



Cassava Technologies FY24 Carbon Footprint Report

Prepared by Promethium Carbon

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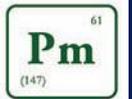


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1 Introduction

This report presents Cassava Technologies' (Cassava) greenhouse gas (GHG) inventory for the financial year 2024 (FY24). Cassava's financial year runs from 1 March 2023 to 29 February 2024.

The inventory encompasses the direct and indirect emissions generated by Cassava's operations. The detailed calculations are provided in an accompanying Excel workbook, which facilitates the necessary inputs, assumptions, and reports on the resultant emissions.

The aim of this report is to compile the GHG emissions inventory for corporate reporting and group target setting purposes. The GHG inventory also assists Cassava in developing and monitoring low carbon growth strategies when considering climate change in the company's business decisions. Quantifying the GHG inventory will assist in identifying the most relevant climate change risks and opportunities, and to benchmark the Group's emission producing activities. The intended audience of this report includes company executives, shareholders, customers, and other interested and/or affected parties.

This report is the Group's second carbon footprint report. Material changes have been made to the Group's structure during the financial year, including acquisitions, restructuring of subsidiaries and expansion into more countries. These changes have materially changed the GHG inventory from last year's, due to the additional operations included in the boundary and more detail included in the Scope 3 emissions. This year's carbon footprint report also, for the first time, includes Cassava's point-of-presence (PoP) sites, which significantly impacts the Group's carbon footprint.

The reporting for FY24 shifts focus more towards the GHG protocol, diverging from the previous reporting using both the GHG protocol and ISO 14064-1:2018 standards. Consequently, the inventory now implements a relevance criterion instead of the significance criteria.

This year's carbon footprint data will also serve as the Group's first environmental baseline year and will be used to set Group and operational targets. Direct comparison between the FY23 and FY24 footprints is not possible due to differences in scope and boundary.

2 Approach and Methodology

This section provides a general outline of the approach and methodology used to compile the GHG inventory.

Two standards are available for compiling GHG inventories for companies, the GHG Protocol and ISO 14064-1:2018:

- The Greenhouse Gas Protocol Corporate Standard (GHG Protocol¹) was developed by the World Business Council for Sustainable Development and the World Resources Institute as a guide to help companies report on their corporate GHG emissions.

¹ World Business Council for Sustainable Development & World Resources Institute. The Greenhouse Gas Protocol. 2004. [Available Online]: [ghg-protocol-revised.pdf \(ghgprotocol.org\)](https://ghgprotocol.org/ghg-protocol-revised.pdf).

- The ISO 14064-1, 2nd edition. The ISO standard for measuring and reporting GHG emissions, ISO 14064-1:2006, was revised by the ISO in 2018 and a new edition, ISO 14064-1:2018², was released.

By using these internationally recognised standards in a complementary way, the GHG inventory's environmental integrity is enhanced, corporate risk management is supported, and the development of a GHG management strategy is facilitated.

The GHG Protocol and the ISO 1461-1:2018 principles for the accounting of this GHG inventory are detailed in Table 1.

2.1 Reporting Principles

The GHG Protocol and the ISO 14064-1:2018 provide the following principles for GHG emissions reporting:

Table 1: Principles for GHG accounting and reporting

Principle	Description
Relevance	The GHG inventory should appropriately reflect the data and methodology of the company's GHG emissions and serves the decision-making needs of users.
Completeness	The GHG inventory should account for all relevant GHG emission sources within the chosen inventory boundary.
Consistency	A consistent methodology should be used to allow for meaningful comparisons of emissions over time.
Transparency	The GHG inventory should address all relevant issues in a factual and coherent manner, based on a clear audit trail specific to the company. Disclose any relevant assumptions and provide appropriate references to the accounting and calculation methodologies as well as data sources used.
Accuracy	Ensure that the quantification of GHG emissions is systematically neither overestimated nor underestimated to the best judgment, while reducing uncertainties as far as practicable.

2.2 Purpose of the Inventory

The purpose of the GHG inventory should be clearly stated in the report. In stating the purpose of the inventory, the intended audience of the inventory should be provided and may include a list of relevant stakeholders. The inventory can also be used for target setting and tracking progress of emissions reduction initiatives towards a company's climate change goals.

GHG targets can serve as planning tools that help to reduce company emissions. This can serve to help the company to manage the business risks associated with climate change and its impact on the company.

A base year must be established for a reporting company to track and compare emissions over time. Generally, the base year will be the earliest year for which a company has reliable GHG inventory. The

² International Organization for Standardization. 2018. *Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals*. [Available Online]: [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](https://www.iso.org/standard/72431.html)

base year can then be restated over time as additional information comes to light or changed to reflect developments in the operational boundaries of the organisation.

2.3 Setting Inventory Boundaries

The first step in the quantification of a GHG inventory is the selection of reporting boundaries. These boundaries are important as they identify the GHG sources (activities that emit GHGs) that are to be included in the inventory calculation. Two types of GHG inventory boundaries need to be set – an organisational boundary and an operational boundary.

Organisational boundaries refer to the broader scope of the organisation itself, encompassing all the activities and entities that are owned or controlled by the organization. The organisational boundary helps define what is reported as part of the organisation's direct emissions and indirect emissions associated with subsidiary companies.

Operational boundaries refer to the specific scope or limits within which an organisation chooses to assess and report its greenhouse gas emissions. These boundaries define the operational activities and processes that are included in the assessment. Operational boundaries typically encompass the direct activities and emissions associated with the organisation's operations, including its facilities, vehicles, equipment, and other tangible assets. This also include emissions from electricity, heat, and steam.

2.2.1 Organisational Boundaries

The organisational boundary refers to a grouping of activities or facilities over which an organisation exercises operational or financial control. It determines which facilities, operations and subsidiaries are included in the organisation's GHG inventory for reporting purposes. Two approaches can be used to set the organisational boundary: the control approach and the equity share approach.

- Under the **control approach**, a company accounts for 100% of the GHG emissions from facilities or operations that it has direct control over. This approach considers both financial control and operational control. Financial control is established when a company has the authority to direct the financial and operating policies of an operation, allowing them to gain economic benefits from it. Operational control is determined by the company's full authority to introduce and implement operating policies at an operation.
- The **equity share approach** considers a company's GHG emissions based on its share of equity in an operation. In this approach, the company accounts for its proportionate emissions based on its ownership stake in the operation.

By establishing the organisational boundary, organisations can accurately determine which facilities or operations to include in their GHG inventory. This ensures the comprehensive reporting of emissions for the purposes of measuring and managing the organisation's carbon footprint and implementing effective emission reduction strategies.

2.2.2 Operational Boundaries

Once the organisational boundaries are set the focus shifts to the operational boundaries. This involves identifying emissions associated with its activities and categorising them as direct or indirect emissions and choosing the scope of accounting and reporting for indirect emissions. Direct emissions are from sources that are owned or controlled by the company while the indirect emissions are a consequence of the company activities but occur at sources owned or controlled by another company.

2.4 Identify Emissions Sources

The inputs, resources, and activities associated with running a company have emission-related impacts. It is crucial to identify the relevant activity data to calculate the company's carbon footprint. The emissions sources/activities need to be quantified so that emissions related to the activities can be estimated. Activities can be measured using different metrics depending on the type of activity. For example, transport may be measured using kilometres and energy use may be measured using kWh of electricity or metres cubed of gas.

2.5 Calculate Emissions

The methodology used to calculate a GHG inventory entails multiplying the GHG activity data by an appropriate emission factor.

$$\text{Activity data} \times \text{Emission Factor} = \text{Quantity of GHG Emissions}$$

The total GHG emissions produced by a company are determined by adding up the GHG emissions quantities calculated for each activity using the above equation. The footprint can then be presented by classifying and aggregating the emissions according to scopes and categories.

2.5.1 Identify Data Sources

To compile an accurate GHG inventory, it is important to identify and gather data from sources within the organisation. The following sources can be used to collect the necessary data:

- Utility bills
- Fuel consumption records
- Procurement records
- Production data
- Sales data
- Transportation logs
- Workshops
- Travel agent travel logs
- Financial inventory

Data collection involves coordinating with relevant departments and personnel within the organisation to ensure comprehensive coverage and accuracy.

2.5.2 Selection of Emission Factors

The selection of appropriate emission factors is essential for calculating GHG emissions associated with various activities within the organisation. To select emission factors, relevant emission factor sources are consulted and can include the Intergovernmental Panel on Climate Change (IPCC) or South Africa's Methodological guidelines for quantification of greenhouse gas emissions.

The selection of emission factors should follow the guidance provided in the reporting standards. The ISO 14064-1:2018 specifies the following requirements for emission factors:

- **Recognised Source:** All factors used originate from reputable and recognised sources within the field of greenhouse gas accounting and reporting.

- **Appropriate for GHG Sources:** Each factor is specifically chosen to be appropriate for the emissions source being assessed. This ensures that the calculations accurately reflect the emissions associated with each activity.
- **Up to date factors:** The selected factors are up to date as of the time of quantification, considering the most recent available data and scientific knowledge. This ensures that the inventory calculations capture the current understanding of emissions and reflect the latest information.
- **Consideration of Uncertainty:** The chosen factors consider the quantification uncertainty associated with each emission source. They are calculated with methodologies that provide accurate and reproducible results, minimising uncertainties and ensuring the reliability of the inventory.
- **Alignment with Intended Use:** The factors align with the intended use of the GHG inventory, which is to provide a comprehensive and accurate representation of emissions. They are specifically chosen to suit the purpose of the inventory and facilitate effective decision-making based on the results.

2.6 Relevance of Emissions Sources

Conducting a quantitative analysis of emissions data allows for the evaluation of emissions magnitude from various sources. This involves quantifying GHG emissions associated with each activity or process within the organisation. Sources with higher absolute emissions are generally considered more relevant.

Relevance assessment helps prioritise efforts and resources by identifying the most significant sources of emissions within the organisation. The GHG Protocol recommends that companies assess the relevance of Scope 3 emissions sources using a specified set of criteria. The following table details the criteria to be used in a relevance assessment.

Table 2: Relevance criteria³

Criteria	Description of activities
1. Size	Relevant if they contribute significantly to the company's total anticipated Scope 3 emissions.
2. Influence	Relevant if there are potential emissions reductions that could be undertaken or influenced by the company.
3. Risk	Relevant if they contribute to the company's climate related risk exposure. (e.g., climate change related risks such as financial, regulatory, supply chain, product and technology, compliance/litigation, and reputational risks).
4. Stakeholders	Relevant if they are deemed critical by key stakeholders. (e.g., customers, suppliers, investors or civil society).
5. Outsourcing	Relevant if they are outsourced activities previously performed in-house or activities outsourced by the reporting company that are typically performed in-house by other companies in the reporting companies' sector.
6. Sector Guidance	Relevant if they have been deemed significant by sector-specific guidance.

