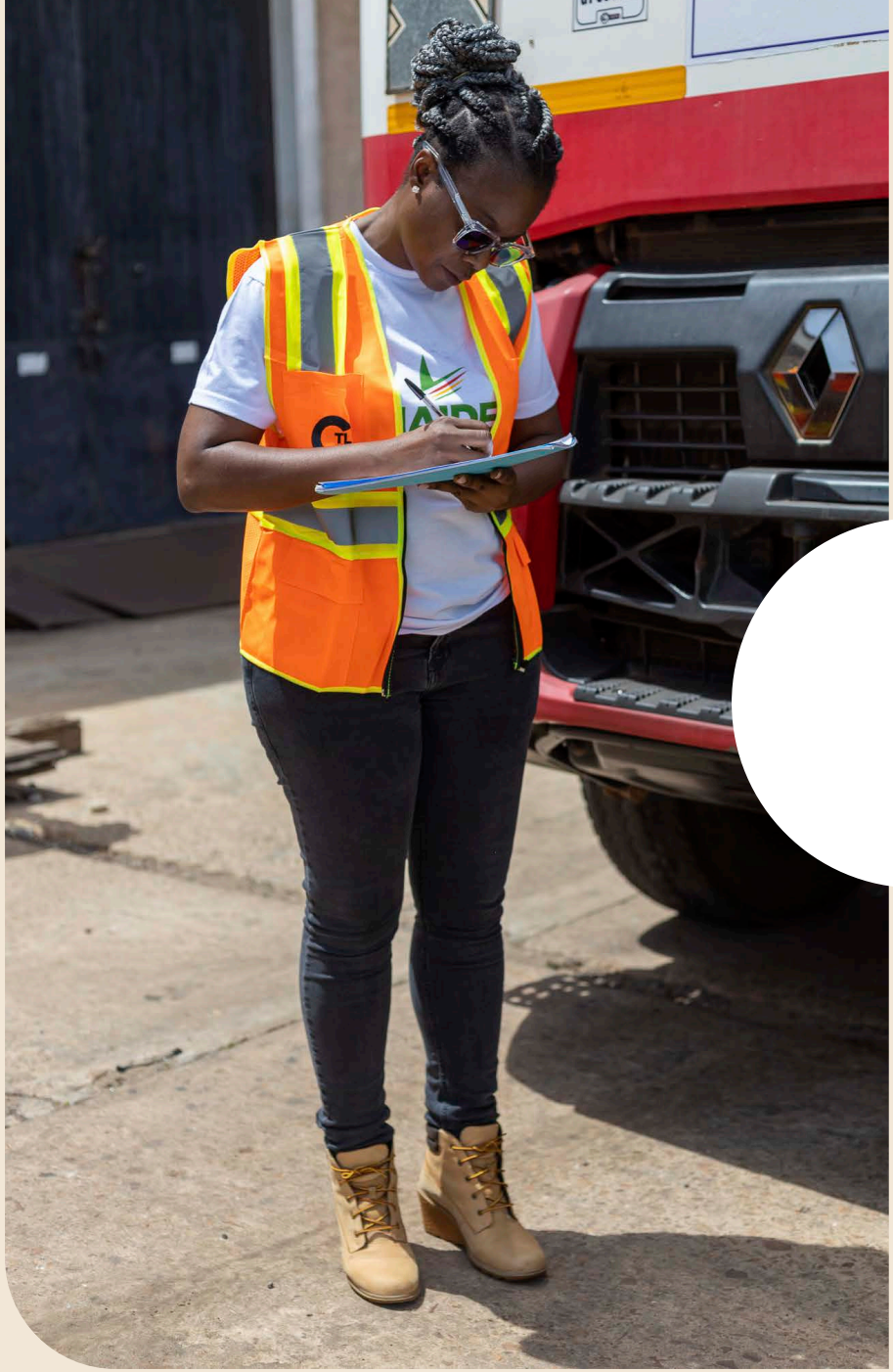


IMPACT REPORT

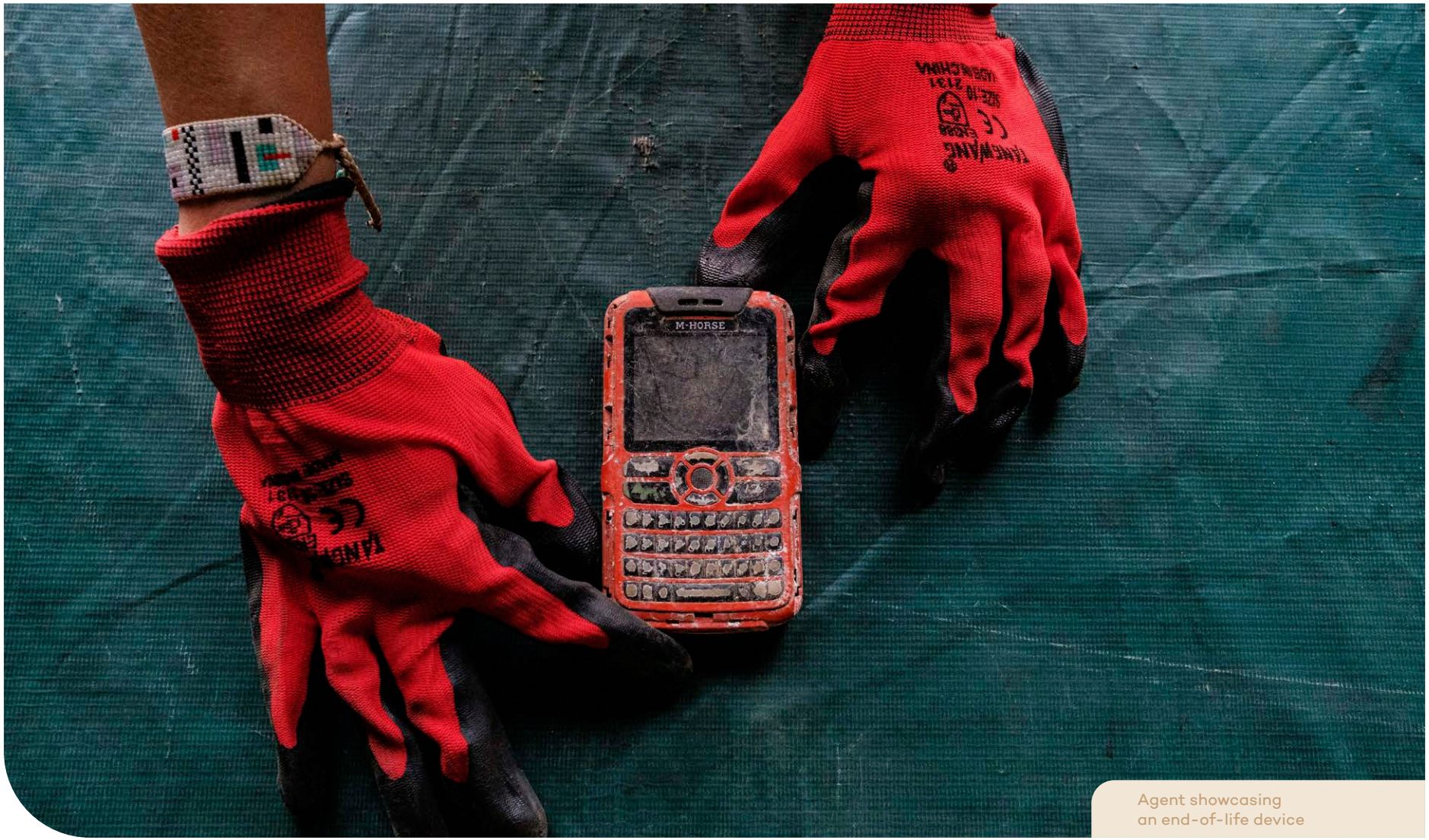
A CSRD-BASED REPORT OF 2023 & 2024

CLOSING THE LOOP

February 2026

CONTENTS

1 INTRODUCTION



Agent showcasing
an end-of-life device

1.1 LETTER FROM OUR CEO

We are continuing to lead with a pragmatic, inclusive, and customer-friendly approach to 'circularity for tech, while our unique business model has continued to demonstrate its worth in an industry that demands concrete and effective waste reduction offerings.

