



# GHG Inventory Report

Multivista Global – Printing Division

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Green House Gases Inventory Report FY 2021 for Multivista Global - Printing Division.	
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## 1.0 Preface

Climate change is perhaps the world's most pressing concern today, with ramifications for both human and environmental systems and the potential for large changes in resource consumption, production, and economic activity. As a result, worldwide, regional, national, and local measures to control Greenhouse Gas concentrations in the Earth's atmosphere are being devised and implemented. Such GHG projects rely on GHG emission and/or removal quantification, monitoring, reporting, and verification.

Climate change efforts are being undertaken by industry and governments worldwide. Climate change has been acknowledged as one of the most significant concerns confronting nations, governments, businesses, and individuals in the next decades.

ISO 14064-1:2018 is an international specification that provides organizational advice for the measurement and reporting of Green House Gas Emissions and Removals. We at Multivista Global - Printing Division have successfully quantified Green House Gas (GHG) Inventory and its removal every year for our Printing Division activities in accordance with ISO 14064-1: 2018 criteria, and we have also successfully verified GHG inventory for the fiscal year 2021. (1st April 2021 to 31st March 2022). The total GHG emissions of Multivista Global – Printing division for financial year 2021 (April 2021 – March 2022) is 264.46 mtCO<sub>2</sub>e. There is an 85% reduction in GHG emissions compared to the base year emissions (April 2019 – March 2020).

Our GHG assessment and removal initiative has been a voluntary initiative to combat climate change through GHG inventory. We began measuring GHG emissions in 2019, and verification is performed by a competent 3<sup>rd</sup> party auditor.

The following objectives were included in the preparation of the GHG inventory report in accordance with ISO 14064-1: 2018: -

- Strengthen the environmental integrity of GHG quantification.
- Increase the objectivity, consistency, and transparency of GHG quantification, monitoring, and reporting, as well as the quality of GHG projects involving emission removal and reduction.
- Assist in the creation and execution of projects related to greenhouse gases.
- Make it easier to track the results and advancements in GHG emission reduction and/or GHG removal.
- This GHG inventory report highlights GHG emissions for FY 2021 in tons of CO<sub>2</sub> equivalent and compares them to the prior year, as well as providing information on GHG inventory.

By opting for energy conservation, process improvement measures along with increased use of renewable energy, Multivista Global – Printing division has significantly reduced their GHG emissions in alignment to their commitment with SBTi reduction targets.

## 1.1 Message from the Director of Multivista Global – Printing Division

At Multivista Global, being socially responsible and wanting to make a difference to the world we live in has been one of our core values. As a socially and environmentally responsible organization, we are fully committed to creating a positive impact for all our stakeholders.

Sustainability is a long-term challenge that will necessitate decades of perseverance. Multivista Global is committed to pursuing strategies that will have long-term impacts on communities and will result in a balance between sustainability and overall corporate success.

Through our corporate social responsibility (CSR) programs, environmental initiatives, and ethical corporate governance, we have been on a continuing environmental, social, and governance (ESG) journey for some time. While we are proud of the progress we have accomplished so far, we also realize that there is still a long way to go before we can guarantee a better and more promising future for our future generations.

As we highlight the strides we are making as a company, this GHG Inventory report and our ESG vision are a step toward reaffirming our commitment. This will serve as our guide and serve to hold us responsible for following through on our ESG commitments. We have aligned and committed our GHG emission reduction with SBTi (Science Based Target initiatives).

This report also highlights our ongoing commitment to the environment and sustainability. As we move forward, we intend to continue to add value by expanding on these efforts, contributing to major global issues, and laying the groundwork for a more inclusive and sustainable future.

Karthik Ravi

Director of Multivista Global – Printing Division

## 2.0 Introduction

Due to the concentration of Greenhouse Gases rising as a result of various anthropogenic activities, global climate change poses a major threat to the earth's atmosphere. Rapid industrialization boosts GHG emissions into the atmosphere, which in turn cause climate change. One of the biggest issues that will face countries, governments, companies, and citizens in the coming decades is climate change. The utilization of resources, production, and economic activity could all change significantly as a result of climate change, which has ramifications for both natural and human systems. Initiatives are being created and put into action on a global, regional, national, and local level to reduce the levels of greenhouse gases (GHG) in the Earth's atmosphere. Such GHG programs rely on the measurement, monitoring, reporting, and verification of GHG emissions and/or reductions, which might be done within the framework of ISO 14064.

In terms of reporting greenhouse gas (GHG) emissions and removals, ISO 14064-1 establishes organizational-level concepts and procedures for quantification. It serves as a tool for limiting and reducing greenhouse gases (GHGs) and comprises requirements for the design, creation, administration, reporting, and verification of an organization's GHG inventory.

Taking everything into account, controlling GHG emissions at the micro level is an effective way to mitigate climate change. With regard to the impact of global/climate change, nations throughout the world are becoming more conscious of the risks involved, and governments and other organizations are implementing preventative steps through proper policy interventions as well as established aims and objectives. Companies began to monitor, quantify, and report their GHG emissions.

Multivista Global - Printing Division (hereafter "Multivista") assessed GHG emissions across its business operations and created a GHG inventory report. The GHG report includes Multivista's objectives, strategies, and GHG inventory.

The GHG report is developed in accordance with ISO 14064-1:2018 criteria and contains information on the Multivista GHG inventory for the financial year 2021. Multivista is responsible for all GHG calculations in the report, as well as the completeness and quality of the data provided.

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## 2.1 Intended Users (Clause No. 5.1 of ISO 14064 -1:2018)

This report is intended for investors, company management, employees, customers, regulators, federations, and other interested parties. The GHG report was created to assist intended users in voluntarily monitoring Multivista's Printing Division operations' greenhouse gas emissions. This report is only for voluntary GHG reporting and does not represent or form part of any mandatory GHG reporting framework or scheme. Multivista reserves all distribution rights for this report. Multivista has taken all reasonable precautions to ensure that the facts stated in this report are true and accurate in all aspects as of the date of preparation and according to the information and data available within the organization.

Measuring GHG emissions is the first step towards managing them. This report offers crucial quantitative data on the GHG emissions generated by Multivista's operations in Printing Division. As measurement leads to management, this report assists organizations in improving the environmental impacts of GHG quantification and removal, which further aids in reducing GHG emissions.

## 2.2 Standards / Guidelines Used

This report was created in compliance with the principles and guidelines outlined in ISO 14064: 2018 and the GHG protocol for measuring and reporting GHG emissions and removals. ISO 14064-1 clarifies and standardizes the quantifying, monitoring, reporting, and validating or verifying of GHG emissions and removals to enable sustainable development through a low-carbon economy. ISO 14064-1:2018 specifies the concepts and procedures for creating, managing, and reporting organizational-level GHG inventories. It specifies the standards for setting GHG emission and removal boundaries, quantifying an organization's GHG emissions and removals, and identifying specific steps to improve GHG management.