³ Greenhouse Gas Protocol, Technical Guidance for Calculating Scope 3 Emissions, version1.0, Supplement to the Corporate Value Chain (scope3) Accounting and Reporting Standard. Pg. 12 Table II Available at: https://ghgprotocol.org/sites/default/files/standards/Scope3_Calculation_Guidance_0.pdf

Criteria	Description of activities
7. Other	Relevant if they meet any additional criteria for determining relevance developed by the company or industry sector.

2.7 Categorising Emission Sources

A GHG inventory provides an aggregate summary of emissions sources by categorising and summing the emissions for each category. The reporting standards provide emissions categories to ensure a standard means of aggregating and reporting the inventory. Table 3 shows how the different emissions are categorised using ISO 14064:2018 and the GHG Protocol.

Table 3: Comparison of emissions categories in the GHG Protocol and ISO 14064-1:2018

ISO 14064:2018		GHG Protocol	
Category	Description	Scope and Category	Description
1	Direct GHG emissions and removals	Scope 1	Direct GHG emissions
2	Indirect GHG emissions from imported energy	Scope 2	Energy indirect emissions
3	Indirect GHG emissions from transportation	Scope 3, category 3	Fuel- And Energy-Related Activities
		Scope 3, category 4	Upstream Transportation and Distribution
		Scope 3, category 6	Business Travel
		Scope 3, category 7	Employee Commuting
		Scope 3, category 9	Downstream Transportation and Distribution
4	Indirect GHG emissions from products used by organisation	Scope 3, category 1	Purchased Goods and Services
		Scope 3, category 2	Capital Goods
5	Indirect GHG emissions associated with the use of products from the organisation	Scope 3, category 10	Processing of Sold Products
		Scope 3, category 11	Use of Sold Products
		Scope 3, category 12	End-Of-Life Treatment of Sold Products
6	Indirect GHG emissions from other sources	Scope 3, category 5	Waste Generated in Operations
		Scope 3, category 8	Upstream Leased Assets
		Scope 3, category 13	Downstream Leased Assets
		Scope 3, category 14	Franchises
		Scope 3, category 15	Investments

In the GHG Protocol the scopes outline direct and indirect emission sources, providing a comprehensive approach for assessing and reporting a company's carbon footprint. By categorising emissions into Scope 1, Scope 2, and Scope 3, companies can better understand their environmental impact, identify emission reduction opportunities, and align with climate policies and business objectives. The scopes are laid out as follows:

Scope 1

Scope 1 emissions are direct GHG emissions that occur from sources owned or controlled by the company. These emissions are the result of activities undertaken directly by the company itself. Examples include emissions from combustion in owned or controlled boilers, furnaces, vehicles, and

chemical production processes. Scope 1 emissions also include emissions from fugitive sources, such as equipment leaks and intentional or unintentional releases.

Scope 2

Scope 2 encompasses GHG emissions stemming from purchased electricity used by the company. Purchased electricity refers to electricity procured or brought into the organisational boundary of the company. Scope 2 emissions physically manifest at the facility where the electricity is generated.

For many companies, purchased electricity stands as a primary contributor to GHG emissions and presents a significant avenue for emission reduction. Companies can evaluate the risks and opportunities associated with fluctuating electricity and GHG emissions costs by accounting for Scope 2 emissions.

Scope 3

Scope 3 emissions are all other indirect GHG emissions that occur as a consequence of the company's activities but arise from sources not owned or controlled by the company. These emissions result from activities across the company's value chain, including extraction and production of purchased materials, transportation of purchased fuels, and use of sold products and services. Scope 3 emissions are often more challenging to quantify and manage compared to Scope 1 and Scope 2 emissions due to their broader scope and complexity. However, they can represent a significant portion of a company's total emissions and provide valuable insights into opportunities for emission reduction throughout the supply chain.

2.8 Verification

The credibility of a footprint is bolstered by third-party verification. ISO 14064 Part 3 serves to verify both ISO and GHG Protocol inventories. It's customary for companies to include the verification statement in their Annual Integrated and or Sustainability Reports.

3 Implementation of the Methodology to Cassava

In this section Cassava's GHG inventory is presented according to the approach described above.

3.1 Purpose of the Inventory

Cassava has undertaken the development of their GHG inventory with a multifaceted purpose. Primarily, the inventory serves as a crucial reporting tool, enabling transparent communication with stakeholders about the Group's environmental performance. Compliance with investor requirements is another facet of the importance of accurately quantifying and disclosing GHG emissions data.

The GHG inventory also lays the groundwork for Cassava to establish emission reduction targets, with the FY24 footprint serving as the baseline. Cassava intends to establish a SBTi target as one of the next steps in their climate journey. Cassava can effectively track progress of emission reduction initiatives against the targets over time using the FY24 data as a reference point.

3.2 Reporting Boundaries

Cassava has adopted an **operational control approach** for determining the organisational boundary for their GHG reporting. This means that Cassava accounts for GHG emissions from all facilities over

which they have full authority to introduce and implement operating policies. Therefore, the emissions reported in this document pertain to all of Cassava’s activities and operations as indicated in Table 4 below. It should however be noted that Cassava groups some of the countries together in regions and denotes their sites within these countries as Operations. The subdivisions of the company are divided into ADC, Liquid, Telrad, DPA, Sasai and Vaya. The organisational structure in Cassavas operational boundary is shown in Figure 1.



Figure 1: Cassava's organogram in the GHG inventory boundary

The list of Cassava’s Operations included in the operational boundary of the GHG inventory are listed in Table 4 grouped by division and country.

Table 4: Cassavas Operations in the operational control boundary

Region / Subsidiary	Country
Liquid Division	
South African Region	South Africa
	Kenya
East African Region	Uganda
	Rwanda
	South Sudan
	Tanzania
	Zanzibar
	Egypt
	Central African Region
DRC	
Zambia	
Zimbabwe	
Liquid Corporate	UK
	Mauritius

Region / Subsidiary	Country
ADC	United Arab Emirates
	Nigeria
	Kenya
	South Africa
DPA	South Africa
	Zimbabwe
Sasai	South Africa
	Botswana
	Kenya
	Mauritius
	Zambia
Telrad	Israel
	Chile
	Paraguay
	Colombia
	Peru

3.3 Company Activities

The activity data sets used for the carbon footprint calculations were provided by the various regional HSE managers and their teams and have been included in the GHG inventory calculations. While no verification or assurance of the data sources or results has been conducted by a third party, efforts have been made to ensure data accuracy and integrity.

The activity descriptions below provide a high-level overview of Cassava’s activities:

3.3.1 Liquid Technologies (Liquid)

Liquid is a leading provider of digital infrastructure in Africa. Its fibre broadband network and satellite connectivity delivers high-speed internet access anywhere on the continent. Subsidiaries of the Liquid Group leverage Liquid’s digital network and their partnerships with leading global players to provide specialised and customised digital and telecommunication solutions in Africa and beyond. Liquid also offers managed cloud and cyber security professional and advisory services and solutions as well as wholesale connectivity solutions, commercialising the pan-African fibre network, subsea cable network and global satellite connectivity.

When evaluating Liquid’s business activities, the following emission-producing activities are relevant diesel and petrol consumption in equipment for delivering networking equipment and installing fibre cables and backup. Fuel combustion in generators is also a source of emissions during power outages or in areas without reliable electricity. Other indirect emission activities include purchased electricity used for lighting, heating, cooling, and operating office equipment in corporate offices and subsidiaries. The combustion of fuels in company-owned or leased vehicles for network maintenance, service delivery, and logistics operations contribute to emissions, as do the purchasing of such vehicles due to indirect production emissions which also relate to purchased cables, networking equipment, and other telecommunication hardware. Additionally, waste generated either recycled or sent to landfill, including office and electronic waste, can be linked to GHG emissions. Transportation of goods to and from Liquid’s facilities and distribution to customers, also produce emissions.

3.3.2 Telrad

Telrad provides and maintains innovative and class-leading telecommunication and technology products and services. Their end-to-end wireless telecom solutions are offered to mainly wired and wireless independent service providers, municipalities, and public and private enterprises.

As Telrad's business activities closely relate to those of Liquid, the emitting activities are similar and include the use of diesel and petrol in equipment such as generators, and vehicles used for delivering and installing their telecommunication products and services. Electricity is consumed for lighting, heating, cooling, and operating office equipment indirectly generate. Embedded emissions come from the production of purchased telecommunication hardware and technology products. Purchased telecommunications hardware include fibre cables and installation tools, it also includes the equipment for installing the products including earth moving equipment.

3.3.3 Africa Data Centres (ADC)

ADC provides rapid and secure data centre services and is one of Africa's largest networks of interconnected, carrier and cloud-neutral data centre facilities, bringing international experts to the pan-African market. Strategically located, these world-class facilities store business-critical data for our customers.

The high electricity consumption needed for cooling, lighting, and operating data centre equipment is a large source of emissions. Facility operations, particularly heating, ventilation, and air conditioning (HVAC) systems are relevant activities. Refrigerant gas supplementation of the equipment in the data centres during maintenance are also significant. Waste management of electronic waste are also relevant to the emitting activities. Additionally, the transportation of equipment and materials to data centre facilities and the distribution of new hardware to customers further add to ADC's emissions.

3.3.4 Distributed Power Africa (DPA)

DPA provides businesses with access to affordable solar-powered renewable energy and battery backup through a zero start-up cost model. To support Africa's digital economy, DPA engineers, installs, owns, manages and finances these energy solutions, providing reliable and cost-efficient power to data centres, telecom towers and commercial and industrial businesses. DPA is developing end-to-end solutions, spanning energy generation and distribution to energy supply and the 'wheeling' of energy.

Relevant activities at DPA encompass the procurement and management of solar-powered renewable energy systems and battery backup solutions. This includes the installation of solar panels, battery backup systems, and generators, which contribute to emissions during manufacturing, transportation, and operational phases. Given DPA's commitment to providing reliable power to digital infrastructure, data centres, and businesses, significant energy consumption and associated emissions are incurred. Additionally, their focus on developing end-to-end energy solutions may involve emissions from construction activities and ongoing operational processes.

3.3.5 Sasai Fintech (Sasai) and Vaya Technologies (Vaya)

Sasai is a pan-African business that offers the bespoke Sasai Super App – a mobile application that delivers convenience and simplified access to secure and reliable payment functionality (money transfers, micro insurance, mobile money and other payment solutions), chat functionality (instant messaging, voice and video calls) and interactive media functionality (social media and podcasts etc.). Vaya is a digital marketplace that provides access to affordable internet, allowing sectors across Africa to adopt digital services. Vaya's strong partnerships support backhaul connectivity and reliable, affordable and scalable infrastructure. Vaya leverages its innovation capabilities and partnerships, and

Liquid’s digital infrastructure across the continent, to deliver bandwidth at the lowest cost and make data affordable and broadly accessible to many Africans.

