Sustainability Report
2024

Alliance Bioversity & CIAT

CGIAR

Let's transform together
Sustainable Campus

Contents

Illustration: Allison Ceballos and William Narváez

Acknowledgments

We sincerely thank all the departments, teams, and individuals who contributed valuable information, time and commitment to the preparation of this sustainability report. Their collaboration was essential to accurately and transparently reflect the progress, challenges, and results of our efforts.

Thank you for making this collective effort possible, which once again demonstrates that sustainability at the Alliance results from the coordinated and intentional work of the entire organization.

Editing, translation, design, and production editing
Communications Area - Publications, Branding and Graphic Design Unit

About the report

GRI 2-2, 2-3

In Palmira, Colombia, the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT) hosts its Americas Hub, where we are firmly committed to sustainability. This report focuses on our environmental performance through 2024, as part of our broader strategy to reduce environmental impacts and promote sustainability within our operations. It was prepared in accordance with the GRI 2021 Standard for the period January 1, 2024 to December 31, 2024. The material topics in this report correspond to the Agriculture, Aquaculture and Fishing Sectors 2022 standard. The data in the report corresponds to the operations carried out during the aforementioned period and marks the beginning of an accountability process that will continue to evolve in the coming years.

Our vision is to become a campus where all our activities and operations are planned, managed, and executed with the integration of sustainable practices, ensuring the efficient use of our natural, human and economic resources.

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The organization

GRI 2-1

The Alliance of Bioversity & CIAT – Americas Hub

The International Center for Tropical Agriculture (CIAT) is a private, nonprofit international organization established in Washington, D.C., through an agreement signed on May 28, 1986, between the World Bank and the United Nations Development Programme (UNDP). Headquartered in Palmira, Colombia, CIAT operates under Law 29 of 1988, which grants it official recognition as an international organization, along with the privileges and immunities necessary to facilitate its work in the country.

Bioversity International and CIAT entered into a collaboration agreement under the name "the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)," through which they unified their operations and established a shared global corporate governance structure. This includes a single Director General and a unified Board of Trustees, based in Rome, Italy. Both centers are part of CGIAR, a global research partnership for a food-secure future, dedicated to transforming food, land, and water systems in a climate crisis.

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT) receives funding from a wide range of sources, including nonprofit organizations, multilateral agencies, governments, regional development banks, and the private sector. These funds are received through three main channels:

Window 1: Unrestricted funding provided by CGIAR.

Window 3: CGIAR-managed funds designated for specific projects.

Bilateral funding: Direct funding from governments, organizations, or individuals, independent of CGIAR.

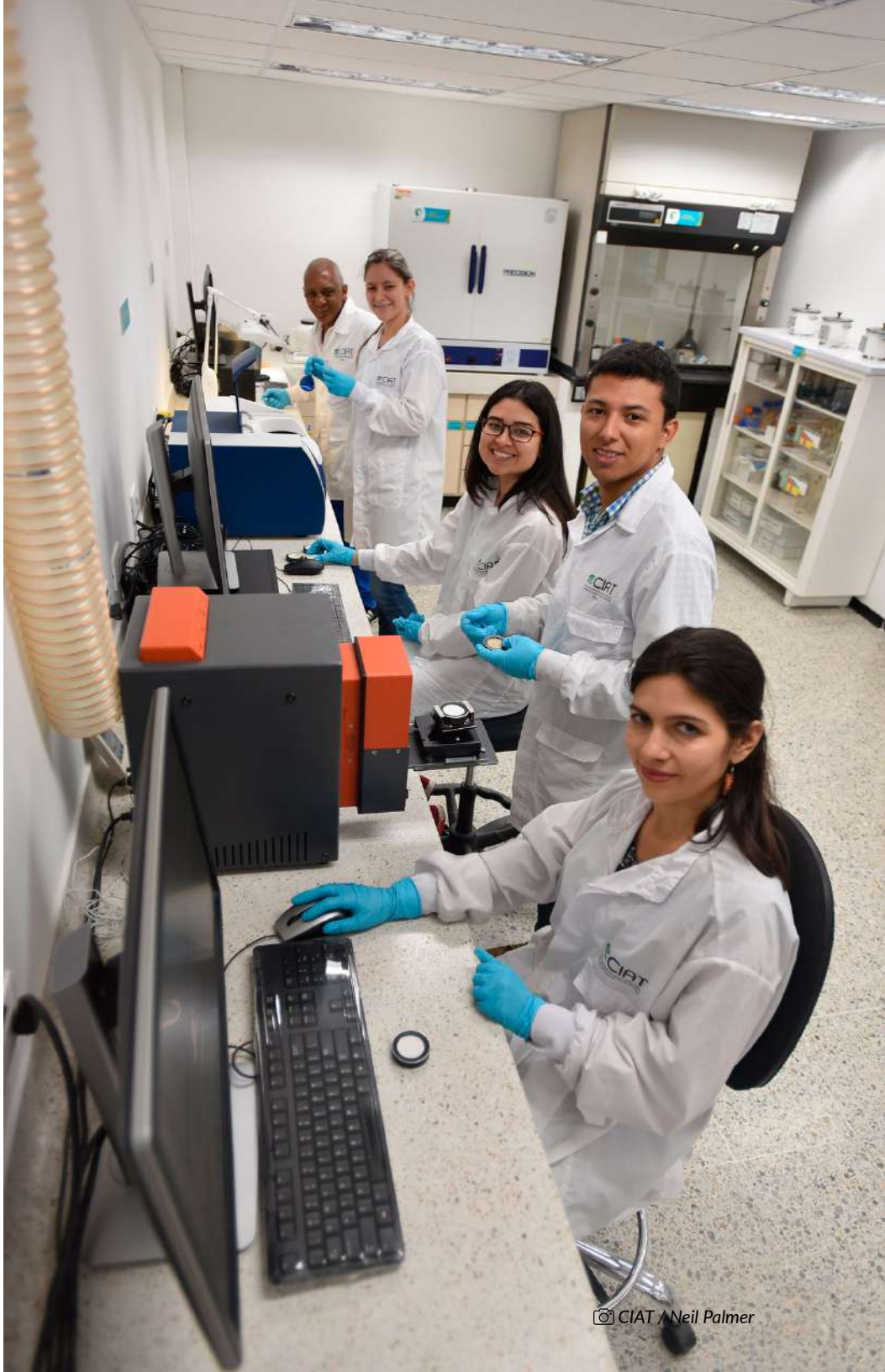
The Alliance operates globally across Europe, Africa, Asia, and Latin America, working in close partnership with public and private institutions, as well as civil society.

Our work

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT) is a research-for-development center with over 57 years of experience advancing nutrition and human well-being in tropical regions through science-based solutions in agriculture and the environment.

The Alliance focuses on the interconnectedness of agriculture, the environment, and nutrition. It collaborates with global partners across Europe, Africa, Asia, and Latin America—including public institutions, private actors, and civil society—to promote innovative research that transforms food systems and landscapes. Its work addresses the climate crisis, fosters prosperity, and enhances nutrition.

The Alliance is also committed to tackling today's most pressing environmental challenges. Its efforts are aligned with the Sustainable Development Goals (SDGs), particularly in the areas of biodiversity, climate change, environmental sustainability, and improved nutrition.



CIAT / Neil Palmer

Stakeholders

GRI 2-29, 2-30

Stakeholder Engagement

The Alliance of Bioversity International and CIAT works closely with a broad range of stakeholders, building partnerships grounded in best practices and shared results. These collaborations—through networks, partnerships, and coalitions united by a common mission—help amplify impact and foster collective success.

Funders: We strengthen and nurture long-standing relationships by demonstrating the social, environmental, and financial impact of our work, ensuring transparency in project execution.

Communities: We provide knowledge and practical tools that promote well-being and progress, encouraging inclusive participation in project design and implementation.

Advisors: We engage openly and collaboratively, sharing information on the Alliance's research approaches and institutional priorities.

Governments: We support the development and implementation of public policies that advance sustainability goals.

Partners: We promote collaborative partnerships to design and implement projects, programs, campaigns, strategies, and initiatives that drive sustainable development.

ESG Policy

GRI 2-14, 2-22

The Alliance of Bioversity International and CIAT recognizes the importance of sustainability and corporate responsibility in generating positive environmental and social impact. As such, the organization is committed to embedding Environmental, Social, and Governance (ESG) principles across all operations, guided by its Sustainability Plan to contribute meaningfully to social and environmental well-being.

