GHG ASSESSMENT REPORT FOR EMMBI INDUSTRIES LTD.

2023-24

1/19/25

List of Abbreviations:

GHG: Greenhouse Gas

GHG Protocol: GHG Protocol Corporate Accounting and Reporting Standard

HFCs: Hydrofluorocarbons

PFCs: Perfluorocarbons

Kg: Kilogram

MT: Metric tonnes (1 MT= 1000 Kg)

KT: Kilo-tonne (1KT = 1000 MT)

TJ: Terajoule (1TJ = 10^{12} Joule)

CO_2e: Carbon dioxide equivalent

GWP: Global Warming Potential

LNG: Liquified Natural Gas

C: Carbon

Km: Kilometres

Contents

1 Introduction

1.1 Objectives and principles

The voluntary Greenhouse Gas (GHG) Emissions Report describes the emissions inventory for **Emmbi Industries Ltd**, hereinafter referred to as "Emmbi Industries"or "the Company". The information contained in this report discloses the inventory of GHGs and associated emissions during the Financial year 2023-24, April 1, 2023, to March 31, 2024. The GHG emissions report has been performed in accordance with the requirements described in ISO 14064-1:2018 "Greenhouse gases - Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals".

This report captures the work undertaken by Intertek along with suggestions for implementation to help the company build climate resilience. This includes salient features of its GHG inventory, climate risk identification, **introduction and** steps for Science Based Targets and an overview to the Taskforce on Climate related Financial Disclosures etcetera. Further, the report will help company further its climate related interventions and presents suggestions and recommendations to support its endeavour.

2 Organizational description

2.1 About the company

Emmbi Industries Limited is one of the reputed brands in the field of woven polyethylene and polypropylene products. We primarily design and manufacture FIBC bags. At Emmbi Industries, we believe in 'brighter every day' which is why we come up with solutions that are innovative, flexible, and tailor-made. We don't believe in the 'One Size Fits All' solution, because we completely understand every requirement is unique. While we make sure all our products are innovative, we never compromise on quality, efficiency, and safety protocols. As FIBC bags manufacturers have complete traceability, transparency and updated test labs to ensure the best quality and consistency in our products.

2.2 Business goals

The business goals of the GHG report are to:

1. Understand and track GHG emissions produced by Emmbi Industries in an accurate, consistent and transparent way to understand the company's environmental impacts. This report has been performed in accordance with the GHG Protocol Corporate Accounting and Reporting Standard and the ISO 14064-1:2018.
2. Identify cost effective reduction opportunities and early voluntary actions to achieve measurable reductions in the company's environmental impact.
3. Publicly disclose this information in a transparent manner and voluntarily participate in GHG reduction programs and certifications.

This will not only enable to meet their customers' expectations in a more deliberate and assured manner but also provide the framework for continual improvement of their operations.

3 Inventory boundaries

3.1 Organizational boundaries

To define the boundaries of the organization the *operational control approach* is selected, since it best represents the organization's activities with respect to the work centres performing operational control of the activity and it is the approach that allows greater potential for reducing GHG emissions.

3.2 Operational boundaries

The GHG protocol requires for **EMMBI INDUSTRIES** to include emissions of the following gases in its GHG emissions inventory: Carbon dioxide (CO_2), Methane (CH_4), Nitrous oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF6), and Nitrogen trifluoride (NF_3). The gases relevant for the operations of **EMMBI INDUSTRIES** and included in its GHG inventory are CO_2, CH_4, N_2O, and a few HFCs.

In addition, this report will account and report the two scopes of GHG emissions separately in accordance with the requirements of ISO 14064-1:2018 and the GHG Protocol. If a direct emission source is excluded, it may be justified in accordance with the principles expressed in the total coverage of ISO 14064-1:2018.

GHG direct emissions (Scope 1) – Direct emissions that occur from sources that are owned or controlled by the Company.

GHG indirect emissions (Scope 2) – Indirect emissions from the generation of purchased electricity consumed by the Company as well as district heating.

Other GHG indirect emissions (Scope 3) – Indirect emissions that are a consequence of the activities of the Company but occur from sources not owned or controlled by the Company.

The GHG Protocol splits scope 3 emissions in 15 distinct categories that occurring the company's value chain. It is the intention of the company to report scope 3 emission categories as reliable and transparent data becomes available and in future reports, in accordance with the verified target. The following Scope 3 emissions from both upstream and downstream sources were accounted for and included in this report:

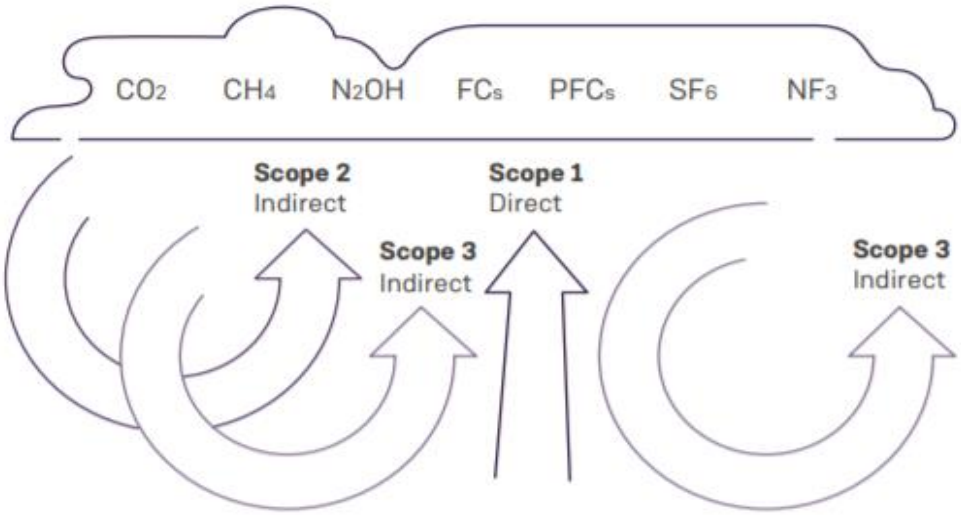
Scope 3 categories upstream & downstream	Inclusion
Purchased Goods and Services	Yes
Capital Goods	Yes
Upstream Transportation and Distribution	Yes
Waste generated in operations	Yes
Employee Commuting	Yes
Downstream Transportation and Distribution	Yes
Business Travel	Yes