For Sasai, emissions arise from the energy-intensive processes involved in operating data centres, including the use of servers, cooling systems, and networking equipment to support the Sasai Super App. Additionally, emissions result from the energy consumed by the telecommunications infrastructure required for the app's functionality, such as network towers and communication devices. Deployment and maintenance of digital infrastructure, including the installation and operation of networking equipment, such as routers and switches also produce emissions. Emissions may occur from the transportation of equipment and personnel involved in expanding and maintaining the digital infrastructure across Africa.

3.4 Emissions Sources

The emission sources related to the activities above and included in the boundary of this assessment are presented in Table 5. The emissions sources are categorised according to the respective categories used by the GHG Protocol.

Table 5. Emissions sources and categorisation included in Cassava’s FY24 GHG inventory.

Emission Sources included	GHG Protocol	
	Scope	Description
Emissions that occur from sources that are controlled or owned by Cassava: <ul style="list-style-type: none"> • Combustion of Diesel • Combustion of Petrol • Re gassing of air conditioner gases 	1	Stationary Combustion Sources Mobile Combustion Sources Fugitive Emissions
Emissions associated with the purchasing of electricity, or the generation of renewable energy. <ul style="list-style-type: none"> • Purchased electricity 	2	Purchased Electricity
Products include both goods (tangible products) and services (intangible products) such as: <ul style="list-style-type: none"> • Water • Office equipment (paper, furniture, camera air conditioning) • Operational Consumables (batteries, cables, cement, fibre, tyres, wood poles and tools) • Telecommunications equipment (network equipment, toners, electronics, laptop, printer, monitor, server) 	3	Category 1: Purchased Goods and Services
Emissions from the production of capital goods purchased by the by the company in the reporting year, including: <ul style="list-style-type: none"> • Inverter • Generator • Vehicles • Solar Power Station • UPS 	3	Category 2: Capital Goods
Emissions related to the production of fuels and energy purchased and consumed by Cassava in the reporting year such as: <ul style="list-style-type: none"> • Upstream emissions of purchased fuels • Upstream emissions of purchased electricity 	3	Category 3: Fuel and energy related activities

Emission Sources included	GHG Protocol	
	Scope	Description
<ul style="list-style-type: none"> Transmission and Distribution losses 		
<p>Emissions related to upstream transportation and distribution including:</p> <ul style="list-style-type: none"> Upstream transportation – Distance Travelled Upstream Transportation – Fuel Consumption 	3	Category 4: Upstream Transportation and Distribution
<p>Waste treatment activities may include:</p> <ul style="list-style-type: none"> Disposal in a landfill <ul style="list-style-type: none"> Waste treatment Composting waste Plastic waste Paper waste Paper and composting Food waste Recovery for recycling <ul style="list-style-type: none"> General Waste Recycled E-Waste Recycled Paper Waste Recycled Other Waste Disposal <ul style="list-style-type: none"> E-waste Disposed Hazardous Waste 	3	Category 5: Waste Generated in Operations
<p>Emissions from business travel including:</p> <ul style="list-style-type: none"> Air travel Automobile travel (e.g., business travel in rental cars or employee-owned vehicles other than employee commuting to and from work) Accommodation Sea travel Rail travel Travel claims 	3	Category 6: Business travel
<p>Emissions from employee commuting such as:</p> <ul style="list-style-type: none"> Personal Transport (e.g. car, motorcycle) Public Transport (e.g rail, bus, taxi) travel Air travel (such as personnel flying once a month to the corporate office) Mixed Transport (e.g. car and train, underground and bus) Green Transport (walk and Bicycle) 	3	Category 7: Employee Commuting
<p>Operation of assets that are leased by the reporting company in the reporting year such as:</p> <ul style="list-style-type: none"> Upstream Fugitive Emissions Upstream Utilities Upstream Fuels Upstream PoP sites 	3	Category 8: Upstream Leased Assets

Emission Sources included	GHG Protocol	
	Scope	Description
Emissions from downstream transportation and distribution from transportation/storage of sold products in vehicles/facilities not owned by Cassava such as: <ul style="list-style-type: none"> • Air transport • Road transport 	3	Category 9: Downstream Transportation and Distribution
Assets that are owned by Cassava (acting as lessor) and leased to other entities in the reporting year such as: <ul style="list-style-type: none"> • Vehicles • Solar equipment 	3	Category 13: Downstream Leased Assets

In accordance with the corporate GHG standards, the emissions from Cassava’s operations are categorised as either direct or indirect emission sources. The reporting of direct emissions, also known as Scope 1 emissions, as well as energy indirect emissions, known as Scope 2 emissions, are mandatory to report according to the GHG protocol and the ISO 14064-1:2018 standards. The reporting of other indirect emissions, referred to as Scope 3 emissions, is considered voluntary in the GHG Protocol and is at the discretion of the company whether to report on these emissions. It is important to note that Cassava’s sustainability journey includes setting targets through the Science Based Targets initiative (SBTi), that requires companies to report on all Scope 3 emissions categories, except for allowing exclusions if there is a valid justification. The GHG Protocol provides guidance in the form of relevance criteria which should be used to determine what indirect emissions sources must be included in the GHG inventory.

As Cassava continues to develop and mature its carbon footprint calculations, the emission sources and their boundary may evolve. The identification and justification of emission sources are essential components of the formal emissions target-setting procedure, providing a solid foundation for Cassava’s sustainability efforts.

3.5 Application of Relevance Assessment

The GHG Protocol suggests a relevance assessment to be included when quantifying a company’s GHG inventory. The data provided by Cassava and the resulting emissions were assessed in terms of their relevance, considering the impact on Cassava’s carbon footprint. The assessment ensures transparency, accuracy, and comparability in reporting, allowing for future reference and the establishment of emissions reduction targets. This approach enables Cassava to prioritise its reporting and mitigation efforts, align with industry standards, and engage stakeholders effectively.

The relevance assessment criteria, outlined in Table 2 and applied to Cassava in Table 6 , ensures that the GHG inventory boundary includes emission sources that are considered relevant. This boundary setting is crucial for setting emission reduction targets.

If there are changes to the operational activities, the relevance criteria should be reassessed to ensure material emission sources are identified and reported.

Further details on the relevance assessment are included in **Appendix 2: Relevance Assessment**.

Table 6: GHG Protocol Relevance criteria applied to Cassava

Criteria	Description
1. Size	Relevant if emissions account for 1% or more of Cassava’s total carbon footprint are considered quantitatively substantial and relevant. This criterium is aligned with the Cassava’s materiality threshold.
2. Influence	Relevant if Cassava can implement measures to monitor and reduce the emissions associated with these activities, for example using environmental criteria in supplier agreements.
3. Risk	Relevant if emissions contribute Cassava’s exposure to relevant climate-related risks. This could include emissions associated with activities that contribute to at least one of the following: increase in regulatory risk or increase in supply chain risk.
4. Stakeholders	Relevant if they are deemed critical by key stakeholders of Cassava
5. Outsourcing	Relevant if indirect emissions result from outsourced activities that are core business activities. For example, transportation of products by third-party logistics providers.
6. Sector Guidance	Relevant if there are sector-specific guidance, benchmarks or targets defined for an emissions source relevant to Cassava.
7. Other	Relevant if they meet any additional criteria for determining relevance developed by the company or industry sector. In Cassavas case employee engagement has been deemed as additional criteria for determining relevance.

3.6 Data Sources

The inputs, resources, and activities associated with running Cassava's operations have emission-related impacts. It is crucial to identify the relevant data sources to calculate the company's carbon footprint.

3.6.1 Activity Data

The activity data sets used for the carbon footprint calculations were provided by the various regional ESG managers and onsite teams and have been included in the GHG inventory calculations for FY24. While no verification or assurance of the data sources or results has been conducted by a third party, efforts have been made to ensure data accuracy and integrity.

The following data sets and processes were implemented in the carbon footprint calculations:

- Procurements system for purchases of fuels used in stationary and mobile equipment.
- Workshops has been held for data collection and training on populating data sheets.

- Data sheets has been set up and distributed to Cassava’s operations.
- Data sets has been reviewed with sanity tests and compared to industry trends.
- Data for Liquid and ADC were also compared to FY23’s report to identify any anomalies or trends.
- Invoices and lease agreements as well as utility bills.
- Travel agents’ data sheet and car rental companies’ reports.

Table 7: Data sources used for emissions sources

Emission Source	Data Source
Diesel use	Procurements system for purchases of fuels used in stationary and mobile equipment.
Petrol use	Procurements system for purchases of fuels used in stationary and mobile equipment.
Airconditioning gas	Invoices of suppliers
Purchased electricity	Utility bills
Water	Utility bills
Telecommunications equipment	Invoices of suppliers
Equipment	Invoices of suppliers
Machinery	Invoices of suppliers
Vehicles	Company finance department
Transmission and Distribution losses	Calculated from Scope 1 and Scope 2 data
Upstream emissions of purchased electricity	Utility bills
Upstream emissions of purchased fuels	Purchase orders
Disposal in a landfill	Waste management report

Recovery for recycling	Waste management report
Electronic waste	Waste management report
Air travel Accommodation	Travel agents and financing department
Rail and Road travel	Travel agents and financing department
Business travel in rental cars or employee-owned vehicles other than employee commuting to and from work	Travel agents and financing department
Equipment	Purchase orders
Generator	Purchase orders
Solar Equipment	Purchase orders
Downstream transport Air transport, Road transport	Invoices
Downstream leased assets: Solar equipment	Invoices / lease contracts
Employee commuting	Commuter survey

3.6.2 Emission Factors

The calculations of Cassava’s FY24 GHG inventory relies on a range of assumptions, emission factors, and conversion factors, which have been carefully selected and applied to ensure accuracy and reliability.

By adhering to the quality criteria for emissions factors, Cassava ensures that the calculations of its GHG inventory are based on reliable and relevant information. The transparent inclusion of the assumptions, emission factors, and conversion factors allows for traceability and facilitates the understanding and verification of the reported emissions.

3.6.3 Assumptions

When calculating a carbon footprint, assumptions play a crucial role in ensuring the accuracy and completeness of the emissions assessment. Due to the complexity and variability of data sources, as well as potential gaps in available information, assumptions are necessary to estimate emissions where measurements are not available or feasible. These assumptions help standardise calculations, provide

a basis for comparison, and enable the inclusion of all relevant emission sources. By clearly documenting these assumptions, Cassava can enhance the transparency and reliability of their GHG inventory. The general assumptions used in calculating Cassava's GHG inventory are listed below. For a more detailed list that includes the assumptions used per scope refer to **Appendix 3: Assumptions**.

