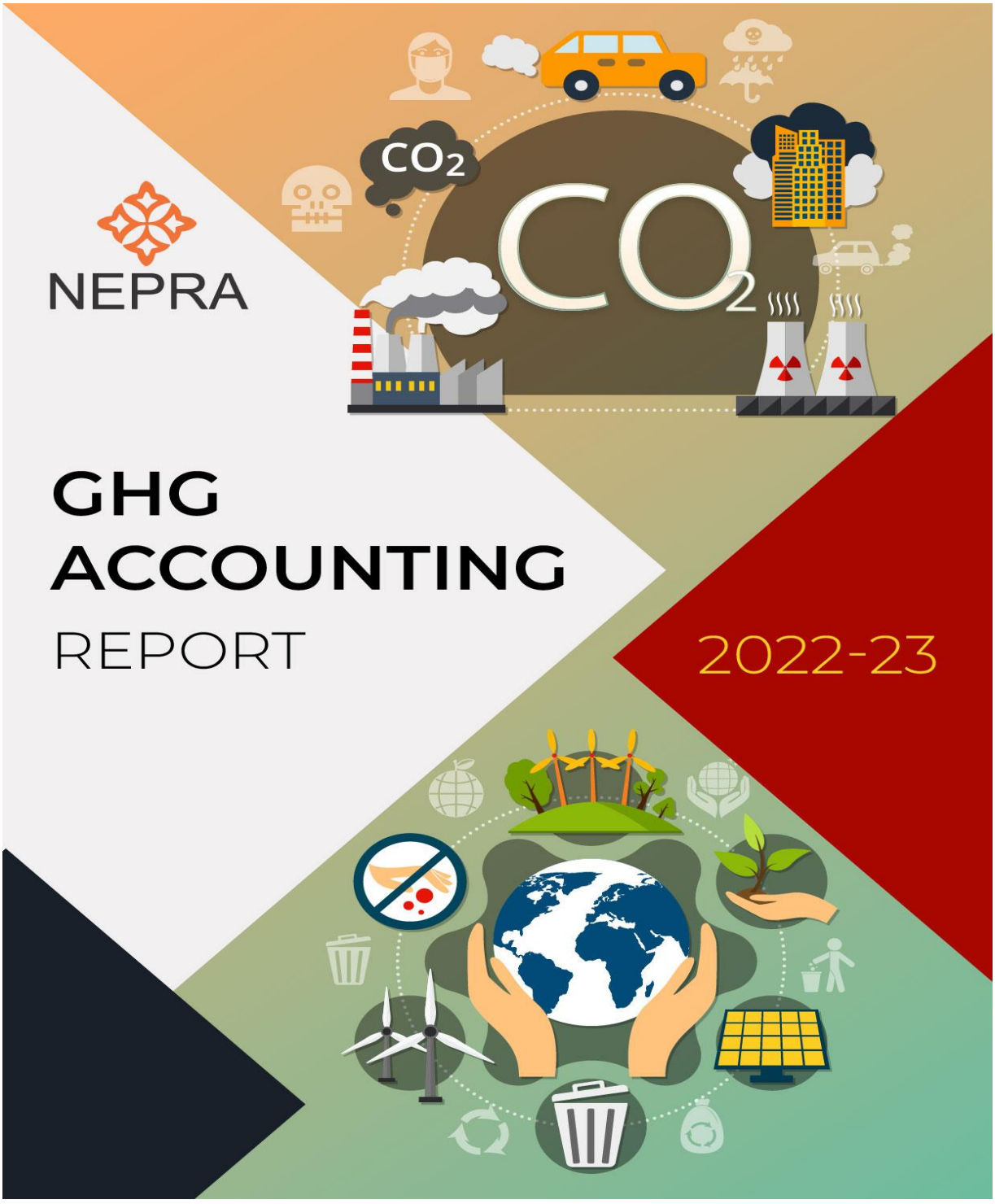
RESPONSIBLE ACTIONS FOR A SUSTAINABLE FUTURE



NEPRA RESOURCE MANAGEMENT PRIVATE LIMITED

Contents

1. Introduction

Nepra Resource Management Private Limited is a waste management and sustainability solutions provider company. Our core business model supports GHG mitigation through the diversion of dry solid waste from landfills to recycling and other sustainable options like co-processing. The waste management sector contributes to approximately 3-5% of total GHG emissions. The climate benefits offered by dry waste management are from:

- Avoided landfill emissions
- Reduced extraction raw virgin materials
- Reduced use of fossil fuels through replacement with Refuse Derived Fuel (RDF)/Alternative Fuel Resource (AFR)

We have 1 Corporate Office, 4 MRFs, and 1 VAF in India. We also serve our clients with Enviro legal, Extended Producer Responsibility, and Environmental Social, and Governance advisory. We always strive to positively impact people and the planet and therefore we are ambitious to set climate-related goals that align with the global commitments under the Paris Agreement. We look forward to setting our 1.5◦C pathway with SBTi alignment in the coming year.

The report provides details of the organization's GHG Emissions that shall be foundational to our climate strategy. With the accounting of our GHG emissions, we will move forward with the identification of tangible means that shall enable us to decarbonize operations.

Emission Summary for FY 2023

Scope 1 Emission (MT CO2e.)	Scope 2 emission (MT CO2e.)	Total GHG Emissions (MT CO2e.)	Emission Intensity (Emission/MT of waste processed)
320	1579	1899	0.010

Scope 3 categories	Scope 3 emission (MT CO2e.)
Category 9 (Downstream Transportation)	13,438

GHG Emission Mitigation Summary for FY 2023

Waste Category	GHG Emission Mitigated (MT CO2e)
Dry Solid Waste	77057*
Refuse Derived Fuel	203202.5**

Nepra largely contributes to GHG mitigation through its operations. GHG Emissions (Scope 1+2) are less than 1% of total GHG mitigated through waste diversion from landfills.

***** USEPA tool Version 14

* *TERI research; Assuming 1.48-ton CO2 emission reduction per tonne usage of RDF - 137299 *1.48 = 203202.5

Sustainability at Core

Nepra was incorporated in the year 2011 to organize the highly informal waste management sector and encourage circular economy principles. Innovation and technology integration were identified as critical to bring in efficiency and better recovery and today it has grown from 100TPD capacity to 700TPD capacity with automation and inbuilt ERP systems. The 900+ women working at MRFs belong to the bottom of the pyramid and 1800+ waste pickers form an integral part of our value chain. We have built an inclusive business model. Our new Value-Added facility is a Zero Liquid Discharge facility. Nepra has diverted over 5,00,000 MT of dry waste to date. Nepra is not only a Zero Waste to landfill Organization but has made several events, cities, and organizations zero waste-to-landfill through its services.

Approach to Climate Strategy

We have a strategized approach to defining our climate goals. The key points are as below:


Identify Energy Reduction and Efficiency Opportunities in Operations


Identify emission reduction and offsetting opportunities


Account Scope 3 emissions with reduction opportunities in the value chain


Analyse Climate risk impacts and develop a cost-effective mitigation plan


Set Measurable targets and define a decarbonization pathway based on SBTi

2. Organizational Boundary

The report includes the following owned and operational units and all units are in India.

S. No.	Unit Location	Details	Capacity
1	Ahmedabad Office	Corporate Head Office	236 Employees
2	Ahmedabad	Material Recovery Facility	100 TPD
3	Indore	Material Recovery Facility	300 TPD
4	Pune	Material Recovery Facility	100 TPD
5	Jamnagar	Material Recovery Facility	60 TPD
6	Sanand	Value Addition Facility	6000 TPA

MRF- A Material Recovery Facility (MRF) is where the dry waste is segregated, sorted, processed (bales, shredding), and made ready for further recycling and sustainable disposal.

VAF- A Value Added Facility is where the recycling of plastic waste is carried out and granules are made.

Exclusions: The controlled facilities where Nepra manages waste at the client site and that are not owned or fully controlled are not considered in our GHG Inventory.

3. Reporting Boundary

The present GHG Inventory report (Scope 1, 2 and 3) is in line with the Green House Gas Protocol (GHG Protocol). The calculations are based on the Greenhouse Gas Protocol Corporate Value Chain Accounting and Reporting Standard.