Emissions for "Upstream Transportation and Distribution", "Employee Commuting", "Business Travel" and "Downstream transportation" categories were quantified with a higher level of accuracy due to:

- Data availability and reliability from suppliers and **EMMBI INDUSTRIES** facilities.
- Potential emissions reductions that could be undertaken or influenced by Emmbi Industries.

Together the three emissions scopes provide a comprehensive accounting framework for managing and reducing direct and indirect emissions. The following picture provides an overview of the direct

and indirect emissions, the relationship between the scopes and the upstream and downstream sections.



Upstream Activities **Emmbi Industries** Downstream Activities

GHG direct emissions sources (Scope 1)			
Point	**Activity / Category**	**Generated GHG**	**Details**
1.1	LPG combustion	CO_2, CH_4, N_2O	Heat generation
1.2	Diesel and Petrol for mobility	CO_2, CH_4, N_2O	Combustion during vehicular activity.
1.3	Refrigerants and other fugitive emissions	CO_2, CH_4, N_2O	Air conditioners and Fire extinguishers

3.3 Direct and indirect emissions sources

GHG indirect emissions sources (Scope 2)			
Point	**Activity / Category**	**Generated GHG**	**Details**
2.1	Electricity Consumption	CO_2, CH_4, N_2O	Power and lighting

Other GHG indirect emissions (Scope 3)			
Point	**Activity / Category**	**Generated GHG**	**Details**
3.1	Purchased Goods and services	CO_2	Material extraction and Transportation
3.2	Capital Goods	CO_2	Material extraction and transportation
3.3	Waste generated in operations	CO_2 CH4	Waste from all facilities
3.4	Business travel	CO_2	Airplane travel, and Road Travel
3.5	Employee Commuting	CO_2	All for EMMBI INDUSTRIES Employees
3.6	Upstream transportation and distribution	CO_2	Roadways and Marine.
3.7	Downstream transportation and distribution	CO_2	Roadways and Marine.

3.4 Exclusion

The following table express the upstream and downstream categories that are excluded of the report.

Scope 3 categories upstream & downstream	Exclusion
Fuel- and energy-related activities not included in Scope 1 or Scope 2	N.A
Upstream leased assets	Yes
Processing of Sold Products	Yes
Use of Sold Products	Yes
End-of-Life Treatment of Sold Products	Yes
Downstream Leased Assets	N.A
Franchises	N.A

Investments	N.A

Emissions excluded from upstream and downstream value chain are not accounted in this report due to lack of completeness and accuracy principles.

4 Emission calculations:

4.1 Reporting Period

The GHG inventory report comprises of GHG inventories for the period April 2023 to March 2024.

4.2 Methodology

The methodology adopted for the quantification of GHG emissions is calculation-based, i.e., GHG activity data over the inventory period multiplied by appropriate GHG emission factors, in accordance with the GHG Protocol.

It is be noted that this inventory pertains to one of the sites of the company, the calculations for which have been done by apportioning the output contribution to the total operations. The evaluated site contributes to 12% of the total output by weight, hence the emissions apportioned are 12% of overall company's operations.

Detailed calculation of emissions, including values of month-wise activity data, emission factors, and parameters used for developing appropriate emission factors, along with corresponding literature sources wherever applicable, can be found in the MS-Excel inventory spreadsheet accompanying this report.

The quantification methodology for each emission source is described below.

4.2.1 Scope-1 Emissions

a) **Emissions from Fuel Combustion Activities:** This includes emissions from stationary and mobile combustion of fuels. The gases emitted from these activities are CO_2, CH_4 and N_2O. Emissions of CH_4 and N_2O are also reported as equivalent CO_2 emissions in metric tonnes (MT) of CO_2e, calculated by multiplying emissions of the gas (in MT) with the corresponding Global Warming Potential (GWP) of the gas.

   The fuels used in stationary combustion are Diesel for captive power generation in DG sets, and LPG for kitchen. The fuel used in mobile combustion for all activities, i.e. vehicles operated on-site, is diesel. In the case of liquid fuels, the mass of fuel consumed was calculated as:

   Mass (MT) = *Volume of fuel consumed* (m^3) x *Average fuel density* (kg/m^3) / 1000.

   The following equations were used in quantifying emissions:

i. *CO_2 emissions* (MT) = *Mass of fuel consumed* (MT) *x Net calorific value of fuel (*TJ/MT) *x Emission factor of fuel* (MT CO_2/TJ)

ii. *CH_4 emissions* (MT CO_2e) = *Mass of fuel consumed* (MT) *x Net calorific value of fuel (*TJ/MT) *x Emission factor of fuel* (MT *CH_4*/TJ) x *GWP* of CH_4

iii. *N_2O emissions* (MT CO_2e) = *Mass of fuel consumed* (MT) *x Net calorific value of fuel (*TJ/MT) *x Emission factor of fuel* (MT *N_2O* /TJ) x *GWP* of N_2O

b) Emissions from Refrigerants and fugitive emissions: This includes emissions from refrigerant gas leakages and other fugitive emissions. The gases emitted from these activities are FCs, CFCs or PFCs. Emissions of these gases are also reported as equivalent CO_2 emissions in metric tonnes (MT) of CO_2e, calculated by multiplying emissions of the gas (in MT) with the corresponding Global Warming Potential (GWP) of the gas.