General Assumptions Applicable to all Scopes and Categories:

- Months with missing data was estimated using the average of available data from the reporting year.
- Any extreme data fluctuations were flagged and reviewed by the respective operating company (OPCO), which provided explanations or corrected any reported errors.
- In cases where no unit of measure was provided, a unit was assumed by evaluating the data and assigning the most appropriate unit based on the specific emission activity (e.g., for water consumption data without a unit, the data was assessed to determine whether litres or kilolitres were used).

3.7 Verification

Cassava has enlisted Promethium, an independent and experienced climate change specialist group, to calculate Cassava's GHG Inventory.

Throughout the calculation process, steps were taken ensure the highest possible level of accuracy and completeness of the data collected. Promethium conducted sense checks on the data by reviewing each dataset to identify any inconsistencies or inaccuracies. A comparison of the data was conducted to the previous year' data and reports to identify anomalies and deviations from expected trends. The data has also been benchmarked against industry trends. While Cassavas emissions inventory has not yet been formally verified, these internal verification measures provide a robust framework for confirming the reliability of the data.

Cassava will be considering external verification of its carbon data in either FY25 or FY26.

4 Results for Corporate Reporting

4.1 Organisational GHG Emissions Profile

The following section details Cassava's emission profile with the process of quantification described above. This report focuses on the GHG protocol reporting. The inventory is also presented using the ISO14064-1:2018 in **Appendix 1: Results as per ISO 14064-1:2018**.

4.1.1 Results as per GHG Protocol

The data collected and analysed in accordance with the GHG Protocol highlights the material sources of emissions, offering valuable insights for future carbon footprint reporting and management strategies.

Table 8: Summary of Cassava's FY24 according to the GHG Protocol

Scope	Description	ADC Emissions tCO ₂ e	DPA Emissions tCO ₂ e	Liquid Emissions tCO ₂ e	Sasai/Vaya Emissions tCO ₂ e	Corporate Emissions tCO ₂ e	Total FY24 Emissions tCO ₂ e
SCOPE 1	Stationary Combustion Sources	3 880	-	419	-	-	4 299
	Mobile Combustion Sources	-	-	7 439	-	-	7 439
	Fugitive Emissions	789	-	128	-	-	918
Total SCOPE 1		4 669	-	7 986	-	-	12 655
SCOPE 2	Purchased Electricity	103 767	31	31 154	1 812	167	136 931
Total SCOPE 2		103 767	31	31 154	1 812	167	136 931
SCOPE 3	Purchased Goods and Services	1	46	842	0	1	890
	Capital Goods	-	0	35	1	0	36
	Fuel- and Energy-related Activities	15 394	4	5 985	241	14	21 637
	Upstream Transportation & Distribution	-	-	156	-	1	156
	Waste Generated in Operations	76	15	177	38	3	309
	Business Travel	609	20	1 220	68	2 120	4 037
	Employee Commuting	375	115	5 336	242	326	6 394
	Upstream Leased Assets	1 002	-	15 300	-	-	16 302
	Downstream Transportation & Distribution	-	-	64	-	2	65
Total SCOPE 3		17 458	200	29 114	589	2 466	49 827
Total Emissions		125 894	231	68 254	2 401	2 633	199 413

The total emissions per scope is depicted in Figure 2.

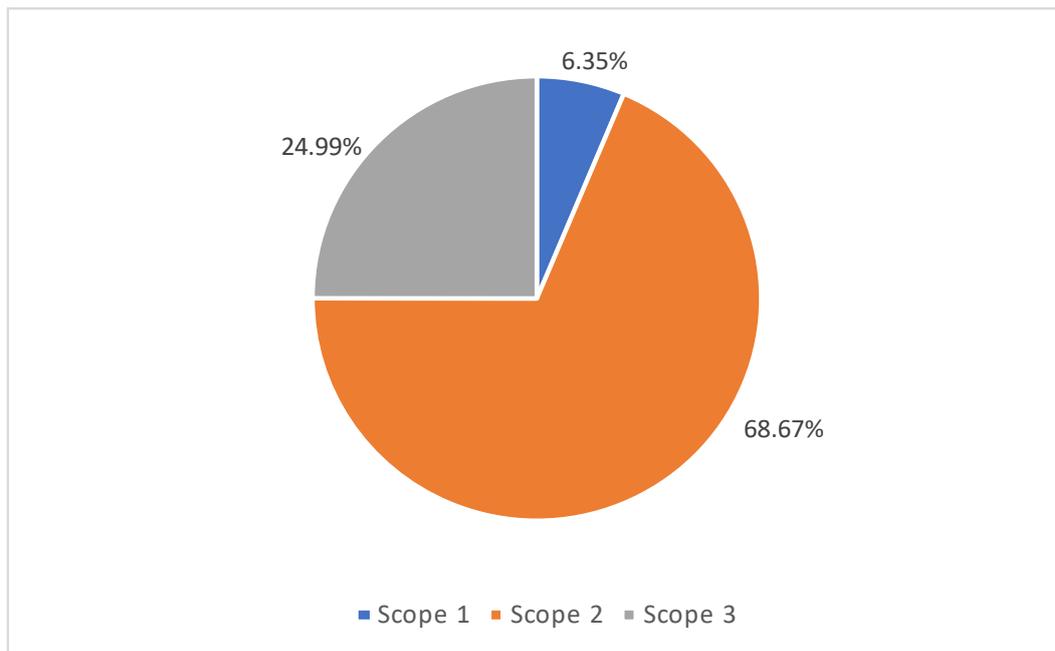


Figure 2: Cassava scope breakdown

In FY24, Cassava's total emissions across Scope 1, Scope 2, and Scope 3 amounted to 199 413 tCO₂e. Scope 1 emissions, which include stationary and mobile combustion sources and fugitive emissions, totalled 12 655 tCO₂e. The largest emission source within Scope 1 was mobile combustion, contributing 7 439 tCO₂e, with Liquid having the highest emissions in this category due to the amount of owned vehicles. Liquid also reported the largest total Scope 1 emissions among the divisions, totalling 7 986 tCO₂e. ADC was second largest with 4 669 tCO₂e.

Scope 2 emissions, reflecting the impact of purchased electricity, amounted to 136 931 tCO₂e. ADC had the largest emissions in this category with 103 767 tCO₂e, followed by Liquid with 31 154 tCO₂e, highlighting the energy demands of these divisions. Other notable contributions included Sasai/Vaya at 1 812 tCO₂e and Corporate at 167 tCO₂e.

Scope 3 emissions, encompassing a wide range of indirect sources, summed up to 49 827 tCO₂e. This scope was driven by substantial emissions from fuel- and energy-related activities (21 637 tCO₂e), upstream leased assets (16 302139 tCO₂e) and employee commuting (6 394 tCO₂e). Liquid had the highest Scope 3 emissions at 29 114 tCO₂e, primarily due to emissions from upstream leased assets such as their Point of Presence (PoP) sites, fuel- and energy-related activities and employee commuting. ADC followed with reported Scope 3 emissions at 17 458 tCO₂e driven by Fuel- & Energy-Related Activities.

Figure 3 below shows the emissions per divisions in Cassava.

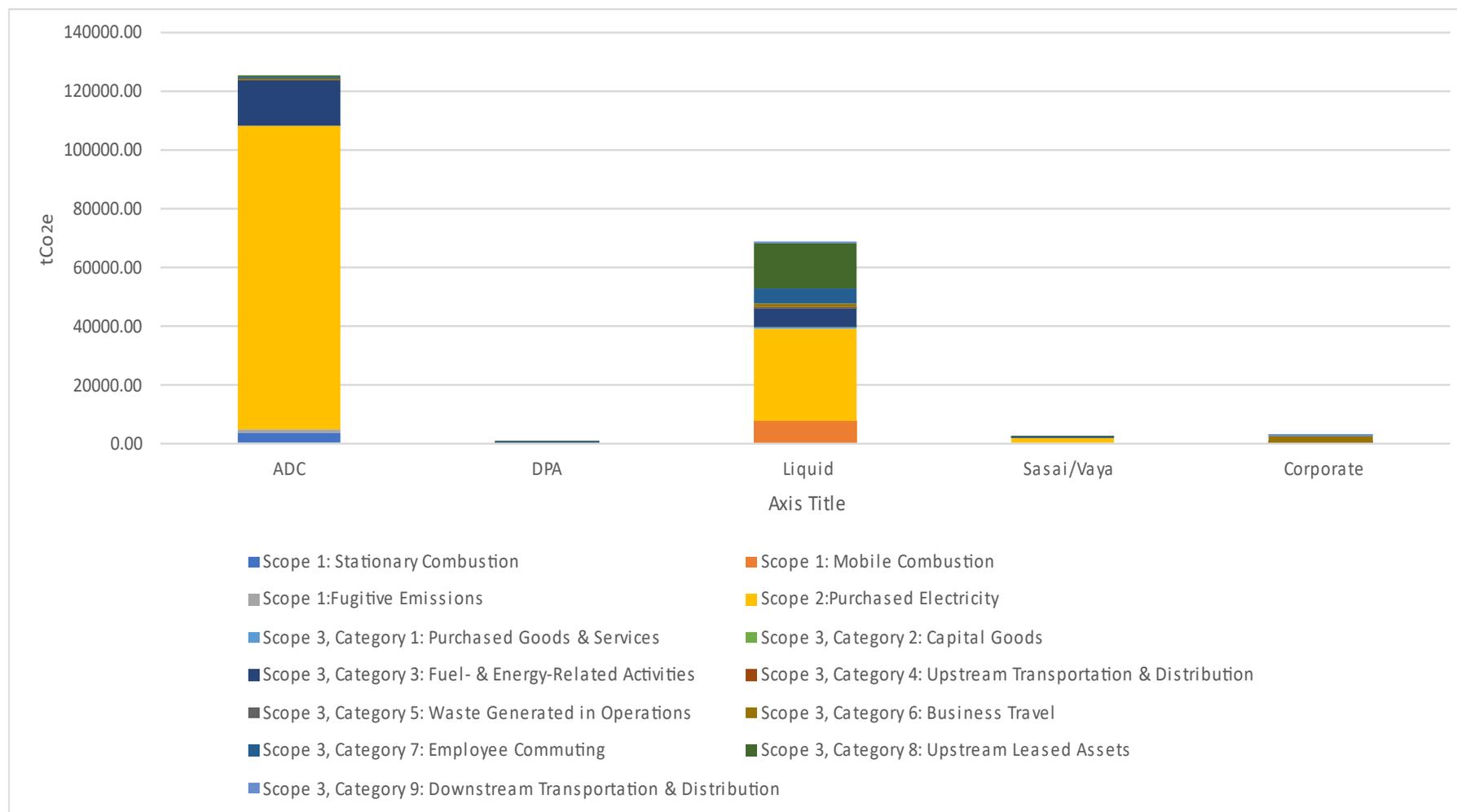


Figure 3: GHG emissions for Cassava per division

4.1.2 Results by Division

In this section, we break down the emissions for each division within the Cassava Group for FY24. This detailed analysis provides insights into the specific contributions of each division to the overall Group carbon footprint, helping to identify key areas for targeted emission reduction strategies.