4. Reporting period

The reporting period is April 2022 to March 2023

5. Methodology

The GHG accounting and reporting procedure is based on the 'The Greenhouse Gas Protocol: GHG Protocol: A Corporate Accounting and Reporting Standard. It is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage GHG emissions. The standards were developed in a partnership between the World Resources Institute and the World Business Council for Sustainable Development.

The accounting is based on the principles of the GHG Protocol

- **Relevance**: an appropriate inventory boundary that reflects the GHG emissions of the company and serves the decision-making needs of users;
- **Completeness**: accounting includes all emission sources within the chosen inventory boundary. Any specific exclusion is disclosed and specified;
- **Consistency**: meaningful comparison of information over time and transparently documented changes to the data;
- **Transparency**: data inventory sufficiency and clarity, where relevant issues are addressed coherently; and
- **Accuracy**: minimized uncertainty and avoided systematic over- or under-quantification of GHG emissions.

Activity data and details

Scope1 Emissions include direct emissions from stationary or mobile combustion sources.

It is calculated for all units individually. It includes fuels used in D.G sets and Forklifts at our units. The fuel data is captured from the bills. The emission factors are sourced from IPCC 2006 Guidelines for National Greenhouse Gas Inventories.

No refilling of refrigerants took place in the reporting year.

Scope 2 includes indirect emissions from purchased electricity, steam, heating & cooling for own use.

It is calculated for all units individually. No steam, heating, or cooling is used by any of our units. The electricity data is captured from the bills.

The factors are based on the CO2 baseline database for the Indian Power Sector version 18 published by the Ministry of Power, Central Electricity Authority GOI. The carbon emission factor of grid electricity used is inclusive of Renewable Energy.

Scope 3 includes indirect emissions from value-chain activities. We have identified the categories of reporting and the data collection process is under progress. We have reported for category 9 and shall report the other categories in our next reporting year. The emission factors for category 9 road transport HGV/LGV are sourced from IPCC 2006 Guidelines for National Greenhouse Gas Inventories.

ESG Konnect Platform: Data Management System

The input activity data shall be routed through data management systems in the next reporting year. ESG Konnect is an online platform for managing, monitoring, and reporting key environmental, social, and governance attributes.

6. Green House Gas Inventory

S. No.	GHG Emissions	Units	FY 2022	FY 2023
1	Scope 1 – Owned Operations	MTCO2e.	113	320
2	Scope 2 - Location Based	MTCO2	500	1579
3	Total GHG Emissions	MTCO2e.	613	1899
4	GHG Intensity	MTCO2e./MT of waste processed	0.005	0.010

Scope 3 categories	Scope 3 emission (MT CO2e.)
Category 9 (Downstream Transportation)	13,438

It includes transportation of sorted waste including RDF from MRF and other sites to recyclers and cement plants for co-processing as applicable.