### 3.0 Company Profile (Clause No. 3.4 of ISO 14064-1:2018)

Multivista Global is a leading Printing house in India, equipped with the latest, state-of-the-art Printing and Binding machines. They specialize in the art of printing and manufacturing educational books. Multivista began as a small letterpress unit in 1974 and has since grown into a fully integrated print house with various single, two, four, and eight-color printing machines. They boast highly sophisticated Heidelberg and Ryobi printing machines and Muller Martini and Kolbus online binding machines. The printing unit is at Chennai Kelambakkam on a built-up area of 1,25,000 sq ft and can print over 30 million books a year.

Their factory is built to be environment-friendly with provision for safe disposal of chemicals, rainwater harvesting, recycling of wastewater, treatment of waste and the optimum use of natural light, and the use of eco-friendly air-conditioning and refrigerants.

They have become the preferred print house for our various domestic and international clients over the years, owing to their consistent investment in cutting-edge machinery. They source reliable and high-quality raw materials. Their major strength is their skilled, efficient, and technically qualified workforce. Multivista is known for its reliability and capability to produce high-quality books as per client requirements.

Multivista Print House is very close to a Sea and Airport in Chennai. This not only gives the publisher the flexibility and choice for the mode of transport but also translates into quicker delivery of goods to destinations and is economical in terms of freight costs.

Their success is attributed mainly to the flexibility with which they adapt to different kinds of jobs. They specialize in the niche market of educational books and cater to prominent publications across the globe. Their clientele includes Oxford University Press, Cambridge University Press, Harper Collins, Sanoma Learning, Infinitas etc. The operational boundary of this GHG Inventory Report is Printing Division located at 43, Vandalur, Kelambakkam Road, Pudupakkam, Chennai, Tamil Nadu - 603103. The reporting boundary remains same as operational boundary for this report.

#### 3.1 Mission, Vision, and Strategies

Our culture is shaped by adherence to a set of core Values that cover all our Stakeholders and help us achieve our ambitious Vision and Mission.

##### Our Vision

At Multivista our vision is driven by our passion to exceed the expectations of our most valued assets – our customers, our employees and our business partners while being a professionally managed, profitable organization with core values and ethics.

##### Our Mission

At our Print Solutions business unit our mission is to be quality driven, cost-effective print partner for global book publishers.

We are certified for below management systems to showcase our excellence in quality and sustainability.

- ISO 9001:2015 Certified (Quality Management System)
- ISO 14001: 2015 Certified (Environmental Management System)
- Ethically Compliant Organization (SEDEX)

## 4.0 Scope and Objectives of GHG Accounting (Clause No. 9.2 of ISO 14064-1:2018)

A short background about ISO 14064 standards is as below.

Climate change arising from anthropogenic activity has been identified as one of the greatest challenges facing the world and will continue to affect business and citizens over future decades. Climate change has implications for both human and natural systems and could lead to significant impacts on resource availability, economic activity, and human wellbeing. In response, international, regional, national, and local initiatives are being developed and implemented by public and private sectors to mitigate greenhouse gas (GHG) concentrations in the Earth's atmosphere, as well as to facilitate adaptation to climate change.

There is a need for an effective and progressive response to the urgent threat of climate change based on the best available scientific knowledge. ISO produces documents that support the transformation of scientific knowledge into tools that will help address climate change. GHG initiatives on mitigation rely on the quantification, monitoring, reporting and verification of GHG emissions and/or removals.

The ISO 14060 family provides clarity and consistency for quantifying, monitoring, reporting, and validating or verifying GHG emissions and removals to support sustainable development through a low carbon economy and to benefit organizations, project proponents and interested parties worldwide.

Specifically, the use of the ISO 14060 family:

- enhances the environmental integrity of GHG quantification.
- enhances the credibility, consistency, and transparency of GHG quantification, monitoring, reporting, verification, and validation.
- facilitates the development and implementation of GHG management strategies and plans.
- facilitates the development and implementation of mitigation actions through emission reductions or removal enhancements.
- facilitates the ability to track performance and progress in the reduction of GHG emissions and/or increase in GHG removals.

Applications of the ISO 14060 family include:

- corporate decisions, such as identifying emission reduction opportunities and increasing profitability by reducing energy consumption.
- risks and opportunities management, such as climate-related risks, including financial, regulatory, supply chain, product and customer, litigation, reputational risks, and its opportunity for business (e.g., new market, new business model).
- voluntary initiatives, such as participation in voluntary GHG registries or sustainability reporting initiatives.
- GHG markets, such as the buying and selling of GHG allowances or credits.
- regulatory/government GHG programs, such as credit for early action, agreements, or national and local reporting initiatives.

ISO 14064-1 standard details principles and requirements for designing, developing, managing, and reporting organization-level GHG inventories. It includes requirements for determining GHG emission and removal boundaries, quantifying an organization's GHG emissions and removals, and identifying specific company

actions or activities aimed at improving GHG management. It also includes requirements and guidance on inventory quality management, reporting, internal auditing, and the organization's responsibilities in verification activities.

ISO 14064-2 details principles and requirements for determining baselines, and monitoring, quantifying, and reporting of project emissions. It focuses on GHG projects or project-based activities specifically designed to reduce GHG emissions and/or enhance GHG removals. It provides the basis for GHG projects to be verified and validated.

ISO14064-3 details requirements for verifying GHG statements related to GHG inventories, GHG projects, and carbon footprints of products. It describes the process for verification or validation, including verification or validation planning, assessment procedures, and the evaluation of organizational, project and product GHG statements.

ISO 14065 defines requirements for bodies that validate and verify GHG statements. Its requirements cover impartiality, competence, communication, validation and verification processes, appeals, complaints and the management system of validation and verification bodies. It can be used as a basis for accreditation and other forms of recognition in relation to the impartiality, competence and consistency of validation and verification bodies.

ISO 14066 specifies competence requirements for validation teams and verification teams. It includes principles and specifies competence requirements based on the tasks that validation teams or verification teams have to be able to perform.

ISO 14067 defines the principles, requirements, and guidelines for the quantification of the carbon footprint of products. The aim of ISO 14067 is to quantify GHG emissions associated with the life cycle stages of a product, beginning with resource extraction and raw material sourcing, and extending through the production, use and end-of-life phases of the product.

ISO/TR 14069 assists users in the application of this document, providing guidelines and examples for improving transparency in the quantification of emissions and their reporting. It does not provide additional guidance ISO 14064-1.