4.2.2 Scope-2 Emissions

Scope-2 GHG emissions for the facility comprise emissions due to electricity purchased from the grid. They are calculated by multiplying the quantity of grid electricity purchased by the facility with the grid emission factor. CO_2 emissions have been accounted in this category using the following equation:

***Scope 2 CO_2 emissions* (MT)**= *Quantity of Electricity consumed* (MWh) *x Grid emission factor* (MT CO_2/MWh)

4.2.3 Scope-3 Emissions

Emissions calculated in this category include CO_2 emissions due to travel and commute of employees as well as due to transportation of incoming and outgoing materials. The following equations were used in quantifying emissions:

a) Employee Commute/Travel: Employee commute by company-contracted vehicles has been considered in this category.

CO_2 emissions (MT) = *Distance travelled* (passenger-Km) x *Emission factor Bus, Rail Air travel* (Kg CO_2/ passenger-Km) / 1000

b) Business Travel: Business travel by company employees by air and by rail have been considered in this category.

CO_2 emissions (MT) = *Distance travelled* (passenger-Km) x *Emission factor Bus, Rail Air travel* (Kg CO_2/ passenger-Km) / 1000

c) Waste disposal: Waste generated by the company and treated/disposed has been considered in this category.

CO_2 emissions (MT) = *Waste treated* (tonnes) x *Emission factor*
(t CO_2/ tonnes) / 1000

d) Purchased goods and services: Emissions generating from the purchased goods and services by the company and treated by the company have been considered in this category.

CO_2 emissions (MT) = *Cost of purchased goods and services* x *Emission factor*
*(*Kg CO_2/ (Rs)) / 1000

e) Capital goods: Emissions generating from the capital goods of the company and treated by the company have been considered in this category.

CO_2 emissions (MT) = *Cost of capital goods* x *Emission factor*
(Kg CO_2/ (Rs)) / 1000

f) Upstream Transportation: Emissions caused by Transportation and distribution of products purchased in the reporting year, between a company's tier 1 suppliers3 and its own operations in vehicles not owned or operated by the reporting company. In this category emissions are also accounted from Third-party transportation and distribution services purchased by the reporting company in the reporting year and third-party transportation and distribution between a company's own facilities.

CO_2 emissions (MT) = *Distance travelled for every tonne* (weight-Km) x *Emission factor*
Bus, Rail, Air (t CO_2/ tonne-Km)

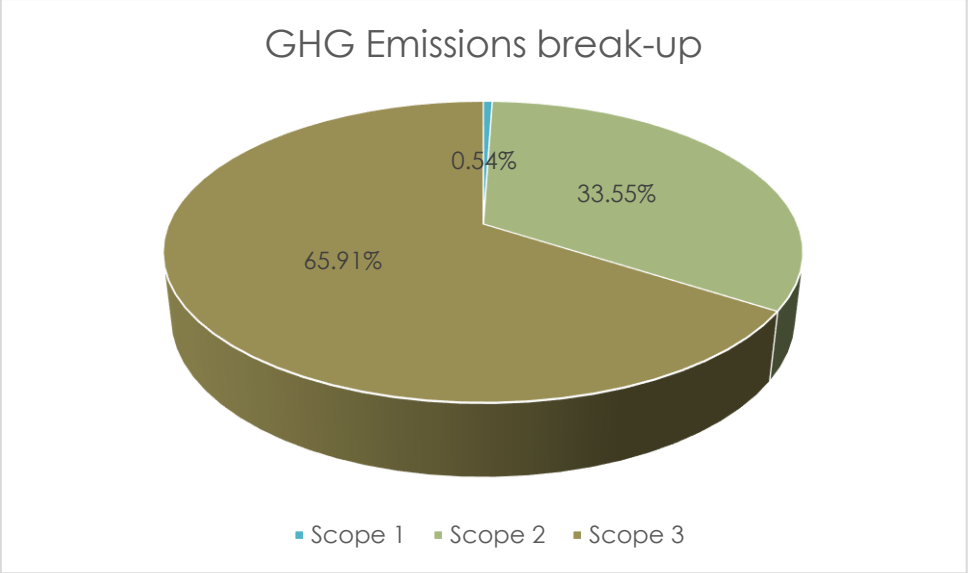
g) Downstream Transportation: Emissions caused by Transportation and distribution of products sold in the reporting year, from its own operations in vehicles not owned or operated by the reporting company. In this category emissions are also accounted from Third-party transportation and distribution services purchased by the reporting company in the reporting year and third-party transportation and distribution from a company's own facilities.

CO_2 emissions (MT) = *Distance travelled for every tonne* (weight-Km) x *Emission factor*
Bus, Rail, Air (t CO_2/ tonne-Km)

4.2.4 Total GHG Emissions

Total scope-1, scope-2 and scope-3 GHG emissions for the site for the year 2023-24 are summarized in the table below, the unit used for reporting these figures is Tonnes (T) of CO_2e.