Since '22, our belief that the tech industry and its customers are ready—and willing to pay—for positive, safe, and engaging waste-reduction propositions has been validated.. Despite a sector that increasingly frames 'sustainability' as a compliance topic or a cost, we have succeeded in scaling the adoption of our One for One (or 'waste compensation') service. As a result, we have helped millions of end-users take a safe but real first step on their journey towards better consumption of tech. This is a result of the service funding the collection and recycling of millions of end-of-life electronics in the Global South.

Combining business success—reflected in sales growth, profitability, and customer appreciation—with positive impact for African communities, and society as a whole, represents a significant achievement, particularly for a small social enterprise such as Closing the Loop. It also provides important proof that market-based approaches can be effectively used to deliver

Joost de Kluijver, CEO

positive societal and environmental outcomes. Our actions and results are continuously informing the decision-making of governments, NGOs, and businesses, demonstrating that multiple approaches exist to achieve global waste-reduction outcomes, alongside legislation and initiatives aimed at raising consumer awareness.

In recent years, we have been fortunate to welcome many talented, engaged, and experienced people to the company. Together, we deliver a combination that is not often seen: the ability to build end-to-end waste collection, shipment, and recycling programmes from the ground up, while also supporting some of the largest technology companies in translating waste reduction into business value across sales, marketing communications, branding, and other value-creating activities.

Company Growth

Our company's growth has been, and will continue to be, largely driven by its ability to engage device-focused companies as strategic customers and long-term partners. Together with these partners, the company demonstrates that One for One is a practical, positive, and attractive service that can be integrated at multiple stages of the device-use customer journey. This continued ability to show that commercial performance indicators and impact objectives do not need to be mutually exclusive underpins the company's approach to growth. This approach is well aligned with global ambitions, particularly in Europe, to deliver the twin transition towards digitalisation and a more circular economy. The service is also referenced as an example of how to foster more equitable trade relations with the Global South and as a forward-looking approach to metal and mineral use ('urban mining'). We're very excited to see our service increasingly requested, preferred, or required by some of the largest organisations in the world, including several governments, in their procurement and use of workplace technology.

Approach to CSRD Reporting

The company supports CSRD reportingnot only as a regulatory requirement, but as a structured framework for transparency and accountability and a responsible course of action for any leading company. Green, social, and responsible thinking is increasingly shaping customer needs and expectations. At the same time, there is a need to support technology brands and their customers in understanding what these topics mean in practice—both in terms of future direction and concrete actions that can be taken today. The concept of circularity is often perceived as a long-term ambition or as 'stuck in the future'; reporting can contribute to making the topic more tangible, understandable, and relevant.

Looking ahead

In 2025 and 2026, we continue to work towards our long-standing objective: the establishment of Africa's first electronic waste smelter. In the absence of comprehensive local, regional, or international legislation and enforcement, achieving this objective heavily depends on the ability to scale financing mechanisms such as our own. We are extremely committed to making it work—for our customers, our partners in Africa, and for the industry.

1.2 READING GUIDE

This report is designed to guide readers through our impact, challenges, and opportunities for improvement. It provides insight into our operations and our ongoing commitment to transparency, safety, and credibility for all stakeholders, including customers, suppliers, and the wider public.

For the first time, we have structured our reporting in alignment with the CSRD framework, specifically following the ESRS guidelines for non-listed small companies. This marks an important step in formalizing our approach to sustainability reporting and in establishing a strong foundation for best practices within our industry.

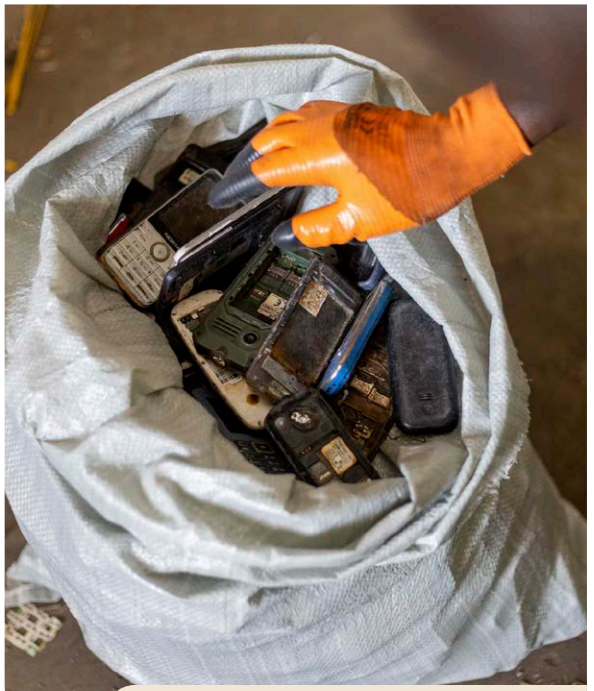
The report covers our activities for the years 2023 and 2024.

Wherever relevant throughout the report, we delete also highlight how our activities contribute to the United Nations Sustainable Development Goals (SDGs).

1.3 USING CSRD GUIDELINES

In preparing this report, we used the ESRS guidelines on voluntary European sustainability reporting standards[1] as a framework to identify and address the sustainability topics most relevant and impactful to our operations and stakeholders. This approach ensures alignment with the Corporate Sustainability Reporting Directive (CSRD), while reflecting our business priorities and sustainability objectives.

To enhance accessibility and avoid unnecessary complexity for readers unfamiliar with the CSRD, we have chosen not to reference specific sections of the standards throughout the report. Instead, Appendix A provides a comprehensive table outlining the disclosures selected from the voluntary standards and their corresponding sections within this report, together with explanations of their relevance to our business and sustainability efforts.



Phones upon arrival at the warehouse

1 More information

1.4 A TIMELINE OF CLOSING THE LOOP

2011-2013

- Early CTL

2011

- Research and feasibility work
- Pilot collections in 4 African countries

2012

- Start as an NGO

2014

- It becomes clear at that stage that the only viable way to scale waste collection is by establishing a commercial business capable of funding our work in Africa
- First export
- CTL BV founded

2015

- Start of collections in 8 additional countries (Uganda, Rwanda, Zambia, Cameroon, South Africa, Mali, Guinea and The Gambia)
- First Shipment from Ghana
- 50,000 collected devices

2016

- Start of Battery collection in Nigeria
- CTL starts selling the One for One solution
- 1,200,000 collected devices

2017

- CTL co-writes ICSR Gold Agreement

2018

- CTL speaks at the UN HLPF on SDGs
- CTL wins Circular Award 2018
- CTL introduces supply chain software, creating transparency and traceability
- 1,000 collected devices

2019

- CTL wins the Doing Business in Africa Award
- 120,000 collected devices

2020

- CTL receives Approved Collector status as part of the new TCO Certified Edge certification scheme.
- First battery shipment from Nigeria
- 250,000 collected devices

2021

- CTL sets up consortium for the ECoN Project, further developing e-waste compensation in Nigeria.
- 400,000 collected devices

2022

- CTL's collaboration with Fairphone is nominated for the Social Partnership of the Year Award
- CTL's partnership with the Dutch Ministry of Defense receives a nomination for the Computable Awards in the Governmental Projects category.
- 800,000 collected devices

2023

- FCNT & Itochu launch the first waste-neutral mobile phone in Japan in collaboration with CTL
- 1,500,000 collected devices

2024

- Vodafone Germany partnership reaches 1.5M milestone and is supported by a large-scale PR campaign, including a documentary filmed in Ghana.
- CTL signs a letter of intent for the construction of an e-waste smelter in Nigeria
- CTL earns EcoVadis certification (Silver)
- 1,900,000 collected devices