Figure 1 illustrates the relationship among the ISO 14060 family of GHG standards

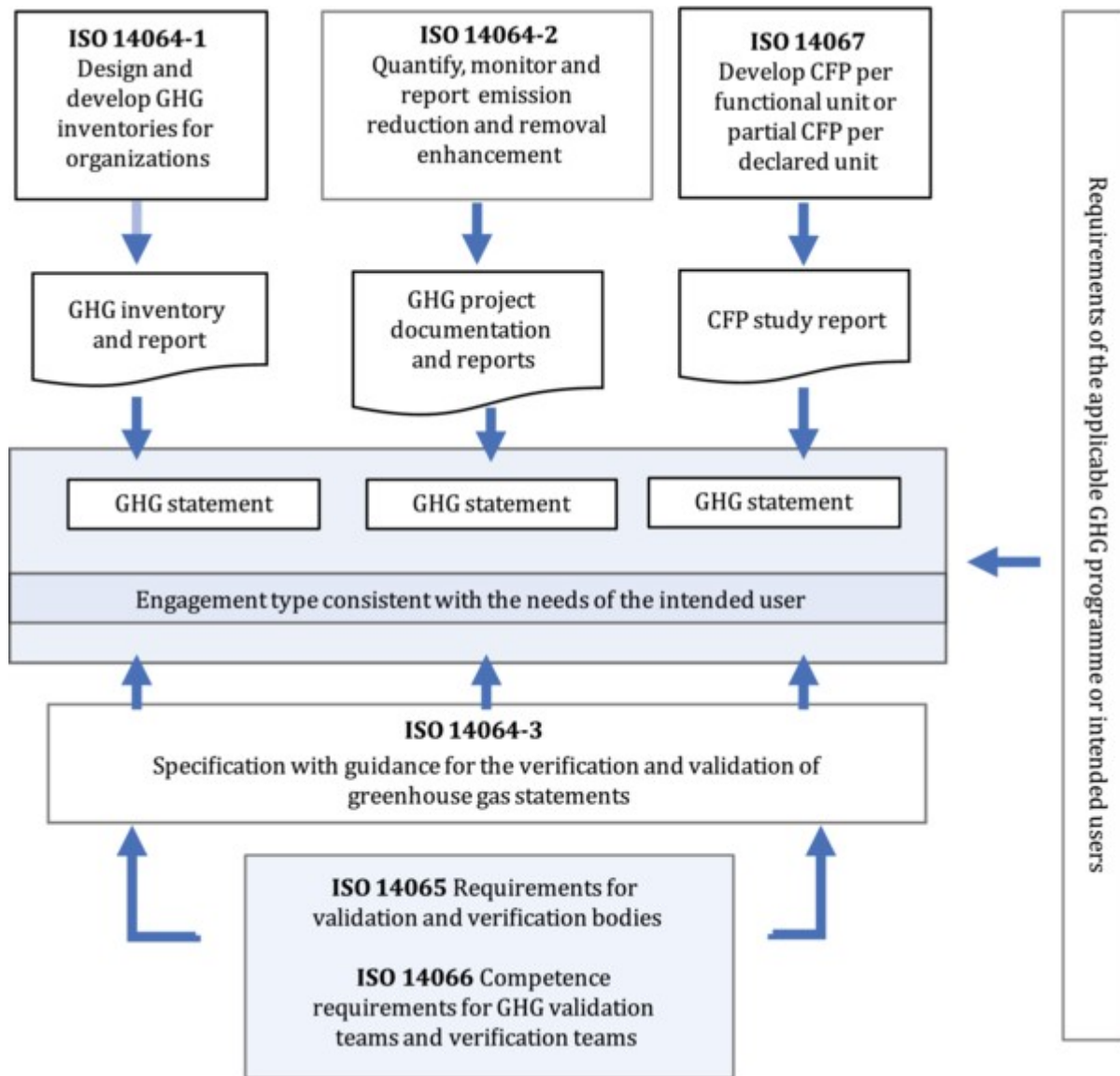


Figure 1: Relationship among the ISO 14060 family of GHG standards (Source: ISO 14064-1 Standards)

#### 4.1 Scope of GHG inventory & GHG report at Multivista

Multivista, as a responsible organization, created and implemented a GHG inventory Management System in accordance with ISO 14064-1:2018 in order to control its GHG emissions and removals. Multivista created a GHG inventory to measure, manage, and report its GHG emissions, as well as to identify opportunities for reduction. The scope of Multivista's GHG inventory and GHG report is restricted to the organizational and operational boundaries stated in this report.

The primary purpose of this report is to account for Green House Gas (GHG) emissions and reductions from routine activities for the previous financial year, i.e., April 2021 – March 2022. The report has been externally verified by a competent Lead verifier in accordance with ISO 14064-1 standards.

## 4.2 GHG Assertion Statement of Multivista (Clause No. 5.2.4 of ISO 14064-1:2018)

Multivista is a Responsible Printing Organization and has quantified its GHG emission according to ISO 14064-1:2018 for the FY 2021 and intends to disclose the same to intended users through this GHG report

Table 1: GHG Inventory category

Sl.	GHG Inventory Category	Source	Quantity in Tonnes of tCO <sub>2</sub> e
1	Direct GHG emissions (Scope 1 as per GHG Protocol)	Company Owned Vehicles (Diesel)	4.18
		DG Set (Diesel)	43.43
		Refrigerants	104.1
2	Indirect GHG emissions from imported sources (Scope 2 as per GHG Protocol)	Purchased Electricity	112.75

## 4.3 GHG Policy, Vision & Strategy of Multivista (Clause No. 9.2 of ISO 14064-1:2018)

Multivista plans to demonstrate its commitment to minimizing environmental effect by assessing its GHG emissions and taking the required steps to further reduce its GHG emissions. Multivista has raised awareness of the issue of environmental sustainability within the company at all levels.

We have created and implemented Environmental, Health, and Safety rules for our office, demonstrating Multivista's dedication to environmental / natural resource conservation and occupational safety for all employees and contractors.

In accordance with the organization's "Environmental, Health, and Safety Policy," Multivista has adopted the following statement as a GHG Policy.

### 4.3.1 GHG Policy Statement

Multivista is dedicated to:

- Reducing GHG emissions and their negative impact on climate; and
- Optimizing energy use to minimize business impact.
- Encourage the usage of renewable energy.
- Quantify and report GHG emissions and reductions in accordance with ISO 14064 (Part I): 2018 and GHG Protocol.

### 4.3.2 GHG Implementation Strategy

Multivista shall

- Find creative ways to execute key activities with minimal, minimum, or reducing GHG emissions.
- Establish and implement effective energy saving, preventative maintenance, and continuous improvement initiatives.
- Incorporate energy efficiency into existing equipment and facilities, as well as in the criteria for selecting and purchasing new equipment and vehicles.

