33kv (Medium Voltage) 66kv-132kv (High Voltage) 220kv-440kv (Extra High Voltage)

Fugitive emissions (SF ₆ leakage)			
SF ₆	DEFINITION		UOM
SF ₆ Refill data	This refers total refill of SF ₆ gas.		
Total Quantity of circuit breaker in the electrical transmission and distribution systems	This refers to the total number of circuit breakers in the railway's electrical infrastructure that use SF ₆ gas. Data to Provide: The total count of circuit breakers that contain SF ₆ .	11kv-33kv (Medium Voltage)	Nos
Total Quantity of circuit breaker in the electrical transmission and distribution systems	This refers to the total number of circuit breakers in the railway's electrical infrastructure that use SF ₆ gas. Data to Provide: The total count of circuit breakers that contain SF ₆ .	66kv-132kv (High Voltage)	Nos
Total Quantity of circuit breaker in the electrical transmission and distribution systems	This refers to the total number of circuit breakers in the railway's electrical infrastructure that use SF ₆ gas. Data to Provide: The total count of circuit breakers that contain SF ₆ .	220kv-440kv (Extra High Voltage)	Nos

4.1 Process Emissions

Field Name	Description & Guidelines
Welding & Metal Fabrication (Acetylene Gas)	Data on acetylene gas used in welding and metal fabrication.
LPG - Consumption in gas cutters	Data on LPG gas used in metal cutting process.
Any other GHG gas emissions in processes- e.g. CO2 as blanketing	Enter data on any other GHG gas emission during the process refers to the release of gases like Carbon dioxide(CO2), Methane(CH4), Nitrous Oxide(N2O), hydro fluorocarbons (HFCs), per fluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3) during industrial or Workshop processes.

5. Scope 1 - Onsite Waste treatment

5.1 Waste Water

Field Name	Description & Guidelines
Process Effluent (ETP)	This refers to wastewater treated from operational processes or operations. Data to Provide: Details of the treatment method or technology used to treat process effluent
Domestic effluent / Sewage (STP)	Details of the treatment method or technology used to treat domestic effluent/ sewage

Indicate the treatment method and quantity (UOM) of treated water.

Scope 1 - Onsite Waste treatment			
Waste Water	DEFINITION	Treatment method or technology (briefly explain)	UOM
Process Effluent (ETP)	This refers to wastewater treated from operational processes or operations. Data to Provide: Details of the treatment method or technology used to treat process effluent		
Domestic effluent / Sewage (STP)	This refers to wastewater generated from domestic activities, such as station toilets, kitchens, staff quarters, and other residential areas. Data to Provide: Details of the treatment method or technology used to treat domestic effluent/ sewage		KL/day

Specify the treatment method or technology.

6. Electricity consumption

6.1 Electricity Use in Locomotives

Field Name	Description & Guidelines
Traction electricity consumption	The total electricity consumed for traction
Regenerative braking	This refers to the electricity generated and fed back into the grid or reused within the railway system through regenerative braking systems. Regenerative braking captures energy during braking and converts it into electricity, reducing overall energy consumption. Data to be provided: Electricity generation (Supplied back to Grid)
Non Traction	<ol style="list-style-type: none"> 1. Station Operations: Lighting, escalators, elevators, air conditioning, and other electrical systems at railway stations. 2. Maintenance Facilities: Electricity used in maintenance depots, and repair yards 3. Administrative Buildings: Electricity used in office buildings, training centers, and other administrative facilities. 4. Passenger Amenities: Electricity used for amenities like waiting rooms, food stalls, and charging stations. 5. Railway colonies

Electricity consumption		
<i>Scope 2 emissions are the greenhouse gas emissions from the electricity or energy that Indian Railways buys and uses for its operations, like traction power, lighting, air conditioning, and machinery.</i>		
	DEFINITION	
Traction electricity consumption	The total electricity consumed for traction	UOM
Electricity Consumption		<input type="text" value=""/>
Regenerative braking	This refers to the electricity generated and fed back into the grid or reused within the railway system through regenerative braking systems. Regenerative braking captures energy during braking and converts it into electricity, reducing overall energy consumption.	UOM
Electricity generation (Supplied back to Grid)		<input type="text" value=""/>
Non Traction	<ol style="list-style-type: none"> 1. Station Operations: Lighting, escalators, elevators, air conditioning, and other electrical systems at railway stations. 2. Maintenance Facilities: Electricity used in maintenance depots, and repair yards 3. Administrative Buildings: Electricity used in office buildings, training centers, and other administrative facilities. 4. Passenger Amenities: Electricity used for amenities like waiting rooms, food stalls, and charging stations. 5. Railway colonies 	UOM