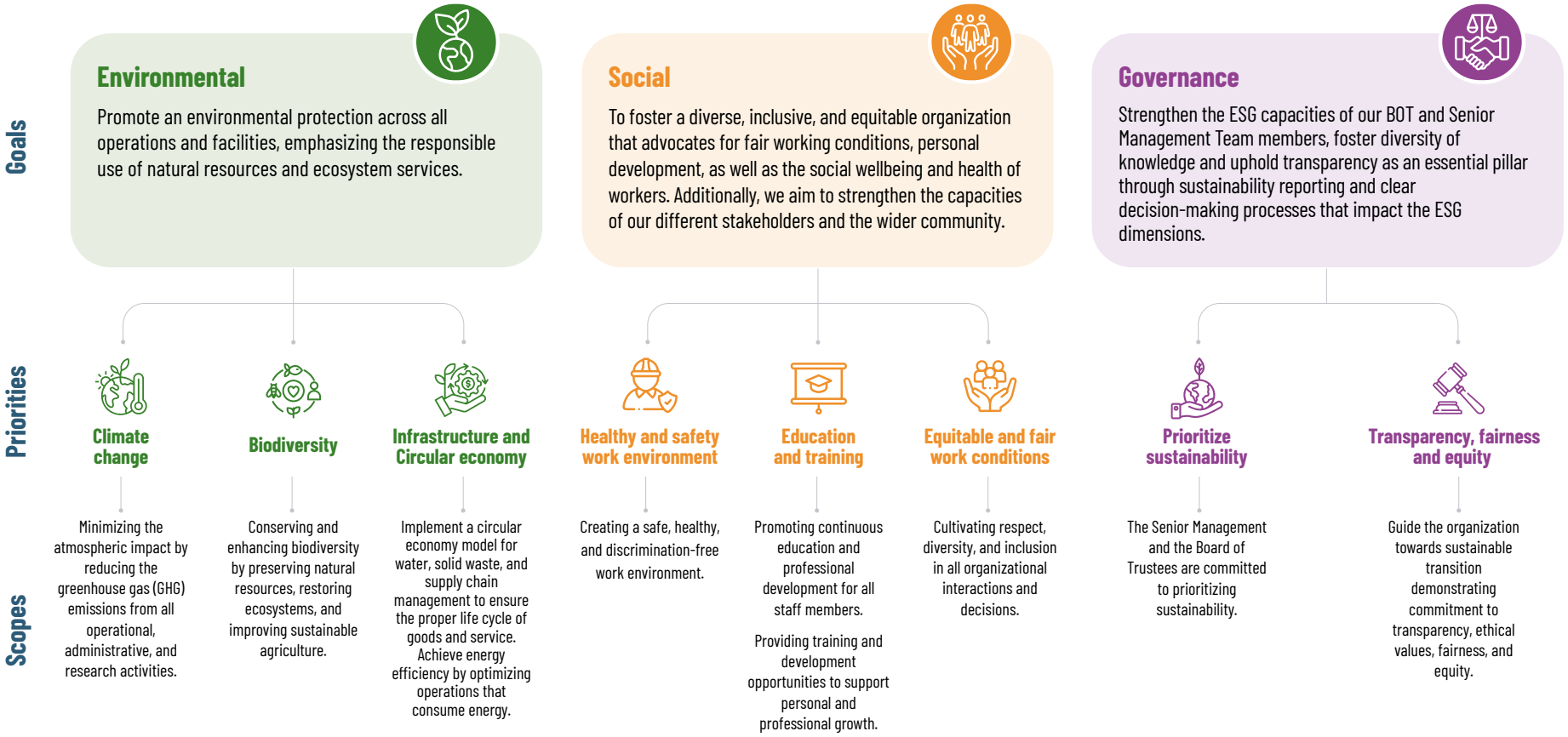


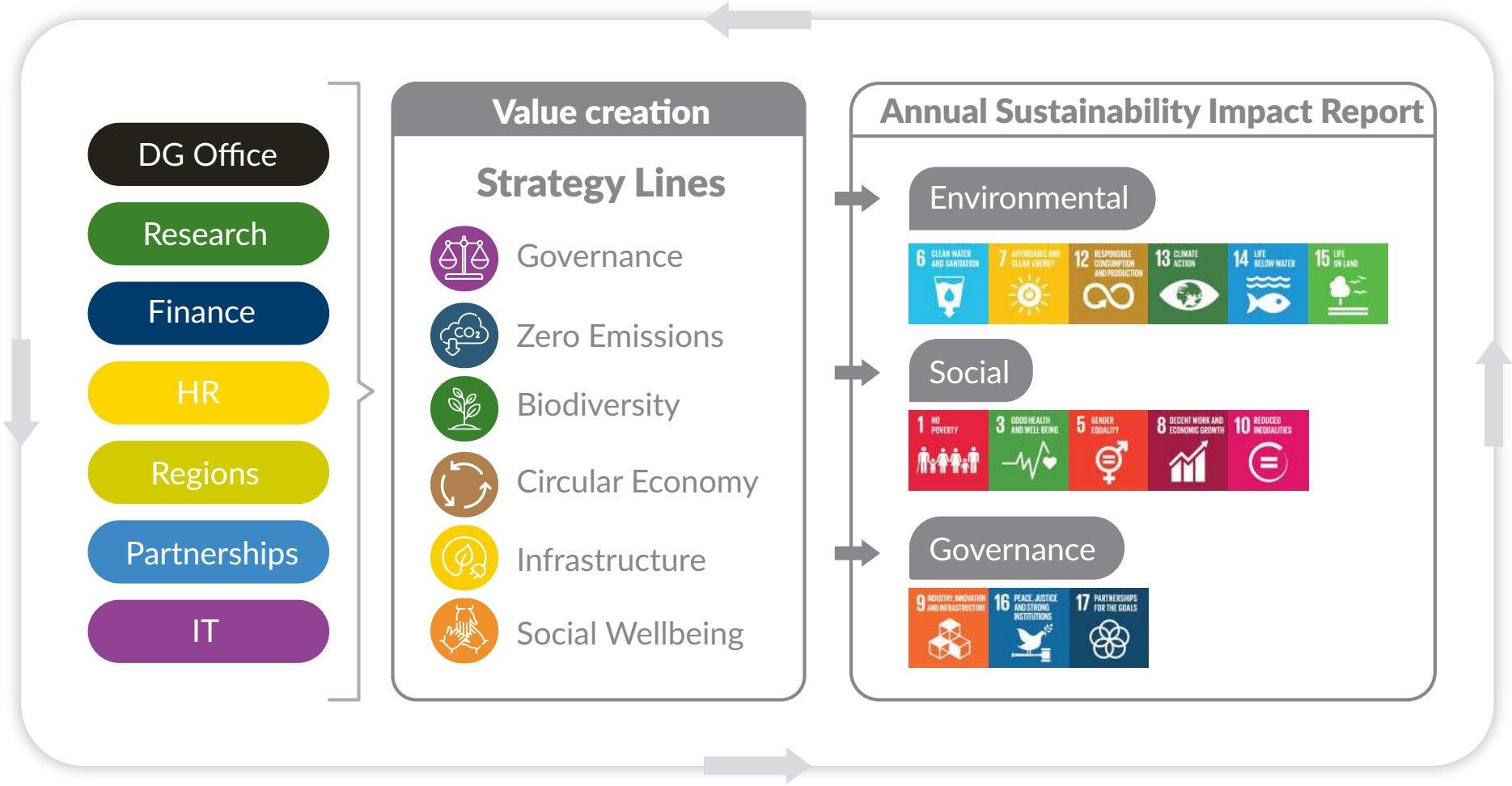
Illustration: Allison Ceballos and William Narváez

Sustainability strategy

This sustainability strategy is designed to create organizational value by aligning the operations of the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)—spanning research, administration, and governance—with the Sustainable Development Goals (SDGs). Built on three core pillars—Environmental, Social, and Governance (ESG)—the strategy aims to generate positive impact by improving, optimizing, and leveraging natural, human, and financial resources within a framework of good governance.

The current phase of implementation is centered on the Alliance's Americas Hub, located on the Palmira campus. Internally known as **"Let's transform together: Sustainable Campus"**, the initiative promotes robust ESG practices, strengthens the organizational culture of sustainability, and drives the execution of concrete actions.

Let's transform together
Sustainable Campus



The strategy is organized around six interconnected lines of action, aligned with international standards established by the Global Reporting Initiative (GRI). Each line includes annual plans to monitor progress and support the achievement of global sustainability goals by 2030, promoting continuous improvement and a well-managed transition. These actions are grounded in the Colombian legal framework, which governs the operations of the CIAT's headquarters.

CIAT / Juan Marin

Materiality

GRI 3-1, 3-2, 3-3

Materiality is a key process for identifying and prioritizing the most relevant topics in sustainability reporting, ensuring that the issues with the greatest impact on the organization and its stakeholders are effectively addressed. In our case, the **Global Reporting Initiative (GRI)** standard was chosen for its flexibility, focus on impact materiality, and comprehensive portfolio of material topics.

The materiality assessment was conducted through a process of identifying, evaluating, and analyzing the most critical priority issues for the sustainability of the campus and its stakeholders, guided by the flexible and detailed framework provided by the GRI standard.

Materials topics	
Topic 13.1	Emissions
Topic 13.2	Climate adaptation and resilience
Topic 13.3	Biodiversity
Topic 13.4	Natural ecosystem conversion
Topic 13.5	Soil health
Topic 13.6	Pesticides use
Topic 13.7	Water and effluents
Topic 13.8	Waste
Topic 13.9	Food security
Topic 13.11	Animal health and welfare
Topic 13.11	Local communities
Topic 13.15	Non-discrimination and equal opportunity
Topic 13.16	Forced or compulsory labor
Topic 13.17	Child labor
Topic 13.18	Freedom of association and collective bargaining
Topic 13.19	Occupational health and safety
Topic 13.20	Employment practices
Topic 13.22	Economic inclusion
Topic 13.23	Supply chain traceability
Topic 13.24	Public policy
Own	Ethics and fraud (EF)

Materiality Matrix 2024

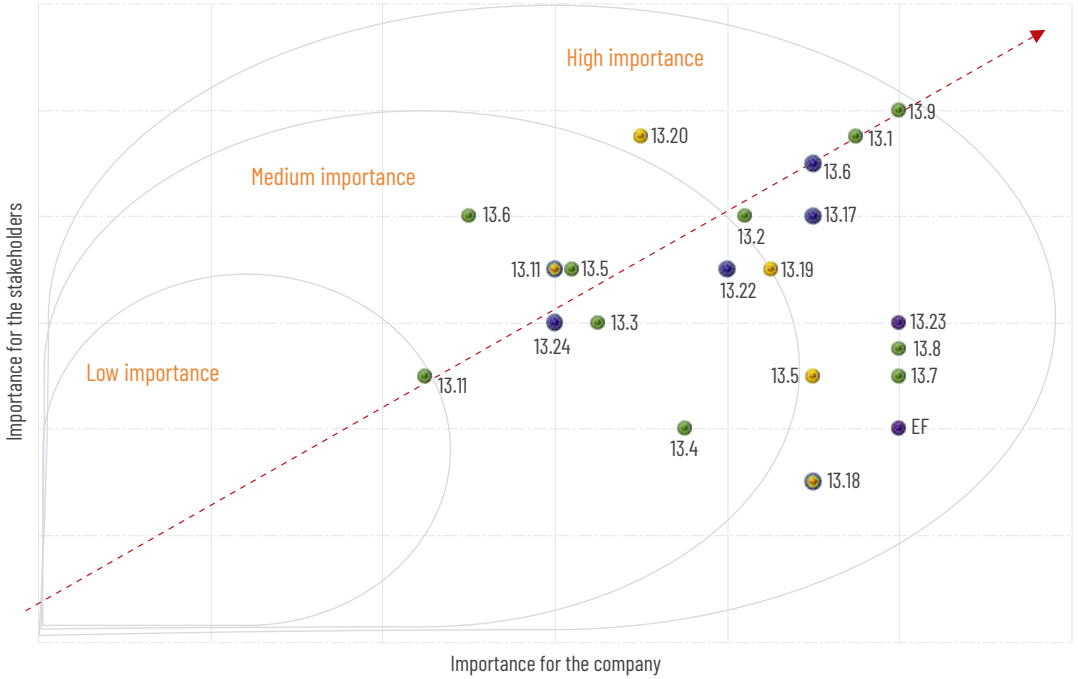


Illustration: Allison Ceballos and William Narváez

Environment

GRI 3-3

The Alliance of Bioversity & CIAT is committed to promoting environmental protection across all its operations and facilities, prioritizing the responsible use of natural resources and ecosystem services, with a particular focus on:

Implementing a circular economy model for the management of water, solid waste, and the supply chain, ensuring the proper life cycle of goods and services through a comprehensive strategy.