- Reduce operating costs by stressing passive systems and energy efficiency as design features.
- Increase the adoption of renewable energy and other sustainability aspects in operations and renovations.
- Quantify GHG emissions and removal in accordance with ISO 14064 (Part I): 2018 specifications and guidelines, with evaluation through qualified external verifiers.

## 4.4 Principles of ISO 14064-1

### 4.4.1 General

The application of principles is fundamental to ensure that GHG-related information is a true and fair account. The principles are the basis for, and will guide the application of, the requirements in this document.

### 4.4.2 Relevance

Select the GHG sources, GHG sinks, GHG reservoirs, data, and methodologies appropriate to the needs of the intended user.

### 4.4.3 Completeness

Include all relevant GHG emissions and removals.

### 4.4.4 Consistency

Enable meaningful comparisons in GHG-related information.

### 4.4.5 Accuracy

Reduce bias and uncertainties as far as is practical.

### 4.4.6 Transparency

Disclose sufficient and appropriate GHG-related information to allow intended users to make decisions with reasonable confidence.





# **WHAT IS CARBON FOOTPRINT?**

**THE AMOUNT OF CARBON DIOXIDE RELEASED INTO THE  
ATMOSPHERE AS A RESULT OF THE ACTIVITIES OF A  
PARTICULAR INDIVIDUAL, ORGANIZATION, OR COMMUNITY**



## 5.0 GHG Inventory boundaries: (Clause No. 5 of ISO 14064-1:2018)

### 5.1 Organizational boundaries (Clause No. 5.1 of ISO 14064-1:2018)

Multivista has established the scope and boundaries for quantifying its GHG emissions and removal. The details of sites covered by the qualification are included in this report's section 3 "Company Profile."

The quantification of GHG emissions and removal is carried out for Multivista's facilities in Printing Division, over which it has both financial and operational control. Multivista has used the "Operational Control" approach to define organizational boundaries and reduce GHG emissions from its facilities. Multivista's GHG emission sources are located within its office and factory in Printing Division, which serves as organizational boundaries for GHG quantification.

### 5.2 Reporting Boundaries (Clause No. 5.2 of ISO 14064-1:2018)

#### 5.2.1 Established Reporting Boundaries (Clause No. 5.2.1 of ISO 14064-1:2018)

Multivista has established and documented its reporting boundaries for the purpose of the GHG emission and removal quantification and is included in this report's section 3 "Company Profile."

Company has established & documented its operational boundaries and the identified GHG emissions and identification of opportunities for removals associated with the company operations are categorized as below

- Direct GHG emissions
- Indirect GHG emissions from imported sources

The categories of emission mentioned above are considered as significant emission. The quantification details are included in section 4.2 GHG Assertion Statement of Multivista.

#### 5.2.2 Direct GHG Emissions (Clause No. 5.2.2 of ISO 14064-1:2018)

Direct GHG emissions (Scope 1 as per GHG Protocol) are the GHG emissions from company owned or operated assets such as machinery, equipment or processes are included in this category. Therefore, all emissions happening from company owned vehicles, DG sets and other sources come under a direct GHG emission at Multivista. All the emissions are calculated on the actual basis. The Direct GHG sources at Multivista are as follows according to their operational boundaries

*Table 2: Direct GHG Emission Sources*

Sl.	Direct GHG Emission Sources	Description
1	Diesel in Company Cars	Multivista owned vehicles for employee's transportation any other activities. All the vehicles owned by Multivista are included in this category
2	Refrigerants	Multivista own air-condition units owned/controlled by Multivista included in this category
3	Emissions due to Diesel in DG sets	Multivista own DG sets as backup power source. All the DG sets owned/controlled by Multivista included in this category

### 5.2.3 Indirect GHG Emissions (Clause No. 5.2.3 of ISO 14064-1:2018)

The indirect GHG emissions include Indirect GHG emissions from imported energy (Scope 2 as per GHG Protocol) only. We don't have enough data to measure other indirect emissions.

### 5.2.4 GHG Inventory Categories (Clause No. 5.2.4 of ISO 14064-1:2018)

#### Indirect GHG Emissions from Imported Energy

There are separate meters to measure electricity consumption in the Printing Press and admin office.

### 5.2.5 GHG Quantification Exclusions (Clause No. 9.3.1 of ISO 14064-1:2018)

Table 3: GHG Quantification Exclusions

Sl.	Exclusion	Reason for Exclusion
1	Indirect emissions from all categories except import energy (Scope 3 as per GHG Protocol)	We don't have enough data to measure other indirect emissions. Multivista is initiating steps to identify, collect and measure other indirect emissions in the coming years.

