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Solutions for Sustainable Tomorrow

CARBON FOOTPRINT ASSESSMENT REPORT

A Reflection on Vision Center and Climate Impact.

Contents

ABBREVIATIONS

LED	Light Emitting Diode
HVAC	Heating, Ventilation & Air Conditioning
GHG	Green House Gas
FY	Financial Year
CO2e	Carbon dioxide equivalent
LPG	Liquefied Petroleum Gas
SDG	Sustainable Development Goals
CEA	Central Electricity Authority
MWh	Megawatts Hours
kWh	Kilo Watt Hours
HSD	High Speed Diesel
MT	Metric Tonnes
GWP	Global Warming Potential
IPCC	Intergovernmental Panel for Climate Change
ETP	Effluent Treatment Plant
GVC	Green Vision Centre
Non-GVC	Non Green Vision Centre
STP	Sewage Treatment Plant
KLPD	Kilo Litres Per Day
kg	Kilo gram
km	Kilo meter
kV	Kilo Volt
kWp	Kilowatt peak
MU	Million Units
MW	Megawatts
NA	Not Available
MITCON	MITCON Consultancy & Engineering Services Limited
SNC	Shri Sadguru Netra Chikitsalaya
SDG	Sustainable Development Goals
SCEH	Shroff;s Charity Eye Hospital
SGLEH	Siliguri Greater Lion Eye Hospital

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BACKGROUND

Healthcare systems plays a vital role in improving human well- being, however, they also have an impact on the greenhouse gas emissions. According to the World Health Organization, the healthcare sector accounts for approximately 5% of global climate emissions comparable to entire aviation industry. The year 2023 was officially declared the warmest on record by the World Meteorological Organization (WMO), registering an average global temperature anomaly of +1.45°C above the pre-industrial baseline critically close to the 1.5°C threshold set by the Paris Agreement.

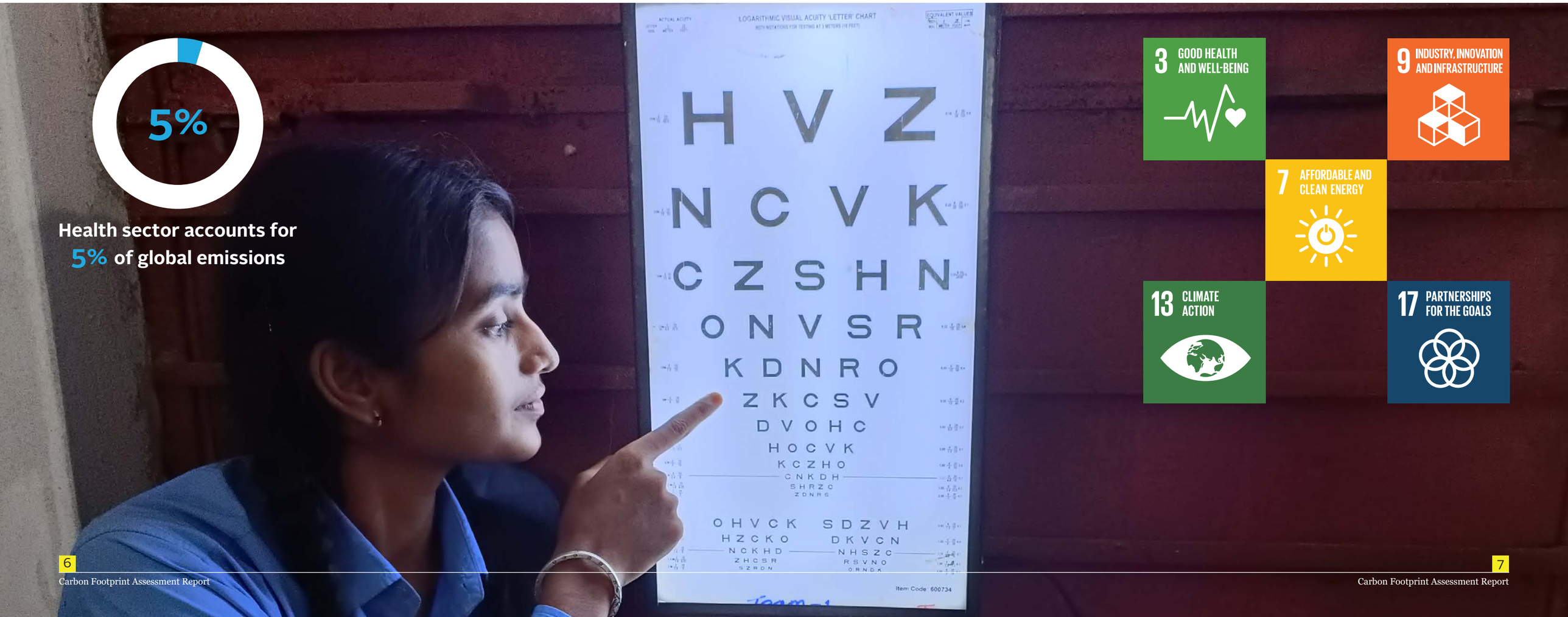
India, being the world's third-largest emitter at approximately 4 $GtCO_2e$ annually, has committed under its Nationally Determined Contribution (NDC) to reduce the emissions intensity of its GDP by 47% by 2035 over 2005 levels and to achieve 60% cumulative electric power from non-fossil sources by 2035. Within this national commitment, the health sector holds a unique dual position, it contributes to the emissions problem while also responding to the health consequences of climate change.

Eye health, in particular, is critically intertwined with climate change.

Scientific evidence indicates a rise in cataract incidence because of global warming due to increased ultraviolet radiation exposure, worsening air quality and extreme weather events. In this context, Orbis International's funding for rural and suburban vision centres is more than just a healthcare intervention; it is a climate-adaptive public health response.

Under the study scope, Orbis International, through its network of Green and Non-Green Vision Centers in Uttar Pradesh, West Bengal, Odisha, and Maharashtra,

addresses the global issue of preventable vision loss. Visual impairment is estimated to cost the world $411 billion in productivity loss each year according to World Health Organization. Understanding and mitigating these centres' environmental footprint is thus both a sustainability imperative and a strategic alignment with sustainable development goals such as SDG 3 (Good Health and Well-being), SDG 9 (Industry Innovation and Infrastructure), SDG 13 (Climate Action) and SDG 17 (Partnerships for the Goals).



OBJECTIVE OF THE STUDY

As global efforts to combat climate change increase, there is growing demand across all sectors to quantify, control, regulate, and decrease greenhouse gas emissions. Healthcare, though vital for the well-being of people, is progressively acknowledged as a factor in global emissions.

The actual climate change impact of healthcare services particularly eyecare is unclear. Opportunities remains insufficiently addressed for emissions reduction through vision centers. The climate advantages of innovative service models frequently remain unacknowledged.

In the current context, quantifying emissions is essential, it is a vital metric for developing accountable, forward-looking healthcare systems.

Beyond Measurement: Understanding Impact

Quantifying emissions is crucial, but understanding the wider climate implications of healthcare delivery models is equally essential.

Conventional GHG emissions evaluations concentrate on emissions generated during operations of vision centers. In decentralised systems, a significant portion of the impact is obtained from emissions avoided, especially those which are linked to the patient travel, base hospital visits, and ineffective service delivery systems.

Assessment of both GHG emissions generated and emissions aboided offers a thoroughand significant insight into the relationship between eyecare systems and climate change.

Orbis International Initiative Impact

In this context, the Vision Centre initiative by Orbis demonstrates how eyecare delivery can be inclusive and environmentally sustainable.

Orbis has considerably reduced the necessity for patients to travel such extensive distances for eye care services by establishing Vision Centres in rural and semi-urban regions. These centers offer:

- Vision Screening
- Refraction Services
- Referral to Base Hospital for advanced treatment
- Provision of Spectacles
- Distribution of Medicines
- Teleconsultation Services

Building on this foundation, Orbis has further enhanced its approach through the introduction of Green Vision Centres (GVCs).

These centres integrate sustainability into their design and operations through:

Solar energy adoption

Energy-efficient equipment and lighting

Digital systems and teleconsultation

Use of electric mobility for outreach activities

EXECUTIVE SUMMARY

Carbon Footprint Assessment report presents the net impact on climate change by the visions centers implemented by the Orbis International covering both Green Vision Centers and Non-Green Vision Centers.

The assessment has been carried out for total of 50 nos. of vision centers (25 GVC and 25 Non-GVC) in accordance with internationally recognized frameworks such as ISO 14064-1:2018, Greenhouse Gas (GHG) Protocol, ensuring transparency, consistency and comparable with global centers.

While the vision centers, generated GHG emissions from its operational activities, the model developed by Orbis International, delivers a net positive climate impact, as the avoided emissions from reduced travel by patients, outreach activities by vision centers, exceeds the operational GHG emissions.

ISO 14064

GREENHOUSE GAS PROTOCOL

Table 1 Profile of GVCs and Non-GVCs

Parameter	GVC	Non-GVC
No. of Vision Centres	25	25
Total Patients Served (FY 2023-24)	75,520	82,535
Total Patients Served (FY 2024-25)	93,483	92,166
Total Staff (FY 2024-25)	96	92
Combined Footprint (sq. ft.)	27,870	10,144
Geographic Spread	Uttar Pradesh, West Bengal, Odisha, Maharashtra	Uttar Pradesh, Madhya Pradesh, West Bengal, Odisha, Maharashtra
Total Population Served	5,33,54,702	

These initiatives provide an opportunity with low-carbon, sustainable and scalable healthcare model for rural communities.

Table 2 GHG Emissions Generated, Avoided, Net

GHG Emissions : Generated		
	FY 2023-24	FY 2024-25
	138,992 $kgCO_2e$	145,999 $kgCO_2e$
GHG Emissions : Avoided		
	FY 2023-24	FY 2024-25
	971,043 $kgCO_2e$	1,093,168 $kgCO_2e$
GHG Emissions : Net		
	FY 2023-24	FY 2024-25
	-832,051 $kgCO_2e$	-947,169 $kgCO_2e$

CHAPTER – 1

APPROACH & METHODOLOGY

The accuracy and scope of any greenhouse gas (GHG) evaluation are governed by the integrity and transparency of its approach and methodology. The carbon footprint assessment of Orbis International's Vision Centre network, comprising 25 Green Vision Centres (GVCs) and 25 Non-Green Vision Centres (Non-GVCs) across four Indian states, was conducted by MITCON Consultancy & Engineering Services Ltd. via a careful, multi-phase engagement process based on internationally recognized standards.

This chapter establishes the comprehensive methodology implemented by MITCON, which includes: project initiation, design of data collection instruments, field surveys, dataset consolidation, quantification of GHG emissions, analysis of avoided emissions, and incorporating the results of findings into this Carbon Footprint Assessment Report.

All data collection, verification, and GHG quantification protocols in this assessment are aligned with ISO 14064-1:2018 — the international standard for the quantification and reporting of greenhouse gas emissions and removals at the organisational level.

Methodology Overview

Every phase of MITCON's involvement was carefully arranged in order to ensure data accuracy, operational relevance, and methodological strength. Below is step-by-step approach:

Project Initiation and Understanding

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Development of ISO 14064 Aligned Data Collection Template

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Phase 1
Data Collection and Verification of 5 Sample GVCs and Non GVCs

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Phase 2
Data Collection and Verification for Rest of GVCs and Non GVCs

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Data Consolidation Activity & Emission Assessment

↓

GHG Emission Impact Analysis

↓

Final Deliverable
Carbon Footprint and Impact Assessment Report

STEP 1 Project Initiation and Understanding

Approach

The engagement commenced with MITCON deploying an assessment team comprising GHG lead veirifier, environmental engineers, and sustainability consultants. The primary objective of this phase was to develop a deep, first-hand understanding of the operational activities, energy consumption, outreach activities, and supply chain activities of both GVC and Non-GVC models.

Key Activities Undertaken:

- Conducted sample site visits to 5 nos. each at GVCs and Non-GVCs.
- Held meetings with Vision Centre in-charges, staff, and administrative personnel to map all GHG emission sources.
- Reviewed operational records, energy bills, equipment inventories, vehicle logs, and procurement logbooks to assess data availability and quality.
- Conducted consultations with Orbis International project incharge to align the assessment scope with organisational objectives and reporting requirements.
- Documented the unique operational differentiators of the Green Vision Centre model including solar photovoltaic systems, e-bikes, community outreach programmes, and energy-efficient infrastructure, to ensure these would be accurately captured as both GHG emission sources and avoided emission activities.