Select the Unit of measurement from the drop-down menu



7. Scope 1 - Land related

This section refers to Land Type cleared for Railway work / Laying track or infrastructure development

Field Name	Description & Guidelines
Forest land/Planted land	Land covered by natural forests or planted trees that is cleared for railway projects.
Grassland	Land covered by grasses or shrubs that is cleared for railway projects.
Cropland	Agricultural land used for growing crops that is cleared for railway projects.
Wetland	Land saturated with water, such as marshes or swamps that is cleared for railway projects.

7.1 Tree plantation

Field Name	Description & Guidelines
Area of Tree Plantation during the year	Land covered by natural forests or planted trees that is cleared for railway projects.
Total number of trees planted during the year	Land covered by grasses or shrubs that is cleared for railway projects.
Area of Tree Plantation (Cumulative)	Agricultural land used for growing crops that is cleared for railway projects.
Total number of trees planted (Cumulative)	Land saturated with water, such as marshes or swamps that is cleared for railway projects.

Specify area (hectares, acres) and number of trees planted (Nos).



8. Source wise electricity consumption Break-up

8.1. Traction

Field Name	Description & Guidelines
Purchase from State electricity board	Electricity procured directly from the state-owned electricity distribution company (DISCOM) at regulated tariff rates. This is often the default source of electricity for railway operations.
Purchase from Open access (Conventional)	Exchange & GENCOS
Purchase from Open Access (RE)	Exchange & GENCOS
Power transaction under DSM from Open Access	Electricity accounted under deviation from GRID
Captive RE generation - OPEX	Installed in facility and power is purchased through agreement
Captive RE generation - Capex	Installed in facility and Owned by Railways

8.2 Non – Traction

Field Name	Description & Guidelines
Purchase from State electricity board	Electricity procured directly from the state-owned electricity distribution company (DISCOM) at regulated tariff rates. This is often the default source of electricity for railway operations.
Purchase from Open access (Conventional)	Exchange & GENCOS
Purchase from Open Access (RE)	Exchange & GENCOS
Power transaction under DSM from Open Access	Electricity accounted under deviation from GRID
Captive RE generation - OPEX	Installed in facility and power is purchased through agreement
Captive RE generation - Capex	Installed in facility and Owned by Railways

Section 3: Potential Carbon offset Projects for Indian Railways

1. Project Categories

To streamline data entry and classification, projects fall under specific categories based on their emission reduction strategies. The table below provides a reference for defining and categorizing projects.

Type of Project	Definition	Example
Energy Efficiency	Projects aimed at reducing energy consumption without compromising service quality.	Retrofitting buildings with LED lighting, implementing energy-efficient HVAC systems.
Renewable energy	Projects generating energy from renewable sources like wind, solar, and hydro to reduce reliance on fossil fuels.	Solar photovoltaic (PV) farms, wind energy projects
Electrification	Transitioning from fossil fuel-based systems to electrical systems	Electrification of devices, replacing diesel generators
Fuel Switch	Substituting higher-carbon fuels with lower-carbon or renewable alternatives.	Switching from coal to natural gas or biomass etc
Wastewater Treatment	Treating wastewater to improve water quality and reduce methane emissions from anaerobic decomposition.	Anaerobic digesters for treating sewage, generating biogas from treated wastewater.
Waste Management (Waste Processing)	Projects that improve waste handling, recycling, or conversion of waste into usable products or energy.	Composting waste, waste-to-energy incineration projects, Biogas generation projects.
Materials		
Plantation	Projects involving afforestation, reforestation, or agroforestry to enhance carbon sequestration.	Planting trees in degraded lands, mangrove restoration projects.
Biogas Generation	Capturing and utilizing methane from organic waste to produce biogas for energy or fuel.	Biogas plants using waste for electricity generation or used as alternative fuel
Biofuel	Producing liquid fuels from organic materials for use reducing dependence on fossil fuels.	Producing biodiesel from used cooking oil
Battery Energy Storage System (BESS)	Systems that store energy from renewable sources or grid electricity for use during peak demand or outages.	Lithium-ion battery systems integrated with solar PV installations for energy storage.
Regenerative Braking	Capturing kinetic energy during braking and converting it into usable electricity, reducing energy consumption in transport systems.	Regenerative braking systems in electric trains