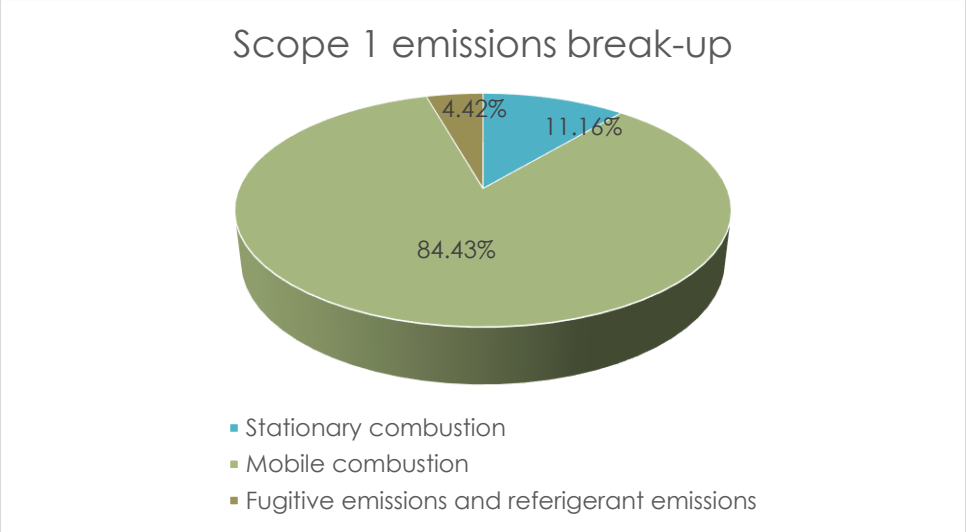
Unit -GHG Emissions		
Scope	**CO2e Tonnes**	**Percentage %**
Scope 1	52.77	0.54%
Scope 2	3275.20	33.55%
Scope 3	6434.86	65.91%
Total Emissions – Tonnes	**9,762.83**	**100%**



Breakup: Scope-1 Emissions

The GHG emission figures for each source category in Scope-1 for the year 23-24 are depicted in the following table:

GHG Emissions Tonnes CO2e		
Scope1 Breakup		
Scope 1: 2023-24		
	GHG Emission Tonne CO2e	**Percentage Contribution (%)**
Stationary combustion	5.89	11.16%
Mobile combustion	44.55	84.43%
Fugitive emissions and refrigerant emissions	2.33	4.42%
Total	**52.77**	**100.00%**

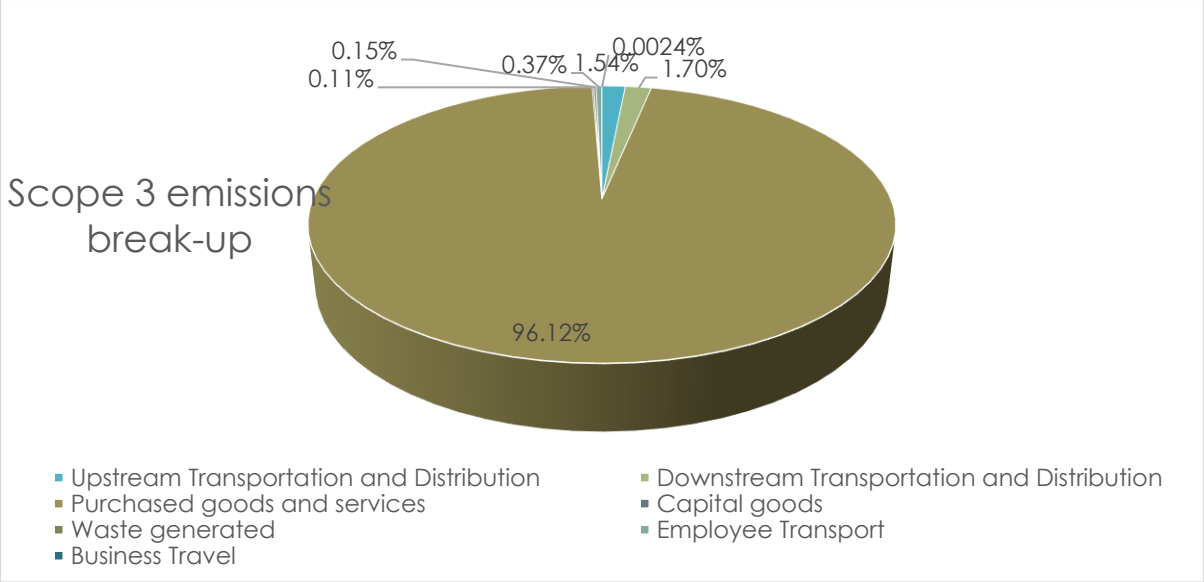


Breakup: Scope 2 Emissions

GHG Emission Tonne CO2e	
	Emissions Tonne CO2e
Electricity	**3,275.19**

Breakup: Scope 3 Emissions

Category No.	Total Emissions MTCO2e	Percentage Breakup (%)
Upstream Transportation and Distribution	99.22	1.54%
Downstream Transportation and Distribution	109.65	1.70%
Purchased goods and services	6185.30	96.12%
Capital goods	7.25	0.11%
Waste generated	9.37	0.15%
Employee Transport	23.91	0.37%
Business Travel	0.15	0.0024%
Total	**6,434.86**	**100%**



5 Managing uncertainty

5.1 Uncertainty in GHG emissions inventory

Uncertainty in the emissions inventory is a combination of the uncertainties in the emission factors and in the corresponding activity data.

Emission Factors

The emission factors, calorific data value and oxidation factors used are considered null uncertain as they come from official sources, and they are beyond the control of the organization.

Activity Data

- Direct emissions (Scope 1) and Indirect emissions (Scope 2):

Data for Scope 1 and 2 is obtained from commercial invoices. As activity data from commercial operation is governed by legal procedure is not necessary to calculate the uncertainty.

- Other indirect emissions (Scope 3):

Uncertainties in the accounting of the Scope 3 emissions are related to generic assumptions made.

Emission Type	Uncertainty description
Purchased goods and services	Allocation of emissions factors for these goods and services methods was done through taking averages of the emission factors for similar

	items in DEFRA. Also, spend-based method was adopted to calculate the emissions- this method involves taking certain assumptions.
Capital Goods	Allocation of emissions factors for these goods and services methods was done through taking averages of the emission factors for similar items in DEFRA. Also, spend-based method was adopted to calculate the emissions- this method involves taking certain assumptions.