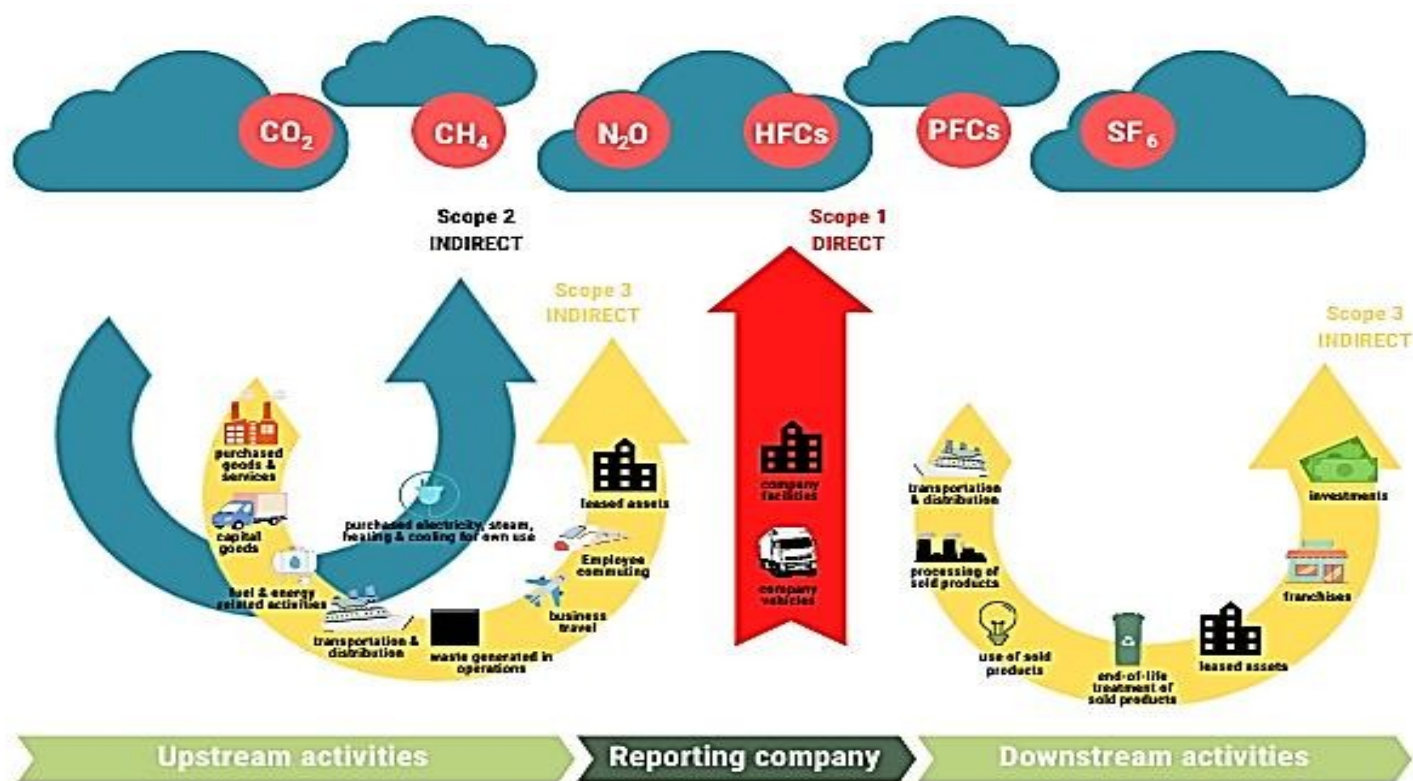


Figure 2: Direct & Indirect Emissions

## 6.0 Quantification of GHG Emissions and Removals (Clause No. 6.0 of ISO 14064-1:2018)

Multivista had used following procedures for GHG inventory calculations, and it includes following key aspects.

- Identification of GHG sources and Sinks.
- Selection of GHG Quantification methodology.
- Selection and collection of GHG activity data.
- Selection and development of GHG emissions or removal factors.
- Calculation of GHG emissions or removals.

### 6.1 Identification of GHG sources and Sinks (Clause No. 6.1 of ISO 14064-1:2018)

Multivista has identified the sources of GHG inside the boundaries and has maintained the database up to date using an information management system for GHG databases. Multivista regularly examines the GHG sources as part of the internal audit procedure. At Multivista, adequate data collection (hard copies/soft copies as available) and archiving procedures are used to implement the processes for identifying, recording, maintaining, and reviewing GHG sources and sinks. Multivista had identified the sources of GHG emissions and sinks in section 5 as per the categories of 5.2.2 & 5.2.3

### 6.2 Selection of GHG Quantification Approach (Clause No. 6.2 of ISO 14064-1:2018)

#### 6.2.1 GHG Quantification Methodology

Multivista chose and applied quantification approach that reasonably minimizes uncertainty in order to assess GHG emissions and identify potential reductions. The great majority of Multivista GHG emission sources (mobile and stationary) use fossil fuels like Diesel and purchased electricity. GHG activity data multiplied by GHG emission or removal factors is the chosen methodology for GHG quantification to reduce uncertainty and enhance consistency and accuracy.

The quantification of GHG Emission methodology based on the following equation:

$$\text{GHG Emission/Removal} = \text{GHG Activity Data} \times \text{GHG Emission/Removal Factor} \times \text{Conversion Factor}$$

As per the GHG emission/ removal factors, the company has selected the CO<sub>2</sub>e factor, in order to quantify the Green House Gases Emissions.

#### 6.2.2 Selection and collection of GHG activity data (Clause No. 6.2.2 of ISO 14064-1:2018)

## Data Collection:

GHG activity data are used to quantify GHG emissions and identifying possibilities of removals, the Multivista selects and collects GHG activity data consistent with the requirements of the selected quantification methodology.

Activity Data (GHG Emissions / identifying possibilities of Removals) were collected at office level by responsible person(s) and collated at one place by the project coordinator. Activity data at site level collected on a regular basis and calculation is being done on yearly basis. The quantification of GHG is done in the GHG Management System.

## GHG Management System and Data Quality Control

Multivista has established and maintained GHG information management system that

- Ensures conformance with the principles of standards of ISO-14064-1 requirements
- Ensures consistency with the intended use of the GHG inventory
- Provides routine and consistent checks to ensure accuracy and completeness of the GHG inventory, Identify and addresses errors and omissions
- Documents and archives relevant GHG inventory records including information management activities, All the data of GHG emissions and possibilities identification of removals are maintained and recorded in controlled documents and management information systems and data coming mainly from Logbooks, invoices from the suppliers and bills.

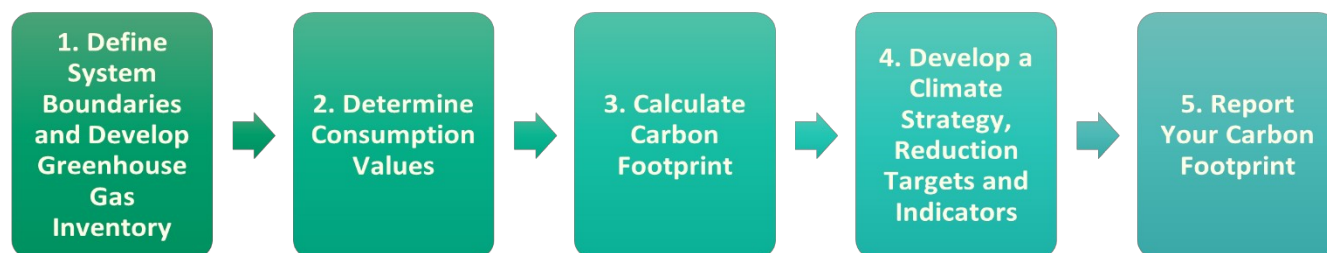


Figure 3: Steps to measure GHG Inventory

Table 4: Selection and Collection of GHG Activity Data

Sl.	GHG Source Type	Activity Data	Source	Frequency of Collection
1	Vehicles	Fuel Consumption	Fuel receipt / Logbook/Internal MIS data	Continuous
2	Refrigerant	Gas consumption	Service report	Continuous
3	DG Sets	Diesel Consumption	Fuel receipt / Logbook/Internal MIS data	Continuous

5	Purchased Electricity	Electricity Consumption	Monthly bills from TNEB	Continuous
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### 6.2.3 Selection and development of GHG emissions or removal factors (Clause No. 6.2.3 of ISO 14064-1:2018)

According to the UNFCCC, an emission factor is defined as the average emission rate of a specific GHG for a given source, relative to units of activity. GHG emission factor is required to compute GHG emissions from various sources and plays a vital part in GHG inventory. GHG emission or removal factor is defined as a linking activity data to GHG emissions or removals in ISO-14064-1 clause 2.7.