2. Completed Projects (2021-2025)

Field Name	Description & Guidelines
Type of Project	Select the type of project from the dropdown menu (Energy Efficiency, Renewable Energy, etc.).
Project Name & overview	Provide a brief description of the project and its function.
Status	Select the current status of the project from the dropdown (Completed, Ongoing).
PO Placed (Month, Year)	Specify the month and year when the purchase order was placed from the drop-down menu.
Commissioning (Month, Year)	Enter the month and year when the project was commissioned from the drop-down menu.
Investment Made (INR)	Total capital investment in the project.
Annual Cost Savings (INR)	Expected financial benefits from project implementation.
Payback Period (Years)	Time required for cost recovery.
Annual GHG Emission Reductions (Tons of CO₂e)	Estimated emissions reduction from the project.
Annual Energy Savings	Provide energy savings and specify the unit (kWh, MJ, etc.).
Annual Savings in Water or Materials	Specify the water or material savings, mentioning the relevant unit (Liters, Kg).
Reduction in Waste	Provide the estimated waste reduction details.
Comments / Remarks	Any additional information regarding the project, including clarifications if required.
Only for Renewable Energy Projects	
Type of Project	Select the renewable energy type (Solar PV, Wind, Hydro, etc.).

Capacity (MW/kWp)	Mention the installed capacity of the renewable energy system.
Quantity of Annual Energy Generated (kWh/MWh)	Specify the expected energy generation per year.

Completed projects (2021-2025)	
Type of Project	Project Name and Overview
<div style="border: 1px solid gray; padding: 5px;"> <ul style="list-style-type: none"> Energy Efficiency Renewable energy Electrification Fuel Switch Wastewater Treatment Waste Management (Waste Processing) Plantation Biogas Generation </div>	

Select the project type from the dropdown list.

3. Planned Projects (2025 Onwards till 2040)

Field Name	Description & Guidelines
Type of Project	Select the type of project from the dropdown menu (Energy Efficiency, Renewable Energy, etc.).
Name of the project	Provide a brief description of the project and its function.
Status	Select the current status of the project from the dropdown (Completed, Ongoing, or Planned).
Start Date & Month	Provide the planned start date of the project.
Commissioning (Month, Year)	Enter the month and year when the project will be commissioned from the drop-down menu.
Investment Made (INR)	Estimated investment for the project.



Annual Cost Savings (INR)	Expected financial benefit upon project completion.
Payback Period (Years)	Estimated time required for cost recovery.
Annual GHG Emission Reductions (Tons of CO₂e)	Projected emissions reduction potential.
Annual Energy Savings	Expected energy savings with specified unit (kWh, MJ).
Annual Savings in Water or Materials	Expected resource conservation and savings.
Reduction in Waste	Estimated waste minimization.
Comments / Remarks	Any additional information regarding the project, including clarifications if required.
Only for Renewable Energy Projects	
Type of Project	Select the renewable energy type (Solar PV, Wind, Hydro, etc.).
Capacity (MW/kWp)	Mention the installed capacity of the renewable energy system.
Quantity of Annual Energy Generated (kWh/MWh)	Specify the expected energy generation per year.

Only for Renewable Energy Projects		
Type of Project	Capacity	Quantity of Annual Energy generated
Solar		
Wind		
Biogas		
Waste to Energy		
Biofuel		
Biomass		
Energy Storage		
Green Hydrogen		

Select the Renewable Energy project type from the dropdown list.