4.1.2.1 Africa Data Centres (ADC)

Table 9: Summary of the ADC division FY24 according to the GHG Protocol

Scope	Description	ADC Kenya tCO ₂ e	ADC Nigeria tCO ₂ e	ADC South Africa tCO ₂ e	ADC Total tCO ₂ e
SCOPE 1	Stationary Combustion Sources	333	190	3 357	3 880
	Fugitive Emissions	74	29	687	790
Total SCOPE 1		407	219	4 044	4 670
SCOPE 2	Purchased Electricity	8 123	-	95 644	103 767
Total SCOPE 2		8 123	-	95 644	103 767
SCOPE 3	Purchased Goods and Services	0	0	1	1
	Fuel- and Energy-related Activities	1 814	45	13 535	15 394
	Waste Generated in Operations	50	14	13	77
	Business Travel	-	-	609	609
	Employee Commuting	71	50	255	376
	Upstream Leased Assets	561	53	388	1 002
SCOPE 3 Sub-Total		2 496	162	14 801	17 459
Total Emissions		11 026	381	114 489	125 896

In FY24, the ADC division's total emissions amounted to 125 896 tCO₂e. Scope 1 emissions totalled 4 670 tCO₂e, primarily from stationary combustion sources (3 880 tCO₂e) and fugitive emissions (790 tCO₂e), with South Africa contributing the most.

Scope 2 emissions from purchased electricity were 103 767 tCO₂e, predominantly from South Africa (95 644 tCO₂e), with Kenya contributing 8 123 tCO₂e. Nigeria did not report any Scope 2 emissions since they only used generators for the construction of the facility (construction ended in June 2023), whereafter renewable energy from IPPs were used to operate the new data centre.

Scope 3 emissions amounted to 17 459 tCO₂e, driven by fuel- and energy-related activities (15 394 tCO₂e), upstream leased assets (1 002 tCO₂e), business travel (609 tCO₂e) and employee commuting (376 tCO₂e). South Africa with its three Data Centres was the largest contributor to these categories with notable emissions from fuel- & energy-related activities (13 535 tCO₂e) and business travel (609 tCO₂e).

4.1.2.2 Distributed Power Africa (DPA)

Table 10: Summary of the DPA division FY24 according to the GHG Protocol

Scope	Description	DPA South Africa tCO ₂ e	DPA Zimbabwe tCO ₂ e	DPA Total tCO ₂ e
Total SCOPE 1		-	-	-
SCOPE 2	Purchased Electricity	29	1	30
Total SCOPE 2		29	1	30
SCOPE 3	Purchased Goods and Services	6	40	46
	Capital Goods	-	0	0
	Fuel- and Energy-related Activities	4	0	4
	Waste Generated in Operations	15	0	15
	Business Travel	20	-	20
	Employee Commuting	56	59	115
SCOPE 3 Sub-Total		101	99	200
Total Emissions		130	100	230

DPA South Africa and Zimbabwe reported a combined total of 230 tCO₂e emissions for FY24, with no Scope 1 emissions due to their business model of buying and renting out solar equipment.

Scope 2 emissions amounted to 30 tCO₂e, with DPA South Africa contributing 29 tCO₂e and DPA Zimbabwe 1 tCO₂e, reflecting purchased electricity consumption.

Scope 3 emissions totalled 200 tCO₂e. This included emissions from purchased goods and services (46 tCO₂e), capital goods (0.01 tCO₂e), fuel- and energy-related activities (4 tCO₂e), waste generated in operations (15 tCO₂e), business travel (20 tCO₂e) and employee commuting (115 tCO₂e).

4.1.2.3 Liquid Intelligent Technologies (Liquid)

Table 11: Summary of the Liquid division FY24 according to the GHG Protocol

Scope	Description	Liquid South Africa (LIT SA) tCO ₂ e	Liquid Central Africa (CAR) tCO ₂ e	Liquid East Africa (EAR) tCO ₂ e	Telrad tCO ₂ e	Liquid Total tCO ₂ e
SCOPE 1	Stationary Combustion Sources	86	139	194	-	419
	Mobile Combustion	1 731	1 872	807	3 029	7 439
	Fugitive Emissions	128	-	-	-	128
Total SCOPE 1		1 945	2 011	1 001	3 029	7 986
SCOPE 2	Purchased Electricity	11 633	1 877	16 841	804	31 155
Total SCOPE 2		11 633	1 877	16 841	804	31 155
SCOPE 3	Purchased Goods and Services	6	831	4	1	842
	Capital Goods	-	32	2	-	34
	Fuel- and Energy-related Activities	1 974	859	2 445	708	5 986
	Upstream Transportation & Distribution	-	156	-	-	156
	Waste Generated in Operations	9	20	65	84	178
	Business Travel	759	295	167	-	1 221
	Employee Commuting	2 629	1 385	1 322	-	5 336
	Upstream Leased Assets	12	12 495	2 794	-	15 300
	Downstream Transportation & Distribution	-	65	-	-	64
SCOPE 3 Sub-Total		5 389	16 139	6 799	793	29 117
Total Emissions		18 967	20 027	24 641	4 626	68 258

Liquid South Africa, CAR, EAR, and Telrad collectively reported a total of 68 258 tCO₂e emissions for FY24.

Scope 1 emissions amounted to 7 986 tCO₂e. These emissions were primarily from mobile combustion (7 439 tCO₂e). Liquid South Africa reported 1 945 tCO₂e, Liquid CAR 2 011 tCO₂e, Liquid EAR 1 001 tCO₂e, and Telrad 3 029 tCO₂e.

Scope 2 emissions totalled 31 155 tCO₂e, due to purchased electricity. Liquid South Africa contributed 11 633 tCO₂e, and Liquid EAR 16 841 tCO₂e.

Scope 3 emissions, encompassing various indirect sources, were 29 117 tCO₂e. Major contributors included upstream leased assets (15 137 tCO₂e), fuel- and energy-related activities (5 986 tCO₂e), and employee commuting (5 336 tCO₂e).

4.1.2.4 Sasai Fintech (Sasai) and Vaya Technologies (Vaya)

Scope	Description	Sasai Total tCO ₂ e	Vaya Total tCO ₂ e	Total Sasai/Vaya tCO ₂ e
Total SCOPE 1		-	-	-
SCOPE 2	Purchased Electricity	1 806	7	1 813
Total SCOPE 2		1 806	7	1 813
SCOPE 3	Purchased Goods and Services	0	0	0
	Capital Goods	1	-	1
	Fuel- and Energy-related Activities	241	0	241
	Waste Generated in Operations	37	1	37
	Business Travel	68	-	68
	Employee Commuting	240	1	241
SCOPE 3 Sub-Total		586	3	589
Total Emissions		2 392	9	2 401

Sasai and Vaya collectively reported total emissions of 2 401 tCO₂e for FY24, with contributions from Scope 2 and Scope 3 emissions. No Scope 1 emissions were generated in the reporting period.

Scope 2 emissions, arising from purchased electricity, totalled 1 813 tCO₂e. Sasai contributed the majority with 1 806 tCO₂e, while Vaya only contributed 7 tCO₂e.

Scope 3 emissions, encompassing various indirect sources, summed up to 589 tCO₂e. Key contributors included fuel- and energy-related activities (242 tCO₂e), employee commuting (241 tCO₂e), business travel (68 tCO₂e), and waste generated in operations (37 tCO₂e). Sasai's Scope 3 emissions at 586 tCO₂e, is notably higher than Vaya's 3 tCO₂e. Sasai had the highest total emissions at 2 392 tCO₂e, while Vaya reported 9 tCO₂e.

4.1.2.5 Liquid Corporate Division (Corporate)

Scope	Description	Corporate Mauritius tCO ₂ e	Corporate Nigeria tCO ₂ e	Corporate UK tCO ₂ e	Corporate UAE tCO ₂ e	Total Corporate FY24 Emissions tCO ₂ e
Total SCOPE 1		-	-	-	-	-

Scope	Description	Corporate Mauritius tCO _{2e}	Corporate Nigeria tCO _{2e}	Corporate UK tCO _{2e}	Corporate UAE tCO _{2e}	Total Corporate FY24 Emissions tCO _{2e}
SCOPE 2	Purchased Electricity	29	-	78	60	167
Total SCOPE 2		29	-	78	60	167
SCOPE 3	Purchased Goods and Services	0	-	0	0	0
	Capital Goods	-	-	0	-	0
	Fuel- and Energy-related Activities	3	-	7	4	14
	Upstream Transport & Distribution	-	-	-	1	1
	Waste Generated in Operations	3	-	0	-	3
	Business Travel	6	-	2 084	30	2 120
	Employee Commuting	79	46	169	32	326
	Downstream Transport & Distribution	0	-	1	-	1
SCOPE 3 Sub-Total		91	46	2 261	67	2 465
Total Emissions		120	46	2 339	127	2 632

Cassava's corporate division's highest emissions were from business travel, particularly within the Corporate UK operations, which account for 2 084 tCO_{2e}. Purchased electricity also contributes as a large source of emissions within the corporate division, with UK and UAE reporting 78 tCO_{2e} and 60 tCO_{2e}, respectively.

The lowest emissions are observed in categories such as purchased goods and services and capital goods where Mauritius and UAE reported emissions from purchased goods and services, amounting to 0.04 tCO_{2e} and 0.03 tCO_{2e}, respectively. Additionally, the contribution of employee commuting emissions in Mauritius (79 tCO_{2e}) and UK (169 tCO_{2e}) indicates areas where promoting remote work or sustainable commuting options could yield notable benefits.

Overall, the total corporate emissions for FY24 amount to 2 632 tCO_{2e}, with the UK division being the highest contributor, followed by UAE (127 tCO_{2e}) and Mauritius (120 tCO_{2e}). The comprehensive assessment of Scope 3 emissions reveals that business travel and employee commuting are key areas for potential emission reductions.

5 Conclusion

The FY24 GHG inventory for Cassava provides a comprehensive view of the company's carbon footprint, highlighting both strengths and areas for improvement. The inclusion of all the divisions and expanded emissions categories marks a significant step forward in Cassava's sustainability journey. However, some data gaps and the first-time inclusion of certain categories suggest that continuous improvement in data collection and reporting is necessary.