Achieving energy efficiency by optimizing energy-intensive operations.

Reducing atmospheric impact by lowering greenhouse gas (GHG) emissions across all operational, administrative, and research activities.

Conserving, protecting, and enhancing biodiversity by preserving natural resources, safeguarding ecosystem services, promoting ecological restoration, and improving sustainable agricultural practices.

Circular Economy

The goal of this line of action is to develop a circular economy model that prevents negative environmental impacts caused by inadequate management of solid waste, water, and supply chains. This approach is based on designing effective strategies for improvement and optimization.

Water management

GRI 303-3, 303-4, 303-5

The responsible use of water is fundamental to ensuring the sustainability of our operations. At the Alliance, we have implemented various systems to treat and optimize water use, reducing our environmental impact and complying with applicable regulations, including Resolution 0495 of June 8, 2021, accredited by the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM).

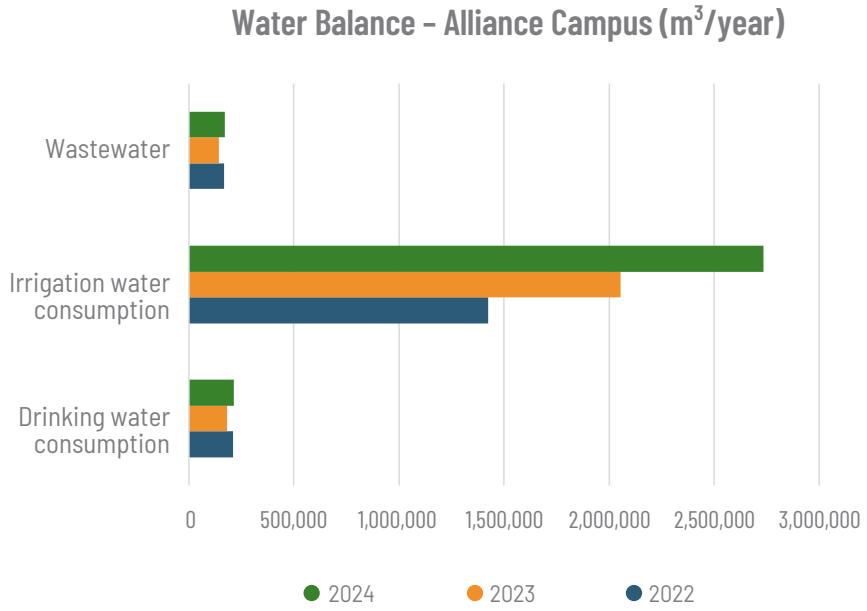
Our primary water source for agricultural and operational needs is groundwater. We operate a total of ten wells, five of which are currently in use. One well supplies drinking water (for the campus aqueduct), while the remaining four wells are used for crop irrigation.

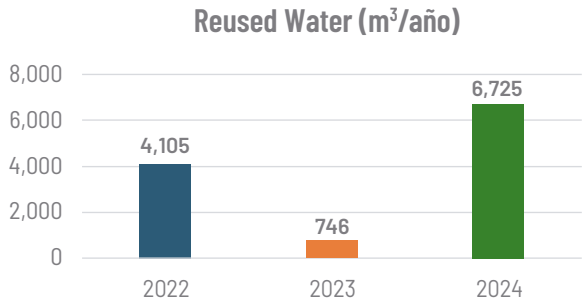
Wastewater generated by our operations is properly treated before being discharged into the Bolo River, in compliance with regulatory standards. The treatment process involves **three facultative lagoons** with a total capacity of **9,445 m³**, along with a complementary treatment system capable of processing 3.2 liters per second (equivalent to **220,000 m³ per day**).

CIAT


CIAT

	Year 2022 (m^3)	Year 2023 (m^3)	Year 2024 (m^3)
Drinking water consumption	210,769	180,054	214,003
Water consumption for irrigation	1,424,060	2,055,070	2,736,780
Reused water	4,105	746	6,725
Wastewater	168,615	144,043	171,202





Contaminant load	Year 2022	Year 2023	Year 2024
COD (mg 02/L)	134.7	62.83	-
BOD (mg 02/L)	89	31.29	-
TSS (mg/L)	120	36.67	-

In 2024, the planned water characterization could not be conducted due to unforeseen circumstances beyond our control. This activity has been rescheduled for the next period,

We are actively working to improve water management, aiming to adopt a more efficient and sustainable model that safeguards and preserves this vital resource.

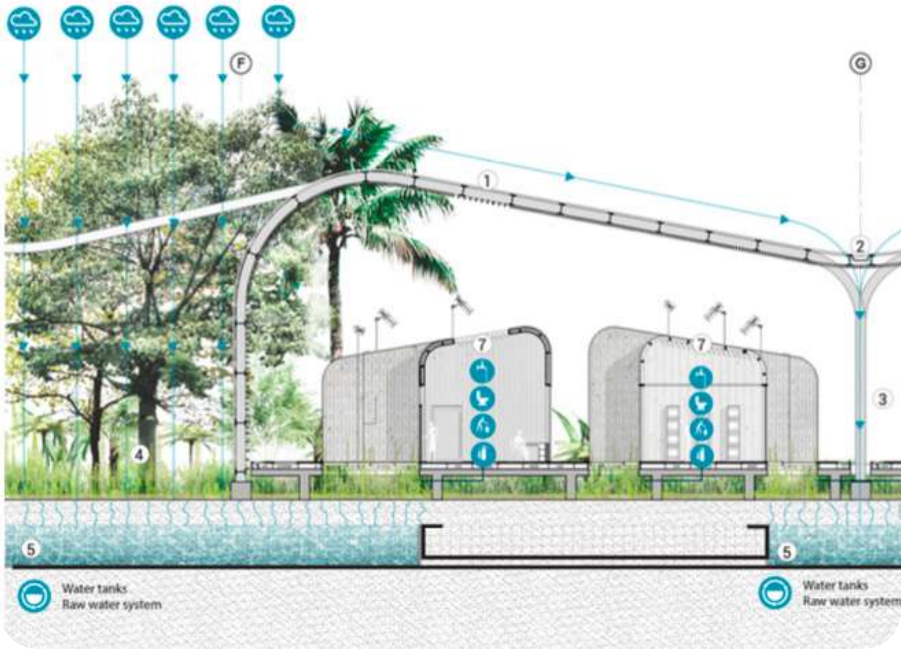
Given the high water demand for irrigation, one of our key goals is to increase the reuse of treated wastewater for crop irrigation. This initiative will reduce reliance on groundwater sources and promote a more responsible and sustainable use of water resources.

CIAT

Water management at Future Seeds

At the self-sustaining Future Seeds building, water is managed independently through a dedicated rainwater harvesting system. All water consumed in the building comes from rainwater collected via the roof deck, which serves as the primary catchment surface, and stored in an underground reservoir with a capacity of 123 m^3. This system is capable of collecting up to 4,234 m^3 of rainwater per year.

The building operates its own water and wastewater treatment system. Any excess rainwater is managed internally, maintaining a closed hydrological cycle within the facility.



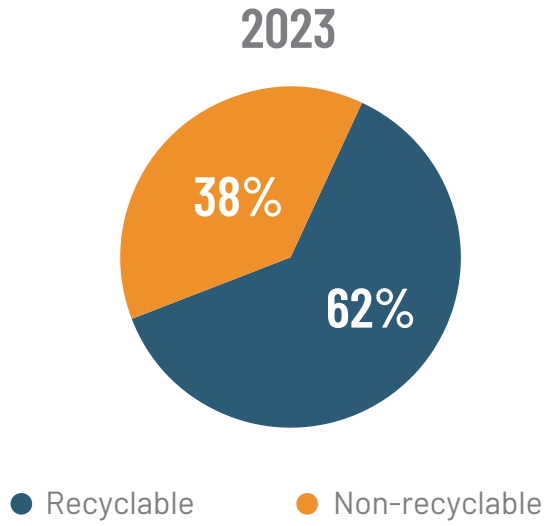
Solid waste management

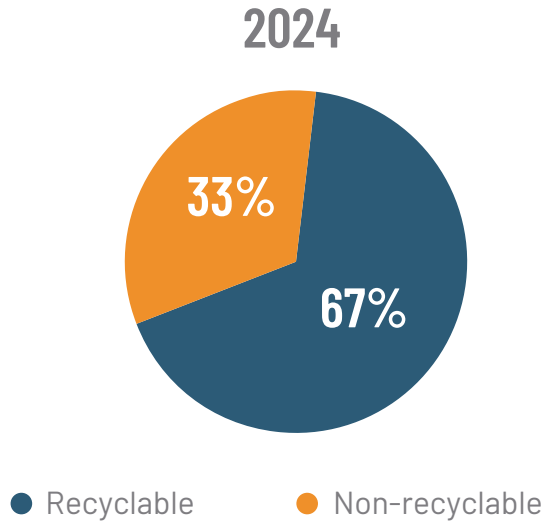
GRI 306-2, 306-4

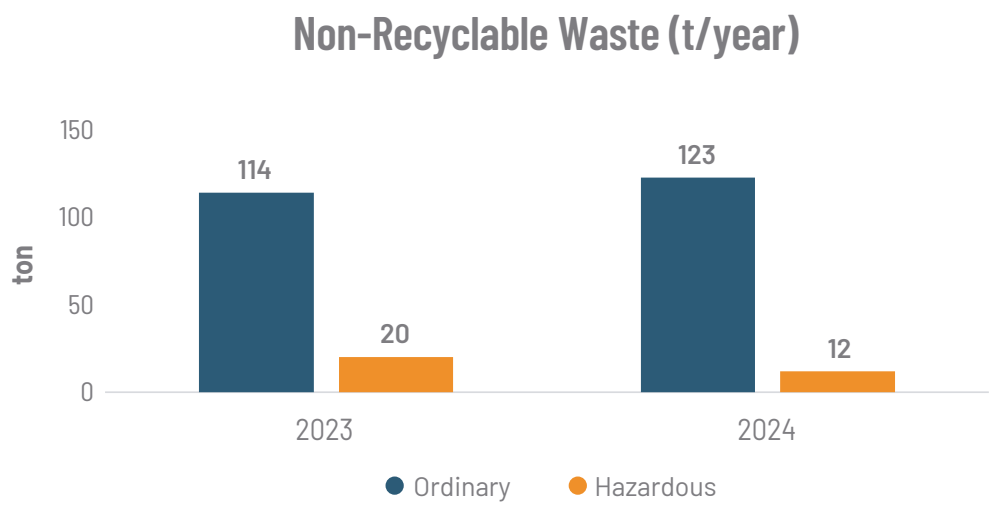
Our solid waste management is grounded in an integrated and sustainable approach, guided by the principles of **reduce, reuse, recycle, and recover**. These pillars aim not only to minimize waste generation but also to maximize reuse and extend the lifecycle of materials.