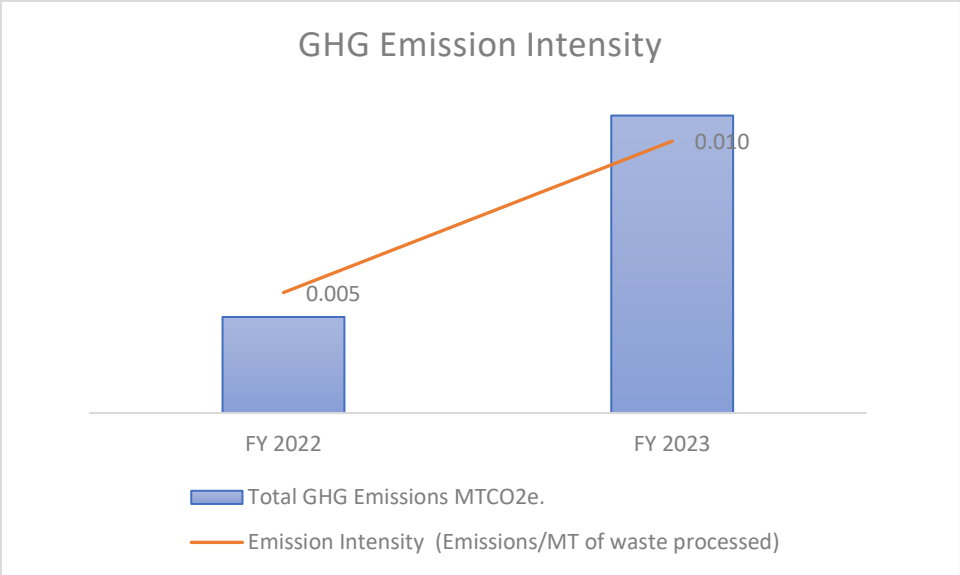
Unit Wise Details

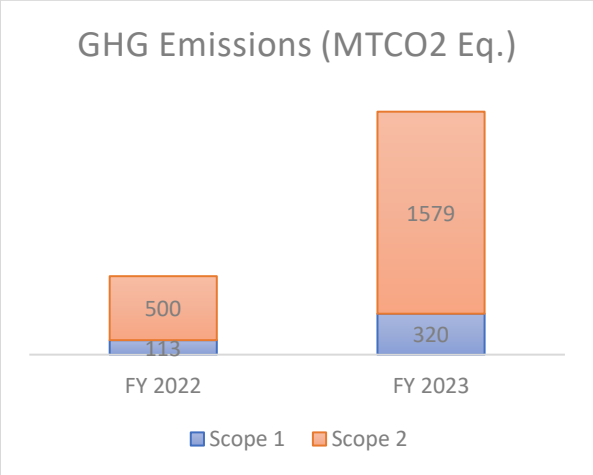
Unit Wise	Energy Consumption (GJ)		GHG Emissions (MTCO2e.)	
	FY 2022	FY 2023	FY 2022	FY 2023
Ahmedabad HO	159.26	318.34	31.63	63.23
Ahmedabad MRF	876.34	606.92	160.47	114.27
Jamnagar MRF	155.97	651.95	30.98	96.78
Indore MRF	1638.02	7948.92	175.57	1218.95
Pune MRF	1206.26	1784.36	214.57	314.60
Sanand VAF	0.00	934.86	0.00	91.55

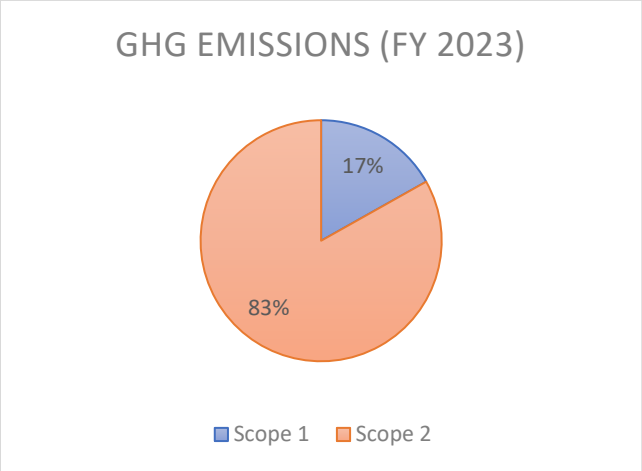
The increase in emissions and energy consumption is attributed to expansions in terms of a new recycling facility in Sanand, Gujarat. Also, additional processes were introduced to enhance the quality of waste as per market requirements. Ex. At the Indore, Pune, and Jamnagar facilities shredders were installed to shred the AFR before being sent to cement plants. The installation of the shredder ensured the de-risking of the supply chain ensuring a continual supply of AFR/RDF which forms a major part of sourced waste composition. More offices were added to the head office with the increase in number of employees working.

Source Wise Details

Source	Energy (GJ)		Emissions (MTCO2e.)	
	FY 2022	FY 2023	FY 2022	FY 2023
Diesel	1518.05	4293.41	113	320
Electricity	2517.80	7951.95	500	1579


GHG Emission Intensity
0.010
0.005
FY 2022
FY 2023
Total GHG Emissions MTCO2e.
Emission Intensity (Emissions/MT of waste processed)


GHG Emissions (MTCO2 Eq.)
500
113
1579
320
FY 2022
FY 2023
Scope 1
Scope 2


GHG EMISSIONS (FY 2023)
17%
83%
Scope 1
Scope 2

7. Carbon Emission Mitigation

Through the services, Nepra contributes to carbon emission mitigation by waste diversion from landfills and recycling of plastic, paper, metal, etc., and use of waste as alternative fuel for the replacement of coal in cement plants.