1.5 SUMMARY 2023-2024

- The company receives an EcoVadis rating (Silver)
- CTL celebrates its 10-year anniversary
- The company grows by 30% in FTE.
- The largest shipment of batteries is successfully completed
- CTL's shipping routes are successfully diversified
- The company gains project-based insight and transparency into its supply chain
- CTL works on defining minimum requirements for the waste compensation industry.
- Letter of intent is signed to establish a recycling facility in Nigeria.
- CO_2 emissions offset for the first time in 2023
- Customer Advisory Board is launched
- Launch of an updated company website
- Production of a Vodafone Germany documentary, that later evolves into a PR and consumer campaign, winning four awards (three communication awards and one sustainability award)

METRIX	2023	2024
Total numbers of collection[2]	1,832,894	2,132,233
Total weight in Kg of Devices collected[3]	100,809	117,273
Total living wages created[4]	3,188	4,820
CO2 savings in Kg of CO2e[5]	263,900	307,040
Recycled metals[6]	4,155kg of Copper, 21.7Kg of silver, 2.2Kg of Gold	–

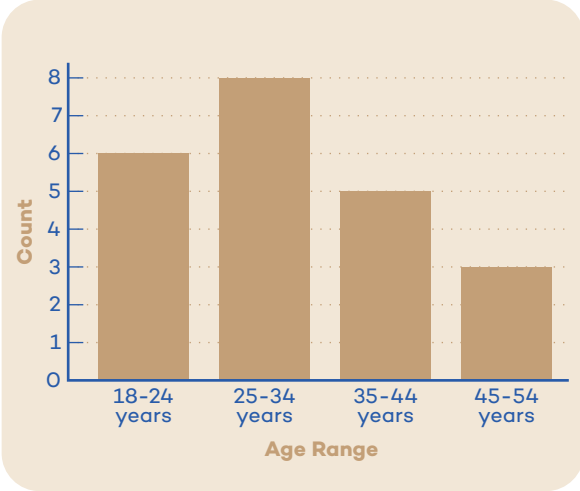
1.6 THE CTL TEAM

The section outlines the gender distribution and countries of origin of employees in our Amsterdam office.

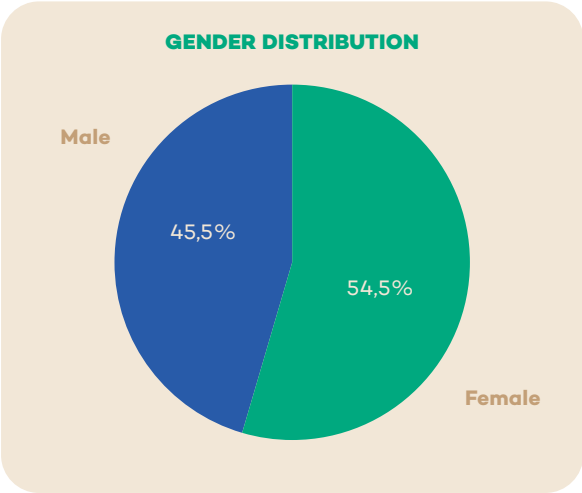
Between 2023 and 2024, CTL had an average workforce size of 12 employees.

Age distribution

Our workforce spans four age groups: 18-24 years, 25-34 years, 35-44 years, and 45-54 years. This reflects a diversity of age profiles and a wide range of perspectives within the organisation.



2 These devices include Phones, Batteries, Tablets and Monitors
3 These weights are based on averages
4 More information in section 4.5
5 More information in section 4.9
6 More information in section 3.5



Gender Representation

During 2023 and 2024, women accounted for 55% of employees in our Amsterdam office, while men accounted for 45%, reflecting our commitment to fostering a gender-balanced workforce.

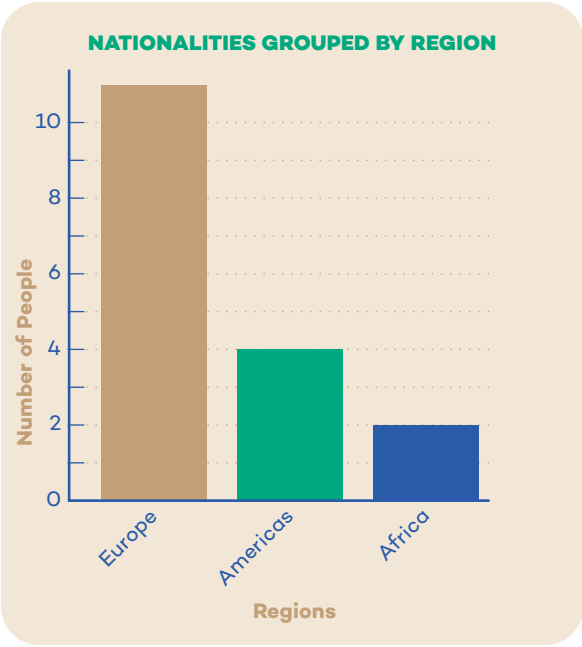
Nationalities

There are 18 distinct nationalities representing our workforce, with employees originating from Europe, the Americas, and Africa.

Concluding Remarks

We value and are extremely proud of our office the diversity and multicultural character of Amsterdam office. A diverse workforce strengthens our organisation and enables us to approach both challenges and opportunities with a unique and global perspective. This commitment to inclusivity is a cornerstone of our mission to drive sustainable change and innovation within the circular economy.

We remain committed to maintaining and further developing a diverse and dynamic workforce.



Team photo from 2024

2 BUSINESS & INDUSTRY OVERVIEW

A warehouse worker showing a smartphone and a feature phone

2.1 BUSINESS MODEL

Closing the Loop operates with a core business model centered around e-waste compensation. Our primary service allows buyers or sellers of IT equipment to make their IT consumption more sustainable through a one-for-one service model.
In this model, for every new device put on the market, CTL collects and responsibly recycles a device from countries lacking formal waste management infrastructure. Further detail on our innovative approach is provided in CTL's Operations Excellence Report (2022).

2.2 DEMAND FOR E-WASTE COMPENSATION

The increasing demand for the One for One service not only supports its effectiveness, but also reflects rising interest in responsible e-waste management. While carbon offsetting and carbon neutrality are well established, the concept of (e-)waste neutrality is still developing. Yet, growing interest in our service indicates increased awareness that environmental impact extends beyond carbon. At the same time, we recognize that our service is not a standalone solution to environmental challenges. Like other sustainability measures, it is most effective when combined with complementary initiatives, and our clients typically integrate the service into a broader strategy to support their sustainability objectives.

In just three years—from 2020 to 2023—demand quadrupled, highlighting a significant shift as organizations increasingly embrace the concept of waste compensation. This upward trend highlights the importance of integrating e-waste management into sustainability strategies. It's not just about diversifying our environmental strategies, not just as a way to diversify environmental impact, but to address every facet of our ecological footprint.

2.3 THE PRIVATE SECTOR'S ROLE IN E-WASTE RECYCLING

E-waste is a growing global issue, and while NGOs and public policy projects have made important contributions, their efforts are often limited in scale and unable to address the fundamental scope of the problem.
Private companies, on the other hand, often have little interest in e-waste recycling because it is not financially lucrative.
For example, recycling a typical african scrap phone of 55g yields only 15 to 60 cents in 'real value' from recovered metals.
This economic context highlights the need for innovative approaches. Business models such as e-waste compensation, which are designed for scalability, impact, and ease of adoption by industry, can support the development of viable and commercially sustainable e-waste management solutions. Our success in selling the service demonstrates the private sector's readiness to drive change, bridging the gap between smaller initiatives and the immense challenge of e-waste.

Electronic waste is increasing 3 times faster than world population.[7]

The world's generation of electronic waste is rising five times faster than documented e-waste recycling.[8]

7 Digital Impact Pitch Conference, organized by Planet On Stage. More information
8 Global E-waste Monitor 2024

3 OPERATIONS & SUPPLY CHAIN

Different end-of-life feature phones

Agent closing a full big bag

3.1 COLLECTION PROCESS OVERVIEW

This section highlights the collection and logistics aspects of our supply chain. Later in this report, we describe the role of the informal sector, and show how e-waste reaches the warehouses of our partners.