We have implemented an integrated a **Solid Waste Management Plan**, which provides the strategic and operational framework for identifying, evaluating, managing, and monitoring waste on campus. The plan includes **eight continuous improvement programs, five management procedures tailored to different waste categories**, and a **Solid Waste Management Committee (CGIRS)**, which oversees the planning, implementation, and monitoring of waste management activities.

Over the past two years, we have made significant strides in waste management, reducing the generation of non-recoverable waste and increasing the amount of recoverable waste by 10%. This progress has been made possible through proper and careful waste segregation, which prevents cross-contamination and preserves the potential for waste recovery.







In 2024, there was an increase in ordinary waste due to the higher number of events held for COP16 and the rise in on-site personnel at the Palmira campus.

Conversely, hazardous waste saw a reduction of approximately 8 tons, achieved through more efficient management strategies. This improvement was driven by source minimization efforts, proper segregation, staff training, and strict adherence to established protocols for handling and final disposal.

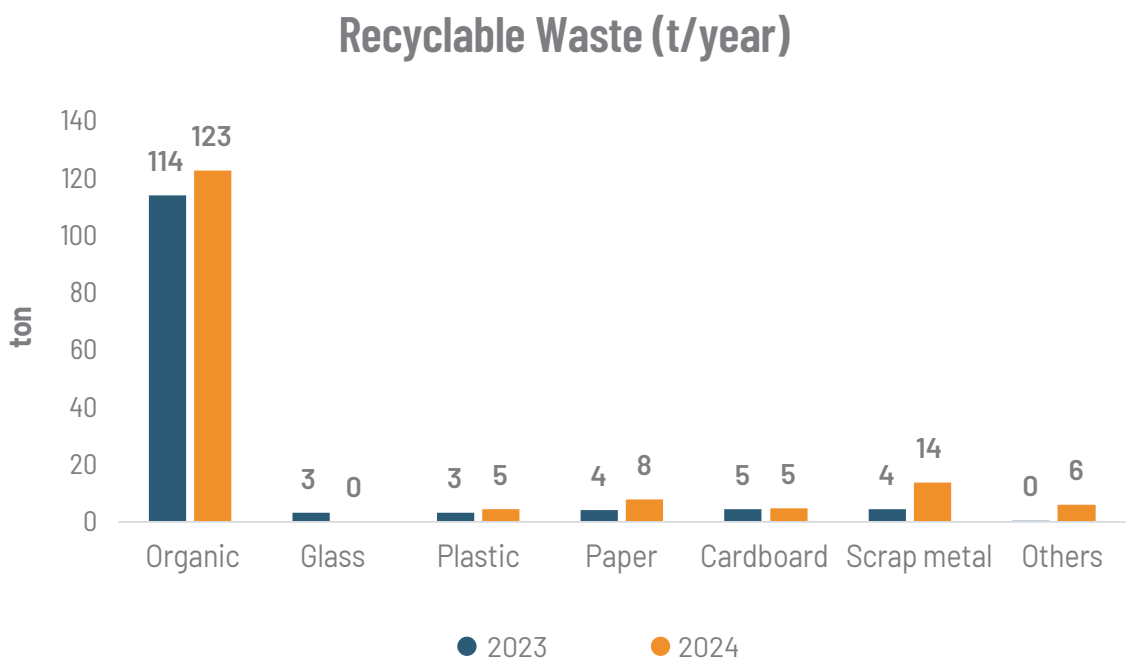
Our goal continues to be to reduce the amount of waste sent to landfills by implementing reduction, reuse, recycling and more efficient management practices at the source.

Non-usable waste

Ordinary waste is managed monthly by Veolia. Hazardous waste is handled by seven external service providers, each specializing in the disposal or recovery of specific waste types. These providers include ASGE, Ática, Bioger, Aprovet, Agroindustria de La Cumbre, Punto Azul, and Juanchito.

Types of disposal or recovery methods

- Lead ingot production
- Incineration
- Secure landfill cells
- Recovery for use in new products
- Landfill disposal



In 2024, the volume of recoverable waste increased as a result of improved waste separation and collection practices. This progress reflects effective management in the segregation, collection, and disposal of waste with recovery potential, preventing it from being sent to landfills.

These materials were reintegrated into new life cycles through recycling or reuse processes, contributing to the advancement of a circular economy model and reducing environmental impact.

Usable waste

The management of recoverable waste and scrap is carried out through partnerships with third parties, ensuring positive environmental and social impact. As part of this effort, we collaborate with **Fundación Dos por el Planeta**, transforming plastic waste into plastic wood. Additionally, for every 500 kg of plastic delivered, we donate one food ration to community kitchens in the city of Palmira.

The remaining waste is reintegrated into various production processes through our partnership with **Servicios Empresariales Ambientales (SEA)**, a company specializing in the final disposal and recovery of solid waste. Through this collaboration, we obtain CO_2 emission mitigation certificates, contributing to the reduction of our carbon footprint.

We also partner with specialized companies to ensure the responsible management of icopor (expanded polystyrene), lubricating oils, and tires. Before handing over materials to external managers, we apply a reuse and recycling model that extends the lifecycle of waste across different operations and activities.

Types of recovery and reuse:

- Plastic wood production
- Scrap recovery
- Organic fertilizer production
- Recovery for use in new products

Impact achieved:

- 92 food rations donated

CIAT / Natalia Carmona

Additional accomplishments

Composting Plant

We promote circular practices by managing organic waste through a structured process that transforms it into compost and mulch. This process is entirely organic, using only materials generated within our campus.

Impacts

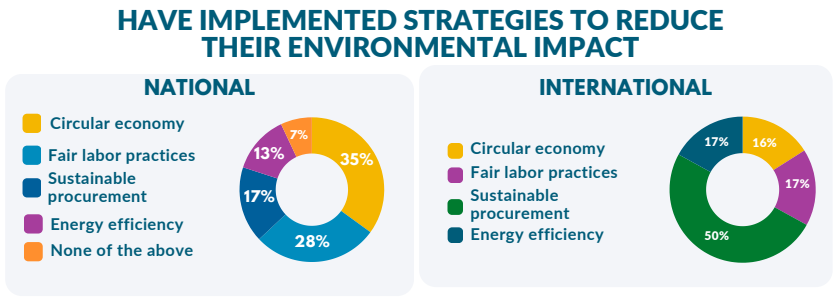
- In 2024, 200 tons of compost were produced and applied to enrich the soils across our campus.
- Campus cultivation programs and individuals have directly benefited from this resource.

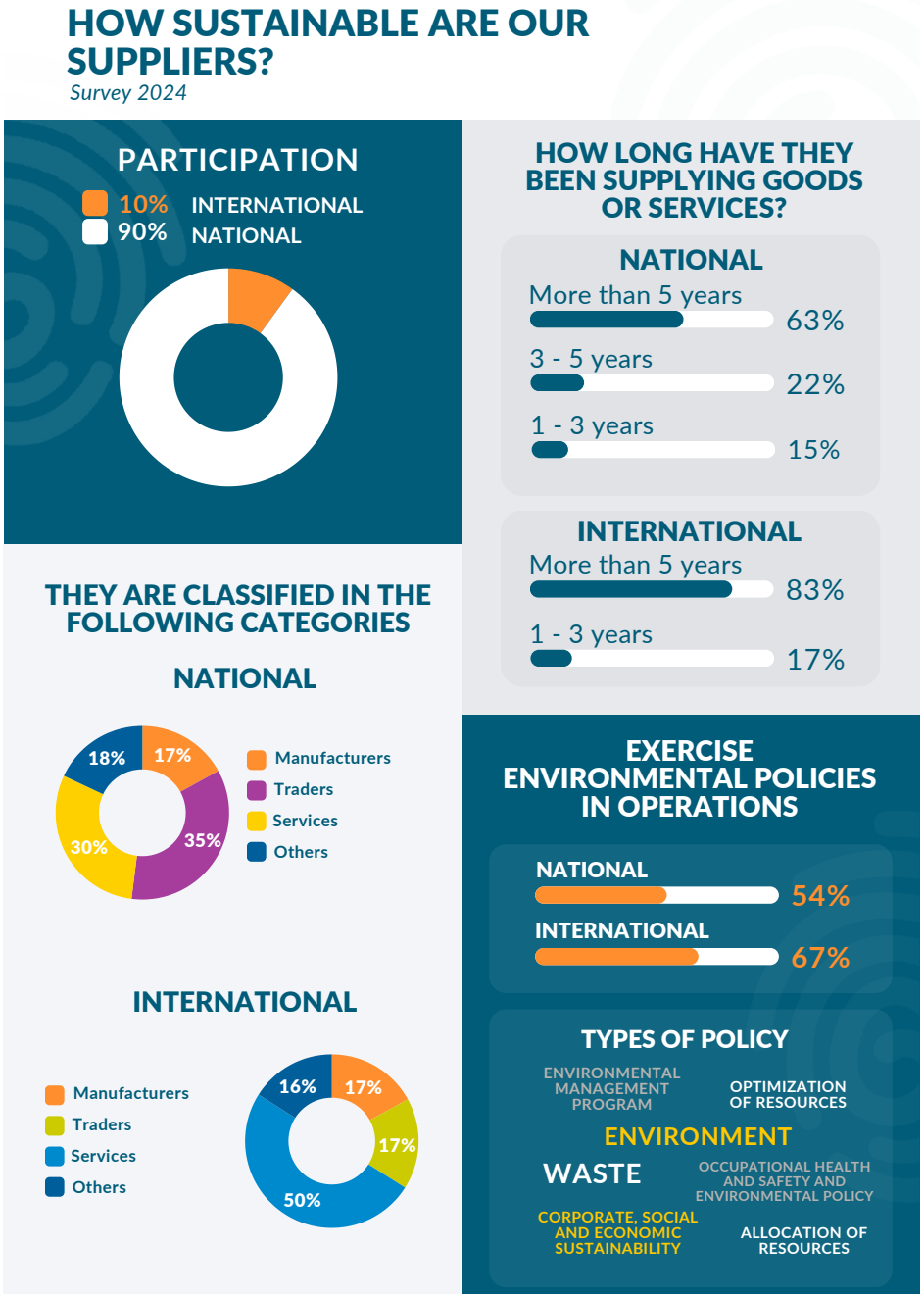
Sustainable procurement management

GRI 308-1, 308-2

The development of sustainable purchasing guidelines began in 2024. As a first step, surveys were conducted to identify suppliers that meet sustainability criteria. While formal guidelines have not yet been finalized, initial efforts are well underway, with **100% action** initiated toward this goal. To date, **54%** of domestic suppliers and **60%** of international suppliers have implemented at least one sustainability strategy.