Significance:

This initiation phase was necessary to make sure that the project boundary was properly defined. It was essential to consider not only the centers' direct operational footprint, but also the significant advantages of avoiding emissions that came from GVC community healthcare delivery.

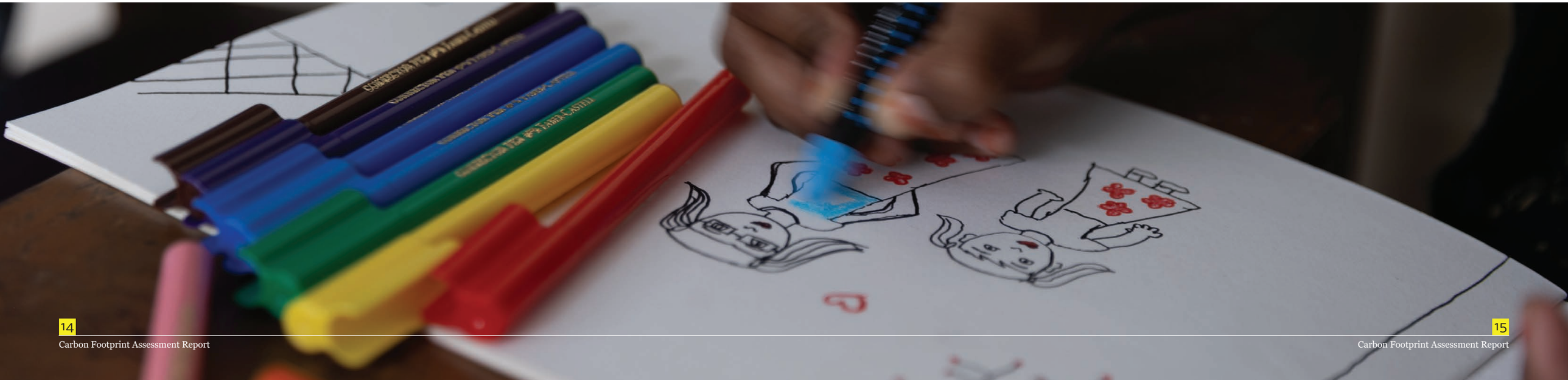
STEP 2 Development of ISO 14064-Aligned Data Collection Template

Approach

Using the operational insights from Step 1, MITCON created a complete, structured data collection template that met the standards of ISO 14064-1:2018. This template was the main tool used to make sure that activity data from all 50 Vision Centers was consistent, complete, and comparable, regardless of the size or location.

Template Design:

- Scope Coverage: Separate data capture modules were designed for Scope 1 (direct emissions), Scope 2 (purchased electricity), and Scope 3 (upstream and downstream value chain activities).
- GVC-Specific Modules: A dedicated section was incorporated for quantifying avoided emissions through solar generation, e-bike usage, and community outreach activities.
- Emission Factor: Each activity data field was linked to the relevant emission factor, sourced from the Central Electricity Authority (CEA), Ministry of Environment, Forest and Climate Change (MoEFCC), and IPCC Tier 1 default factor.
- Dissemination: The finalised template was disseminated to all 50 Vision Centres through Orbis India's programme management network, accompanied by a structured data collection guidance note and a MITCON helpdesk for query resolution.



STEP 3 Phase -1 Data Collection and Verification of 5 Sample GVCs and Non-GVCs

Approach

The first step was the organised field data collection, which the MITCON assessment team carried out by visiting 10 Vision Centers in Uttar Pradesh and Odisha. Five of these were GVCs and five were Non-GVCs.

Field Activities:

- Physical inspection and verification of electricity consumption, diesel generator fuel logs, and solar electricity generation records.
- Review and verification of procurement invoices for consumables, equipment, and goods.
- Staff commuting surveys and vehicle logbook review to verify employee travel data and modal split.
- Documentation of outreach programme activity records such as Anganwadi visits, school visits, and eye camps conducted, to quantify the patient-kilometres avoided through vision centers community engagement.

STEP 4 Phase -2 Data Collection and Verification for Rest of GVCs and Non-GVCs

Approach

In this phase, MITCON increased the scope of the assessment based on the validated methodology from Phase 1. This phase included both ongoing verification activities and remote data collection & its verification. This hybrid model enabled it to be feasible for the assessment to expand swiftly across the entire 50 vision centre network while still meeting ISO 14064 data quality standards.

On-Site Validation (Sambhalpur & Uttar Pradesh):

- MITCON conducted targeted site visits to 2 additional GVCs and 2 Non-GVCs in Odisha and Uttar Pradesh, applying the same field validation protocols established in Phase 1.
- These sites were selected on the basis of operational complexity and data availability challenges identified during Phase 1.

Remote Data Collection (for Rest of GVCs and Non-GVCs):

- Activity data was systematically compiled for 18 additional GVCs and 18 Non-GVCs through a structured remote data collection process aligned with ISO 14064 standards
- MITCON's technical team conducted desk-based verification of all remotely submitted data, including checking of evidences for utility bills, invoices, outreach activity registers and records.
- Data gaps and inconsistencies were resolved through direct communication with Vision Centre managers and Orbis programme officer.
- The combined Phase 1 and Phase 2 dataset covered all 50 Vision Centres providing a complete, verified activity dataset for both FY 2023-24 and FY 2024-25.

STEP 5 Data Consolidation Activity & Emission Assessment

Approach

After the completion of both field and remote verification phases above. MITCON consolidated all activity data into a database. This consolidated database served as the sole input for all GHG emission calculations.

Emission Assessment:

GHG emissions were quantified by multiplying the Activity Data × Emission Factor approach, prescribed by both the GHG Protocol and ISO 14064. The following emission factors were applied:

- Grid Electricity: State-level grid emission factors published by the Central Electricity Authority (CEA), Government of India.
- Diesel/Petrol Combustion: Emission factors sourced from MoEFCC National GHG Inventory guidelines and IPCC Tier 2 values for liquid fuels.
- Purchased Goods & Services: Industry-average life cycle emission factors for medical consumables and suppliers.
- Employee Commuting: Mode-specific emission factors applied to distances.
- Refrigerants: Global Warming Potential (GWP) values from IPCC AR6 applied to refrigerant leakage quantities.

STEP 6 GHG Emission Impact Analysis

Approach

A unique and valuable part of this assessment was the systematic measurement of emissions that were avoided because of to the Green Vision Centre model. This assessment was designed to measure not only what the Vision Centres emit, but also what they avoid.

Avoided Emission Assessment:

- **Solar PV Generation:** Electricity generated on-site through rooftop solar panels displaces grid electricity consumption which is dominated by fossil fuel. Avoided emissions were calculated using the same CEA grid factor applied to Scope 2 emissions, ensuring methodological consistency.
- **E-Bike:** Electric bicycles used for outreach activities (camp visits, school and Anganwadi visits) replace petrol based two-wheelers. Avoided emissions were calculated against a petrol combustion.
- **Community Outreach:** Vision Centers outreach eliminates the need for patients to travel to base hospitals. Patient travel distances avoided were estimated from programme records, and avoided emissions were calculated using transport emission factors.
- **Vision Centre Screenings and Post-Surgery Follow-Up:** Local vision centre screenings reduce patient travel to distant urban hospitals. Post-surgery followup visits coordinated through vision centers networks further reduce transport related emissions by replacing long-distance travel.

STEP 7 Carbon Footprint and Impact Assessment Report

Approach

The final carbon footprint report is prepared in line with ISO 14064-1:2018 standard and GHG Protocol. The report included emission scope, its sources and emissions avoided were evaluated by the operational activities of Vision Centers.

Report Content Architecture:

- Complete GHG emission inventories for all 50 Vision Centres across Scope 1, 2, and 3 categories for FY 2023-24 and FY 2024-25.
- Avoided emission accounting for activities, with a breakdown by avoidance parameters and individual centre.
- Key Performance Indicators (KPIs): GHG intensity per patient served, per square foot of facility area, and per employee.
- Year-on-year trend analysis for both emission categories and intensity metrics, establishing a performance baseline for future reduction target-setting.

Data Quality Framework:

QA Stage	Responsibility	Method
Primary Data Collection	MITCON Assessment Team	Structured ISO 14064-aligned templates, review of invoices, logbooks, electricity bills
Site Verification	MITCON Lead Verifiers	On-site verification of activity data against utility bills, records, and operational logs
Remote Validation	MITCON Technical Team	Digital document submission and review for all remaining centres, discrepancy resolution via direct contact with Vision Centre managers
Emission Factor Verification	MITCON GHG Verifier	CEA grid emission factor, MoEFCC Tier 1 factors, IPCC defaults for gaps, all factors documented with source reference

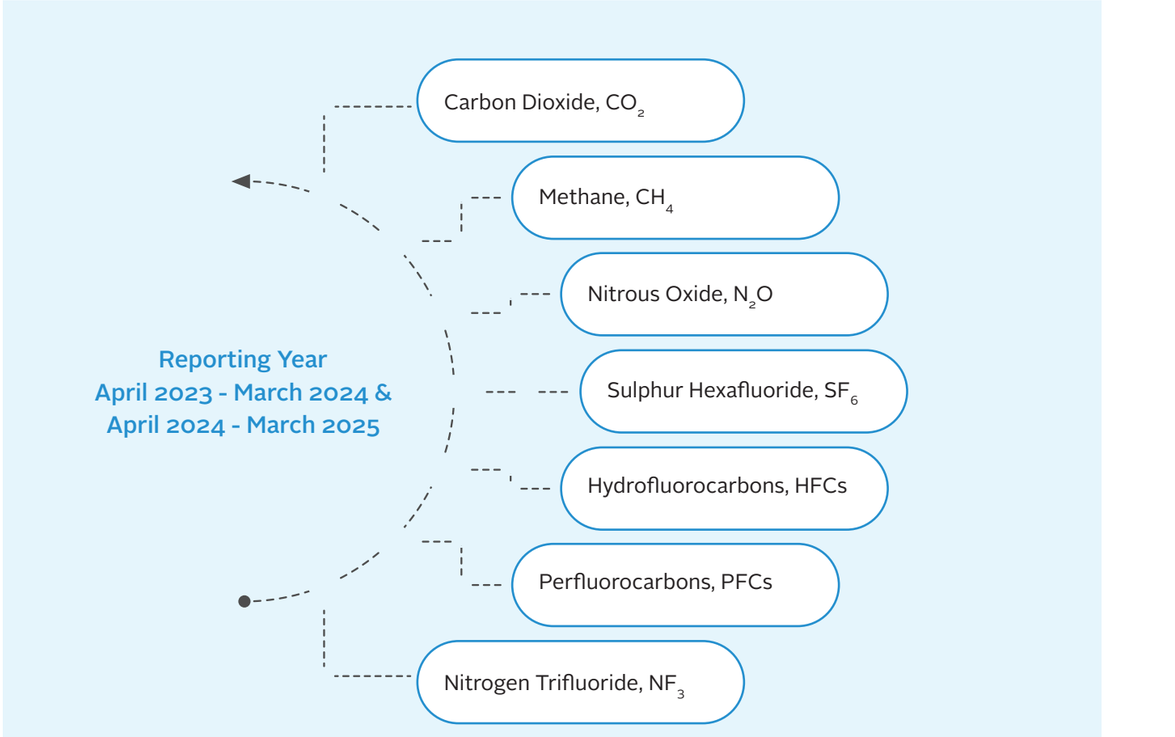
CHAPTER – 2

GHG INVENTORIZATION METHODOLOGY

2.1 Greenhouse Gases Covered Under the Study

This greenhouse gas (GHG) inventory has been prepared in line with the principles and requirements of ISO 14064-1. The study covers all relevant greenhouse gases that contribute to climate change and fall within the defined organizational and operational boundaries for the reporting period.

Emissions have been calculated and presented in terms of carbon dioxide equivalent (CO_2e), using appropriate Global Warming Potential (GWP) factors based on internationally accepted guidelines.



2.2 Accounting Standard

GHG Protocol & ISO-14064-1

Conducting a greenhouse gas (GHG) emissions inventory is a crucial first step for companies addressing climate change. It helps identify risks and opportunities in a carbon-constrained economy, influencing strategic aspects like compliance, competitiveness, and corporate responsibility, as well as operational decisions on production, materials, and energy sourcing. The Greenhouse Gas Protocol, developed by the WBCSD and WRI, serves as a voluntary international standard for GHG accounting and reporting. It enables businesses to consistently report emissions from global operations, offering clarity on GHG risks and opportunities, and allowing comparisons across organizations.