3.2 COLLECTION EFFORTS

In 2023, we collected almost 1,8 million devices, which correlates to 1.4% of phones sold in Europe in 2023[9].

In 2024, 2 million devices were collected which is equivalent to 9.3% of new phones sold in Germany that year (21.4 million)[10].

3.3 TRANSITION TO WHOLE DEVICE COLLECTION

At the beginning of 2024, all of our partners in countries where we scaled up successfully transitioned to collecting only whole devices. Previously, the informal sector had been

9 More information

10 More information

Collectors repairing electronics

Discarded casings

trained by other collection organizations to collect only circuit boards, as these contain the highest-value materials. As a result, plastic phone cases—often considered worthless—were discarded or burned, making whole-device collection a significant achievement. Incentivizing the inclusion of the cases ensures environmental additionality by preventing unmanaged disposal and treatment. In Ghana and Nigeria, this transition was achieved several years ago, thanks to rigorous training and financial incentives. In Cameroon, however, the market was largely dominated by buyers focusing exclusively on circuit boards, only, which made it more challenging for our partners. In 2023, we successfully introduced the separate collection of phone casings, batteries, and circuit boards, gradually enabling the market to adjust to demand for whole-device collection.

3.4 STRENGTHENING OUR SUPPLY CHAIN

At the time of writing, our collections in Ghana satisfy current customer demand. However, we also collect in Nigeria, Cameroon and Uganda, as a commitment to diversify and strengthen our supply chain. This additional capacity indicates the potential scalability of our service and assures our clients of our ability to accommodate growing demand for responsible e-waste management in the future.

3.5 RECYCLING FOR RESOURCE EFFICIENCY: METAL RECOVERY AND WASTE MINIMIZATION

This section highlights our approach to resource use, circular economy principles, and waste management, with a particular focus on the recycling services we enable. To enhance circularity, we focus on key strategies such as **Reuse, Disassembly, Recycling**, and **Recovery**. Our core operations revolve around minimizing waste and maximizing the value of discarded materials. Our service is designed to promote circular principles by ensuring that waste materials are directed towards to efficient and environmentally sound recycling and recovery processes. Customers who use our service enhance their sustainability and circularity efforts, which represents our greatest contribution to circularity, alongside our own efforts within the supply chain.

Reuse is a key principle throughout our supply chain. We train our downstream partners to source only devices that are beyond reuse, ensuring that we contribute to the market without removing functional devices that can continue to serve a purpose in Africa. While the inflow of second-hand devices into Africa supports accessibility and affordability, the absence of structured end-of-life solutions makes the market unsustainable in the long run. By providing a responsible pathway for final disposal, our service helps sustain the second-hand market, and supports reuse as a viable and environmentally sound practice.

Disassembly is a central element of our approach to recycling, enabling us to ensure that each component of electronic waste is processed in the most efficient way. By separating materials at the disassembly stage, we optimize recycling processes and support the recovery of valuable metals from discarded phones. This includes separating the batteries from the phones within our core operationsand the application of the same principle in specific projects, such as the ECoN project, where screens required extensive disassembly to enable recycling.[11]

Recycling sits at the heart of our service. Our recycling partners' facilities must comply with the requirements set forth by TCO Development for their TCO Certified Edge, E-waste Compensated program, as well as applicable EU laws and regulations. The processes followed by our recycling partners for handling phones are described in Appendix F, which outlines the relevant operational steps and compliance measures.

To further align with circular principles, we also focus on local initiatives that support resource reuse and recycling in the regions where we operate. Where possible, we aim to source materials locally and from recycled sources. In Ghana, we have successfully introduced the use of locally recycled bags. Additionally, we explore opportunities to recycle materials locally, including the assessment of co-processing options for plastic phone cases. More details on planned improvements are outlined in Table C in the Appendix.

Through our services, we enable the **Recovery** of metals through electronic waste, contributing to a circular economy. Based on data from our collection efforts in 2023 and 2024, we estimate that the phones collected during this period will yield approximately 15,000Kg of copper, 80Kg of silver and 11Kg of gold.[12] By using our service, customers compensate for the waste and pollution impact of their IT devices while supporting responsible resource recovery and contributing to a reduction in the environmental pressures associated with primary mining.

As much as 7% of the world's gold may currently be contained in e-waste, with up to 100 times more gold in a ton of e-waste than in a ton of gold ore.[13]

11 More information about ECoN
12 Estimates based on average metal recovery rates
13 liveabout.com: More information

3.6 THE BASEL CONVENTION: A KEYSTONE IN GLOBAL E-WASTE MANAGEMENT

3.6.1 Navigating Complexity: The Challenge of Compliance

The Basel Convention is a global agreement signed by 191 countries that regulates the transboundary movement of (hazardous) waste. Obtaining a permit to ship waste in line with the Convention s a complex and time-intensive process, involving multiple regulatory authorities and extensive documentation, and typically takes several months to complete. Vessels carrying our cargo typically pass through multiple ports, each requiring careful coordination and adherence to specific regulations and documentation requirements. CTL's experience shipping from 6 different African countries and involving more than 20 transit states has positioned the company as a leading expert in the legal movement of hazardous waste from the Global South. In addition, over the past two years, CTL has co-chaired an Expert Working Group under the Basel Convention and has been invited to share its experience in a range of industry and policy forums.

The development of our regulatory and operational knowledge can be illustrated by the two most recent permits obtained for shipments between Ghana and Italy. In these cases, permit acquisition time was reduced by more than 50%, reflecting increased efficiency in our processes. We can proudly state that 100% of our shipments were compliant with the Basel regulations and that we also share relevant operational experience with other actors in the industry.

To increase supply chain resilience, we aim to ensure the ability to ship from at least one country at all times by securing two permits per country, using alternative routes and recycling partners to reduce the risk of delays. For details on the planned improvements, see Table C in the Appendix.

3.6.2 Unlocking Market Potential through Legal Frameworks

A significant portion of global e-waste is still handled illegally, resulting in a lack of data on the true market potential of e-waste management. This hinders investments in proper e-waste management infrastructure, as potential investors remain unaware of the sector's economic opportunities. By ensuring our shipments are compliant with international law, we help demonstrate the market potential of the sector and contribute to greater transparency and accountability.

The increased visibility of the value and costs asscociated with e-waste helps create clearer incentives for local businesses to participate in the E-waste industry and has already contributed to an increase in formal sector investment in e-waste management in sub-Saharan Africa.

3.6.3 Driving Change through Compliance

Our operational protocol requires all local service providers to hold appropriate environmental permits, as mandated by the legal frameworks of the countries we operate in. Compliance with these permit requirements is monitored by the relevant environmental authorities while additional verification of permit validity is conducted by CTL.