Supplier participation (survey)





We have also implemented several measures to reduce environmental impact and enhance resource efficiency:

- **Replaced white paper with environmentally friendly** alternatives to reduce traditional paper use.
- **Reduced and replaced printers** with more energy-efficient systems, lowering energy consumption.
- **Digitized physical invoices**, reducing paper dependency by processing an average of 1,250 electronic invoices per month, totaling 15,600 per year.
- **Digitalized the goods delivery process,** eliminating the need to print 1,000 copies per month for goods dispatch.
- **Reduced electricity consumption** by optimizing equipment and operational processes.

CIAT / Neil Palmer

Food safety

At our campus, we follow strict procedures to ensure food safety, guaranteeing that food is handled, stored, and distributed in compliance with quality and hygiene standards.

In addition, to optimize resource use and reduce food waste, we apply a range of strategies aligned with sustainable practices in planning, purchasing, storage, and ingredient use:

- **Digitalization and efficiency:** We have implemented six digital systems that streamline food safety processes, improving traceability and inventory management.
- **Responsible consumption and local support:** We prioritize sourcing local products and food harvested on campus, promoting sustainability and supporting regional producers.
- **Waste reduction training:** We provide ongoing training to staff on portion control to ensure optimal serving sizes and minimize food waste.
- **Efficient storage:** We apply the FIFO (First In, First Out) inventory system to maintain proper food rotation and reduce spoilage.
- **Compliance with quality standards:** We work with three suppliers certified in Good Manufacturing Practices (GMP), ensuring adherence to hygiene and food safety regulations.

General Services Unit

MEALS

800 Daily from Monday to Friday

160 Every Saturday

16 Vegetarian (2.2%)

VISITORS

16,508 Year (2024)

EVENTS

518 Year (2024)

CONSUMPTION

655 (80%) Cafeteria

160 (20%) Casino

20 Dinners (Cafeteria)

75 Event catering

50 Main dining room

960 **Average daily services (2024)**

FOOD WASTE

48,000 kg/year (average) – vegetable, organic and animal waste

CAMPUS-GROWN PRODUCTS

ORYZA GOURMET RICE AND LOCAL RICE:
1,300 kg average per month
16 tons per year

BIO BEANS AND LOCAL BEANS:
350 kg average per month
4 tons per year

MPER CASSAVA, LOCAL CASSAVA, AND FLOUR:
350 kg average per month
4 tons per year

TESORO SWEET CORN AND LOCAL CORN:
1,220 kg average per month
3 tons per year

BANANA:
320 kg average per month
4 tons per year

- (MPER-185) CIAT Cassava: 465 kg
- Cuban CIAT Cassava: 80 kg
- Tesoro Corn: 210 kg
- Oryza Rice: 240 kg
- Oro Verde Squash: 115 kg
- CIAT Banana: 390 kg
- BIO Bean: 542 kg
- BIO 101 Bean: 200 kg
- Sustainable livestock beef: 30 kg

Infrastructure

The objective of this line of action is to enhance energy efficiency by optimizing lighting systems, reducing energy consumption, automating air conditioning and other equipment, and expanding renewable energy capacity. It also seeks to achieve structural improvements to campus facilities in alignment with LEED (Leadership in Energy and Environmental Design) sustainable building standards.

In parallel, as part of process optimization, significant progress has been made in the digital transformation of field operations. This includes the integration of technologies to improve crop management, monitoring, and decision-making. Digital tools, sensors, and data analysis systems have been implemented, enabling real-time monitoring, resource optimization, and more efficient, sustainable production.

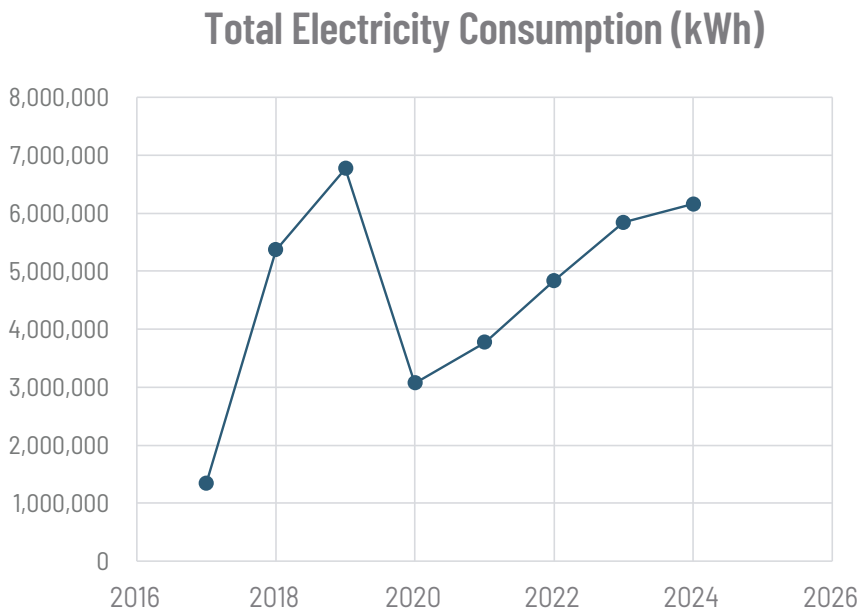
CIAT

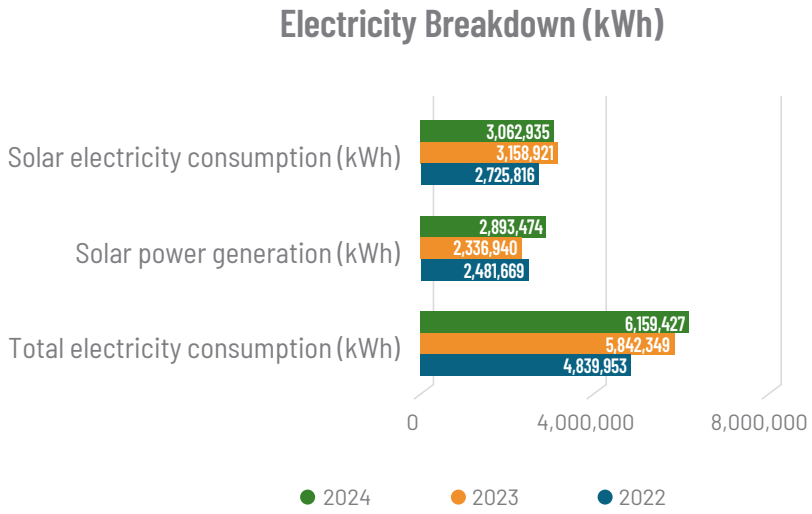
Energy efficiency

GRI 302-1

The campus's energy supply is provided by CELSIA, with whom a partnership was established to generate renewable energy. As a result, between 2017 and 2018, a total of 8,028 solar panels were installed, enabling the production of clean energy. This installation currently covers 40% of the campus's total energy consumption, and prevented the emission of 7,529 tCO_2eq from installation to the present year.

Despite increased operations and on-site staff following the pandemic, energy consumption has remained below the peak levels recorded in 2019. This achievement has been made possible through the energy efficiency measures implemented since 2022, which have optimized resource use and reduced environmental impact.





Year	Total electricity consumption (kWh)	Solar consumption (kWh)	Solar generation (kWh)
2022	4,839,953	2,481,669	2,725,816
2023	5,842,349	2,336,940	3,158,921
2024	6,159,427	2,893,474	3,062,935

Energy Efficiency Actions

In line with our commitment to energy conservation, the organization has made significant progress through the following measures:

- **LED lighting installation:** 59% of campus lighting fixtures have been replaced with LED lights, contributing to energy savings.
- **Installation of motion sensors:** 13 motion sensors have been installed to optimize lighting use and reduce unnecessary consumption.
- **Installation of photovoltaic lamps:** 10 photovoltaic lamps were installed, harnessing solar energy to power lighting.

CIAT / Natalia Catmona

Infrastructure

Certification and Policies

- **LEED Platinum Certification:** The **Future Seeds** building achieved LEED Platinum certification in the category of Operations and Maintenance, underscoring the organization's commitment to sustainability and energy efficiency in all aspects of the building's operation.
- **Development of operational policies:** As part of the certification process, a set of policies was created to guide best practices in areas such as solid waste management, water use, pest control, landscaping, and sustainable procurement.

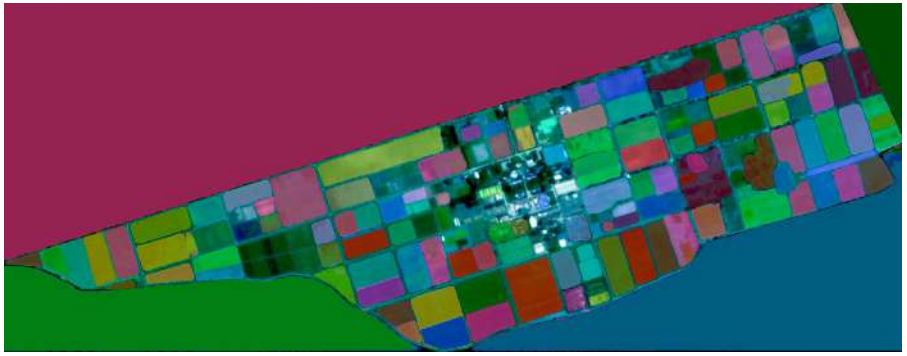
Additional Infrastructure Achievements

Installation of water-saving toilets: 76% progress has been made in installing water-efficient toilets, contributing to reduced water consumption across the campus.