5.2 GHG Inventory Quality

The guidelines on managing inventory quality in the GHG Protocol have been followed in compiling this GHG inventory. A complete quantitative uncertainty assessment of the inventory is precluded by the unavailability of parameter uncertainty values, i.e., the uncertainty associated with the used activity data and emission factors. However, the emission figures reported in this document, are indicatively ranked in terms of the uncertainty rankings used in Appendix X of the GHG Protocol.

Emission figures for scope-1 sources: Emissions of each greenhouse gas from stationary sources are calculated by multiplying fuel consumption by the corresponding emission factor. In the Sectoral Approach, "Fuel Consumption" is estimated from energy use statistics and is measured in terajoules. Fuel consumption data in mass or volume units must first be converted into the energy content of these fuels. As Tier 1 approach is applied in emissions calculation, emissions are obtained by combining fuel and material activity data collected directly at the facility with emission factors based on mass balance of carbon content, are expected to have a "high" level of data accuracy, defined as an uncertainty interval of +/- 5% of the mean value with a 95% confidence level.

Emission figures for scope-2 sources: As the Tier 2 approach is applied in emissions calculation, emission figures are obtained by combining metered electricity consumption data with the average emission factor of the grid, are expected to have "high" data accuracy, defined as an uncertainty interval of +/- 5% of the mean value with a 95% confidence level.

Emission figures for scope-3 sources: Numbers are obtained by combining distance-based activity data with average emission factors based on transportation mode, are also expected to have a "fair" level of data accuracy, defined as an uncertainty interval of +/- 15% of the mean value with a 95% confidence level.

5.3 Reducing uncertainty

Uncertainties in this GHG inventory arise mainly from Scope 3 emissions. As a result, Emmbi Industries is engaging its supply chain towards a complete decarbonization in line with its target. The company is on the way to implement a procurement approach, that is aligned with its commitment towards net zero. The initiative will also give to suppliers an opportunity to present their environmental efforts translated in CO_2 reductions. The intention of company is to improve the future inventory quality and increase the level of confidence users have in the inventory results.

In addition to the already mentioned, Emmbi Industries will follow concrete steps to reduce the uncertainty in the Scope 3 categories reported in this inventory:

Emissions Type	Reduce Uncertainty Actions
Purchased goods and services	Emmbi Industries is working on defining a method to collect product-based (Scope 1 and Scope 2) emission factors from the supplier.
Capital Goods	Emmbi Industries is working on defining a method to collect product-based (Scope 1 and Scope 2) emission factors from the supplier.

6 Reduction Actions and Improvement Opportunities

6.1 Reducing Scope 1, 2, and 3 Emissions

Scope	Sources of Emissions	Reduction Strategies
Scope 1	Mobile combustion	• These emissions can be addressed by replacing older vehicles, with cleaner, low-carbon alternatives. • Switching to EVs can further reduce emissions due to diesel and petrol combustion in transportation.
Scope 2	Electricity Consumption	• Scope 2 emissions can be reduced by switching to a more sustainable supplier or sourcing renewable energy sources. • Simple way to reduce scope 2 emissions is also by turning off lights or replacing incandescent lightbulbs with LED bulbs and other energy efficiency measures. • To reduce the emissions further company can make the change to in-house renewable energy generation.
Scope 3	Purchased goods, Capital Goods, Upstream transportation, Waste generated in operations, Employee Road transport	• Engaging with suppliers, customers, employees, and contractors to manage their own emission sources can be a great way to reduce scope 3 emissions. • Switching to EVs can further reduce emissions due to diesel combustion in transportation.

		• A portion of these emissions are often offset by purchasing carbon credits because some activities cannot be completely emission-less, such as waste disposal or transportation.

6.2 Alignment to India's Nationally Determined Contributions

As a signatory to the Paris Agreement of 2015 at the United Nations Framework Convention on Climate Change (UNFCCC), India made commitments called the Nationally Determined Contributions (NDCs). NDCs are national plans highlighting climate actions, targets, policies to combat climate change. India intends to achieve these NDCs via:

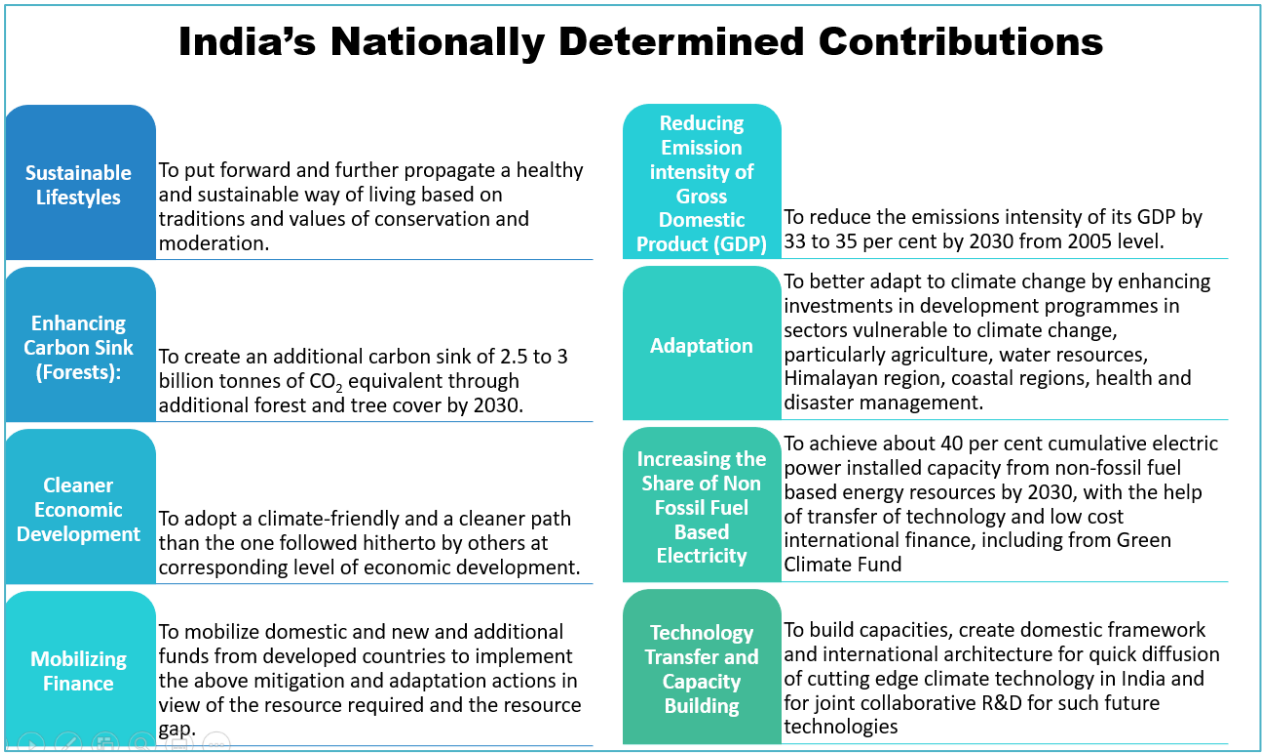
Mitigation Strategies such as:

- Clean and efficient energy system such as the ones using renewable sources, smart grids, clean coal policies
- Enhancing energy efficiency via the National Mission for Enhanced Energy Efficiency, Perform, Achieve and Trade (PAT), Zero Effect, Zero Defect (ZED)
- Developing climate resilient urban centre such as Smart Cities, Atal Mission for Rejuvenation and Urban Transport
- Developing safe, smart and sustainable green transportation network such as dedicated freight corridors, Jal Marg Vikas for national waterways, Mass Rapid Transit System, solar powered toll plazas, green highways, Vehicle Fuel Efficiency Program, National Policy on Biofuels etc.
- Planned afforestation through initiatives such as Green India Mission (GIM), policies on National Agro-forestry Policy (NAP), National Afforestation Programme
- Abatement of pollution via Common Effluent Treatment Plants, Fly Ash Utilisation, Zero Liquid Discharge etc.
- Citizens and private sector contribution to combating climate change including policies on Swachh Bharat Mission, CSR under Companies Act 2013, voluntary disclosures by companies etc.

Adaptation Strategies such as:

- National Missions focusing on agriculture, water, Himalayan ecosystems, forestry, capacity building and climate plans namely The National Mission on Sustainable Agriculture (NMSA), National Water Mission (NWM) etc.
- Demarcated vulnerable areas on India's coastline, Island Protection Zones, mangroves cultivation, soil health card schemes, Neeranchal programme for watershed development.
- Establishment of Disaster Risk Reduction and Response Apparatus for disaster management and the National Disaster Relief Fund
- Climate Change Centres and the Indian Network on Climate Change Assessments for knowledge management. Under the 'Skill India' campaign, skills are imparted on sustainable development, among other subjects too.
- National Adaptation Fund was set up to support sectors such as agriculture, forestry water to address their adaptation needs, reduced subsides on fossil fuels etc.

The image below displays India's NDC commitments.



6.3 Alignment of Emmbi Industries with NDC target of India

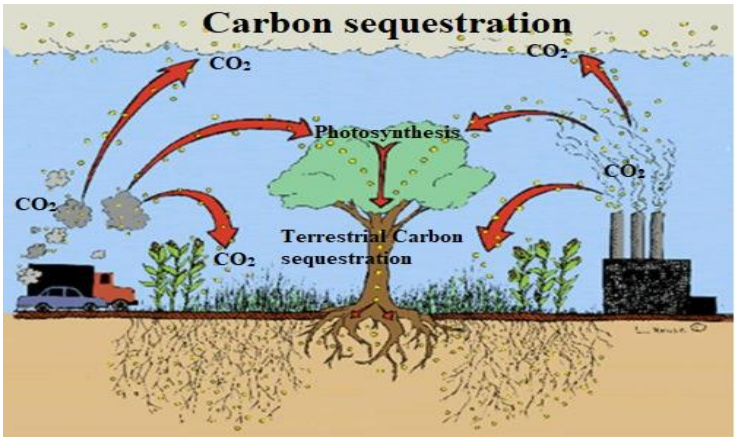
Understanding the efforts and initiatives taken at Emmbi Industries, we believe that the company has supported India's endeavour to meet NDC targets by adopting some of the aforementioned initiatives such as enhancing recycling waste, reducing wastage of water, reducing single-use plastics and paper, among other climate friendly initiatives.

6.4 Plantation and Carbon Sequestration

India has emphasized its efforts to mitigate greenhouse gas emissions and maximize carbon sequestration. To reduce greenhouse gas emissions, India, in its Nationally Determined Contributions, committed to achieving 2.5 billion tonnes of CO_2 sequestration through tree plantation. Environmentalists have emphasized the need for a perennial green envelope requiring large-scale afforestation in and around industrial areas and alongside roadways. In the wake of anthropogenic climate change, carbon sequestration via plantations has gained importance.

Carbon Sequestration is a process where CO_2 is pulled from the atmosphere and stored for a long period of time. It may be one way to slow or reverse the accumulation of CO_2 in the earth's atmosphere. CO_2 sequestration in plants has the potential to significantly reduce the level of carbon that occurs in the atmosphere. Terrestrial or biologic sequestration means using plants to capture CO_2 from the atmosphere and then storing it as carbon in the stems and roots of the plants as well as in the soil. Plantation acts as sink for capturing and storing carbon dioxide released from the industries. Terrestrial sequestration utilizes natural processes in ecosystems to absorb CO_2 from the atmosphere and store it in plants, animals, and soil. Terrestrial carbon sequestration is shown in the image below.