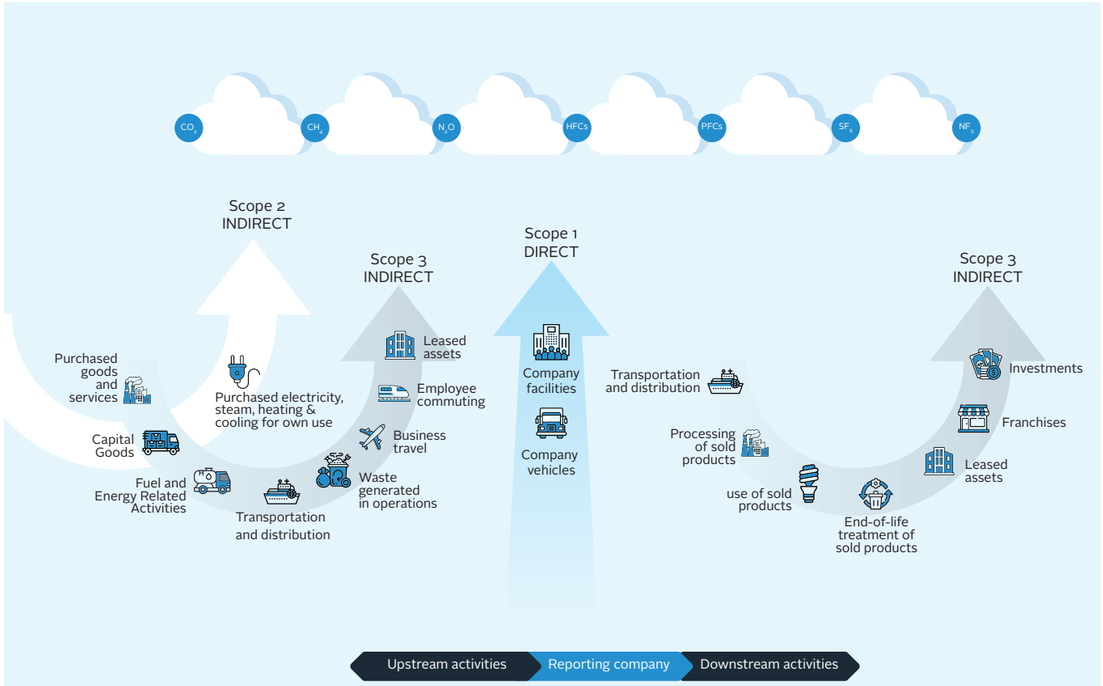


Figure 1: Direct & Indirect Emissions

ISO 14064

ISO 14064, part of the ISO 14000 series, provides a global framework for quantifying, reporting, and verifying GHG emissions. Developed through international consensus and issued in March 2006, it is policy-neutral and applicable across different national climate policies. The standard guides organizations in identifying emission sources, choosing quantification methods, collecting data, and distinguishing direct and indirect emissions. It was also recognized as an American National Standard in August 2006, promoting consistency in international environmental reporting.

2.3 | Methodology & Assumption Used

Emission Category	Definition	Description
Scope 1 – Direct Emissions	Emissions arising from sources that are owned or controlled by the vision centres	• Emissions from direct sources such as fuel consumption and fire extinguishers • Fuel emissions estimated using IPCC emission factors • Fire extinguisher emissions based on type (CO_2) and quantity of agents used
Scope 2 – Indirect Emissions	Emissions from the generation of purchased electricity consumed by the vision centres	• Emissions from purchased electricity consumption • Data collected from Vision Centres; gaps estimated using area-based and average methods • Emissions calculated using CEA FY 2024–25 grid emission factor • Solar generation in GVCs considered as avoided emissions; estimated using capacity/area where data was unavailable
Scope 3 – Other Indirect Emissions	Emissions that occur due to vision centre activities but from sources not owned or controlled by the vision centres	**Purchase Goods & Services** • Purchased goods & services (frames, lenses, medicines, cleaning, internet) assessed under Scope 3 • Emissions calculated using expenditure- based method (USEEIO emission factors) **Business Travel** • Business travel emissions from outreach activities (camps, schools, anganwadi, door-to-door) • Non-GVCs: emissions estimated using activity count, distance, and transport mode • GVCs: E-bike usage considered as avoided emissions **Employee Commuting** • Employee commuting based on daily to-and-fro distance • Emissions estimated using transport mode and INDIA Specific Road Transport Emission Factors

Emission Category	Definition	Description
Avoided Emissions	Avoided emissions refer to the reduction in emissions achieved by providing healthcare services closer to communities through Vision Centres, thereby reducing the need for patients to travel to Vision Centres or base hospitals.	**Avoided Emissions from Outreach Activities (Anganwadi Visits, School Screenings, and Village Camps):** • Avoided emissions were estimated based on the number of beneficiaries served through outreach activities • It was assumed that, in the absence of these services, beneficiaries would have travelled to Vision Centres • The average round-trip distance between beneficiary locations and Vision Centres was considered • The typical mode of transportation used by beneficiaries was included in the analysis • These factors (beneficiaries, distance, and transport mode) were combined to estimate the total avoided emissions **Avoided Emissions from Screening Services:** • Avoided emissions were estimated for screening services provided at Vision Centres • It was assumed that, in the absence of Vision Centres, patients would have travelled to base hospitals for diagnosis • The average round-trip distance between Vision Centres and base hospitals was considered • The commonly used mode of transport was included in the analysis • These factors (distance and transport mode) were used to estimate the avoided emissions **Avoided Emissions from Post-Surgery Follow-up Visits** • Estimated using a similar approach as screening services • Assumes patients would have travelled to base hospitals in absence of Vision Centres • Highlights reduced travel emissions and improved healthcare access

2.4 Organizational Boundaries

The list of GVC & Non GVC locations for Orbis is provided below (50 locations)

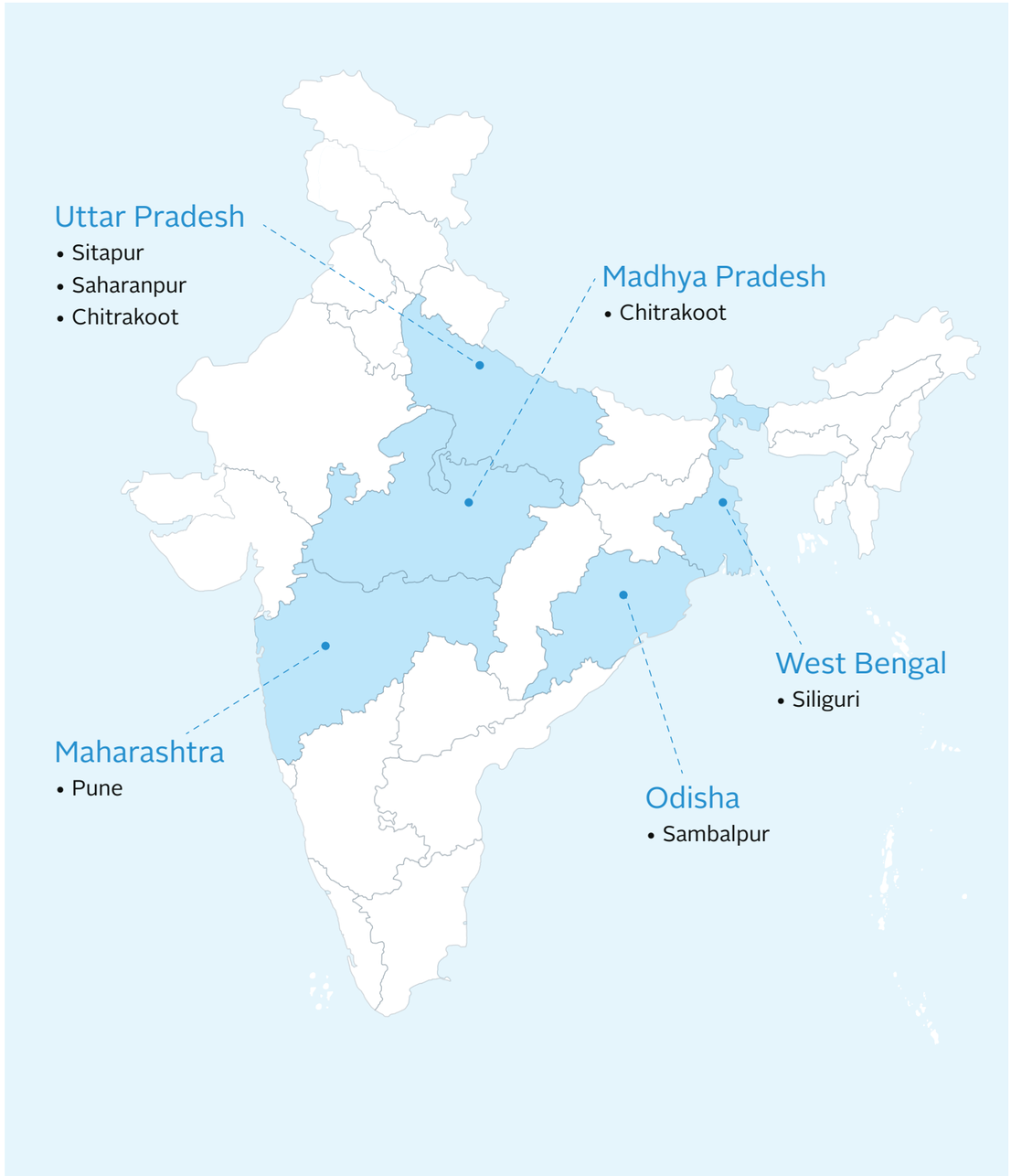


Table 3 Organizational Boundaries

Sr. No.	Name of Vision Centre	Address	State	Partner
Sitapur Eye Hospital				
1	Nanpara Green Vision Centre	Sitapur Eye Hospital Primary Eye Health Centre Nanpara, Near Sadat Inter College Nanpara Bahraich.	Uttar Pradesh	Sitapur Eye Hospital
2	Gola Green Vision Centre	Sitapur Eye Hospital Primary Eye Health Centre Gola, Mohammadi Road Near Gandhi Vidyalay Gola, Kheri.		
3	Lakhimpur Green Vision Centre	Sitapur Eye Hospital Primary Eye Health Centre Lakhimpur, Kachahri Road Near Bilobi Hall Lakhimpur, Kheri.		
4	Mahmoudabad Green Vision Centre	Sitapur Eye Hospital Primary Eye Health Centre Mahmoodabad, Sidhauli Road Behta Chhavni, Sugar Mill Mod Mahmoodabad, Sitapur.		
5	Paliya Green Vision Centre	Sitapur Eye Hospital Primary Eye Health Centre, Paliya In Front of Sleep In Hotel Bheera Road Paliya Kheri.		
6	Aira Khamariya Green Vision Centre	Sitapur Eye Hospital Primary Eye Health Centre Aira Khamariya, Sugar Mill Society Aira Khamariya, Isanagar, Kheri.		
7	Khairabad Green Vision Centre	Sitapur Eye Hospital Primary Eye Health Centre Khairabad In Front Of Community Health Centre Near Post Office Khairabad Sitapur.		
8	Tambour	Sitapur Eye Hospital Primary Eye Health Centre Haneef Market Reusa Mod Tambour Sitapur.		
9	Laharpur	Sitapur Eye Hospital Primary Eye Health Centre Laharpur, Thatheri Tola Main Road Laharpur, Sitapur.		
10	Rampur Mathura	Sitapur Eye Hospital Primary Eye Health Centre Rampur Mathura, Near Rani Saraswati School Thangaon Road Rampur Mathura, Sitapur.		
11	Biswan	Sitapur Eye Hospital Primary Eye Health Centre Biswan, Seksariya Sugar Mill Near Post Office Biswan, Sitapur.		
SCEH Saharanpur				
12	Sarsawa Green Vision Centre	Gayatri Market, Ambala Road, Behind Nakur Bus Stand, Sarsawa, Saharanpur	Uttar Pradesh	SCEH-Saharanpur
13	Nanauta Green Vision Center	Gangoh Road, In Front Of Town Office, Near Chaudhary Banquet Hall, Nanauta		
14	Rampur Green Vision Center	Deoband Road, In Front Of Rama Electronics, Near Tehsil, Rampur Maniharan		
15	Mankamau Green Vision Center	Near Barkat Medical Store, Nakur Road, Mankamau		
16	Deoband Green Vision Center	Mangloor Chowki, Near Punjab National Bank, In Front Of Pillar No. 58, Muzaffarnagar Road, Deoband, Saharanpur		
17	Chhutmalpur Vision Center	Amar Deep Colony Near Jyoti Kiran Chowk, Dehradun Saharanpur Road, Chhutmalpur		
18	Badgaon Vision Center	Maharana Pratap Chowk, Near Jio Care, Badgaon, Saharanpur		
19	Chilkana Vision Center	Lala Saligram Market, Near Post Office, Chilkana		
20	Behat Vision Center	Mohalla Khalsa SBI Bank Lane, Near Sant Ravidas Temple, Behat		
21	Nagal Vision Center	Pal Market Railway Road, Nagal, Saharanpur		
SNC Chitrakoot				
22	Karwi Vision Center	Ram Kripa Hotel, Purani Bazaar, Allhabad Road, Karwi, Distt-Chitrakoot	Uttar Pradesh	SNC-Chitrakoot
23	Banda Vision Center	Infront Of Gic Ground, Civil Line, Banda		
24	Nagod Vision Center	Ward No. 03, Satna Panna Road, Near S.D.O.P. Office, Nagod, Distt-Satna	Madhya Pradesh	
25	Maihar Vision Center	Near Railyway Crossing, Sarla Nagar, Amarpatan Road, Distt-Maihar		