Digital transformation

In **2024**, technological solutions were implemented to enhance crop management and monitoring, including:

- Development of the ADAGIA prototype: A custom application designed to consolidate and analyze data to support agricultural management and promote more efficient, sustainable practices. This tool integrates information from multiple sources, including sensors and weather stations (Ekakashi, Cenicaña, Climate Station, soil analysis, among others).
- Regular imagery and data collection: Monthly drone-based imagery (RGB and multispectral), LiDAR, and satellite data (with 3.7-meter resolution) were collected. Additionally, work began on developing crop segmentation and classification models.



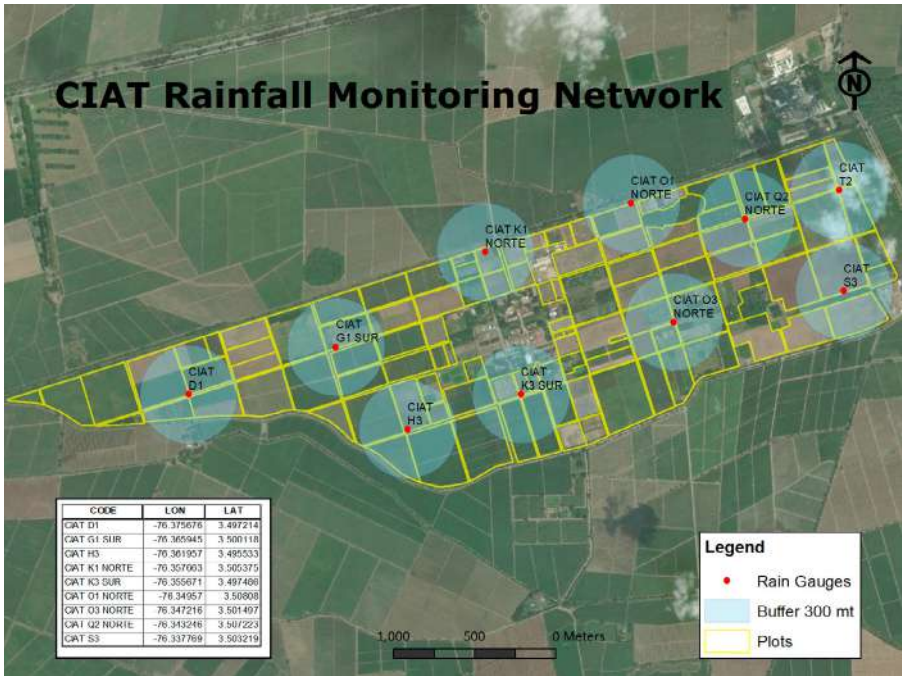
- Acquisition of four Starlink antennas to ensure reliable connectivity in the field.
- Installation of five IoT devices to support precision crop management.
- Completion of configuration protocols for 17 LoRa sensors, along with the setup of a LoRa weather station.

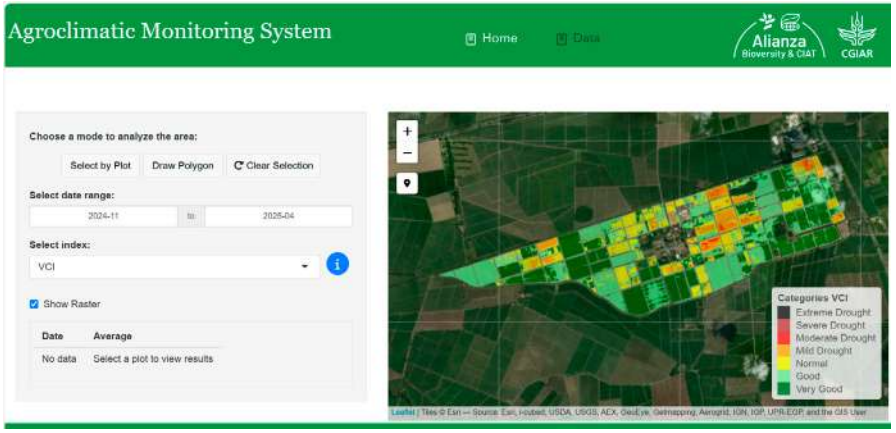
Initiatives were implemented to advance regenerative agriculture through the following actions:

- Submission of 24 hectares of data to Earth Optics for carbon estimation.
- Collection and analysis of 2,700 spectral signatures to measure nitrogen levels in rice fields, supporting data-driven decision-making.

Rainfall Network

To optimize water management for crop irrigation, seven rain gauges were installed across the campus. These devices enable continuous monitoring of precipitation patterns, providing essential data to support more efficient and sustainable water resource planning.





Agroclimatic Monitoring System

This tool enables weekly monitoring of agroclimatic conditions and crop status within a specific plot. It uses indicators such as the Vegetation Condition Index (VCI) and the Normalized Difference Water Index (NDWI) to detect water deficits or surpluses, along with various vegetation indices—including NDVI, LAI, and GCI—to assess crop health and development.

All data are sourced from PlanetScope multispectral imagery, with a spatial resolution of 3.7 meters. The system is designed for use by both researchers and field operations personnel to support informed decision-making.

Seasonal Weather Forecasting System

This tool generates both probabilistic and deterministic climate forecasts for seasonal timeframes ranging from one to six months. It also provides dynamic access to historical monthly weather data—including precipitation, temperature, and solar radiation—recorded on campus.

Climate Forecast

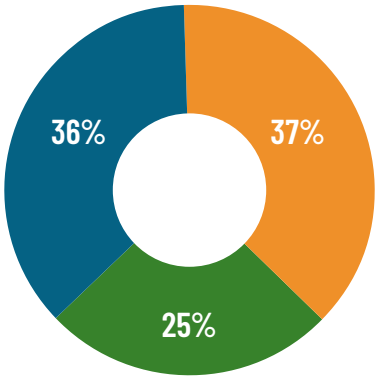
The weather forecast is presented, for the city **Palmira**, for the period between **March - August**. The reference weather station to make this predictions was **CIAT-Palmira -CO 00001**, provided by **Alliance Bioversity & CIAT**.

The climate prediction is given in percentage of probability with respect to the normal range of precipitation of an area and a specific quarter. Below, you can find the most probable category for the selected municipality and the forecast quarter.

2025

March - April - May

Precipitation probabilities (%)



For the **April–June** quarter, climate projections for the municipality of **Palmira** indicate a high likelihood of **above-average** precipitation levels.

Prediction scenarios

Precipitation (mm)

Date	Mínimun	Average	Maximun
2025 - 3	20	111	299
2025 - 4	18	152	281
2025 - 5	30	98	234

Solar radiation (MJ/m²d)

Date	Mínimun	Average	Maximun
2025 - 3	16	18	21
2025 - 4	15	17	20
2025 - 5	14	16	19

Maximum temperature (°C)

Date	Mínimun	Average	Maximun
2025 - 3	27	30	32
2025 - 4	27	29	31
2025 - 5	28	29	31

Minimum temperature (°C)

Date	Mínimun	Average	Maximun
2025 - 3	18	20	21
2025 - 4	19	20	21
2025 - 5	18	20	20

Contribution to the Establishment of the Digital Plot

The Digital Plot is an experimental space designed to integrate technologies such as sensors, IoT devices, and remote sensing tools to monitor agroclimatic conditions and crop development in real time. By combining this data with field observations, the plot supports the development of predictive models, including yield forecasting. The ultimate goal is to scale these technologies to improve crop management practices on farms.

CIAT / Julio Martínez

Zero Emission

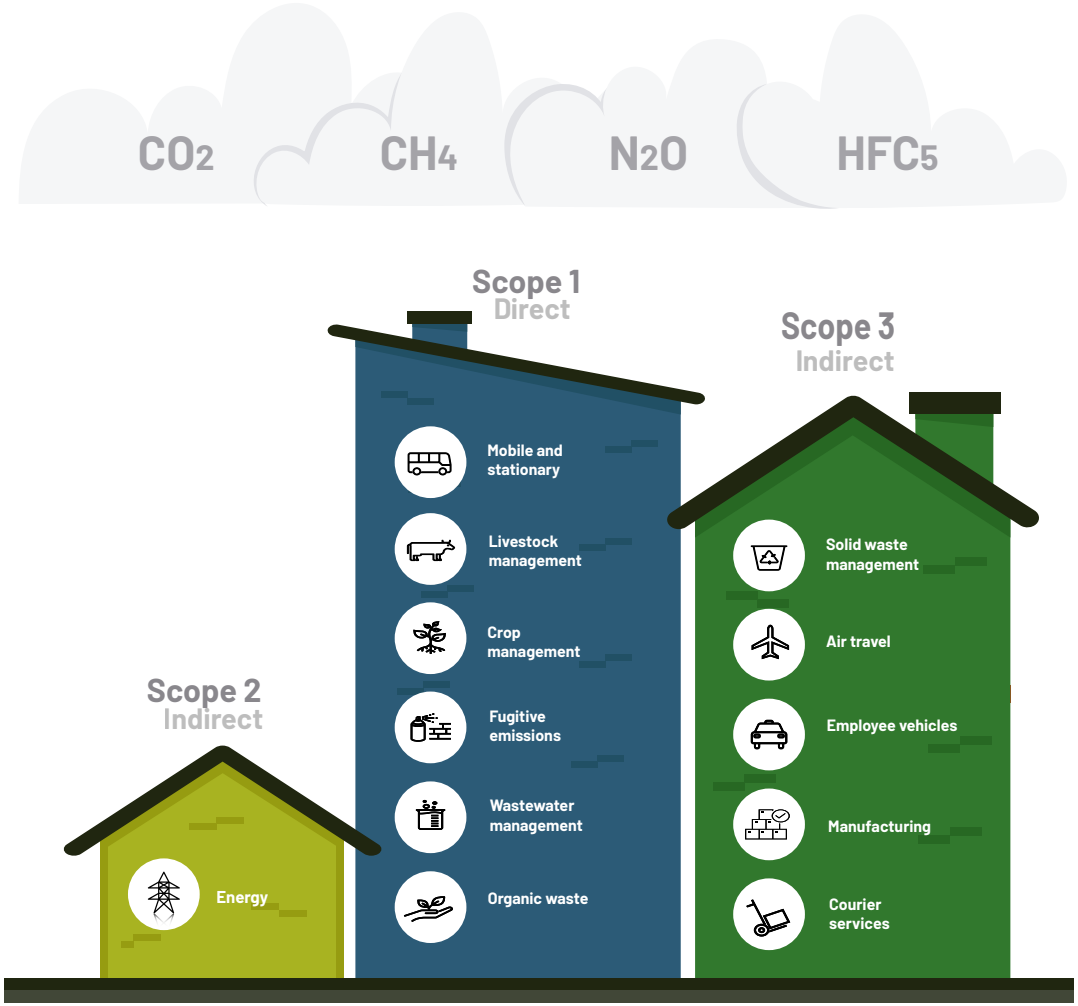
GRI 305-1, 305-2, 305-3, 305-5

This line of action focuses on calculating the organization's Carbon Footprint to assess the environmental impact of its activities, following the guidelines of ISO 14064 and the GHG Protocol. The calculation provides a foundation for designing strategies to mitigate and offset environmental impacts, reinforcing the organization's corporate environmental commitment. This process involves diagnosing, analyzing, improving, and optimizing the activities with the highest environmental impact.