GHG emissions/removals factors in the Multivista are calculated by taking the following into account:

- Are derived from a recognized source,
- Are appropriate for the GHG source or sink in question,
- Are current at the time of quantification,
- Take quantification uncertainty into account and are calculated in a way that yields accurate and reproducible results.
- Are consistent with the GHG inventory's intended use.

The following fossil fuels and energy sources are used by various GHG emission sources.

- Petrol and refrigerant gas.
- Grid electricity from Southern Grid

### 6.3 Calculation of GHG emissions or removals (Clause No. 6.3 of ISO 14064-1:2018)

GHG calculation/accounting done as per the guidelines mentioned in ISO 14064-1 standards, in accordance with the quantification Methodology selected. As per the clause 6.3 of ISO 14064-1 2018 requirement for calculation of GHG emissions and removals, GHG activity data are used to quantify GHG emissions, GHG emissions shall be calculated by multiplying GHG activity data by GHG emission or removal factors. The GHG calculations are done in an MS excel sheet

Table 5: Calculation of GHG Emissions

GHG Inventory Category	Source	Quantity in Tonnes of tCO <sub>2</sub> e
	Company Owned Vehicles	4.18

Direct GHG Emission	Refrigerants	104.10
	DG Sets	43.43
Indirect GHG Emissions (Purchased Electricity)	Purchased Electricity	112.75

### 6.3.1 GHG EMISSION ANALYSIS (Clause No. 6.3 of ISO 14064-1:2018)

#### Category wise GHG emission Emissions at Multivista Contribution of Category wise GHG

#### Total GHG Emissions (tCO<sub>2</sub>e)

Table 6: Total GHG Emissions

Scope	Contribution to nearest digit)
Scope 1	
Scope 2	
Total	
Company	

#### Total GHG Emission 2021

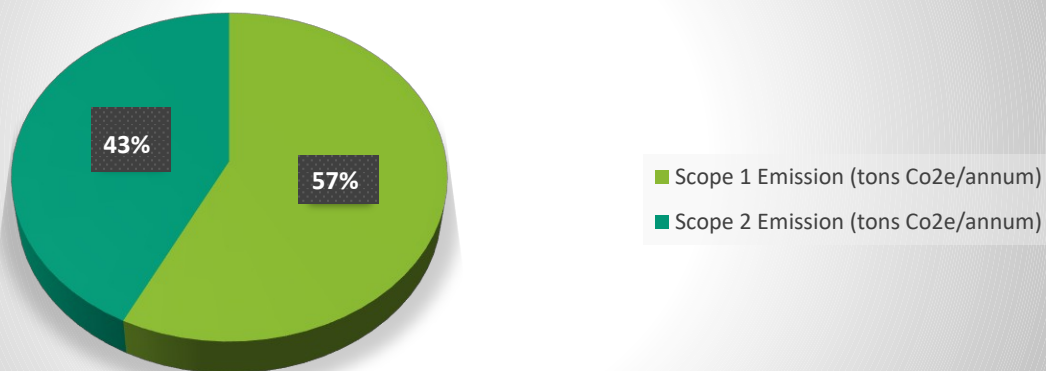


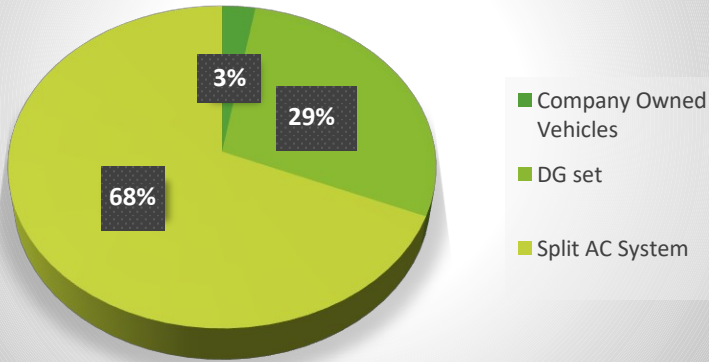
Figure 6: Total GHG Emissions

#### Direct

Table 7: Direct

Source of
Company Own
DG set
Split AC System

### Scope 1 Emission (tCO2) FY 2021



Figure

### Indirect

### Emissions through 13 Metric tCO2e

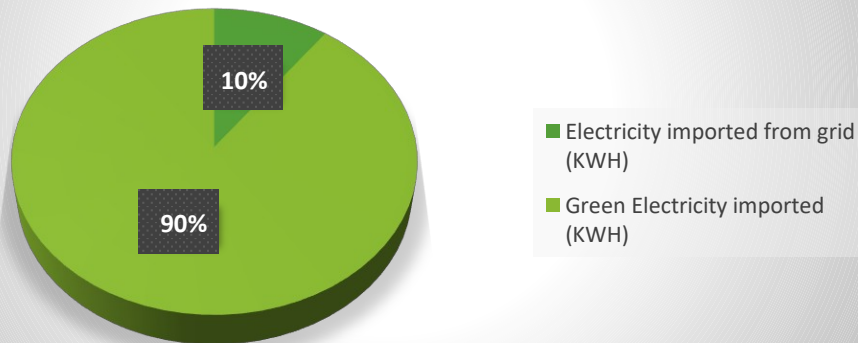
Multivista avoided indirect emissions by opting for renewable energy (wind). The energy consumption of Multivista through various renewable energy sources are as below

### Electricity imported from grid 18

### Green

90%

### Energy consumption through various sources - 2021



Figure



### 6.3.2 YoY Reduction in Scope 1 & Scope 2 Emission Levels

Through various initiatives, Multivista is able to reduction overall emissions by 85% in FY 2022 compared to the base year FY 2019 emissions. Scope 2 emissions have seen higher reduction due to increased focus on using renewable energy sources. Below table shows the YOY reduction in Scope 1 & 2 and overall GHG emissions reductions of Multivista.

Table 8: YoY Reduction in Scope 1 & Scope 2 Emission Levels

YoY Reduction in Scope 1 & Scope 2 Emission Levels			
Year	Scope 1 emissions Co2e	Scope 2 emissions Co2e	Total emissions Co2e
2019 April to March 2020	255	1502	1757
2020 April to March 2021	230	460	690
2021 April to March 2022	152	113	264
Reductions in emissions compared to base year 2019	41%	92%	85%

### 6.3.3 YoY Carbon Intensity with reference to number of books printed

Table 9: YoY Carbon Intensity with reference to number of books printed

Year	Total no of books	Total emissions Co2e (in kgs)	Kg Co2e per book
2019 April to March 2020	9,692,888	1,757,000	0.181
2020 April to March 2021	7,224,402	690,000	0.096
2021 April to March 2022	9,138,601	264,000	0.029

Multivista has significantly reduced carbon intensity by 84% in FY 2021 compared to the base year FY 2019.