Sr. No.	Name of Vision Centre	Address	State	Partner
SGLEH Siliguri				
26	Binnaguri Vision Centre	Binnaguri Lions Club, Binnaguri, Dist-Jalpaiguri, Pin - 735203	West Bengal	SGLEH-Siliguri
27	Banarhat Vision Centre	Banarhat Lions Club, Banarhat, Dist-Jalpaiguri, Pin - 735202		
28	Dhupguri Vision Centre	Dhupguri Lions Club, Dhupguri, Dist-Jalpaiguri, Pin - 735210		
29	Moynaguri Vision Centre	Moynaguri Bijoli Sangho, Durgabari More, Moynaguri, Dist- Jalpaiguri, Pin - 735224		
30	Haldibari Vision Centre	Haldibari Paschim Para, Ward No- 7, Manik Ganj Road, Duttabari More, Haldibari, Dist-Jalpaiguri, Pin - 735203		
31	Malbazar Green Vision Centre	Mal Bazar, Near Post Office, Pin 735221, Jalpaiguri, West Bengal		
32	Nagrakata Green Vision Centre	Nagrakata Lions Club, Sulkapara, Near GEO Towar, PO+PS- Nagrakata, Dist - Jalpaiguri, Pin- 735225		
33	Shivmandir Green Vision Centre	Lions Club Of Shivmandir, Shivmandir Bazar, Opposit Punjab National Bank, Pin- 734014		
34	Bagdogra Green Vision Centre	Lions Club Of Bagdogra, Rabindra Nagar, Near Panchayat Office, Pin-734014		
35	Naxalbari Green Vision Centre	Sitapur Eye Hospital Primary Eye Health Centre Rampur Mathura, Near Rani Saraswati School Thangaon Road Rampur Mathura, Sitapur.		
Trilochana Netralaya Sambalpur				
36	Dunguripali Green Vision Center	Rmc Chowk, Near Idbi Bank Dunguripali Pin-767023		
37	Panchagaon Green Vision Center	NH-49, Near Bvbustand, Tripathy Complex Panchgaon Pin-768226		

Sr. No.	Name of Vision Centre	Address	State	Partner
38	Bhukta Green Vision Center	Near sanjivani hospiutal, Behind CHC, Prakashpur, Bhukta Pin-768045	Odisha	Trilochan Netralaya
39	Bijepur Green Vision Center	Gadtia Complex Near Jagannath Mandir Bijepur Pin-768032		
40	Gaisilat Green Vision center	Infront of Hanuman Mandir Chowk Gaisilat Pin-768037		
41	Kuchinda Vision Center	Rajiv Gandhi Chowk, Near Sanjivani Clinic, Kuchinda Pin-768222		
42	Rengali Vision Center	Nice chowk, Panda Complex Rengali Pin-768212		
43	Sohela Vision Center	Durga Mandap Chowk, UGB Bank Front Sohela Pin-768033		
44	Behen Vision Center	At Post. Bheden, near utkal gramin bank backside of bus stand Pin: 768104		
45	Barpali Vision Center	BM Complex College Chowk, Barpali Pin-768029		
HVDEH Pune				
46	Karad Green Vision Centre	Shop No.2 & 3, below Vatsal sonography, Vijay divas chowk, near old Rajmahal theatre, Infront of Bank of India, Karad	Maharashtra	HVDEH-Pune
47	Koregaon Green Vision Centre	Next to Salkunkh lab, Opposite BSNL Office, Azad Chowk, Koregaon, Dist Satara		
48	Satara Green Vision Centre	Pratap Ganjpeth, In-front of Goraram mandir, Satara		
49	Rajgurunagar Vision Centre	Survey No.755, Vafgaon Gulani road, Rakshewadi, Beside Ashirwad Medical, Rajgurunagar.		
50	Tembhurni Vision Centre	Yewale Patil Complex, Akluj chowk, Tembhurni. Dist Solapur.		

2.5 Collection of GHG activity Data

Data for the various GHG source was maintained by the respective departments of the Company in excel spreadsheet format and was checked with the source documents.

Table 4 Selection and collection of GHG activity Data

GHG Source Type	GHG activity Data	Source
CO_2 Fire Extinguisher Fugitive Emissions	CO_2 Fire Extinguisher Recharge in kg	Log Book
Purchased Electricity	Electricity Consumption kWh	Electricity Bills/ Excel Sheet
Purchase Goods & Services	Material Quantity in kg or Nos., Spend Amount (INR)	Log Book
Business Travel	Travelled Distance (km)	Records
Employee Commuting	Travelled Distance (km)	Records

CHAPTER – 3

CARBON FOOTPRINT ANALYSIS

This chapter provides a detailed evaluation of greenhouse gas (GHG) emissions from fifty (50) Vision Centres, covering two financial years, FY 2023-24 and FY 2024-25. The assessment compares twenty-five (25) Green Vision Centres (GVCs) and twenty-five (25) regular, non-Green Vision Centres (Non-GVCs) providing a thorough data-driven analysis of operational carbon footprints, emission intensities, and climate-positive measures.

The comparative analysis of GVCs and Non-GVCs is essential for internal benchmarking, and policy advocacy at both national and global levels. The findings presented in this document seek to estimate the climate return on investment of the Green Vision Centre model.

All emission values are expressed in kilogram CO_2 equivalent ($kgCO_2e$), with summary totals also presented in tonne CO_2e for simplicity. The net carbon position for each category is computed as difference between the Avoided Emissions and Gross Emissions.

Below is the consolidated GHG emission summary across Scope 1, 2, and 3 categories for both GVC and Non-GVC cohorts over the two assessment years, along with the total avoided emissions.

Table 5 Consolidated GHG Emission Summary ($kgCO_2e$)

Emissions	GVC FY 2023-24	GVC FY 2024-25	Non-GVC FY 2023-24	Non-GVC FY 2024-25
Scope 1 Direct Emissions	2,866	3,996	0	0
Scope 2 Indirect Emissions	10,429	14,400	18,762	21,277
Scope 3 Value Chain Indirect Emissions	40,348	48,814	66,586	57,512
Total Gross Emissions	**53,643**	**67,210**	**85,349**	**78,788**
Total Emissions Avoided	6,96,096	7,78,476	2,80,215	3,19,244
Net Carbon Position	-6,42,452	-7,11,266	-1,94,867	-2,40,456

3.1 Analysis of Total Gross Emissions

Below figure illustrates total gross GHG emissions (Scope 1+2+3) for GVCs and Non-GVCs across both financial years.

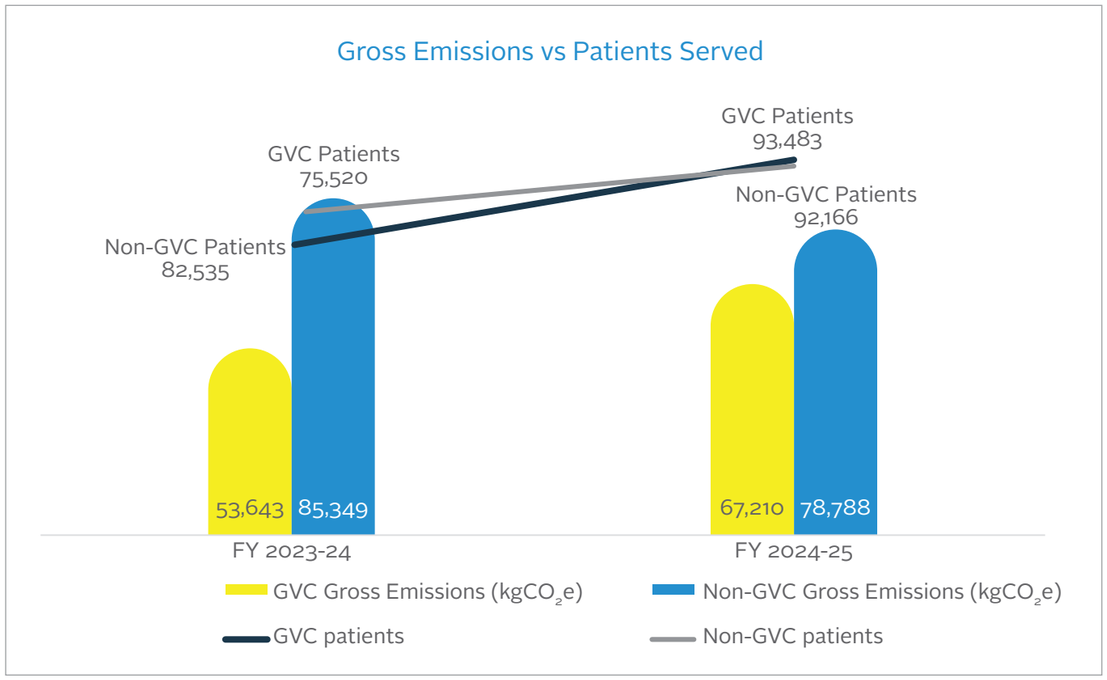


Figure 2 GHG Emissions vs Patients Served

Green Vision Centres in FY 2023-24, recorded total gross emissions of 53,643 $kgCO_2e$, which increased to 67,210 $kgCO_2e$ in FY 2024-25, representing an approximate 25.3% increase. The primary drivers for this growth are increased operational activity, increased patient numbers from 75,520 to 93,483, and higher electricity use attributable to longer hours of operation and thereby increased equipment use.

Non-Green Vision Centers in FY 2023-24, recorded total gross emissions of 85,348 $kgCO_2e$, but they dropped to 78,788 $kgCO_2e$ in FY 2024-25, which is about a 7.7% decrease.

This drop is partly due to operational consolidation and lower costs for goods bought in some centers. In some cases, it is because some centers only operated for part of the year in FY 2023-24 (for example, Barpali Non-GVC).

In absolute terms, in both financial years, Non-GVCs consistently emitted more than GVCs, 59.1% higher in FY 2023-24 and 17.2% higher in FY 2024-25. This gap is largely because oF the absence of solar rooftop system, e-bikes, leading to consumption from fossil fuel based grid electricity and petrol, which has higher emission intensities.

3.2 Scope-wise Emissions

Below figure illustrates the scope wise emissions for GVCs and Non-GVCs for both financial years.