Inventory 2023

We calculate our carbon footprint annually, in line with international standards ISO 14064 and the GHG Protocol, to assess the environmental impact of greenhouse gas (GHG) emissions associated with our operations. This process enables us to identify and quantify our emissions, serving as a basis for implementing short-, medium-, and long-term mitigation strategies. Additionally, our emissions inventories are verified by ICONTEC, ensuring the accuracy and transparency of our data. As part of our commitment to sustainability, we have set a goal to achieve carbon neutrality by 2030.

The carbon footprint assessment is geographically limited to the Palmira campus, located at Km 17 of the Cali–Palmira highway in Valle del Cauca. It encompasses the campus's three main activity areas: administration, operations, and research. The organizational boundary of the carbon footprint is defined by 11 emission sources, identified through a significance evaluation matrix. These sources represent key aspects of campus operations and their contribution to the environmental impact of our activities.



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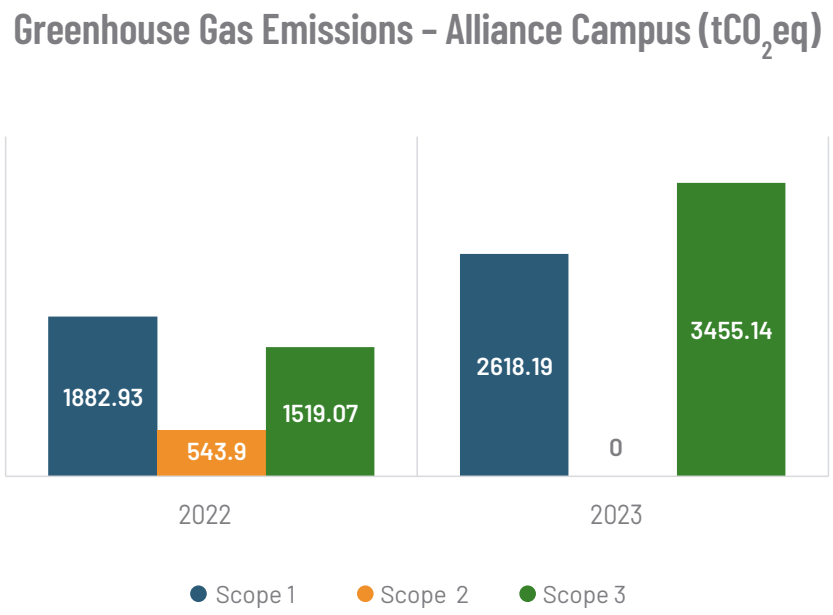
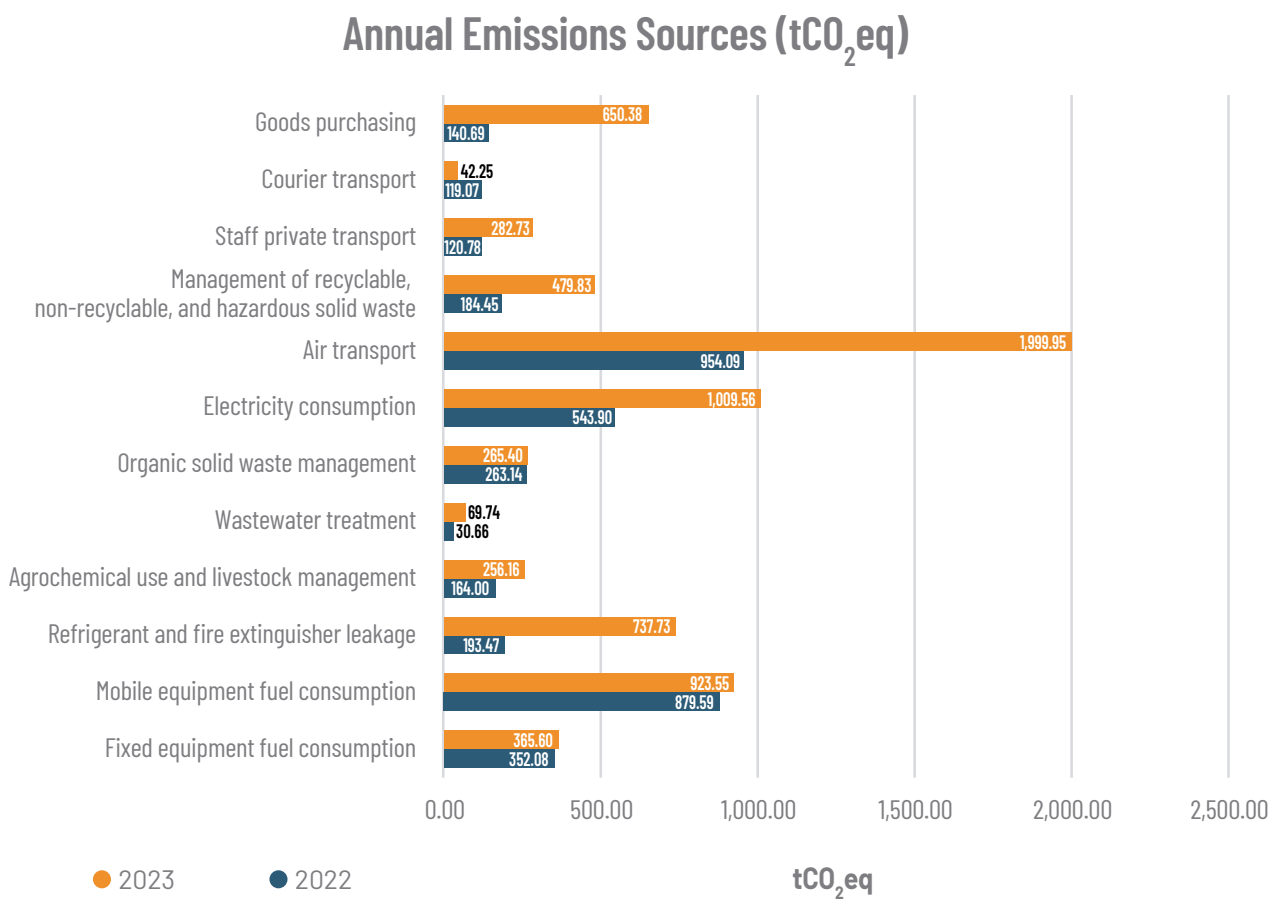
Carbon Footprint History

- In 2023, the carbon footprint increased by **54%** compared to 2022. This rise is primarily attributed to emissions from **air travel**, **solid waste management**, **purchased goods and services**, and **refrigerant gas leaks**.
- For emissions from **electricity consumption** (Scope 2), we achieved a **100% reduction**, completely eliminating emissions from this source.





The increase in the carbon footprint in 2023, compared to our 2022 baseline year, is largely due to the full reactivation of campus operations following the COVID-19 pandemic. This return to normal activity included a 100% increase in new staff recruitment and a 25% increase in the number of institutional events hosted, both of which contributed to higher emissions associated with these activities.

Mitigation Strategies Implemented by 2024

We continuously explore and implement mitigation strategies to reduce our environmental and social impact. In 2024, we developed targeted initiatives to ensure effective and transparent emissions reductions across our direct operations, aligned with our annual emissions reduction targets for 2024 and 2025.

Key actions include:

Clean Energy and Emissions Offsets

- Through the acquisition of RECs (Renewable Energy Certificates) from Celsia, we offset 100% of the emissions associated with hydroelectric energy consumption, ensuring its sustainable origin.

Sustainable Transportation

- We integrated 15 hybrid vehicles into our fleet to reduce emissions from diesel consumption.
- We acquired an electric bus, reducing annual emissions by 20 tCO_2eq, and a Euro 6 bus, which cuts nitrogen oxide emissions by 60%, particulate matter by 90%, and carbon monoxide by 50% compared to conventional diesel models.
- We earned a certificate from Lufthansa for achieving a 1% reduction in air travel emissions.

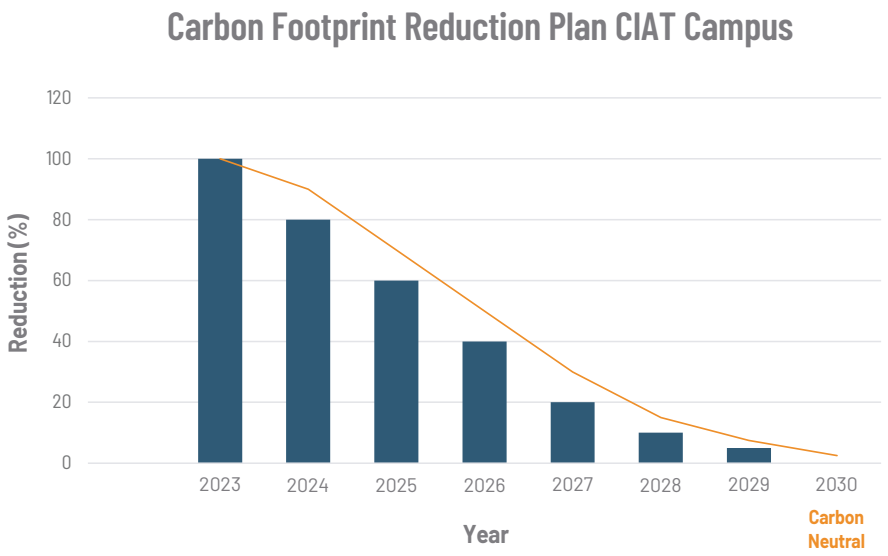
Process Optimization and Waste Reduction

- Our participation in DHL's GoGreen program led to a 10% reduction in emissions from courier shipments.
- The installation of two robotic lawn mowers across 3,000 m^2 reduced CO_2 emissions by 30.13 kg annually from lawn maintenance activities.
- We received a carbon footprint reduction certificate for solid waste utilization through our partnership with SEA S.A.S.