Terrestrial carbon sequestration



Carbon Sequestration by Trees

Trees are capable of effective sequestration and storage of atmospheric carbon in their above-ground (shoot system) as well as in their below-ground biomass (root system) by way of processes of photosynthesis and tree growth. Carbon is absorbed and assimilated by tree foliage and is stored as carbon rich organic compounds. The absorption of atmospheric carbon by the trees provides a significant offset against the constantly increasing greenhouse gas emissions and offers other benefits in the form of timber production, environmental protection, and added biodiversity. The process of carbon cycle in the trees is broadly constituted by three processes, they are:

a. Carbon uptake and assimilation, including immediate respiratory losses which detract from previously fixed carbon in the plant cell.
b. Carbon transport, allocation and partitioning of carbon for storage, structural and metabolic use in the above ground and below ground parts of the tree
c. Return of carbon to the atmosphere through oxidative pathways, biological decay and combustion of tree biomass and their product.

The carbon sequestration rate depends on the growth characteristics of trees, the density of their wood etc. Trees for Life [1]calculates that 6 trees offset 1 tonne of CO2. So, 1 Tree = 0.16 tonnes of CO2.

Not all trees are equally eco-efficient. The carbon absorption capacity varies greatly from tree to tree, even those of the same species. There are many factors to be considered, including: The species, Age, Size, The weather conditions, The type of soil.

Some trees grow more quickly than others and therefore absorb CO2 faster, as is the case with the eucalyptus. In contrast, other tree species grow slower but also live longer and therefore absorb more CO2 over the long term, such as oak or beech. It is difficult to estimate which trees absorb the most CO2.To calculate this average, the composition of the forest must be considered. Forests with a variety of species (mixed forests) should be favoured because they absorb more CO2.

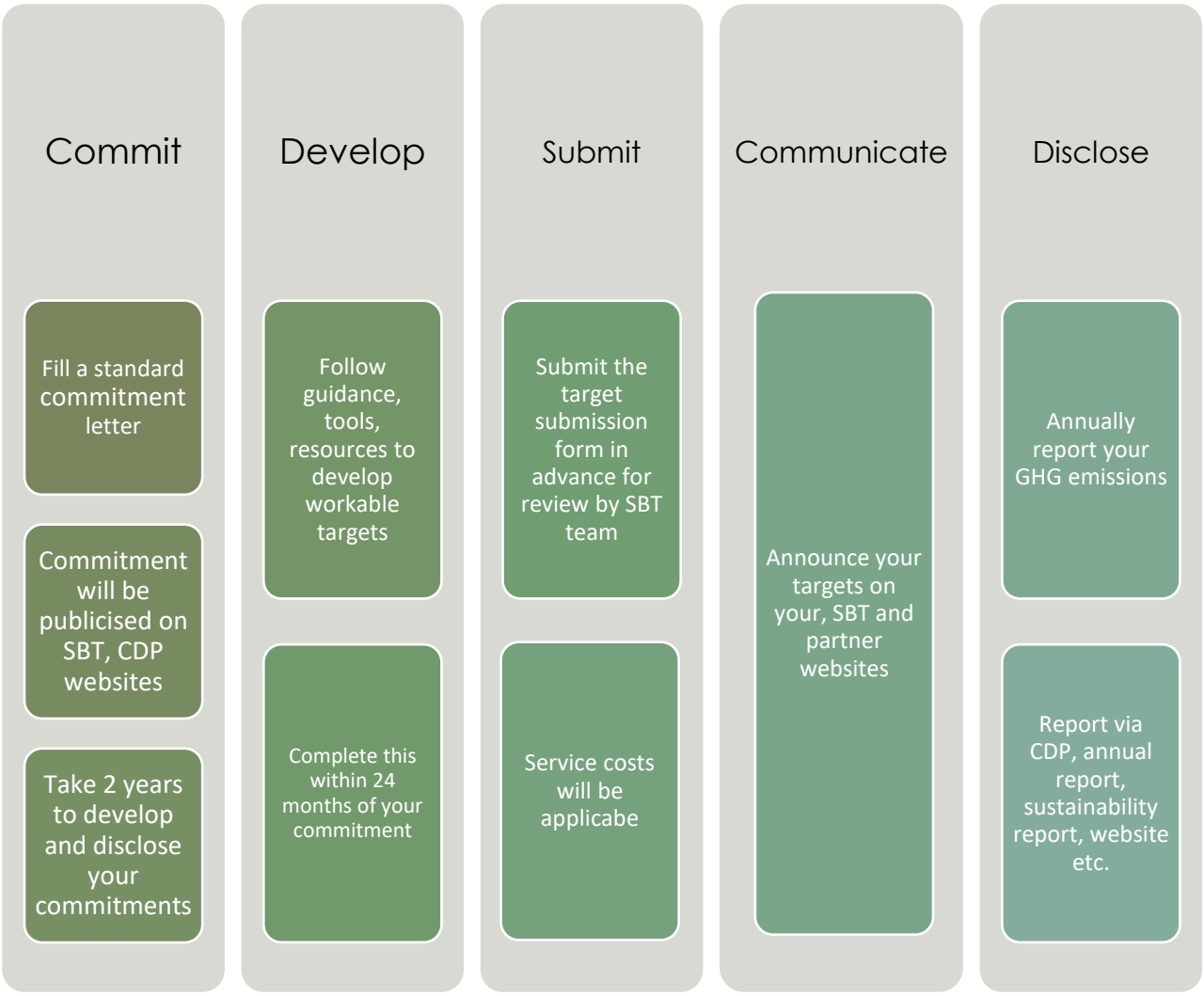
To offset the CO_2 emitted by its operations, **Emmbi Industries** *can plan to plant different species of hardwood trees in the coming years.*

[1]https://climate.selectra.com/

7 Science Based Targets

The Science Based Targets initiative (SBTi) helps companies scientifically design and set targets to achieve net-zero carbon emissions. In the Paris Agreement of 2015, globally it was decided to limit temperature rise to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C. However, in 2018, the Intergovernmental Panel on Climate Change (IPCC) warned that global warming must not exceed 1.5°C above pre-industrial temperatures to avoid the catastrophic impacts of climate change. To achieve this, greenhouse gas emissions must halve by 2030 – and drop to net zero by 2050.