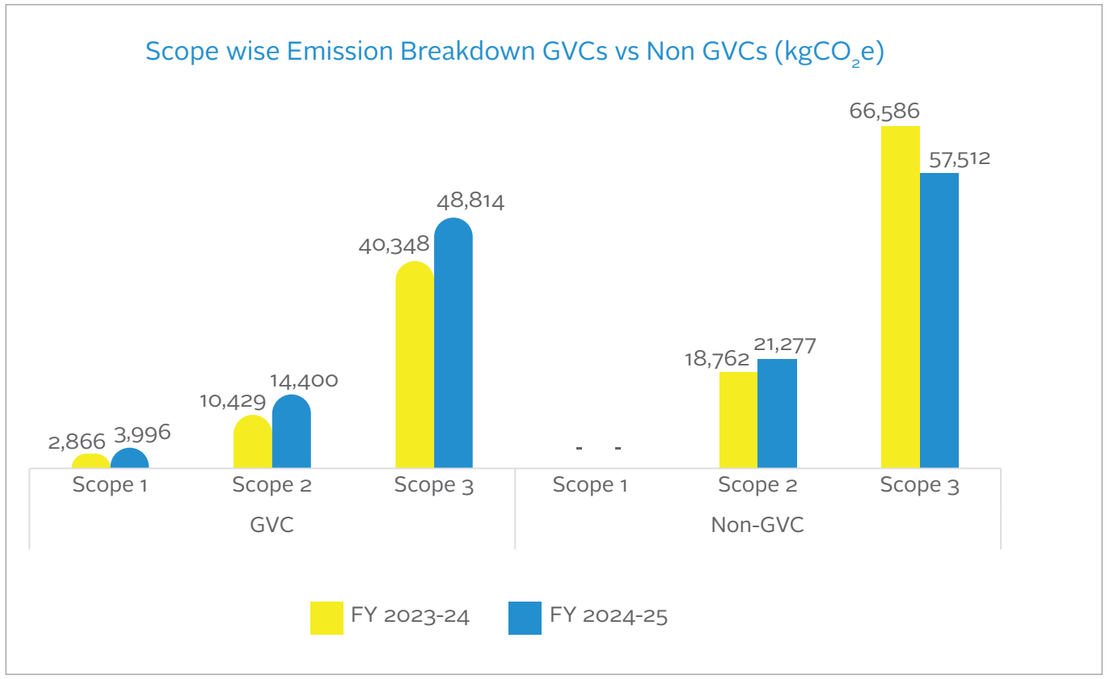


Figure 3 Scope-wise Emission Breakdown

Scope 1 Emissions:

The main sources of Scope 1 emissions for GVCs are the centers located at Karad, Koregaon, and Satara. These centers use diesel generator (DG) sets as backup power due to which the emissions due to combustion of diesel is accounted. In FY 2023-24, Karad GVC alone released 1,475 $kgCO_2e$ and in FY 2024-25, it released 2,579 $kgCO_2e$. Fire suppression tools CO_2 type extinguishers added small amounts of Scope 1 emissions to all centers.

For GVCs, the total Scope 1 was 2,866 $kgCO_2e$ for FY 2023-24 and 3,996 $kgCO_2e$ for FY 2024-25. Since, Non-GVCs did not employed any DG sets and also did not have any other equipment which resulted in no GHG emissions under Scope 1 category.

Scope 2 Emissions:

For both GVCs and Non-GVCs, Scope 2 is the main source of emissions is the fossil fuel dominated Grid electricity. GVCs used grid electricity, which emitted 10,429 $kgCO_2e$ in FY 2023-24 and 14,399 $kgCO_2e$ in FY 2024-25. The 38.1% increase from last year is due to both increased equipment utilization and new operational GVCs being added, such as, Gaisilat GVC started reporting in FY 2024–25 only. Non-GVCs emitted 18,762 $kgCO_2e$ and 21,277 $kgCO_2e$, which is about 50-80% more thant the GVCs. This is because non-GVCs don't have solar energy systems that replace grid electricity.

Scope 3 Emissions:

During the study, we were able to capture the data for Purchased Goods and Services, Employee commute, and Business travels and estimated the emissions from the respective categories. These emissions represent 73-78% of the total gross emissions.

Employee commuting is a major subcategory, especially for centers that are spread out over a large area. Nanauta (3,911 $kgCO_2e$ commuting), Rampur (4,122 $kgCO_2e$), and Mankamau (3,097 $kgCO_2e$) are examples of GVCs that have long employee travel distances. On the other hand, Mahmoodabad and Bijepur are examples of near-urban centers that have very low commuting emissions.

3.3 Category Wise Emission Break-up

Below figure illustrates the category wise emission break-up for both financial years in GVCs and Non-GVCs:

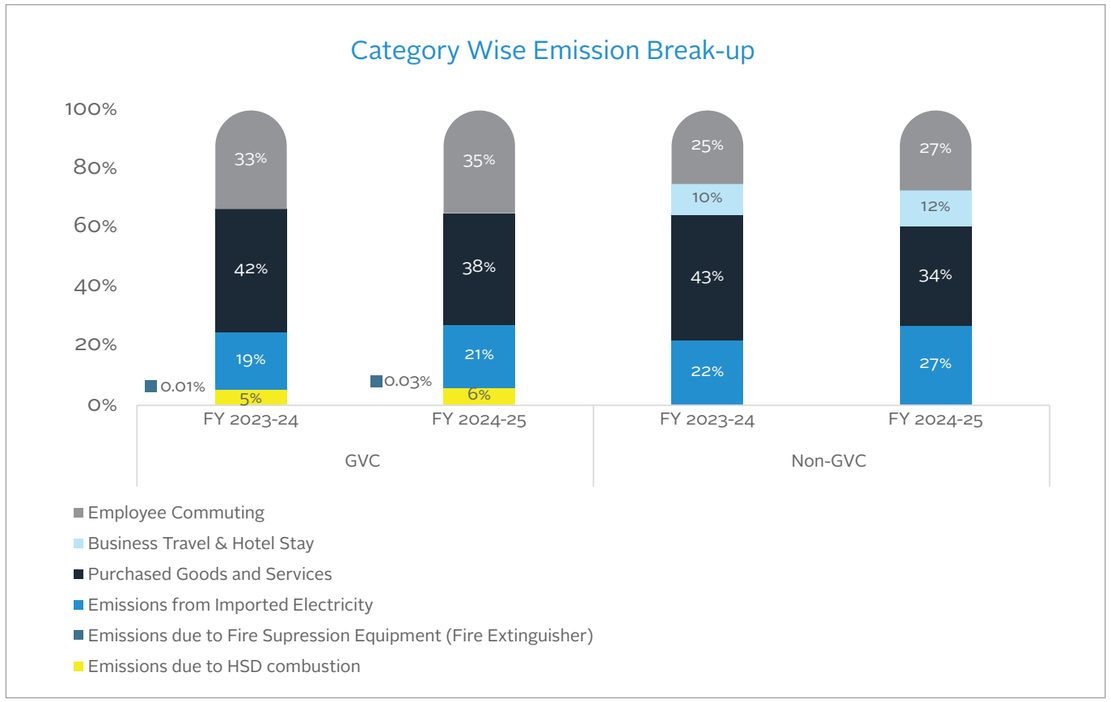
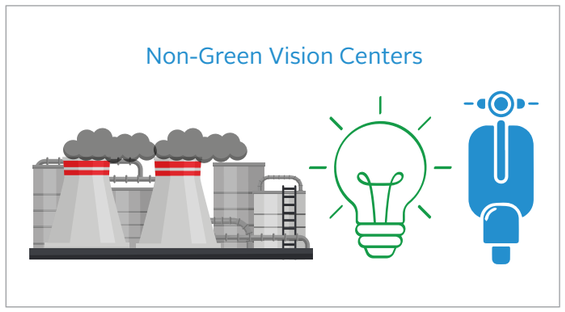


Figure 4 Category wise Emissions

The category-wise emission profile of Green Vision Centres indicates a well-balanced and relatively low GHG emission operational performance. Across both financial years, GHG emissions are primarily driven by purchased goods and services, contributing around 42% in FY 2023–24 and slightly reducing to 38% in FY 2024–25, indicating the significance of consumables such as spectacles, medicines, and other supplies. Employee commuting, increases marginally from 33% to 35%, reflecting growing operational activity and outreach efforts to anganwadi and camps. Importantly, emissions due to electricity remain relatively stable, rising modestly from 19% to 21%, which highlights the positive impact of solar energy adoption and efficient practices within GVCs. Emissions from business travel remains low between 5 to 6%, indicating proper planning and increased utilization of digital services. The overall emission profile of GVCs shows a shift from energy intensive operations to service driven emissions. This shows that sustainability measures can help keep a lower carbon footprint.

On the other hand, the emission profile of Non-Green Vision Centres indicates the reliance on energy and travel.

Purchased goods and services compated to GVC are still a big part of emissions, but their share drops from 43% in FY 2023–24 to 34% in FY 2024–25. Emissions due to electricity consumptions increased from 22% in FY 2023-24 to 27% in FY 2024–25, indicating the dependency on fossil fuel based grid electricity. Also, emissions from employees commuting rises from 25% to 27%. The emissions from business travel, increased from 10% to 12%, indicating the company relies more on physical outreach thorugh petrol driven vehicles and less on optimized service delivery methods. Overall, the emission distribution in Non-GVCs shows a profile that is relatively more carbon-intensive than GVCs as it relies more on grid-electricity and fossil fuel based travel. This provides an opportunity for the Non-GVCs to integrate the sustainability practices into their business operations leading to lower carbon footprint.



3.4 | Center-Level Emission Analysis

From the figure below for the individual centrs, it indicates the GVC emissions ranges from a minimum of 768 $kgCO_2e$ at Mahmoodabad GVC for FY 2023-24 to a maximum of 5,856 $kgCO_2e$ at Rampur GVC for FY 2024-25. The high-emitting GVCs are those with significant employee commuting burdens such as Nanauta, Rampur, Mankamau or with DG set operations at Karad, Satara. The low-emitting centres such as Mahmoodabad, Bijepur, Gaisilat and Naxalbari represents minimal commuting distances and complete solar energy coverage for their electricity needs.

Year-on-year increases at centres such as Sarsawa with 39%, Rampur 94%, and Mankamau 69% indicates successful scale-up of services. When normalised by patient count, these centres will continue to demonstrate improving or stable emission intensities.

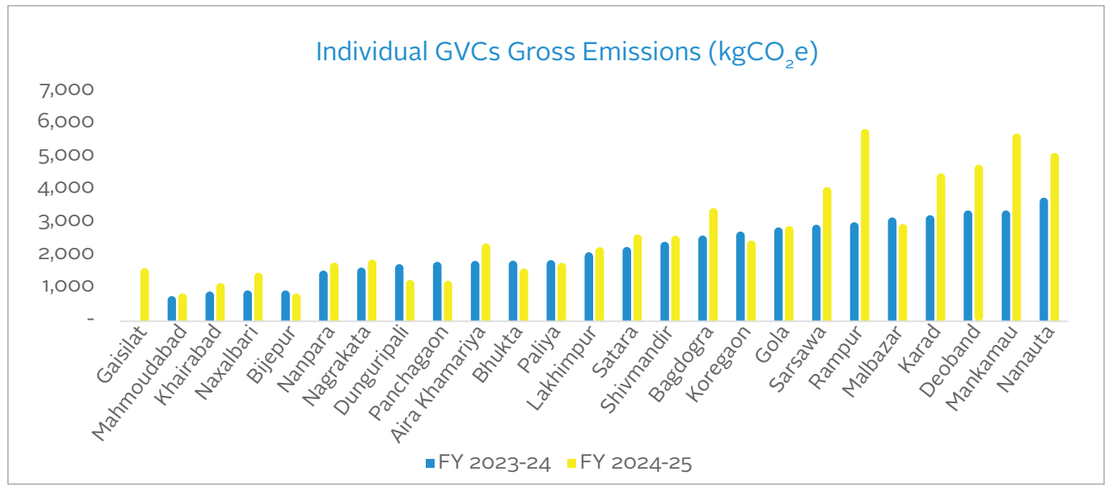


Figure 5 Individual GVCs GHG Emissions

The below figure representing carbon footprint of Non-GVCs reveals a mixed trend across locations, with both increases and decreases in emissions between FY 2023–24 and FY 2024–25. This variation reflects differences in operational intensity, energy consumption, and outreach activities across centres. Overall, several centres such as Chilkana, Nagal, Karwi, Dungarpur, and Banarhat show a moderate increase in emissions, indicating higher operational activity, increased patient visits, and consumption of grid electricity and consumables. In particular, Chilkana has one of the most noticeable increases, suggesting growing service demand. At the same time, a significant number of centres demonstrate a declining emission trend, including Rengali, Sohela, Kuchinda, Maihar, and Banda. These reductions may be attributed to factors such as operational optimization, reduced procurement, partial-year operations in the previous year, or improved efficiency in resource utilization.