These actions reflect our commitment to sustainability and our dedication to implementing innovative solutions to reduce our carbon footprint.

Reduction Goals

A reduction target has been set, based on an analysis of the organization's capacity for action and its economic, social, political, and environmental context. To achieve this goal, a plan has been developed outlining indicators and strategies aimed at achieving meaningful annual emissions reductions.



Our goals are:

- Reduce direct campus emissions by 30% over the next two years
- Decrease indirect emissions by 15%
- Develop offset and/or removal strategies for emissions generated by air travel
- Achieve carbon neutrality by 2030.

Illustration: Allison Ceballos and William Narváez

Biodiversity

This line of action aims to conserve and protect biodiversity within the Alliance by developing ecological restoration strategies focused on preserving natural resources, mitigating impacts, and compensating for the use of essential ecosystem services across operational, administrative, and research activities.

Additionally, biodiversity conservation and maintenance help protect the habitats of native species present on campus, ensuring a balance between the natural dynamics of the ecosystem and our operations, in alignment with our commitment to sustainability.

The results presented under this line of action provide a baseline for defining strategic measures to protect campus biodiversity and guide decision-making for its conservation.

Flora

In 2024, we initiated the development of a baseline tree inventory to identify key ecological indicators, estimate carbon sequestration potential, and support greenhouse gas mitigation efforts—thereby contributing to biodiversity conservation and more sustainable operations.

This information will serve as the foundation for an action plan to promote biodiversity restoration, maintenance, and conservation activities, ensuring ecosystem protection and their sustainable integration with our operations.

Preliminary results:

- 282.5 hectares inventoried, representing 57% of the campus's total area.
- 50% of inventoried individuals are native species; the other 50% are introduced species.
- 182 plant species, 5 morphotypes, 48 families, and 142 genera identified.
- Total number of individuals inventoried: 3,347.

Top 10 Most Representative Native Species on Campus

Below are the 10 most ecologically significant native species on campus, recognized for their key ecological roles and carbon sequestration capacity:

- **Saman** *(Samanea saman)*
- **Olive tree** *(Simarouba amara)*
- **Chagualo** *(Clitoria fairchildiana)*
- **Zancona Palm** *(Syagrus sancona)*
- **Orejero** *(Enterolobium cyclocarpum)*
- **Fig tree** *(Ficus insipida)*
- **Chiminango** *(Pithecellobium dulce)*
- **Wine palm** *(Attalea butyracea)*
- **Pink Guayacan** *(Tabebuia rosea)*
- **Yarumo** *(Cecropia peltata)*

This project highlights the coexistence of native and introduced species on the Alliance campus, each playing a vital role in maintaining ecological balance, conserving biodiversity, providing food for wildlife, supporting pollination, and protecting soil and water resources.

Habitat categories	Number of individuals
Tree	1,267
Small tree	928
Shrub	105
Palms	833
Pastures and guaduas (bamboo)	214
Total	**3,347**


Fig tree


Chiminango


Wine palm


Chagualo


Pink Guayacan


Saman


Olive tree


Yarumo

CIAT

Illustration: Allison Ceballos and William Narváez

Fauna

Role of the Agroecosystem in Bird Migration

The campus serves as a temporary stopover site for migratory birds, contributing to increased local bird diversity. A relationship has been identified between bird presence and climatic variability, particularly in connection with rainfall patterns.

Species Recorded

A total of 172 confirmed bird species have been recorded, with 225 species reported between 1974 and 2024.

Types of Birds

- **35% are waterfowl** associated with reservoirs, irrigation canals, and rice fields.
- The majority are terrestrial birds that move among trees, shrubs, and living fences.

Most Represented Families

- *Tyrannidae* (11%)
- *Thraupidae* (10%)
- *Scolopacidae* (8.9%)

Illustration: Allison Ceballos and William Narváez

Illustration: Allison Ceballos and William Narváez

Resident vs. Migratory Birds

- **77% are resident species**, present on campus year-round.
- **23% are migratory species**, including Nearctic, Neotropical, and Austral migrants.
- The number of confirmed migratory species ranges from **77** to **140**.
- Example of a migratory bird: **Swainson's Thrush (Catharus ustulatus)**
- Some migratory species, such as the **Blue-winged Teal** *(Spatula discors)*, may extend their stay beyond typical migration periods.
- The highest presence of migratory birds occurs during the **April–May** rainy season; they return between **August and September**.

Agro-Inputs

The Alliance of Bioversity International and CIAT implements a comprehensive approach to the safe handling of agro-inputs, in full compliance with Colombia's environmental and occupational health regulations. The Occupational Health and Safety (OHS) unit leads control measures across all stages of the product life cycle, including:

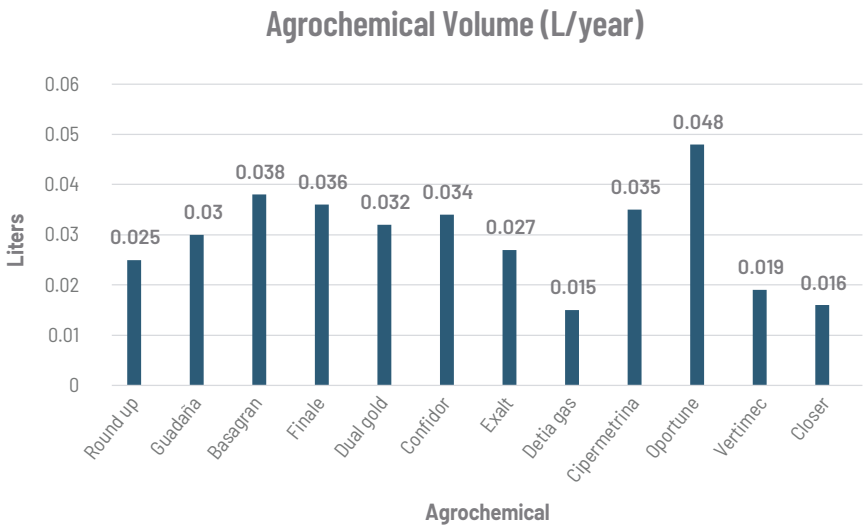
- Pre-acquisition risk assessment
- Verification upon receipt
- Secure storage
- Controlled and standardized application
- Responsible management of packaging waste in accordance with hazardous waste regulations.

Regular training is provided to field staff on the proper use, storage, and disposal of agrochemicals. The use of personal protective equipment (PPE) is mandatory during application as part of biosafety protocols, and periodic health evaluations—such as cholinesterase level monitoring—are conducted to assess exposure among applicators.

Annual training	Quantity
Chemical and agrochemical risk	203
Pesticide use and handling	105

Most of the agrochemicals we use comply with current Colombian regulations. Our goal is to protect both operators and the environment, and we are continuously working to update and replace inputs with more sustainable alternatives.

Toxicity classification	Type	Product	Approx. average quantity stored per year between 2023 -2024	
Slightly dangerous	Herbicide	Round up	0.025	liters
Slightly dangerous	Herbicide	Guadaña	0.03	liters
Slightly dangerous	Herbicide	Basagran	0.038	liters
Moderately dangerous	Herbicide	Finale	0.036	liters
Slightly dangerous	Herbicide	Dual gold	0.032	liters
Moderately dangerous	Insecticide	Confidor	0.034	liters
Moderately dangerous	Insecticide	Exalt	0.027	liters
Highly dangerous	Insecticide	Detia gas	0.015	liters
Moderately dangerous	Insecticide	Cipermetrina	0.035	liters
Slightly dangerous	Insecticide	Oportune	0.048	liters
Moderately dangerous	Insecticide	Vertimec	0.019	liters
Slightly dangerous	Insecticide	Closer	0.016	liters



CIAT / Neil Palmer

Table of contents GRI

Declaration of use	The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT), Palmira headquarters, has prepared this report in accordance with GRI Standards for the reporting period from [January 1, 2024 to December 31, 2024].
GRI 1 used	GRI 1: Fundamentals 2021
Applicable GRI Sector Standards	Sectors: Agriculture, Aquaculture and Fishing 2022

Standard GRI/ Propietary	Contents	Location	Omission			GRI Sector Standard Reference No.
			Omission Requirements:	Motive	Explanation	
General contents						
GRI 2:General Disclosures 2021	**2-1:** Organizational details	See: **The organization and its practices**				
	2-2: Entities included in the organization's sustainability reporting	See: **About this report**				
	2-3: Reporting period, frequency and contact point					
	2-14: Role of the highest governance body in sustainability reporting	See: **ESG policy**				
	2-22: Statement on sustainable development strategy					
	2-29: Approach to stakeholder engagement	See: **Stakeholders**				
	2-30: Collective bargaining agreements					

Material topics						
GRI 3: Material topics	**3-1:** Process to determine material topics	See: **Materiality**				
	3-2: List of material topics					
Environmental performance						
GRI 3: Material topics	**3-3:** Management of material topics	See: **Environment**				
GRI 302: Energy 2016	**302-1:** Energy consumption within the organization	See: **Infrastructure Line**				
GRI 303: Water and Effluents 2018	**303-3:** Water withdrawal	See: **Circular Economy Line**				13.7.4
	303-4: Water discharge					13.7.5
	303-5: Water consumption					13.7.6
GRI 305: Emissions 2016	**305-1:** Direct (Scope 1) GHG emissions	See: **Zero Emission Line**				13.1.2
	305-2: Energy indirect (Scope 2) GHG emissions					13.1.3
	305-3: Other indirect (Scope 3) GHG emissions					13.1.4
	305-5: Reduction of GHG emissions					13.1.6

	306-2: Management of significant waste-related impacts					13.8.3
	306-3: Waste generated					13.8.4
GRI 306: Waste 2020	**306-4:** : Waste diverted from disposal	See: **Circular Economy Line**				13.8.5
	306-5: Waste directed to disposal					13.8.6
GRI 308: Supplier Environmental Assessment 2016	**308-2:** Negative environmental impacts in the supply chain and actions taken					
	Digital transformation	See: **Infrastructure Line**				
	Species of fauna and flora					
Own indicators	Use of pesticides	See: **Biodiversity Line**				13.6.1 13.6.2
	Food safety					13.9.1 13.9.2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