Science Based Targets (SBTs) inform companies about how much and how quickly they need to reduce their greenhouse gas emissions to prevent the worst effects of climate change, depending on whether they want to adopt the well below 2 degrees option or the 1.5 degrees aligned option. The following is a description of the steps and processes of setting SBTs:



Overview of Available Target-Setting Methods

There are three available target-setting methods:

1. Absolute Emissions Contraction,
2. Sectoral Decarbonization Approach, and
3. Economic Intensity Contraction.

In general, an SBT method comprises three components i.e. a carbon budget, an emissions scenario and an allocation approach (convergence or contraction).

Methods can vary in terms of each of these components:

Method	Company Inputs	Method Outputs
Absolute emissions contraction	● Base year ● Target year ●Base year emissions, disaggregated by scope	Overall reduction in the amount of absolute GHGs emitted to the atmosphere by the target year, relative to the base year
Sectoral Decarbonization Approach (SDA)	● Base year ● Target year ● Base year emissions, disaggregated by scope ● Activity level in the base year (e.g., building floor area, distance travelled, etc.) ● Projected change in activity by target year	A reduction in emissions relative to a specific production output of the company (e.g., tonne CO2e per MWh)
GHG Emissions per Value Added	Added ● Base year ● Target year ● Base year emissions, disaggregated by scope ● Value added in the base year ● Projected change in value added by target year	A reduction in emissions relative to financial performance of the company (e.g., tonne CO2e per value added).

For Emmbi Industries, it is recommended that 2023-24 should be the base year. As an initial step to show its seriousness, Emmbi Industries will need to submit a letter of intention for setting your target.

Following this, detailed emission reduction targets and ways of achieving them will need to be designed and communicated to the SBT Secretariat for validation.

Once these are officially validated, this should be communicated to your stakeholders, especially clients and investors to showcase your long-term commitment GHG reduction and removals. This can also be publicly disclosed which will portray **EMMBI INDUSTRIES** actions to reduce net GHG emissions, adding to its brand and market reputation.

Emmbi Industries should undertake SBT target setting after careful consideration for long-term commitments and resources towards the same. Setting the SBT is a lengthy procedure. It will require financial commitments as well as a clear pathway (steps) to achieve these GHG reductions by the target date.

8 The Taskforce on Climate-Related Financial Disclosures

The Taskforce on Climate-Related Financial Disclosures (TCFD) is a commonly used format for disclosing and reporting on climate parameters. TCFD is an industry-led effort at unifying disclosures in this area, along with support of NGOs and other organizations. TCFD recommendations suggest that companies disclose governance surrounding climate-based risks and opportunities, strategies for addressing such factors, risk management considerations and metrics and targets which can be used to assess those factors.

- Governance: Disclose the organization's governance around climate-related risks and opportunities.
- Strategy: Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.
- Risk Management: Disclose how the organization identifies, assesses, and manages climate-related risks.
- Metrics & Targets: Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

TCFD essentially refers to reporting of your 's impact on the environment and climate change. Ideally, it should be reported along with the annual report so that investors also look at it.

TCFD should not be seen as a disclosure only, rather a process for putting governance structures and strategies in place, before its reporting.

Some key steps to consider include:

1. Bringing in your management / board on the importance of climate change considerations, by displaying potential risks to the company, followed by opportunities and their long-term returns.
2. Set-up a team / department that looks at climate change mitigation and adaptation activities at all levels.
3. Consider relevant work done in this direction.

4. Look at gaps and plans to be achieved in the short-medium and long-terms, based on what is important (material) to EMMBI INDUSTRIES and its stakeholders (especially, the investors)
5. Use metrics and targets as recommended by TCFD.
6. Start documenting using the format, the first year of reporting is crucial as a lot of inconsistencies will come to light. With each year, the processes and procedures will get streamlined.

9 Conclusion and Recommendations

Each section of the report gives some key steps and suggestions to progress and proceed. However, overall, some recommendations include:

1. As a primary mitigation strategy, Emmbi Industries can undergo an Energy Audit and energy efficiency measures can be implemented atthe plant.
2. A major part of the emissions inventory is contributed by emissions from purchased electricity. *Increasing the component of RE in purchased electricity can help reduce emissions considerably.*
3. A part of the emissions in the footprint are contributed by the transportation emissions, that too upstream transportation and distribution. A shift to a more energy efficient fleet (both within the company, and outsourcing), perhaps electric, can contribute to significant reduction in the carbon footprint.
4. By the virtue of the company's operations, emissions contributed by Purchased goods and services are the maximum. This is because the company deals with high-value commodities. However, since these are supply chain-based emissions, the whole value chain of the company, including its clients and customers will have to collaborate to reduce these emissions.
5. As a forward action step, to reduce emissions in its supply chain, Emmbi Industries can plan to switch its procurement to vendors who actively report their GHG inventory and are willing to "green" their supply line.
6. A part of emissions can also be neutralized by the purchase of carbon credits.

Using inputs from this report, Emmbi Industries would be able to identify risks and opportunities in its business operations and supply chain w.r.t. climate change mitigation and adaptation.

As a next step, Emmbi Industries can commence its Target Setting towards Net Zero, through SBTi.
SBTi disclosures require a lot of planning and governance measures to be initiated during actual reporting. Hence, the company should plan to commit to SBTi in tandem with the discussed initiatives.