5.1 Summary of Carbon Footprint

Table 12: Summary of Cassava's FY24 GHG Inventory

GHG Inventory according to the GHG Protocol	ADC tCO ₂ e	DPA tCO ₂ e	Liquid tCO ₂ e	Sasai/Vaya tCO ₂ e	Corporate tCO ₂ e	Total FY24 emissions tCO ₂ e
Scope 1	4 669	-	7 986	-	-	12 655
Scope 2	103 767	31	31 154	1 812	167	136 931
Scope 3	17 458	200	29 114	589	2 466	49 827
Total emissions	125 894	231	68 254	2 401	2 633	199 413

The ADC division's total emissions for FY24 were largely driven by Scope 2 emissions from purchased electricity, which accounted for 103 767 tCO₂e. This significant contribution indicates a high reliance on grid electricity which aligns with its core operations as a data centre. Additionally, ADC's Scope 1 emissions from stationary combustion sources and fugitive emissions were notable with a combined emission of 4 669 tCO₂e. As ADC's core business operations involve data centres, it is also clear why their fugitive emissions would be substantial as they require chillers and air conditioning to maintain the data centres at operating temperatures. The high Scope 2 emissions suggest that ADC should prioritise energy efficiency measures and further renewable energy procurement to reduce its carbon footprint.

Liquid's emissions were substantial across all scopes. Main emissions sources for Scope 1 are mobile combustion sources at 7 439 tCO₂e and Scope 2 purchased electricity at 31 154 tCO₂e. The mobile combustion emissions reflect significant fuel use in transportation and as Liquid is the largest portion of the total employee base for Cassava and owns a total of 349 vehicles used by their technical teams for network installations and maintenance work on distribution points and infrastructure. Liquid also employs a total of 3 014 out of the 3 343 full time employees, most of which working in office buildings which explains the high Scope 2 emissions. Liquid also had notable Scope 3 emissions, particularly from employee commuting, fuel- and energy-related activities and upstream leased assets which includes their PoP sites. Liquid can focus on reducing transportation emissions, enhance energy efficiency in operations, and engage suppliers in providing goods with lower embedded emissions.

LIT and ADC's South Africa operations, specifically the Johannesburg operations, already generate their own renewable electricity as shown in Table 13 below, with a combined production of 5 823 MWh of solar energy. This highlights Cassava's commitment to renewable energy alternatives and provides a foundation for further expansion of renewable energy initiatives.

Table 13: Cassava Solar Energy Generation

Renewable Source	ADC Generation	LIT Generation	Total Generation
Solar Energy	2 495 MWh	3 328 MWh	5 823 MWh

The DPA division reported relatively low overall emissions, with the most significant category being Scope 2 purchased electricity at 31 tCO_{2e}. The lower Scope 2 emissions compared to the other divisions is explained as the division’s main business operation is in selling and leasing out solar power systems, which they also have available for their own use. DPA only use grid electricity as a backup power source to top-up the battery storage when required. The absence of reported Scope 1 emissions relates to this as well as DPA has no need for backup diesel generators and do not have any company vehicles. DPA could not provide their solar generation as it was not monitored for FY24. The minimal emissions profile for DPA indicates that their operations are less energy-intensive, however some data collection processes may need enhancement for improved data collection in the future.

The Sasai/Vaya division form a smaller part of the company, which is evident when looking at their lower overall emissions compared to the other divisions. Notably no Scope 1 emissions were reported for this division as they do not have any generators or company vehicles. As a result, Scope 2 purchased electricity is the main contributor at 1 812 tCO_{2e}. This indicates that their operations are less energy intensive. However, they should still seek opportunities to improve energy efficiency and explore renewable energy options.

The Corporate division reported minimal emissions, mainly in Scope 2 from purchased electricity and Scope 3 from business travel and employee commuting. This is due to corporate not owning any vehicles or generators to account for in Scope 1, and no externally linked operations which leads to the limited Scope 3. This suggests that while corporate operations are not major direct contributors to emissions, there is still room for improvement in reducing business travel and promoting sustainable commuting options by promoting virtual meetings to reduce travel, implement sustainable commuting incentives, and continue monitoring energy use in office operations.

5.2 Recommendations

Cassava’s total carbon footprint for FY24 amounts to 199 413 tCO_{2e}, with most emissions arising from Scope 2 (purchased electricity). The detailed breakdown of Cassava’s emissions helps identify key areas for improved data collection, potential emissions reductions and energy efficiency improvements.

The following are recommendations for improving the overall data quality and potential emission reduction areas. By implementing these recommendations, Cassava can significantly enhance the accuracy and reliability of its data collection and monitoring processes, thereby enabling more precise tracking of its emission activities.

5.2.1 Recommendations for Improving Footprint Data Collection and Quality

Improving data collection, accuracy and monitoring:

- **Standardised reporting templates:** Distribute standardised templates for data collection across all divisions to ensure uniformity in data collection and indicate mandatory fields for all relevant data points such as units of measure, data sources, and time periods.

- **Centralised data management system:** Implement a centralised, digital data management system that is user-friendly and accessible to all subsidiary divisions and OPCO's. This can streamline the collection and consolidation of data and encourage more consistent data entry. Use dashboards to provide visual representations of data for easier analysis and identification of anomalies.
- **Integration with other management systems:** Integrate data collection for GHG inventory assessments with other operational systems such as financial reporting systems, procurement systems, client services, courier services and business travel systems to align environmental data with all business activities.
- **Regular training and workshops:** Conduct regular training sessions for employees involved in data collection to ensure they understand the importance of accurate data and are proficient in using the reporting tools. Regular catch-up session or workshops can improve data collection and mitigate issues before it becomes a problem.
- **Automated data capturing:** Implement automated data capture and/or real-time monitoring tools for sources such as utility meters, PoP data, and other relevant systems to minimise human error and improve accuracy. Use IoT (Internet of Things) devices for real-time monitoring of energy use and fuel consumption.
- **Regular data reviews:** Conduct monthly data collection mandates and quarterly reviews of data collected to identify trends, anomalies, and areas needing attention. Use these reviews to update strategies and practices for data collection and emission reduction.
- **Data verification and auditing:** Implement an auditing process to verify the accuracy of collected data. This could involve spot checks, comparisons with historical data, and validation against external benchmarks. Establish a feedback mechanism to correct any identified errors and provide solutions to problem areas.
- **Units of Measure:** Capture and report of data for emissions activities in physical units of measure (mass, length, quantity, volume, etc.) rather than financial metrics such as payment amounts. This is because of the sensitivity of currency exchange rates to inflation within some of the countries where Cassava's operations are located. Additionally, this improves the accuracy of the emissions accounting as emission factors are linked to physical metrics.

5.2.2 Recommendations for Reducing Emissions

Scope 1 Emissions Reductions:

- **Stationary combustion sources:** Increase the use of renewable energy sources such as solar panels to power stationary equipment, reducing reliance on diesel generators. Implement detailed maintenance procedures to ensure equipment operates at peak efficiency, reducing fuel consumption and emissions.
- **Mobile combustion sources:** Include emissions criteria in the procurement of new vehicles. Replace older, less efficient vehicles with newer, fuel-efficient models. In the medium-term purchase vehicles that are compatible with biofuels to enable fuel switching. Where possible switch fossil fuel vehicles with more sustainable alternatives such as electric vehicles or hybrids. Use telematics systems to monitor and optimise routes, reducing fuel consumption and wear and tear.

Scope 2 Emissions Reductions:

- **Energy efficiency:** Replace traditional lighting with energy-efficient LEDs. Upgrade HVAC systems to more energy-efficient models and ensure regular maintenance and improve building insulation to reduce heating and cooling energy demands.

- **Renewable energy adoption:** Expand on-site renewable energy installations, such as solar panels, to reduce dependence on grid electricity or purchase green power through the grid from alternative sources or renewable energy credits (RECs) from providers.

Scope 3 Emissions Reductions:

- **Supply chain engagement:** Implement Supplier Engagement Policies and work with suppliers to improve their energy efficiency and reduce emissions in their operations. Prioritise the procurement of goods and services with lower carbon footprints.
- **Employee commuting:** Encourage carpooling and the use of public transportation where available through incentives and support programs. Promote remote working and flexible schedules to reduce employee commuting.
- **Business travel:** Implement travel policies that prioritise lower-carbon travel options, such as trains over flights, type of rental cars used and increase the use of virtual meetings to reduce the need for business travel.
- **Waste reduction:** Conduct regular waste audits to identify and address key sources of waste and implement recycling programs and initiatives to reduce waste sent to landfills.
- **Purchased goods and services and capital goods:** Perform life cycle analyses of major purchased goods and capital goods to identify and choose lower-emission alternatives. Implement circular economy practices, such as refurbishing and reusing equipment, to extend the life cycle of capital goods and reduce emissions.

5.2.3 Setting of Emission Reduction Targets

Using the FY24 GHG inventory as a baseline for setting SBTi targets is a strategic decision for Cassava. The comprehensive nature of the FY24 inventory offers a foundation for establishing ambitious and scientifically aligned emission reduction targets. The following are some key considerations for selecting FY24 as the baseline year for SBTi target setting:

- **Comprehensive Reporting:** FY24 marks the first year of comprehensive reporting, encompassing all subsidiary divisions and expanding to cover most of the GHG Protocol's emission categories. This expanded reporting boundary provides a more complete assessment of Cassava's emissions, ensuring a thorough representation of its operations.
- **Expanded reporting boundary:** The inclusion of all divisions within Cassava for FY24 shows a more complete assessment compared to the previous year. This expansion means the baseline year encompasses the full scope of Cassava's operations, providing a firm starting point for setting targets.
- **Data coverage:** The FY24 GHG inventory includes all significant emission sources across Scope 1, Scope 2, and Scope 3, ensuring that the baseline accurately represents the current emissions profile. The inclusion of more of the emissions categories allows for targeted strategies and more precise tracking of progress against reduction targets.
- **Annual Reduction Requirement:** It is important to note that the later the baseline year, the greater the annual reduction required to meet the 42% reduction target by 2030.

Alternatively, Cassava could consider setting interim targets based on the FY24 GHG inventory and wait for the FY25 data before committing to reduction targets at the SBTi. In doing so Cassava might report on more complete and accurate data which might provide a stronger and more reliable baseline for setting long-term science-based targets. If Cassava were to follow this pathway the following recommendations should be considered:

- **Interim Targets:** Setting interim targets based on the FY24 GHG inventory can lead to immediate action and provide a framework for refining the baseline and targets as more complete data becomes available. This approach enables Cassava to prioritize major emission sources with reliable data and make meaningful progress while addressing data gaps.
- **Complete data collection:** Use the FY24 GHG inventory to identify and address gaps in data collection and monitoring. This can ensure that FY25 will have more complete and accurate data from all divisions and all emission categories. A more complete dataset in FY25 could provide a more accurate and consistent baseline, reducing the need for significant adjustments in the future.
- **Pilot initiatives:** Use the interim targets to pilot emission reduction initiatives and improve data collection processes, which can help set more accurate and achievable targets based on a complete FY25 baseline.
- **Stakeholder Communication:** Transparent communication with stakeholders about Cassava's plans for refining the data sets and using FY24 as a tool to identify gaps and set interim targets is important. This transparency builds trust and sets realistic expectations, demonstrating Cassava's commitment to continuous improvement and accurate reporting.