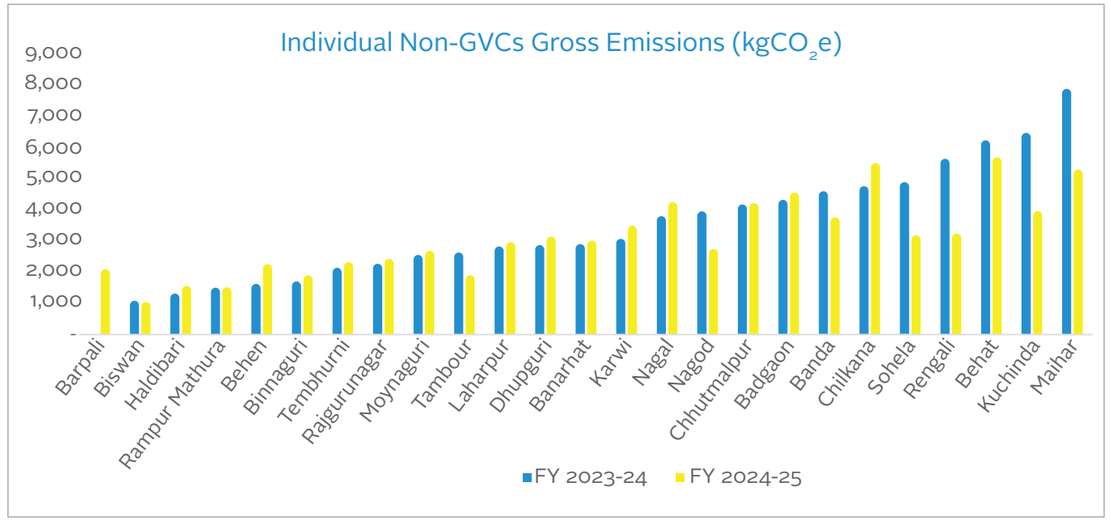


Figure 6 Individual Non-GHG Emission

3.5 Emissions Avoided

3.5.1 GVCs Solar Rooftop

The implementation of rooftop solar PV systems across all 25 GVCs represents one of the most significant climate change and sustainability interventions. By generating clean, energy these systems directly reduce dependencies on grid electricity, which in India is largely fossil fuel-based. As a result, solar energy not only lowers operational energy costs but also mitigates greenhouse gas emissions associated with electricity consumption.

Below figure represents the total solar generation from all 25 centers in both FY 2023-24 and FY 2024-25. These resulted in avoided emissions of 80,315 $kgCO_2e$ in FY 2023-24, which further increased to 83,434 $kgCO_2e$ in FY 2024–25. The steady contribution of solar energy highlights the reliability and scalability of this intervention, particularly in decentralized eyecare infrastructure where energy demand is relatively stable.

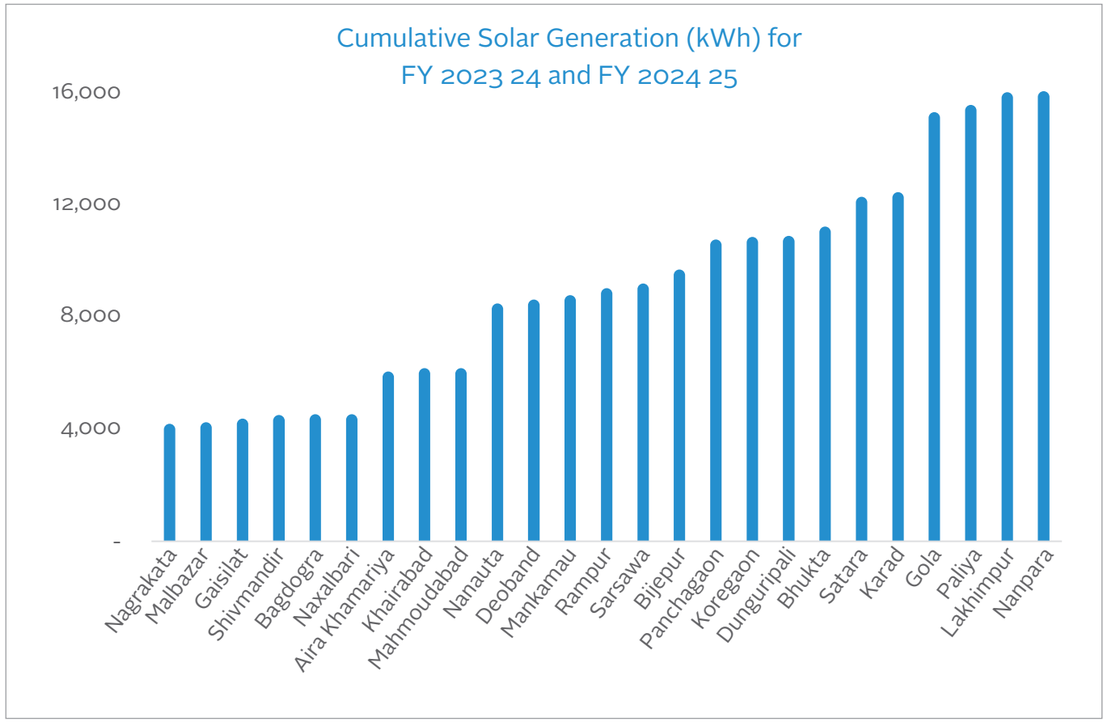


Figure 7 Total Solar GHG Generation GVCs and Non-GVCs

This intervention is especially interesting because it has an even greater impact on the climate than on operational emissions and evenly contributing to the Sustainable Development Goals (SDG 9 and SDG 13). The avoided emissions from solar generation alone are approximately equivalent to total gross operational emissions of non-GVCs.

3.5.2 Use of E-Bikes

Below figure represents the breakup of E-bikes utilization by individual GVCs for both FY 2023-24 and FY 2024-25. GVCs staffs utilized e-bikes while travelling to conduct community-level eye camps, door-to-door screenings, school visits, and Anganwadi visits. E-bike usage displaced 5,709 $kgCO_2e$ in FY 2023-24 and 5,863 $kgCO_2e$ in FY 2024-25 emissions that would have been generated had petrol two-wheelers been used.

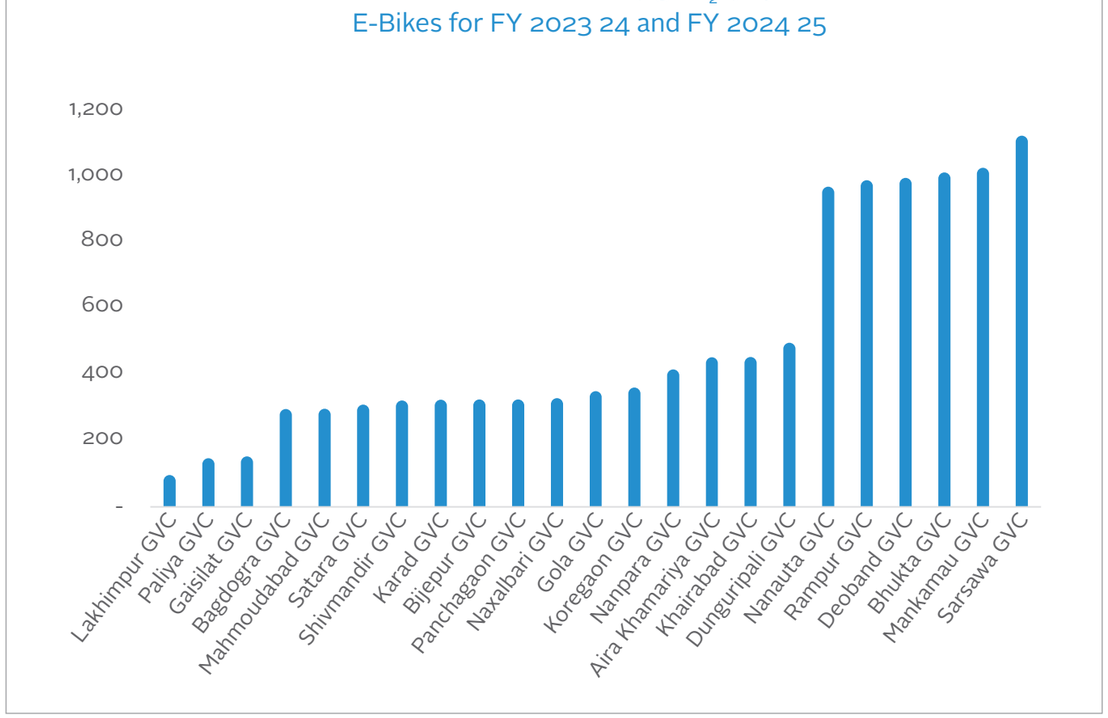


Figure 8 Emissions avoided using E-Bike

GVCs demonstrates a net climate advantage over Non-GVCs. As the emissions avoided by GVCs is approximately 60% of the emissions by Non-GVCs by using E-bikes for business travel. This highlights how e-mobility interventions in GVCs effectively transform travel-related activities from a source of emissions into a key area of emission reduction.

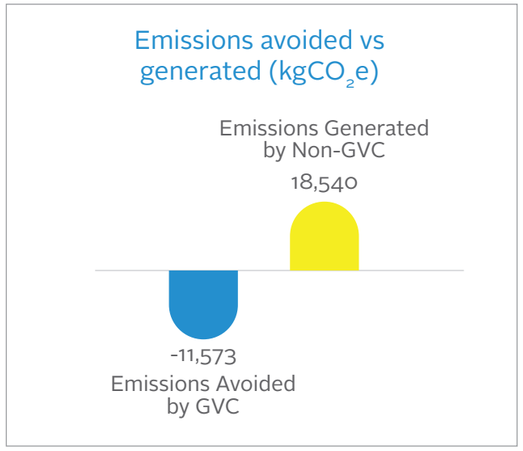
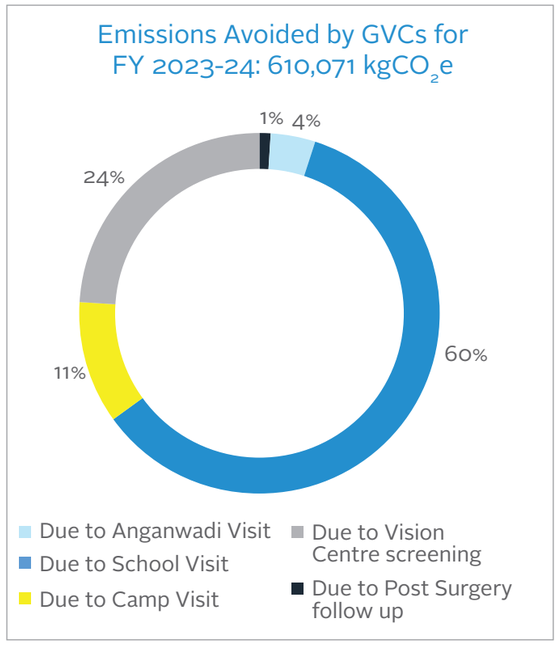
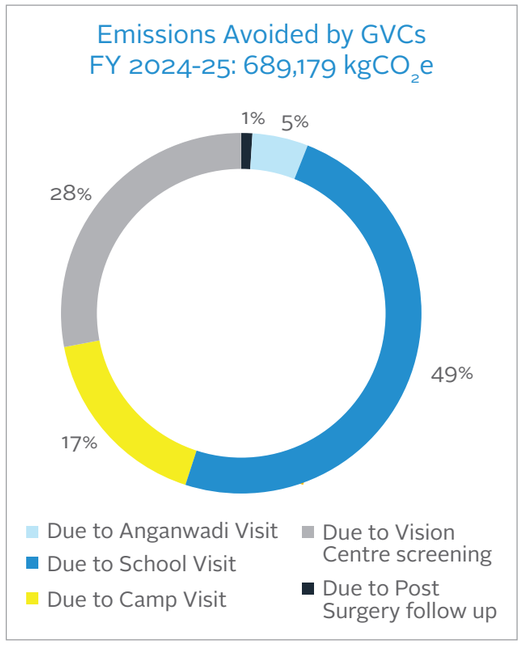


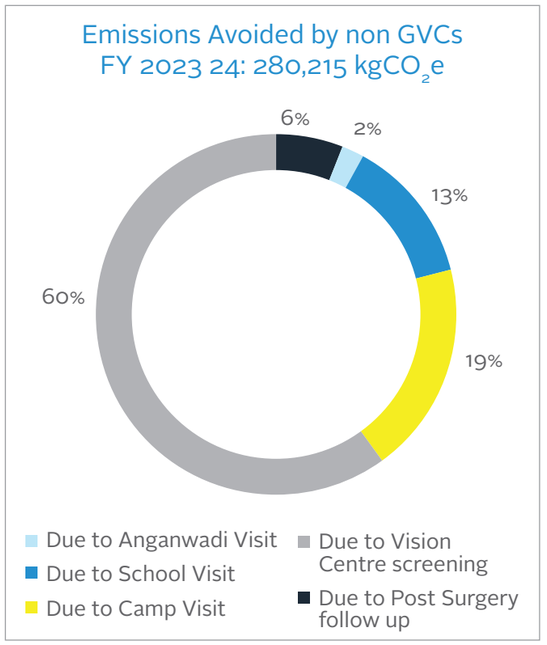
Figure 9 Emissions Avoided (GVCs) vs Generated (Non-GVCs)

3.5.3 Community Outreach – GVCs and Non-GVCs

Under the outreach model, vision centers, both GVC and Non-GVCs, brings the eyecare services to schools and Anganwadi centres rather than requiring families to travel to distant healthcare facilities. Mobile eye camp allows diagnostics consultation services to rural communities at their doorstep. Due to establishment of visions centers, the travel to base hospitals just for eye checkup or even for post surgery follow-up is avoided significantly.