4 SOCIAL AND ENVIRONMENTAL IMPACT

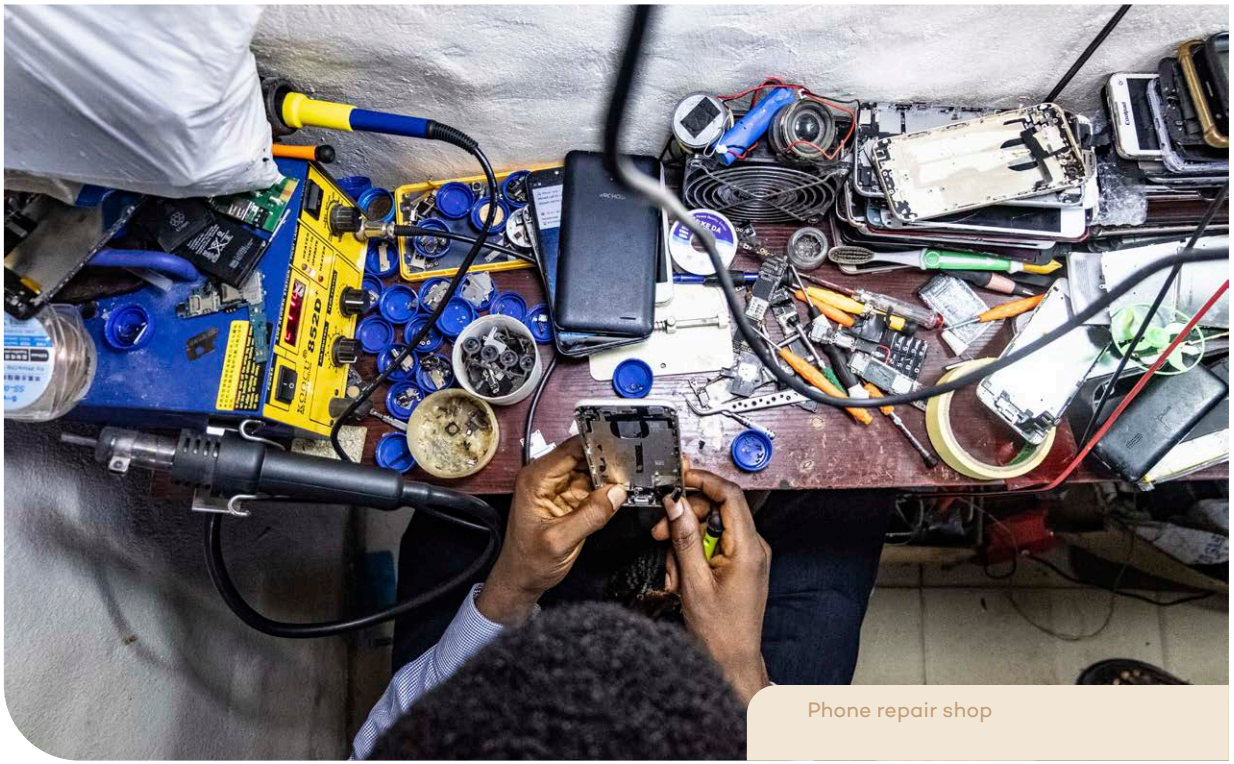
Our collection team in Nigeria

4.1 CTL'S APPROACH: INTEGRATING INFORMAL AND FORMAL SECTORS

The informal sector plays a crucial role in waste management, particularly in Africa, where an estimated 95% of waste is handled by informal workers. These individuals and small enterprises operate outside formal regulatory frameworks, yet form the backbone of waste collection activities. Without them, waste management systems in many regions would collapse.

CTL has developed a model that leverages the strengths of both the informal and formal sectors. By engaging the informal sector for e-waste collection, we tap into their extensive local networks and experience. Their involvement ensures high collection rates and provides economic opportunities in communities where waste collection is a primary source of income.

Once collected, e-waste is transferred to the formal sector for dismantling and recycling under globally recognized safety and environmental standards. This transition from informal to formal processes legitimizes the work of informal collectors, offering them stable and secure income within a sector that is often regarded as problematic.



Phone repair shop

4.2 CHALLENGES OF THE INFORMAL SECTOR

The informal sector is the first link in the e-waste chain, responsible for identifying, collecting, and preparing devices for reuse or recycling. While this role is essential, it is also associated with significant challenges. Many informal workers lack training in safe dismantling and recycling practices which can result in occupational health and safety risks and adverse environmental impacts.

For instance, informal recyclers may extract valuable metals without proper safety measures, using hazardous practices such as acid baths or open-air burning, which can release toxic substances. In addition, many components such as batteries and plastics are often improperly discarded due to a lack of awareness about their environmental and health impacts. In recognition of these challenges, CTL works to integrate informal sector partners into its supply chain by providing targetted training and access to

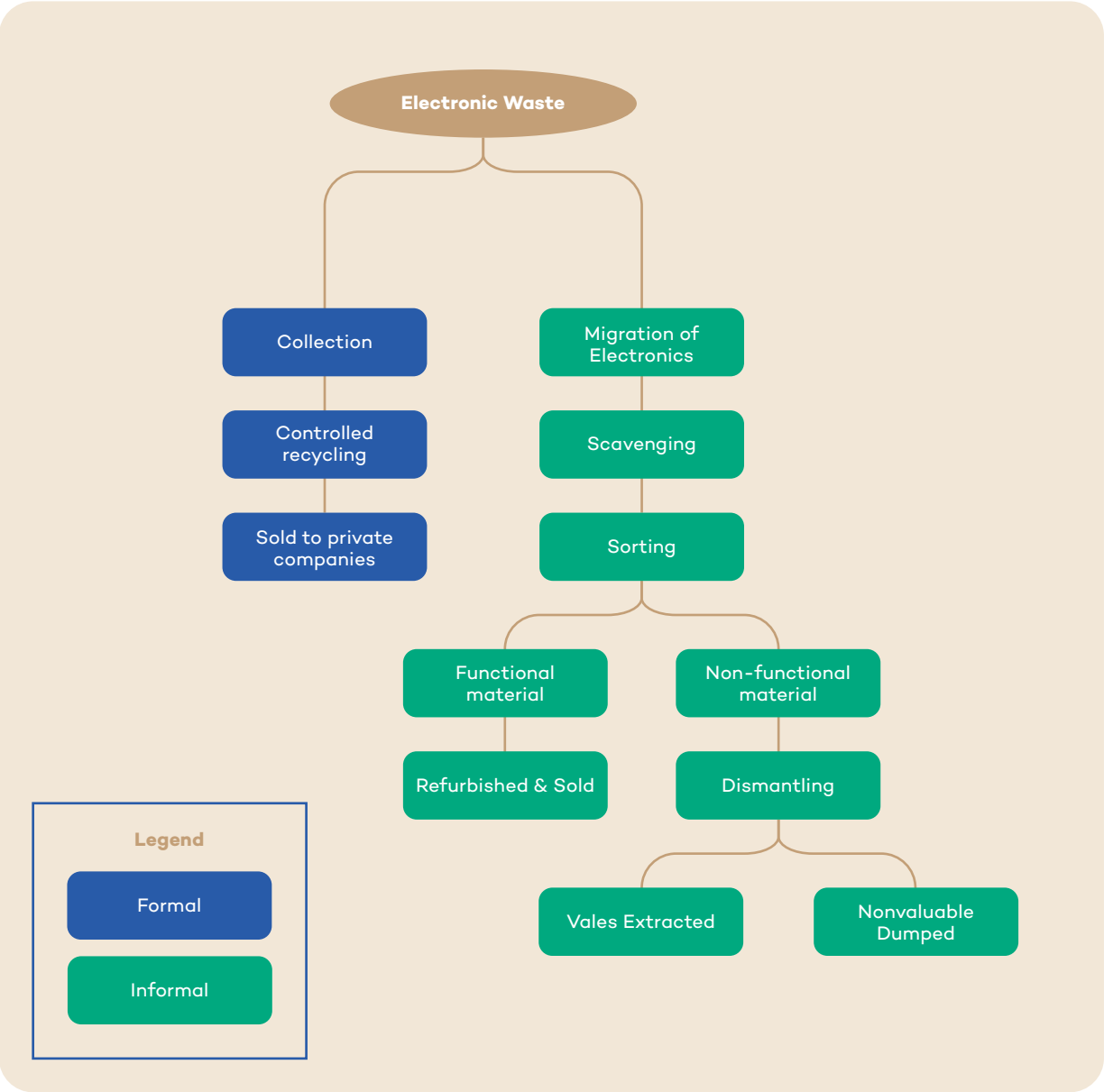
resources. This helps improve safety standards while ensuring that collection efforts align with responsible and sustainable e-waste management. By fostering these improvements, we contribute to the long-term viability of both the informal sector and the second-hand market.

The following 2 diagrams provide an overview of the supply chain process of e-waste, first with the informal and formal sectors side-by-side, and then with the two sectors integrated.