The SBTi primarily uses the GHG Protocol reporting standards to report carbon footprint emissions. While the GHG Protocol emphasises reporting on Scope 1 and 2 emissions, it suggests the inclusion of Scope 3 emissions if they are considered material and consequential to the company. As Cassava does use the GHG Protocol to report on their GHG inventory and because FY24's GHG inventory evaluated and included all relevant Scope 3 categories applicable to Cassava, it would serve as a firm foundation for setting targets aligned with the SBTi. As Cassava's Scope 3 emissions do not constitute more than 40% of the total emissions Scope 3 is not mandatory to include in the near-term targets.

Despite some data gaps, FY24 provides a comprehensive and detailed inventory that can serve as a firm foundation for setting SBTi targets. Using FY24 as a baseline will necessitate ambitious and immediate actions to achieve the prescribed 42% reduction targets by 2030. By addressing data gaps, setting interim targets, and leveraging existing renewable energy initiatives, Cassava can effectively use FY24 as a baseline to achieve its emission reduction goals.

Appendix 1: Results as per ISO 14064-1:2018

Considering the ISO 14064-1:2018 standard, the carbon footprint for FY24 is categorised as shown.

Table 14: Summary of FY24 results according to ISO 16064-1:2018

Emission Category	ADC Total Emissions tCO ₂ e	DPA Total Emissions tCO ₂ e	Liquid Total Emissions tCO ₂ e	Sasai/Vaya Total Emissions tCO ₂ e	Corporate Total Emissions tCO ₂ e	Cassava FY2024 Total Emissions tCO ₂ e
Category 1: Direct GHG emissions and removals	4 669	-	7 986	-	-	12 655
Category 2: Indirect GHG emissions from imported energy	119 160	35	37 140	2 054	180	158 569
Category 3: Indirect GHG emissions from transportation	985	135	6 939	310	2 449	10 818
Category 4: Indirect emissions from products used by the organisation	1	46	876	1	1	925
Category 6: Indirect GHG emissions from other sources	1 079	15	15 314	37	3	16 448
Total emissions	125 894	231	68 255	2 402	2 633	199 415

Appendix 2: Relevance Assessment

Source of indirect emissions	Relevance criteria							Recommendation
	Size	Influence	Risk	Stakeholders	Outsourcing	Sector guidance	Other (Employee Engagement)	
Purchase of goods and services – Purchase of Water	No- these emissions do not form more than 1% of the overall indirect emissions.	No – Cassava has no level of influence on the purchase of water as it is supplied by a municipality	Yes- There is a high level of risk if water shortages occur for Cassavas workforce. This risk is higher in countries such as South Africa who experience water shortages.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No - water is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector	No - sector guidance does not have a recommendation for this emission source.	Yes – Campaigns to use less water and to reduce water waste can be implemented for Cassava’s employees through employee engagement.	This emission source should be included in the inventory because of the risk to Cassava, and employee engagement.
Purchase of goods and services – Purchase of Office Equipment (paper, furniture, air conditioner, camera)	No- these emissions do not form more than 1% of the overall indirect emissions.	Yes -_ Cassava can influence suppliers as there are some possibilities for switching to other suppliers or office equipment with lower emissions.	Yes- risk of supply chain disruptions from climate change related events such as flooding, can disrupt Cassavas supply chain for the goods that can negatively impact Cassava’s business activities.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – Office equipment is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	No – employees are not responsible for procurement of office equipment.	Office equipment should be included in the inventory because of the influence of Cassava, and risk.
Purchase of goods and services – Purchase of operational consumables (batteries, cables, cement, fibre, tyres, wood poles, tools)	Yes- these emissions do form more than 1% of the overall indirect emissions.	Yes -_ Cassava can influence suppliers as there are some possibilities for switching to other suppliers or operational consumables	Yes- risk of supply chain disruptions from climate change related events such as flooding, can disrupt Cassavas supply chain for the goods that can negatively impact Cassava’s daily business activities.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – Operational consumables is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other	No - sector guidance does not have a recommendation for this emission source.	No – employees are not responsible for procurement of operational consumables.	Operational consumables should be included in the inventory because of the size, influence of Cassava and risk.

Source of indirect emissions	Relevance criteria							Recommendation
	Size	Influence	Risk	Stakeholders	Outsourcing	Sector guidance	Other (Employee Engagement)	
		with lower emissions.			companies in the ICT sector.			
Purchase of goods and services – Purchase of ICT equipment (network equipment, toners, electronics, laptop, printer, monitor, server)	Yes- these emissions do form more than 1% of the overall indirect emissions.	Yes - Cassava can influence suppliers as there are some possibilities for switching to other suppliers of ICT equipment with lower emissions.	Yes- risk of supply chain disruptions from climate change related events such as flooding, heat waves or other extreme weather events can disrupt Cassavas supply chain for the ICT equipment that can negatively impact Cassava's daily business activities.	No – Cassava's stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – ICT equipment is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	Yes – ICT sector guidance ⁴ is applicable and recommends that ICT equipment and services are included and can influence their business services.	No – employees are not responsible for procurement of ICT equipment.	ICT equipment should be included in the inventory because of the size, influence of Cassava, risk and sector guidance.
Purchase of goods and services – Purchase of Solar equipment	No- these emissions do not form more than 1% of the overall indirect emissions.	Yes - Cassava can influence suppliers as there are some possibilities for switching to other suppliers of solar equipment.	Yes- risk of electricity disruptions provided from solar equipment can result from climate change related events such as extreme storms, hail or other extreme weather events that can disrupt Cassavas electricity supply can negatively impact Cassava's daily business activities as well as their emission reduction goals.	No – Cassava's stakeholders do not specifically require the emission source to be included in their GHG inventory.	No –Solar equipment is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	No – employees are not responsible for procurement of solar equipment.	Solar equipment should be included in the inventory because of the influence of Cassava and risk.
Purchase of capital goods – ICT	No- these emissions do not form	Yes - Cassava can influence suppliers as	Yes- risk of supply chain disruptions from climate change related	No – Cassava's stakeholders do not specifically	No –ICT equipment is not an outsourced	Yes – ICT sector guidance ⁵ is applicable and	No – employees are not responsible for	ICT equipment should be included in the inventory

⁴ Available at: <https://ghgprotocol.org/sites/default/files/2023-03/GHGP-ICTSG%20-%20ALL%20Chapters.pdf>

⁵ Available at: <https://ghgprotocol.org/sites/default/files/2023-03/GHGP-ICTSG%20-%20ALL%20Chapters.pdf>

Source of indirect emissions	Relevance criteria							Recommendation
	Size	Influence	Risk	Stakeholders	Outsourcing	Sector guidance	Other (Employee Engagement)	
equipment (laptops)	more than 1% of the overall indirect emissions.	there are some possibilities for switching suppliers of ICT equipment with lower emissions.	events such as flooding, heat waves or other extreme weather events can disrupt Cassavas supply chain for the ICT equipment that can negatively impact Cassava's daily business activities.	require the emission source to be included in their GHG inventory.	activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	recommends that ICT equipment and services are included and can influence their business services.	procurement of ICT equipment.	because of the influence of Cassava, risk and sector guidance.
Purchase of capital goods – operational assets (vehicles, generator, inverter, solar power station, UPS)	Yes- these emissions do form more than 1% of the overall indirect emissions.	Yes - Cassava can influence suppliers as there are some possibilities for switching to other suppliers of operational assets with lower emissions.	Yes- climate change related events such as flooding, heat waves or other extreme weather events can incapacitate Cassavas operational assets that can negatively impact Cassava's daily business activities.	No – Cassava's stakeholders do not specifically require the emission source to be included in their GHG inventory.	No –operational assets is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	No – employees are not responsible for procurement of operational assets.	Operational assets should be included in the inventory because of the size, influence of Cassava and risk.
Fuel- & Energy-Related Activities of purchased electricity (grid electricity, diesel, Solar)	Yes- these emissions do form more than 1% of the overall indirect emissions.	No – Cassava has no level of influence on the purchase of electricity as it is supplied by a utility company.	Yes- risk of supply chain disruptions from climate change related events such as flooding and high wind speeds, can disrupt Cassava's supply chain for electricity supply that can negatively impact Cassava's business activities.	No – Cassava's stakeholders do not specifically require the emission source to be included in their GHG inventory.	No - Electricity is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	Yes – Campaigns to use less electricity can be implemented for Cassava's employees through employee engagement.	Yes, it should be included based on size, risk and employee engagement.
Fuel- and Energy-related activities of stationary combustion (diesel, petrol)	No- these emissions do not form more than 1% of the overall	No – Cassava has no direct level of influence.	Yes- risk of electricity disruptions from climate change related events such as flooding and high wind speeds, can disrupt Cassava's	No – Cassava's stakeholders do not specifically require the emission source to be included in	No – stationary combustion is not an outsourced activity previously performed in-house nor is it an	No - sector guidance does not have a recommendation for this emission source.	No – employees are not responsible for procurement of fuel.	Yes, it should be included based on risk.

Source of indirect emissions	Relevance criteria							Recommendation
	Size	Influence	Risk	Stakeholders	Outsourcing	Sector guidance	Other (Employee Engagement)	
	indirect emissions.		supply chain for electricity supply which increased the need for the use of generators. If a generator or fuel is not available, it can negatively impact Cassava's business activities.	their GHG inventory.	activity that is typically performed in-house by other companies in the ICT sector.			
Fuel- and Energy-related activities of mobile combustion (petrol, diesel)	No- these emissions do not form more than 1% of the overall indirect emissions.	No – Cassava has no direct level of influence.	Yes- risk of electricity disruptions from climate change related events such as flooding and high wind speeds, can disrupt Cassava's supply chain for electricity supply which increased the need for the use of generators. If a generator or fuel is not available, it can negatively impact Cassava's business activities.	No – Cassava's stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – mobile combustion is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	Yes – Campaigns to use less fuel in vehicles can be implemented for Cassava's employees through employee engagement.	Yes, it should be included based on risk and employee engagement.
Upstream Transportation & Distribution	No- these emissions do not form more than 1% of the overall indirect emissions.	No – Cassava has no direct level of influence.	Yes- risk of supply chain disruptions from climate change related events such as flooding can disrupt Cassava's business activities.	No – Cassava's stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – upstream transportation & distribution is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	No – employees are not responsible for transportation & distribution.	Yes, it should be included based on risk.