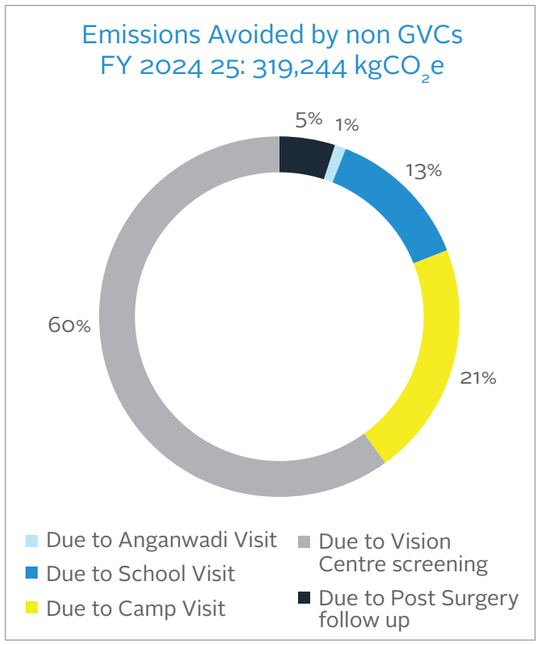


Figure 10 Emissions Avoided due to Community Outreach

Anganwadi Visits:

GVCs conducted visits to Anganwadi across their respective regions and locations for screening of visual impairment at the community level. The avoided emissions from these visits increased from 21,548 $kgCO_2e$ in FY 2023-24 to 34,616 $kgCO_2e$ in FY 2024-25, an increase of 60% year-on-year. This growth reflects increase in Anganwadi programme coverage, with centres such as Sarsawa GVC avoiding 6,501 $kgCO_2e$, Mankamau GVC avoiding 5,834 $kgCO_2e$ and Bhukta GVC avoiding 2,246 $kgCO_2e$ emissions, leading in FY 2024-25. By bringing screening to Anganwadi premises, GVCs eliminated the need for each beneficiary family to make a return trip to the primary health facility. Non-GVCs also conducted Anganwadi outreach and avoided emissions were 5,267 $kgCO_2e$ in FY 2023-24 and 4,552.71 $kgCO_2e$ in FY 2024-25. Avoided emissions were significantly low for Non-GVCs compared with GVCs.

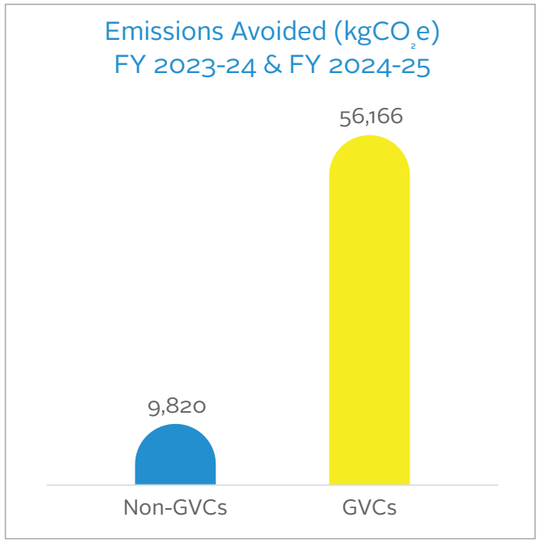


Figure 11 Emissions avoided dur to Anganwadi visits

School Visits

School visit screening emerges as the single largest contributor to avoided emissions across the Vision Centre network. Across GVCs, school visits avoided 3,67,406 $kgCO_2e$ in FY 2023–24 and 3,36,713 $kgCO_2e$ in FY 2024–25, accounting for a significant share of total avoided emissions 60% and 49% respectively amongst the community outreach programme avoided emissions. High-performing centres such as Bagdogra, Naxalbari, Deoband, and Rampur played a key role in effectively reducing the need for students and their parents to travel individually for eye care facility.

Non-GVCs avoided emissions from school visits increased from 36,908 $kgCO_2e$ in FY 2023-24 to 41,334 $kgCO_2e$ in FY 2024-25 reflecting a rise of 12%.

GVCs approximately avoided emissions 10 times more from school visits than Non-GVCs, reflecting higher programme intensity.

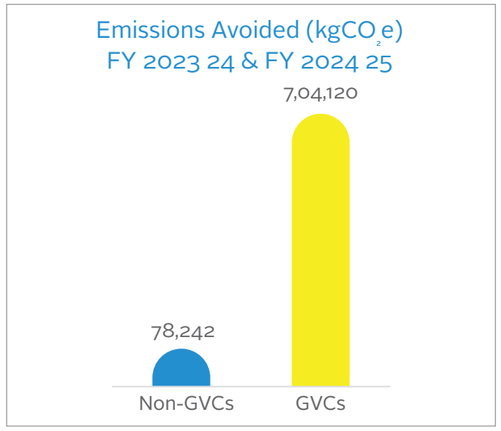


Figure 12 Emissions avoided due to School Visits

Eye Camps at Rural Areas

GVCs demonstrated a strong impact, with avoided emissions increasing sharply from 65,364 $kgCO_2e$ in FY 2023–24 to 1,17,957 $kgCO_2e$ in FY 2024–25, marking a substantial growth of over 80%. This surge reflects not only an increase in the number of camps conducted but also increased the vision centers outreach into remote villages.

The distribution of benefits also shows balanced outreach, with both male and female beneficiaries contributing significantly to avoided emissions.

Non-GVCs avoided 52,863 $kgCO_2e$ in FY 2023–24 and 66,082 $kgCO_2e$ in FY 2024–25, reflecting a steady 25% increase. Centres such as Haldibari, Moynaguri, and Maihar emerged as key contributors.

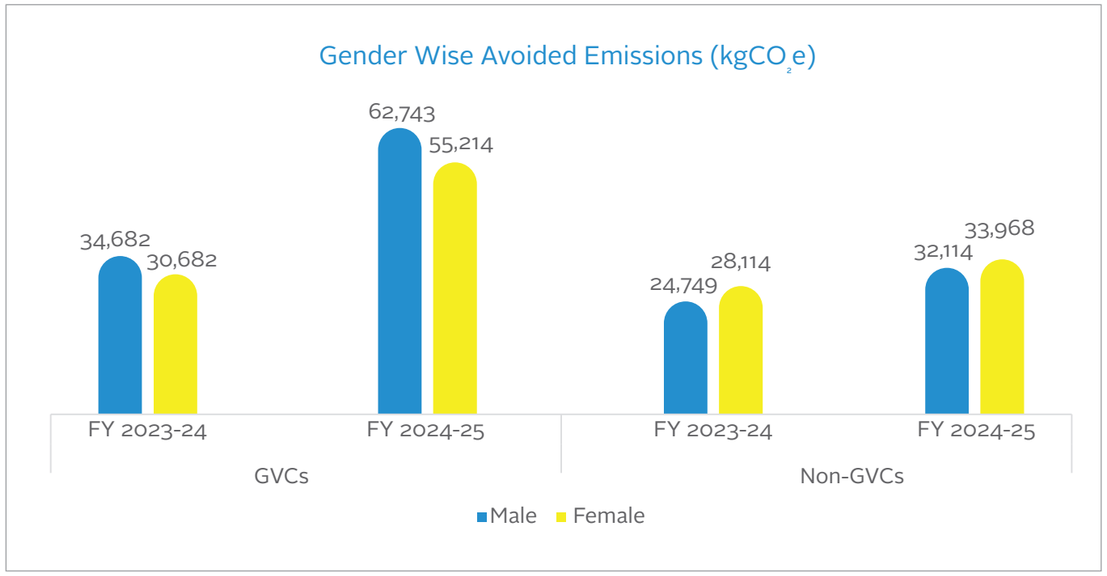


Figure 13 Gender Wise Emissions Avoided due to Camps

Both GVCs and Non-GVCs demonstrate strong growth in camp-related avoided emissions. GVCs grew by 80.5% and Non-GVCs by 25.0% year-on-year. The combined 50-centre network avoided 1,18,226 $kgCO_2e$ in FY2023-24 and 1,84,039 $kgCO_2e$ in FY2024-25 through rural eye camps — emissions that would have been generated had each beneficiary made an individual motorised journey to the nearest eye facility.

Vision Centre Screening

Vision Centre screening remains a major source of avoided emissions across both GVCs and Non-GVCs, driven by reduced patient travel to base hospitals. GVCs avoided 1,48,285 $kgCO_2e$ in FY 2023–24, increasing significantly to 1,91,107 $kgCO_2e$ in FY 2024–25 reflecting a 28.9% rise. Non-GVCs, however, recorded slightly higher avoided emissions in absolute terms 1,69,366 $kgCO_2e$ in FY 2023-24 to 1,89,916 $kgCO_2e$ in FY 2024-25, due to relatively higher patient volumes and simultaneously travel distances. Overall, the steady growth across both models highlights the critical role of Vision Centres in reducing travel-related emissions while expanding access to essential eye care services.

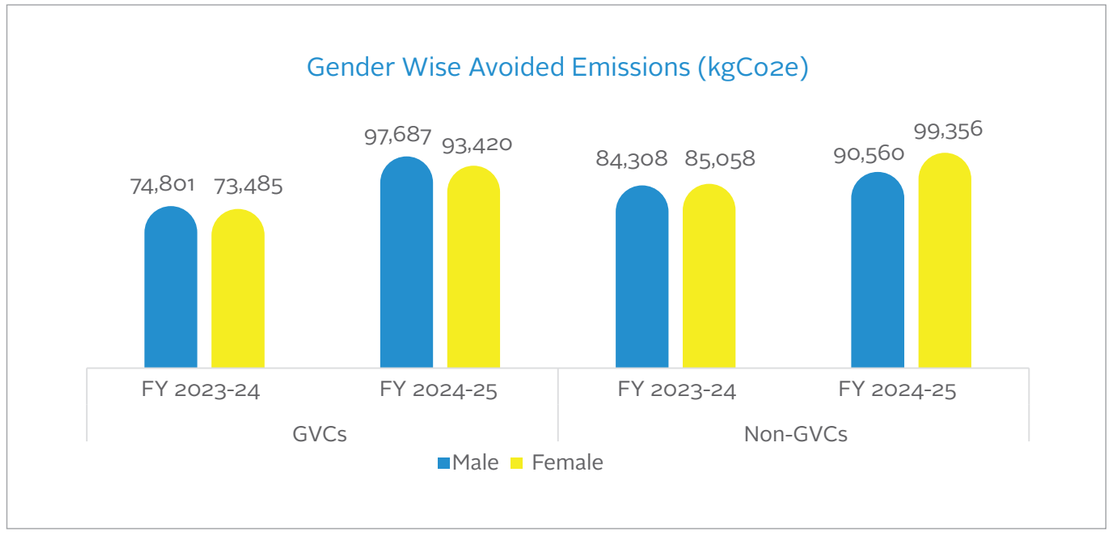


Figure 14 Gender Wise Avoided Emissions due to Vision Center Screening

Post-Surgery Follow-Up

Post surgery follow-up services helps in reducing travel to base hospitals by bringing the check-up closer to patients. GVCs avoided 7,466 $kgCO_2e$ in FY 2023–24, increasing to 8,785 $kgCO_2e$ in FY 2024–25, with centres such as Karad, Koregaon, and Dungaripali leading in outreach efforts. In comparison, Non-GVCs achieved higher avoided emissions 15,810 $kgCO_2e$ in FY 2023-24 to 17,360 $kgCO_2e$ in FY 2024-25, nearly 2 times that of GVCs.

Overall, both models demonstrate the effectiveness of localized follow-up services in reducing travel-related emissions while improving patient convenience and continuity of care.