Selection of Baseline scenario

In the absence of waste management services by NEPRA the baseline scenario considered is that waste would have entered the landfills. It is considered that in the absence of incentives, awareness programs, and waste management set up for recovery from a mixed stream and its recycling, the value chain was less established and exploited leading to the dumping of waste.

Waste diverted from landfills and GHG mitigated

Recyclable Waste- Nepra sorts and processes plastics, paper, metal, rubber and wood. The waste is recycled and used in different processes by value chain partners.

Refuse Derived Fuel- Nepra processes waste to generate refuse derived fuel (RDF) waste. This RDF is used as an alternate fuel in cement plants for co-processing. A part of the coal requirement is replaced with the RDF for power generation in cement plants. For every 1MT of RDF that replaces coal, 1.48 MT of CO2e. is mitigated.

Annual GHG Mitigation through Waste Diversion from landfill in FY 2022-23

Waste Category	Waste Diverted (MT)	GHG Mitigated (MTCO2e)
Dry Solid Waste	44162	77057*
Refuse Derived Fuel	137300	203202.5**

Beneficiary- Stakeholders:

*USEPA tool Version 15

** TERI research; Assuming 1.48-ton CO2 emission reduction per ton usage of RDF

8. Conclusion

Nepra is cognizant that climate change impacts are detrimental to the global economy, and climate crisis requires urgent attention with tangible actions. Nepra can play a significant role in mitigating the same by contributing to the decarbonization of the economy as a whole. While Nepra is already committed to the Paris Agreement for climate action, the findings of the report are helpful in baseline identification and strategizing our steps with Science Based Targets (SBTi) towards mitigation of climate change impacts. Our unwavering commitment to the creation of a circular and sustainable economy is reflected in terms of MTCO2e. mitigation as well.

Nepra is working on more categories under cope 3 emissions. The ESG Konnect platform powered by AI, ML, and other proprietary technologies standardizes information flow, accuracy, and authenticity and brings in transparency.

Annexure I- Emission factor references

The reporting considers the following greenhouse gases converted to CO2 equivalents- CO2, CH4 and N2O

S. No.	Scope	References
1	Diesel consumed in stationary Sources	2006 IPCC Guidelines for National Greenhouse Gas Inventories
2	Diesel consumed in Mobile Sources	2006 IPCC Guidelines for National Greenhouse Gas Inventories
3	Electricity Consumed	CO2 baseline database for the Indian Power Sector- Ministry of Power, CEA 2022

Annexure II-Key References as per GRI Reporting

Disclosure No.	Particulars	Section	Page No.
302-1	Energy Consumption within the organization	6. Green House Gas Inventory	6
302-3	Energy Intensity		
305-1	Direct Scope 1 GHG Emissions		
305-2	Energy Indirect Scope 2 GHG Emissions		
305-3	Other Indirect Scope 3 GHG Emissions		

Annexure III- Key References as per BRSR Reporting

Principle 6 Indicators	Particulars	Section	Page No.
Essential-1	Total electricity consumption (D)	6. Green House Gas Inventory	6
	Total fuel consumption (E)		
	Direct Scope 1 GHG Emissions		
	Energy Intensity		
Essential -7	Total Scope 1 emissions		
	Total Scope 2 Emissions		
	Total (Scope 1 and 2) emission Intensity		

Abbreviations

AFR	:	Alternative Fuel and Raw Material
BRSR	:	Business Responsibility and Sustainability Reporting
CO2e	:	Carbon Dioxide equivalent
ESG	:	Environment Social Governance
GHG	:	Green House Gases
GRI	:	Global Reporting Initiative
MRF	:	Material Recovery Facility
RDF	:	Refuse Derived Fuel
SBTi	:	Science-Based Targets Initiative
TPD	:	Tons per day
TPA	:	Tons per Annum
VAF	:	Value Addition Facility