4.3 ENVIRONMENTAL AND EDUCATIONAL GOALS

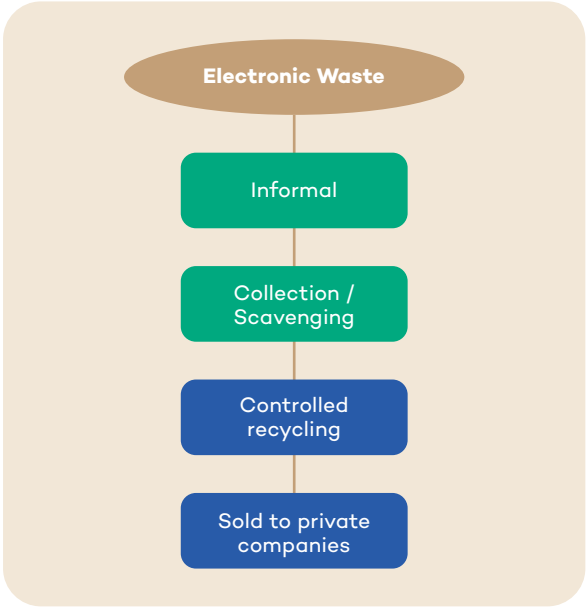
Engagement with the informal sector strengthens our collection network while creating opportunities for education and capacity-building. While informal recyclers may not always meet international environmental standards, their inclusion supports equitable access to economic opportunities and contributes to their participation in more sustainable development pathways.

Through partnerships with local service providers, we train collection partners on proper storage and handling practices. A key focus is expanding collection efforts beyond printed circuit boards – the most



Traditional pathways for formal vs informal e-waste collection scenarios in Ghana[14]

14 Graphic adapted from (Njoku et al., 2024)



Combining informal sector capacities with formal processes for recycling

valuable component of a discarded device – to also include hazardous components such as batteries and plastic phone cases. By improving knowledge and awareness, we support a shift within the informal sector toward safer and more sustainable waste management practices.

In 2022, Africa had the lowest formal collection and recycling rate at 0.7%. In contrast, Europe lead the way with the highest rate at 42.8%.[15]

15 (Global E-waste Monitor 2024)

4.4 SUPPLY CHAIN TRAININGS

Given the nature of our operations, training local partners in Africa is a key component of our maintaining the quality fo our service. Initial trainings focus on safety, the handling of hazardous material and warehouse organization. We ensure that partners are informed of and comply with our policies on issues like environmentally sound waste management, occupational safety, anti-bribery and child labor.

Following the completion of onboarding trainings, we rely on our partners for training new staff and for updating training practices based on lessons learned and local operating conditions. We review the knowledge and awareness on an annual basis and provide additional training where gaps are identified. In specific cases, we also deliver targeted, formal training. For example, as part of the ECoN project, we gave specialized trainings on the safe handling and packaging of mercury-containing fluorescent tubes.

In addition, we deliver several shorter, operational trainings as part of ongoing activities, particularly when processes are updated. These trainings cover topics such as logistics, data management, and the use of software tools. These initiatives go beyond skills development and support consistent standards of safety, efficiency, and compliance across our operations in different countries.

Batteries stored in sand for safety reasons

4.5 SOCIAL IMPACT

Our operations create economic opportunities in the regions where we operate, particularly within the informal sector of e-waste management. Our supply chain is long and inclusive, engaging a broad and diverse network of participants, including collectors,

agents, warehouse managers, and counters. Through their involvement, these individuals contribute to and derive income from our activities. This supports access to economic opportunities for groups that are often excluded from formal labour markets.

In 2023 and 2024, the funds we directed to our African operations supported local livelihoods across multiple countries. Comparing these payments with country-specific living wage benchmarks, we estimate that our economic impact is equivalent to more than 8,000 months of living wages across Ghana, Nigeria, and Cameroon between 2023[16] and 2024. As many participants in our supply chain do not work full-time on this project, this metric reflects the scale of economic value distributed through our activities (no comma), rather than the number of individuals receiving full-time.

Building on this impact, we aim to further quantify our social impact and establish a clear roadmap for improvement. This includes working toward higher living wages and standards across all tiers of our supply chain, as well as enhancing local recycling capacity by replicating sustainable recycling solutions for additional e-waste fractions. Planned improvements are in Table C in the Appendix.

16 2023 analysis was limited to data from Ghana due to incomplete period data for Nigeria and Cameroon

Lionel, Agent in Cameroon

4.6 AGENT SPOTLIGHT: LIONEL

Lionel is an e-waste agent within CTL's collection network in Cameroon. He previously collected metal scrap for recyclers. In 2016, CTL's local partners introduced him to the importance of collecting e-waste to protect the environment and human health. Inspired by the project, Lionel transitioned from metal scrap collection to working as an e-waste agent, gathering old electronics from phone repairers and metal recyclers. He now manages a team of eight people, who collect up to 20,000 devices per month. His team is one of very few in Cameroon that focus on collecting whole devices rather than high-value metal components. This approach ensures the proper disposal and recycling of plastic and other negative-value electronic waste, contributing to a cleaner and safer environment for local communities.

4.7 CO2 IMPACT OF CTL'S OPERATIONS AND SERVICES

This section addresses the CO2 impact of our service.

We begin by outlining CTL's emissions and then examine the environmental benefits associated with our operations.

4.8 CTL'S EMISSIONS

In 2023, CTL began measuring its emissions across **Scope 1, 2, and 3**, following established reporting guidelines.

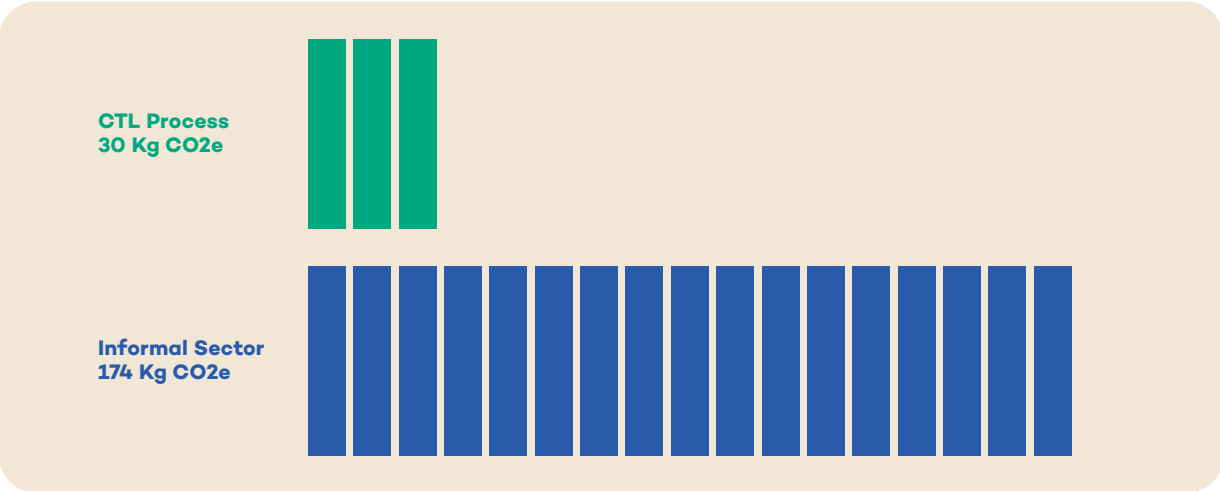
- **Scope 1:** Direct emissions from owned or controlled sources.

- **Scope 2:** Indirect emissions from purchased electricity, steam, heating, and cooling.

- **Scope 3:** All other indirect emissions that occur in the value chain, such as those related to business travel and shipping. (e.g., business travel, shipping).

While we acknowledge some data gaps, particularly in relation to Scope 3 emissions, this effort provides a foundation for refining and improving future calculations. The data was compiled in line with ESRS guidelines. Further details on methodologies and assumptions are provided in Appendix E.