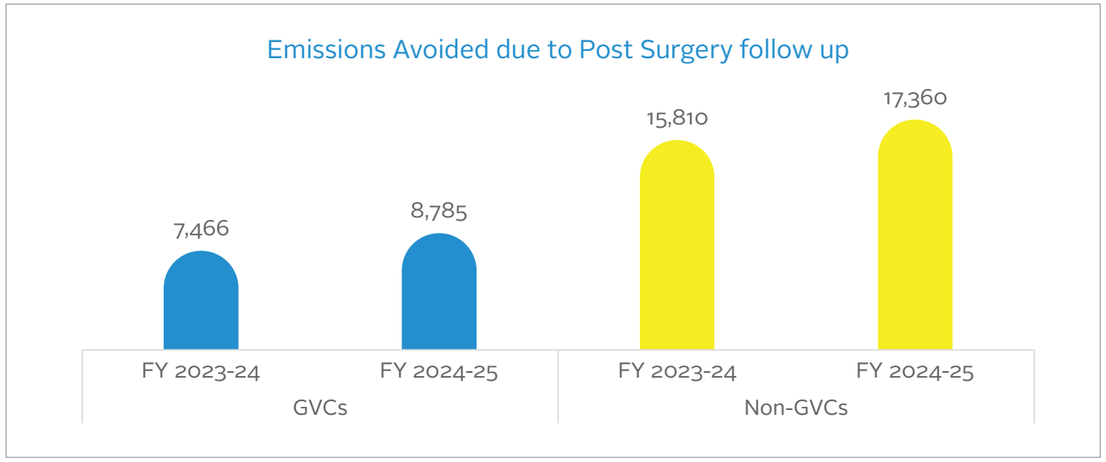


Figure 15 Emissions avoided due to Post Surgery Follow-up in GVCs and Non-GVCs

3.5.4 Top GVC and Non-GVC Pefromers

Among GVCs, Karad GVC leads with 177,481 $kgCO_2e$ of total avoided emissions in FY 2023-24 and FY 2024-25, driven by higher number of school visits and camp visits in the Satara-Karad corridor. Followed by Satara GVC with 50,814 $kgCO_2e$ and Nanpara GVC with 57,416 $kgCO_2e$, with Nanpara's strength in Vision Centre screening and school visits. Bagdogra GVC with 52,097 $kgCO_2e$ derives the majority of its avoided emissions from school visits contributing 42,217 $kgCO_2e$ in FY24-25 alone, the highest school visit emission avoidance of any single GVC. Centres such as Naxalbari, Sarsawa and Deoband GVC demonstrate strong performance across school visits, Anganwadi programmes and camp activities.

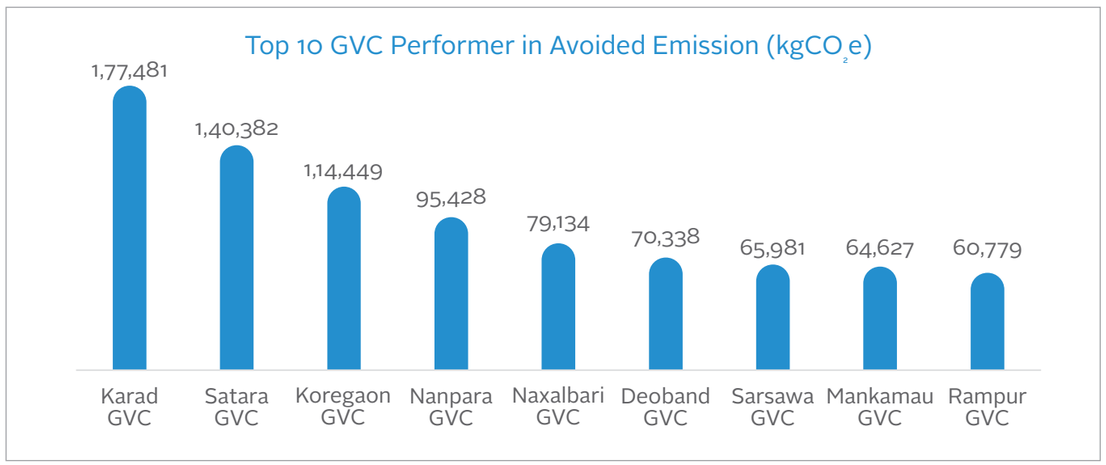


Figure 16 Top 10 GVCs Performer in Avoided Emissions

Among Non-GVCs, Tembhuri is the standout performer with 32,993 $kgCO_2e$ of avoided emissions in FY 2024-25, driven entirely by Vision Centre screening contributing 27,105 $kgCO_2e$, reflecting a large patient database. Maihar Non-GVC follows with 32,241 $kgCO_2e$ follows, with screening avoided emissions of 26,615 $kgCO_2e$ across a high-volume patient area. Dhupguri contributed avoidance of 28,225 $kgCO_2e$ from school visit and screening programmes in its service area.

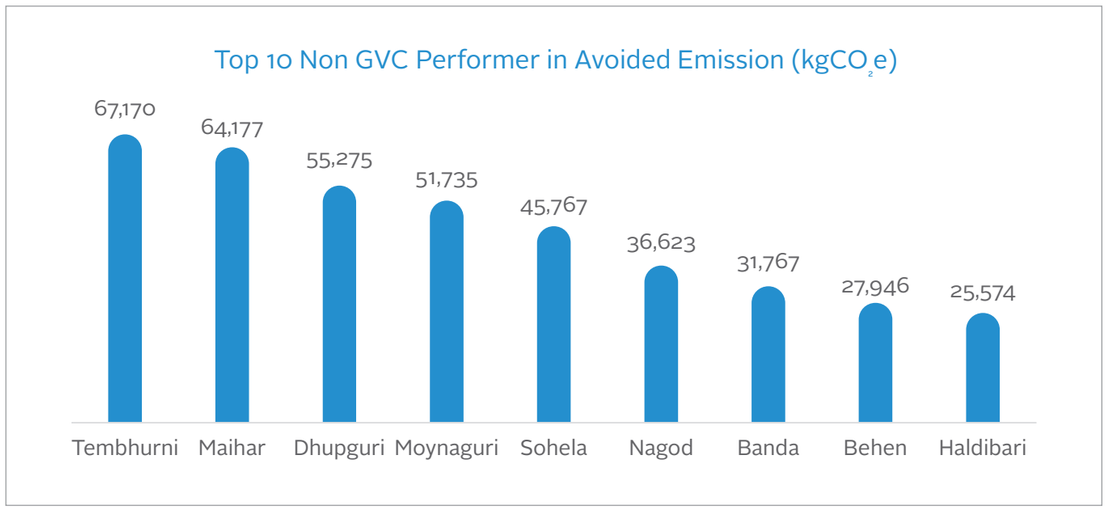


Figure 17 Top 10 Non-GVCs Performer in Avoided Emissions

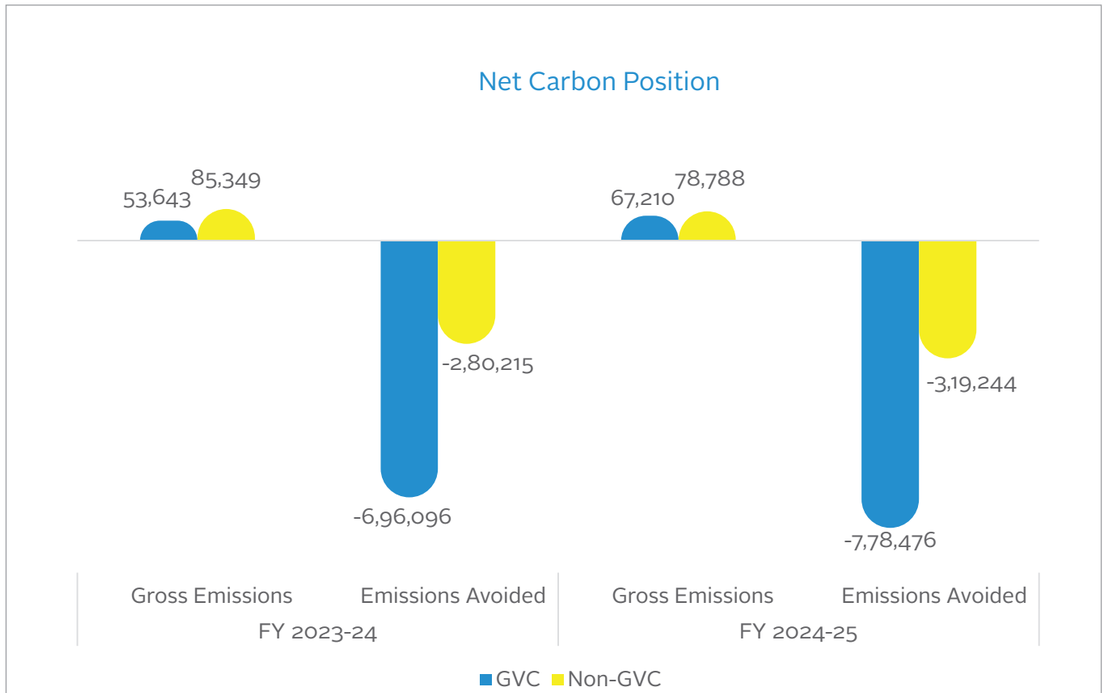


Figure 18 Net Carbon Position of GVCs and Non-GVCs

3.6 | Net Carbon Position and Climate Dividend

The net carbon position represents the evidence of climate value added by GVCs. GVCs achieved a net avoided position of –642,452 $kgCO_2e$ in FY 2023-24 and –711,266 $kgCO_2e$ in FY 2024-25. This means for every 1 $kgCO_2e$ emitted in operations, GVCs avoided approximately 13 $kgCO_2e$ in FY 2023-24 and 12 $kgCO_2e$ in FY 2024-25 through their community outreach, solar and ebike interventions.

Non-GVCs also demonstrate a net positive avoided position, –194,867 $kgCO_2e$ in FY 2023-24 and –240,456 $kgCO_2e$ in FY 2024-25. However, their avoidance ratio is substantially lower approximately 3:1 in FY 2023-24 and 4:1 in FY 2024-25, reflecting the absence of solar generation, e-bikes, and proactive community outreach.

The combined 50 nos. of centres avoided an estimated 976,311 $kgCO_2e$ in FY 2023-24 and 1,097,720 $kgCO_2e$ in FY 2024-25, collectively over 1.4 million tonnes of emissions avoided across the two-year assessment period. This represents a significant and measurable climate benefit attributed to the Vision Centre operational model.

CHAPTER – 4

CONTRIBUTION TO SUSTAINABLE DEVELOPMENT GOALS

SDG No.	SDG Name	SDG Target	Vision Centre Activities
	Good Health and Well-being	3.8.1 Coverage of essential health services 3.C.1 Health worker density and distribution	• Vision screening, refraction, treatment • Referral to hospitals (base & tertiary care) • Teleconsultation & post-surgery follow-up • Spectacles & medicine distribution
	Affordable and Clean Energy	7.2 .1 Renewable energy share in the total final energy consumption 7.3.1 Energy intensity measured in terms of primary energy and GDP	• Solar energy usage (Emission Avoided) • Reduced dependency on grid electricity • Energy-efficient operations

SDG No.	SDG Name	SDG Target	Vision Centre Activities
	Sustainable Cities and Communities	11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically	• Local access to healthcare services • Reduction in patient travel emissions • Community outreach camps and screening
	Responsible Consumption and Production	12.2.1 Material footprint, material footprint per capita, and material footprint per GDP	• Digital data management reducing paper usage, efficient use of resources, optimized procurement
	Climate Action	13.2.2 Total greenhouse gas emissions per year	• GHG emissions tracking (Scope 1, 2, 3), emissions reduction and avoided emissions (solar, EVs, outreach)

Table 6 SDG Contribution Summary Table

REFERENCES

For the purpose of calculating and reporting GHG emissions, the following standards and protocols are applicable:

1. Greenhouse Gas Protocol on Corporate Accounting and Reporting by World Resource Institute (WRI) / World Business Council for Sustainable Development (WBCSD).

2. ISO 14064-1:2006 Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.

3. DEFRA factor for fuels and refrigerants.

4. India GHG Protocol for Business travel of employees, local travel, emissions from bus commuting.

5. UNFCCC methodologies, AMS I.C:

https://cdm.unfccc.int/methodologies/DB/JSEM51TG3UVKADPA25IPUHXJ85HE8A

6. UNFCCC methodologies AMS I.F:

https://cdm.unfccc.int/methodologies/DB/9KJWQ1G0WEG6LKHX21MLPS8BQR7242

7. UNFCCC methodologies AMS I.D, version 18.0:

https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTXFQQOFQQH4SBK

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