## 6.4 Base Year GHG Inventory (Clause No. 6.4.1 of ISO 14064-1:2018)

The first step toward effective GHG management and performance improvement is the identification, selection, and creation of a GHG inventory. As a result, it is critical to lay the groundwork and monitor progress toward management objectives. The base year is a year that corresponds to a set of GHG emissions data that represents the organization's typical operation. The emission quantities associated with the base year inventory serve as the baseline against which subsequent/future inventories are compared. For comparative purposes, or to meet GHG program requirements or other intended uses of the GHG inventory, the organization must establish a historical base year for GHG emissions and removals.



#### 6.4.1 Selection and establishment of base year (Clause No. 6.4.2 of ISO 14064-1:2018)

While selection and establishment of base year, the organization considered the following points

- a) Quantified base-year GHG emissions and removals using data representative of the organization's Activity, typically single-year data, a multi-year average or a rolling average,
- b) Selected a base year for which verifiable GHG emissions or removals data are available,
- c) Explained the selection of the base year, and
- d) Developed a GHG inventory for the base year consistent with the provisions of this part of ISO 14064.

Multivista had started quantifying GHG emissions from its organizational as well as operational boundaries from the FY 2019, by considering all above points. For FY 2021 and subsequent years, Multivista developed the GHG procedures, and the report was prepared by considering the requirements.

**Multivista's emission for the FY 2019 was 1756 Metric tCO<sub>2</sub>e.**

#### 6.4.2 Review of Base Year GHG Inventory (Clause No. 6.4.2 of ISO 14064-1:2018)

GHG protocol explains in "A Corporate Accounting and Reporting Standard" that the companies often undergo significant structural changes such as acquisitions, divestments, and mergers. These changes will alter a company's emission profile. For consistent tracking of GHG emission/removals in the organization the base year emissions need to be recalculated to meet the standards.

Multivista will consider below to revise our base year:

- a) Changes to operational boundaries,
- b) The ownership and control of GHG sources or sinks transferred into or out of organizational boundaries, and
- c) Changes to GHG quantification methodologies that result in significant changes to quantified GHG emissions or removals.

Multivista is an organization engaged in printing business. In the pursuit of growth, Multivista's structure and operations may change. Hence, to ensure meaningful comparisons of GHG emissions over the time it is necessary that the Multivista changes / adjustments to the base year inventory according to the following changes. Such changes are as

- Structure/ Organizations business change including acquisitions that result in 10% or greater change in overall emissions
- Source ownership and control changes (changes in operational control over the GHG sources)

- If there is change in quantification methodology or data improvements and that result in 5% or greater change in overall emissions this will be considered for recalculation.

## 7.0 Mitigation Activities: (Clause No. 7 of ISO 14064-1:2018)

### 7.1 GHG Emission reduction and removal enhancement initiatives (Clause No. 7.1 of ISO 14064-1:2018)

Multivista has planned and implemented various GHG reduction initiatives as follows through energy conservation initiatives. Since Multivista office is at rented place, these initiatives to be discussed with the site owner to get his consensus.

- ✓ Phase wise AC Upgradation & Chiller Replacement.
- ✓ Replacement of Old UPS with modular type UPS.
- ✓ Operational Excellence and employee participation.
- ✓ Training to employees on Energy conservation
- ✓ Replacement of CFL with LED lights.
- ✓ Occupancy sensors.
- ✓ Shift from on premise storage to Cloud
- ✓ Increased use of renewable energy

### 7.2 GHG Emission reduction and removal enhancement Projects (Clause No. 7.2 of ISO 14064-1:2018)

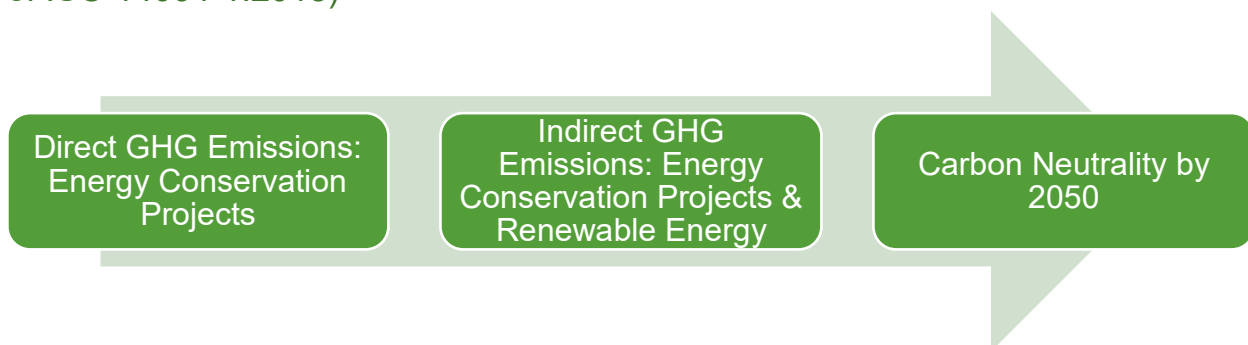


Figure 7: GHG Emission Reduction and Removal Enhancement Projects

### 7.3 GHG Emission Reduction or Removal Enhancement Targets (Clause No. 7.2 of ISO 14064-1:2018)

Multivista has set targets to reduce the GHG emissions to become Carbon Neutrality by 2050. The details of the projects and associated targets are currently in identification stage.

## 8.0 GHG Inventory Quality Management (Clause No. 8 of ISO 14064-1:2018)

### 8.1 GHG information Management System (Clause No. 8.1 of ISO 14064-1:2018)

Multivista has established and maintained the GHG information management system procedures that

- Ensures conformity with principles of this document.
- Ensures consistency with the intended use of GHG inventory
- Provides routine and consistent checks to ensure accuracy and completeness of the GHG inventory
- Identifies and addresses errors and omissions
- Documents and archives relevant GHG inventory records, including information management activities and GWPs

Multivista's GHG information management procedures have documented its consideration of the following.

- Identification and review of the responsibility and authority of those responsible for GHG inventory development.
- Identification, implementation, and review of appropriate training for members of the inventory development team.
- Identification and review of organizational boundaries
- Identification and review of GHG sources and sinks
- Selection and review of quantification approaches including data used for quantification and GHG quantification models that are consistent with intended use of the GHG inventory.
- Review of application of quantification approaches to ensure consistency across multiple facilities/countries etc.
- Use, maintenance, and calibration of measurement equipment wherever required.
- Development and maintenance of robust data collection system
- Regular accuracy checks
- Periodic internal audits and technical reviews the technical review shall be performed once in six months to review the GHG inventory & Progress of actions directed for GHG reduction.