CTL fully offsets its GHG emissions through a Gold Standard certified compensation program. The *Efficient and Clean Cooking for Households in Nigeria* project supports the distribution of fuel-efficient charcoal stoves to Nigerian families at subsidized prices. These stoves significantly reduce indoor air pollution by approximately 85% and fuel consumption by about 60%, contributing to health benefits, decreased deforestation, and household cost savings. In addition to compensation activities, we also choose to invest in sustainable aviation fuel for air travel where available.



CTL's process compared to the status quo of the informal sector, where each block represents 10 Kg of CO_2 emissions

4.9 ENVIRONMENTAL IMPACT OF RECYCLING

The CO_2 impact of our service has been assessed in two external life cycle assessment (LCA) reports. As our sector remains relatively new, available data is still limited. We are therefore continuing to work towards improving data availability and accuracy and want to acknowledge that certain assumptions were required in the underlying analyses about our CO_2 emissions.

- **CTL Process:** Emissions associated with the entire process – collection, shipping, and recycling – are estimated at approximately **30 Kg of CO2e** for 1000 Phones.

- **Informal Sector:** Recycling the same quantity of phones through informal-sector practices is estimated to emit approximately **174 Kg of CO2e** per 1000 phones.

It should be noted that these conclusions are drawn from two separate studies, and are therefore not directly comparable, as different data sets were applied. Figures should be interpreted as indicative estimates of emissions. These figures indicate an advantage compared to compared to informal-sector practices. However, they do not account for the benefits compared to virgin mining, as such analysis falls outside the scope of this report.

Big bags being filled for shipping

In addition to the harm caused by greenhouse gas emissions, informal recycling practices are associated with other significant environmental impacts. When phones and phone components are burned in the open air (a commonly observed practice in informal recycling), hazardous substances like heavy metals and toxic chemicals are released, polluting the air, soil, and water. This can lead to the accumulation of toxins such as lead and cadmium, with potential adverse effects on ecosystems and risks to groundwater quality, affecting both plant and animal life. By contrast, CTL applies formalised and environmentally sound recycling processes designed to manage these risks, representing a significant improvement compared to informal practices.

As this represents the initial stage of CTL's approach to understanding and managing its CO_2 impact, we aim to address data gaps in Scope 3 emissions data and to develop reduction targets over time.

5 GOVERNANCE & ACCOUNTABILITY

Preparing for export

This section outlines how Closing the Loop manages ethical governance and transparency across its operations. It describes how we integrate human rights practices, ensure accurate stock management, and maintain financial accountability. We also explain our approaches to monitoring compliance, managing incidents, and maintaining regular communication with partners to mitigate risks.

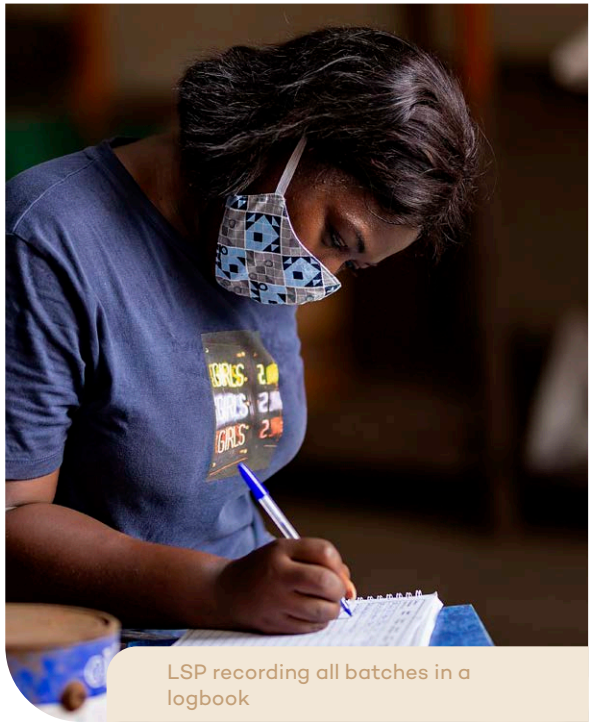
5.1 FINANCIAL TRANSPARENCY, TRACEABILITY AND RESPONSIBILITY

We maintain financial accountability through detailed record-keeping of all transactions. This supports compliance requirements and contributes to transparent financial practices across the regions in which we operate, in line with our commitment to ethical business conduct.

We support our local service providers (LSPs) by assisting them in establishing business bank accounts, enabling participation in the formal economy within their respective countries. This step strengthens their financial stability and facilitates sustainable economic inclusion. In addition, we recognize the effects of currency volatility and inflation in certain regions where we operate.

In open collaboration with our partners, we review financial performance at year end, including compensation of possible currency-related losses. This approach supports our commitment of shared responsibility and contributes to the resilience of our partnerships.

To further enhance transparency, we aim to improve visibility into financial impact and money flows at Tier 2 and Tier 3 levels of our supply chain. Planned improvements are outlined in Table C in the Appendix.



LSP recording all batches in a logbook

5.2 ETHICAL CONDUCT AND COMPLIANCE POLICIES

5.2.1 Human rights

Our approach to human rights, particularly within informal sector contexts where risks may be higher, is defined by strict adherence to international standards, including those set by the ILO, UNGP, and the UN Convention on the Rights of the Child. To combat risks like child labor and unfair labor practices, we have a zero-tolerance policy set out in our Supplier Code of Conduct, which is signed by all our suppliers.

We maintain ongoing engagement with our LSPs through regular communication – including monthly virtual meetings and on-site visits at least once a year. In addition, routine contact is maintained via email and instant-messaging on a weekly basis. These interactions are crucial for maintaining transparency and enable the timely identification and resolution of potential issues, helping to reduce the risk of incidents. This close relationship with our partners is complemented by our risk identification and incident reporting system, which supports the effective management and response to potential violations.

5.2.2 Anti-bribery and Corruption

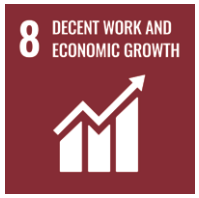
CTL applies a zero-tolerance policy to bribery and corruption. Our anti-corruption policies are aligned with the guidelines of the Responsible Business Alliance and are designed to support compliance with applicable laws and regulations.

5.2.3 Monitoring and Compliance

To monitor compliance with these ethical standards, we apply a range of measures including supplier verification processes. These include checks, such as photo ID verification to confirm age and prevent child labor. Suppliers are also required to report transparently on their operations.

5.3 RISK ASSESSMENT

We continue to address the risks identified in our Operations Excellence report by utilizing the CSRD guidelines. As part of this process, we reviewed the full lifecycle of our operations—from upstream to downstream—to identify potential risks. This assessement led to the identification of additional risks including supply chain disruptions resulting from changes in shipping routes or global conflicts, both situations that cause shipping permits to become invalid. These processes are designed not only to pinpoint where and how impacts may occur, but also to support active engagement with affected stakeholders to mitigate potential adverse effects. Our risk assessment, integrates risks arising from our own operations with external risks that may affect our activities or those of our partners. The resulting risk matrices are presented in Appendix B. While many of these risks are addressed throughout the report, the matrix provides a consolidated overview.



5.4 ERROR MARGIN

Given the number of steps involved in our operations—many of which are carried out through manual labour and outside our direct control—there is an inherent risk of errors occurring. One area with a higher risk of error is the manual counting of collected phones by our partners, which inherently leaves room for human error. To address this, we have implemented a range of control measures across our process, leading to an ongoing calculation of an associated error margin.

Our approach draws on established compensation mechanisms, such as CO_2 offsetting, and seeks to reflect practices applied under recognised standards, including Verra and the Gold Standard. The calculated error margin is applied as additional stock allocatated to orders, mitigaing the risk of under-collection. This way we ensure that the collected volumes always exceed the amounts compensated on behalf of clients. The methodology used to determine this margin includes frequent spot checks across multiple locations, alongside other control processes. It is important to note that while errors can occur both positively and negatively, we always treat the error margin as negative, resulting in collection volumes that consistently exceed the required ones.