Source of indirect emissions	Relevance criteria							Recommendation
	Size	Influence	Risk	Stakeholders	Outsourcing	Sector guidance	Other (Employee Engagement)	
Waste generated in operation – Waste Sent to Landfill (waste treatment, composting waste, plastic waste, paper waste, food waste sent to landfill)	Yes- these emissions do form more than 1% of the overall indirect emissions.	Yes – Cassava has a level of influence on the waste sent to landfill as they can limit the amount sent to landfill and increase recycling practices.	Yes- risk of supply chain disruptions from climate change related events such as flooding, can disrupt Cassava’s supply chain for waste sent to landfill that can negatively impact Cassava’s employee health.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – mobile combustion is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	Yes – Campaigns to use reduce waste sent to landfill and to make use of recycling can be implemented for Cassava’s employees through employee engagement.	Yes, it should be included based on size, Cassava’s influence, risk and employee engagement.
Waste generated in operation – Other waste disposal (e-waste disposed, hazardous waste)	No- these emissions do not form more than 1% of the overall indirect emissions.	Yes – Cassava has a level of influence on the waste disposed as the waste can be limited and recycling practices can increase.	Yes- risk of supply chain disruptions from climate change related events such as flooding, can disrupt Cassava’s supply chain for waste disposal that can negatively impact Cassava’s employee health.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – waste disposal is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	Yes – Campaigns to use reduce waste and to make use of recycling can be implemented for Cassava’s employees through employee engagement.	Yes, it should be included based on Cassava’s influence, risk and employee engagement.
Waste generated in operation – Waste Recycled	No- these emissions do not form more than 1% of the overall indirect emissions.	Yes – Cassava has a level of influence on the recycled waste as Cassava can increase recycling practices.	Yes- risk of supply chain disruptions from climate change related events such as flooding, can disrupt Cassava’s supply chain for recycled waste can negatively impact Cassava’s employee health.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – waste disposal is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	Yes – Campaigns to increase recycling can be implemented for Cassava’s employees through employee engagement.	Yes, it should be included based on Cassava’s influence, risk and employee engagement.

Source of indirect emissions	Relevance criteria							Recommendation
	Size	Influence	Risk	Stakeholders	Outsourcing	Sector guidance	Other (Employee Engagement)	
Business travel – travel claims	No- these emissions do not form more than 1% of the overall indirect emissions.	Yes – Cassava has a level of influence on the travel as they can choose different suppliers for travel.	Yes- risk of supply chain disruptions from climate change related events such as flooding, can disrupt Cassava’s travel plans and increase costs of travel.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – business travel is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	No – employees are not responsible for booking transportation for business travel.	Yes, it should be included based on Cassava’s influence and risk.
Business travel – flights, sea, rail travel	Yes- these emissions do form more than 1% of the overall indirect emissions.	Yes – Cassava has a level of influence on the flights, sea travel and rail travel as they can choose different suppliers and lower emission flights, sea and rail travel.	Yes- risk of supply chain disruptions from climate change related events such as flooding, can disrupt Cassava’s travel plans and increase costs of travel.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – business travel is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	No – employees are not responsible for booking transportation for business travel.	Yes, it should be included based on Cassava’s influence and risk.
Business travel – rentals	No- these emissions do not form more than 1% of the overall indirect emissions.	Yes – Cassava has a level of influence on the rentals as they can choose different suppliers.	Yes- risk of supply chain disruptions from climate change related events such as flooding, can disrupt Cassava’s travel plans and increase costs of travel.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – business travel is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	No – employees are not responsible for booking transportation for business travel.	Yes, it should be included based on Cassava’s influence and risk.

Source of indirect emissions	Relevance criteria							Recommendation
	Size	Influence	Risk	Stakeholders	Outsourcing	Sector guidance	Other (Employee Engagement)	
Business travel – accommodation	No- these emissions do not form more than 1% of the overall indirect emissions.	Yes – Cassava has a level of influence on the accommodation as they can choose different suppliers.	Yes- risk of supply chain disruptions from climate change related events such as flooding, can disrupt Cassava’s travel plans and increase costs of travel.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – business travel is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT sector.	No - sector guidance does not have a recommendation for this emission source.	No – employees are not responsible for booking accommodation for business travel.	Yes, it should be included based on Cassava’s influence and risk.
Employee commuting (personal transport, public transport, mixed transport, green transport)	Yes- these emissions do form more than 1% of the overall indirect emissions.	No – Cassava has no level of influence on employee commuting.	Yes- risk change related events such as extreme weather events can disrupt employees commuting to work, putting them in danger.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – employee commuting is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT.	No - sector guidance does not have a recommendation for this emission source.	Yes, campaigns can be implemented to encourage carpooling, or arrange for a shuttle service.	This emission source should be included based on size, risk, and employee engagement.
Upstream Leased assets - Utilities	Yes- these emissions do form more than 1% of the overall indirect emissions.	No -Cassava does not have direct influence if the utilities are included in their rental agreement.	Yes- risk of utility disruptions from climate change related events such as flooding can disrupt Cassava’s business activities.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – utilities is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT.	No - sector guidance does not have a recommendation for this emission source	No – employees are not responsible for procurement of utilities.	This emission source should be included based on size and risk.
Upstream Leased assets	No- these emissions do not form	No – due to loadshedding or power	Yes- risk of supply chain disruptions from climate change related	No – Cassava’s stakeholders do not specifically	No – upstream fuels are not an outsourced	No - sector guidance does not have a	No – employees are not responsible for	Upstream Fuels should be included based on risk.

Source of indirect emissions	Relevance criteria							Recommendation
	Size	Influence	Risk	Stakeholders	Outsourcing	Sector guidance	Other (Employee Engagement)	
– Upstream Fuels	more than 1% of the overall indirect emissions.	disruptions at rental properties the use of generator is needed but the generator is controlled by the landlord and Cassava does not have influence over it.	events such as flooding, can disrupt fuel procurement and negatively influence Cassavas daily operations if loadshedding occurs.	require the emission source to be included in their GHG inventory.	activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT.	recommendation for this emission source	procurement of fuel.	
Downstream Transportation and Distribution	No- these emissions do not form more than 1% of the overall indirect emissions.	Yes – Cassava can choose alternative courier companies as well as alternative transport companies.	Yes - risk of supply chain disruptions from climate change related events from extreme weather events can disrupt downstream transportation and distribution resulting in Casava not being able to deliver services to their clients.	No – Cassava’s stakeholders do not specifically require the emission source to be included in their GHG inventory.	No – upstream fuels is not an outsourced activity previously performed in-house nor is it an activity that is typically performed in-house by other companies in the ICT.	No - sector guidance does not have a recommendation for this emission source	No – employees are not responsible for downstream transportation and distribution decisions.	Downstream Transportation and Distribution should be included based on influence and risk.

Appendix 3: Assumptions

Scope 1 Stationary Combustion:

- For the Uganda LIT operations, the warehouse is on the same premises as the main office and is included in the main office consumption.
- For LIT & ADC Johannesburg (Innovation Park), fuel consumption by generators was reported only for two months, as the Midrand office was removed from the loadshedding schedule.
- For LIT DRC, the generator is under the landlord's control and was rarely used; it was assumed to have not been in use during the reporting year.
- PoP diesel consumption for generator use was reported under Scope 1 only if the PoP is owned by Cassava.

Scope 1 Mobile Combustion:

- LIT South Sudan does not monitor mobile combustion but estimated average monthly consumption to be 959 litres, assumed to be petrol for the emission calculations.

Scope 2 Purchased Electricity:

- For DPA Johannesburg, purchased grid electricity for Apr, Sep, and Nov was estimated using available data for the reporting year, and for Dec to Feb, using the previous year's consumption for the same months.
- Where data was not available for office operations, reported consumption of other offices in the same country or region was used to estimate a kWh/person value and applied to the operation missing data by multiplying the kWh/person value with the headcount.
- For warehouse operations, consumption was estimated based on an average of 33 kWh/m² using provided floorspace data.
- For LIT Johannesburg, the financial split with ADC (75% ADC & 25% LIT) was used to assign the correct consumption to each operation using the total consumption for Innovation Park.
- For LIT Richards Bay and Sasai Johannesburg, ZAR values were converted to kWh using the monthly payments provided by LIT Johannesburg to calculate an electricity tariff and divided by the monthly payments.
- For LIT UAE, grid electricity consumption was estimated using monthly expenditure and Dubai Electricity & Water Authority (DEWA) utility tariffs.
- For Telrad, no data was provided for Colombia; consumption was estimated using the average kWh/person from other Telrad countries and multiplied by the headcount.
- For Vaya, data from Liquid Mauritius and DPA South Africa was used to estimate electricity consumption per headcount and multiplied by Vaya Mauritius and Vaya South Africa's headcount.

Scope 2 Renewable Electricity:

- For ADC and LIT Johannesburg, solar electricity consumption was split as designated by the divisions (75% LIT and 25% ADC) using the total consumption provided by ADC.

Scope 3 Other Indirect Emissions:

- For municipal water consumption in South Africa, ZAR values were converted to kilolitres using Randwater tariffs and reported monthly payments.
- For travel claims reported in currency values, conversion to kilometres was done using the LIT reimbursement rate.
- Where no waste data was available, general waste sent to landfill was estimated based on an average of 0.74 kg/person/day for 20 days/month.
- For water consumption, where no data was available, estimates were based on other operations in the same country or an average of 32 litres/employee/day for 20 days/month.
- For LIT UAE, water consumption was estimated using monthly expenditure and DEWA utility tariffs.
- For business travel and transportation, distances were determined using Google Maps and flight distance calculators.
- Where currency values were provided for rental vehicles and transportation, it was assumed that 25% of the expense was used for fuel, converting the expense to litres using the average fuel price of each specific country.
- For specific rental vehicle companies providing emissions per vehicle category, those emission factors were used; otherwise, DEFRA emission factors were applied.
- For accommodation, consolidated nights and headcount were split to account for one person per night.
- Where check-in and check-out dates did not align (check-out dates are dated before check-in dates), it was assumed the date format was incorrect and logical date format was assigned (formatting where the day and month was switched around).
- Nights stayed were calculated by Promethium where only check-in and check-out dates were provided.
- Accommodation emission factors were applied at the country level for consistency.
- Transportation listed under purchased services was categorized as upstream or downstream based on descriptions, assuming expenses were for fuel, converting currency values to litres using average petrol prices.
- Purchased goods and services, and capital goods were provided by financial teams as currency values, evaluated and categorized within 22 categories, with emissions calculated using manufacturers' Scope 1+2 emissions and total revenue to estimate emissions intensity per revenue.
- Commuting data was collected using a survey, extrapolated to include all employees based on majority participation.

PoP Data:

- PoP data was collected and categorised by Liquid's technical team, using classifications to estimate consumption for similar PoPs without data.
- Owned PoPs were reported under Scope 1 and Scope 2, and leased PoPs under upstream leased assets.
- For PoPs with combined energy sources but no separation of consumption data, it was assumed all reported electricity was grid purchased, except where only diesel generators were used, then reported under stationary combustion.