#### 8.1.1 Periodic review of opportunities to improve information management system

For developing GHG information management procedure for GHG inventory at Multivista, a core team from Admin Team of each country has been formed among the Multivista associates at various level across each location along with their responsibilities.

Training provided to core members on the importance of GHG inventory as a green/ environment initiative carried out by Multivista along with ISO 14064-1 standard / specification including introduction to climate change, impacts of GHG emission on environment, role of organization in GHG emission reduction. Also training provided to core team members on identification of GHG sources as well as operational and organizational boundaries. GHG activity data collection and achieving procedures developed after discussion with team members.

The GHG inventory information/quality management has developed at Multivista. All GHG activity data collected and reported is accurate and it is ensured through regular multi check points such as internal audits, technical reviews. Data collected is monitored and checked at its origination wherever possible. Most of the data such as electric consumption data, fuel consumption data, fire extinguisher refilling data etc. it is collected from financial receipts such as electricity bills, AMCs, from internal MIS system. There are separate collection sheets specially developed to collect primary data. All these collection sheets are available with project coordinator and with responsible person.

## 8.2 Document Retention and Record Keeping (Clause No. 8.2 of ISO 14064-1:2018)

Multivista has established and maintained procedures for document retention and record keeping. At Multivista, the records are maintained in MIS system/ electronic formats/hard copies. We avoid hard copies as we plan to become “Paperless Office”. The records and documents are available with concerned person and project coordinator.

Project coordinator details are mentioned in the report. This GHG report is a special type of document & shall be retained for 3 years.

## 8.3 Assessing Uncertainty (Clause No. 8.3 of ISO 14064-1:2018)

Multivista has completed and documented an uncertainty assessment for GHG missions and identification of opportunities removals including the uncertainty associated with the emissions and removal factors and the capturing of the data. According to Multivista, there are two areas where uncertainty exists. They are as follows:

1. **Purchased Electricity**: The uncertainty exists for the emission factors used may not accurately represent the emissions associated with generation of electricity consumed by the Multivista. Grid emission factors used in GHG quantification are taken from the IGES List of Grid Emission Factors. Grid Emission Factor refers to CO<sub>2</sub> emission factor (tCO<sub>2</sub>/MWh) which will be associated with each unit of electricity provided by an electricity system. It is a parameter to determine the baseline emissions for CDM projects in the renewable energy sector (hydro, wind, solar PV, and geothermal power, etc.) and waste heat/gas recovery sector.
2. **GHG Activity Data**: GHG activity data collection and retrieving data from system may have human errors and uncertainty exists for this section. More than 85% of GHG emission occurs due to electricity consumption at Multivista. To calculate this emission, electricity

data consumption has been collected from monthly electricity bills provided by the Electricity board. All values mentioned in the electricity bills are highly accurate as it has commercial value. Hence uncertainty in the accuracy of the data and the collection procedure is very minimal.

Quality control and assurance was conducted through internal checking and review of the inventory. The following table summarizes the uncertainty possibilities at each stage of GHG quantification process. The standard uncertainty has been referred from IPCC guidelines on National Greenhouse Gas Accounting, 2006.

GHG emission factor calculation is based on DEFRA Greenhouse gas reporting: conversion factors 2021. These emission conversion factors are for use by UK and international organizations to report on 2021 greenhouse gas emissions. The emission factor is based on default values. Actual values may vary. Hence the emission factor has inbuilt variation and uncertainty.

## 8.4 Materiality

Materiality is defined as a concept that individual, or aggregation of errors, omissions and misinterpretations may affect the GHG assertion and could influence the intended user's decisions. The materiality threshold is set at 5%. Multivista shall ensure that any omission of data or GHG sources, any misinterpretations should not affect the GHG inventory by more than 5%.

Materiality defines the level at which discrepancies in the GHG Assertion or any underlying supporting information precludes the issuances of a limited level of assurance.

The verification team is responsible for determining if qualitative discrepancies could adversely affect the GHG Assertion and subsequently influence the decision(s) of the Intended User, in which case the discrepancy (i.e.) are deemed to be material

## 9.0 GHG Report (Clause No. 9.0 of ISO 14064-1:2018)

Multivista has prepared a GHG report to facilitate GHG inventory verification, participation in a GHG program, or to inform external or internal users. GHG reports are complete, consistent, accurate, relevant, and transparent. Multivista has determined the content, structure, public availability, and methods of dissemination of GHG reports, based on requirements of the applicable GHG program, internal reporting needs and the needs of intended users of the report.

Multivista has made the GHG Reports to facilitate GHG inventory external verification. Multivista has made the report by considering all requirements of Clause no 9.3 of ISO 14064-1:2018 requirements.

### 9.1 GHG report: (Clause No. 9.1 of ISO 14064-1:2018)

GHG report, consistent with the intended uses of the GHG inventory, to facilitate GHG inventory verification. GHG statement has been independently (qualified external assessor) verified, the verification statement shall be made available to intended users.

## 9.2 Planning the GHG report: (Clause No. 9.2 of ISO 14064-1:2018)

Multivista has considered and documented the following in planning its GHG report:

- a) Purpose and objectives of the report in the context of the Multivista's GHG policies, strategies, or Programs and applicable GHG programs. (Refer section 4.3)
- b) Intended use and intended users of the report (Refer section 2.1)
- c) Overall and specific responsibilities for preparing and producing the report. (Refer Section 8.1)
- d) Frequency of the report – Once in a year
- e) Period for which the report is valid – Report will valid up to next verification audit.
- f) Report format –controlled soft copy available on company portal.
- g) Data and information to be included in the report. (Refer section 6.3)

## 9.3 GHG Report Contents (Clause No. 9.3 of ISO 14064-1:2018)

Multivista has developed their GHG report by considering the clauses of 9.3.1 & 9.3.2 of ISO 14064-1:2018 standard requirements

## 10.0 Organizational Role in Verification Activity (Clause No. 10.0 of ISO 14064-1:2018)

Multivista has decided to conduct independent external verification of its GHG inventory, for the year 2021-22 through qualified and competent external auditor.

## 11.0 References

The references for various values taken for GHG emissions factor calculation are:

1. 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 Greenhouse gases – Part 3: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals
2. <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>
3. <http://www.ghgprotocol.org/calculation-ves/all-tools>
4. <http://www.wri.org/>
5. <http://www.wbcsd.org/home.aspx>
6. <http://unfccc.int/2860.php>
7. [https://co2.myclimate.org/en/event\\_calculators/new](https://co2.myclimate.org/en/event_calculators/new)
8. DEFRA: <https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>