Our partners in Ghana

APPENDIX

APPENDIX A: HOW WE USE CSRD

CSRD	NAME	DESCRIPTIONS	ESG	REPORT TOPIC
Basic model				
B1	Basis for preparation	Describe approach selected for preparing the sustainability report		How we will use CSRD Chapter 1, Section 1.3
B3	Energy and greenhouse gas emissions	Disclose greenhouse gas emissions (Scope 1 and Scope 2). Note that this report will report on Scope 3 as well, to the best of our abilities	Environment	CO2 Chapter 4, Section 4.7 & 4.8. Appendix E
B7	Resource use, circular economy and waste management	Report waste generation, management practices, and application of circular economy principles	Environment/ Governance	Reusability, Disassembly, Recycling, and Recovery. How much we have recycled, how much metal have we recovered Chapter 3, Section 3.1-3.5
B8	Workforce – General characteristics	Disclose workforce statistics	Social	Team Introduction Chapter 1, Section 1.6
B11	Workers in the value chain, affected communities, consumers and end-users	Disclose processes for identifying value chain workers, communities, or consumers likely affected by significant negative impacts from the undertaking's operations, products, or services	Social	Risk matrix Appendix B

CSRD	NAME	DESCRIPTIONS	ESG	REPORT TOPIC
PAT				
N1	Strategy: business model and sustainability – related initiatives	Describe key elements of the business model and strategy, including products/services offered, key markets, main business relationships, and links to sustainability matters		Business model Chapter 2, Section 2.1
N2	Material sustainability matters	Identify and describe material sustainability matters, including their impacts on people or the environment, financial effects, and implications for the under-taking's strategy or activities	Environment	PAT Table Appendix D
N3	Management of material sustainability matters	Disclose policies, actions, and targets for managing material sustainability matters, addressing prevention, mitigation, remediation of impacts, and financial risks or opportunities	Governance	PAT Table Appendix D
N4	Key stakeholders	Provide an overview of engagement with key stakeholder groups		PAT Table Appendix D
N5	Governance: responsibilities in relation to sustainability matters	Outline governance roles and responsibilities regarding sustainability matters, including who manages and oversees these aspects	Governance	PAT Table Appendix D
Business partner module				
BP7	Alignment with internationally recognised instruments	Disclose alignment of workforce policies with international standards	Social	Enhancing Accountability and Governance Chapter 5, Section 5.2
BP8	Processes to monitor compliance and mechanisms to address violations	Describe processes to monitor compliance and grievance mechanisms for addressing violations	Social	Enhancing Accountability and Governance Chapter 5, Section 5.2.3 & 5.3

APPENDIX B: RISK MATRIX

RISK FACTOR	DESCRIPTION	LIKELIHOOD	IMPACT	AFFECTED GROUP	MITIGATION STRATEGIES
Labor Right Violations	Risk of non-compliance with labor laws and regulations	Medium	High	Value chain worker, Regulatory Authorities	Regular audits and on-site visits, along with regular contact with our LSPs, ensure adherence to standards.
Warehouse safety, fire hazards	Potential for accidents and fires due to unsafe practices	Medium	High	Value chain worker	Enforce strict safety protocols: all our partner warehouses are equipped with fire extinguishers and have special training for battery treatment
Inaccurate stock	Risk of discrepancies in inventory leading to fulfillment errors	High	High	Customers	Use of an inventory management system to avoid double allocation, additionally applying an error margin which undergoes a strict monitoring process
Not complying with Basel	Legal and reputational risks from failing Basel Convention compliance	Low	Medium	Regulatory Authorities	One employee at CTL is dedicated to this task, ensuring 100% compliance with regulations. Any Basel related items go through a rigit process of being checked internally. Addtionally we keep up to date with the Basel convention at all times.
Supply Chain Disruptions	Vulnerability to delays and losses from external shocks	High	High	Customers	Diversifying the supply chain: collection occurs in different countries, adding more transit countries to our permit to accommo-date route changes.

RISK FACTOR	DESCRIPTION	LIKELIHOOD	IMPACT	AFFECTED GROUP	MITIGATION STRATEGIES
KYC	Risk of non-compliance due to difficulty verifying identities of rapidly changing personnel in the informal sector of collection countries	Medium	Low	Regulatory Authorities	Updates on collection partners are part of our agenda for the monthly video calls with our LSPs.
Inflation	Risk of financial losses for partners in high-inflation countries if pricing adjustments are not made regularly	High	Low	Value chain worker	Payment terms and prices are regularly reviewed and adjusted to ensure fairness in high-inflation regions.
Bribery	Legal and ethical risks associated with corrupt practices	High	High	Value chain worker, Regulatory Authorities	A zero-tolerance policy towards corruption is enforced, supplemented by rigorous training and strict monitoring of all transactions and interactions.

APPENDIX C: IMPROVEMENT PLAN

TOPIC	GOAL	ACTIONS	TARGET
Social Impact	Quantify our social impact and determine a plan of action	Develop a comprehensive action plan	2026
Social Impact	Increase living wages for Tier 3 and living standard of Tier 1 and 2	Implement revenue-sharing strategies	2027
Social Impact	Increase local recycling capacity by developing a sustainable recycling solution for an e-waste fraction currently lacking a clear recycling path	Collaborate with local partners to establish a pilot project that enables the recycling of this e-waste fraction while building local expertise and infrastructure	2026
Financial Transparency	Have more insights into Tier 2 and Tier 3 impact	Map financial flow in upstream activities, focusing on the informal sector	2026
Supply Chain Resilience	Shipping ability from at least one country at all times	Obtain two shipping permits per country, using different routes and recyclers to avoid delays	2025
Work with Local Markets	Increase the use of locally produced products	Ensure all bags are ordered from local producers	2026
Work with Local Markets/ Increase Recycling Efficiency	Recycle materials locally where facilities are available	Set up a trial/research on the feasibility of recycling phone cases locally	2026
CO2	Fully quantify our CO2 Scope 3 emissions. Set Scope 3 reduction targets.	Develop a comprehensive action plan	2026

APPENDIX D: PAT MODULE

TOPICS*	SUB-TOPICS	DESCRIP-TION	VALUE CHAIN	TYPE OF IMPACT	ENVIRON-MENTAL IMPACT	SOCIAL IMPACT	FINANCIAL IMPACT	RISK	STAKE-HOLDERS	RESPONSI-BLE
Circular economy	Resource inflows	Volumes collected	Upstream	Actual	Positive impact (avoided landfilling and open air incineration)	Positive impact (jobs created and avoided exposure to pollution in landfill)	Financial opportunity	Medium (health risk)	Business partners, Customers, Investors	Operations Manager
	Resource outflows	Metals recovered	Downstream	Actual	Positive impact (recylced metals replace virgin mining)	Positive impact	Financial opportunity	Low	Business partners, Customers, Investors	Operations Manager
Own workforce	Working conditions	Environ-mental Health and Safety (EHS), Work-life balance, Adequate wages	Own operations	Actual	n/a	Positive (enhanced employee well-being and safety, increased job satisfaction and produc-tivity)	Financial opportunity	n/a	Employees, Authorities	CEO and COO
	Equal treatment and opportu-nity for all	Diversity, Gender equality and equal pay for work of equal value	Own operations	Actual	n/a	Positive (promotion of diversity and inclusion, equal opportunities for career advance-ment)	Financial opportunity	n/a	Employees, Authorities	CEO and COO

TOPICS*	SUB-TOPICS	DESCRIP-TION	VALUE CHAIN	TYPE OF IMPACT	ENVIRON-MENTAL IMPACT	SOCIAL IMPACT	FINANCIAL IMPACT	RISK	STAKE-HOLDERS	RESPONSI-BLE
Workers in value chain	Working conditions	Environ-mental Health and Safety (EHS), Work-life balance, Adequate wages	Upstream	Actual	n/a	Positive (enhanced employee well-being and safety, increased job satisfaction and productivity)	Financial opportunity	Medium	Business partners, Local communities	Operations Manager, COO, Business partners
	Work related rights	Child labour, forced labour	Upstream	Potential	n/a	Negative (potentailly compromises health and education of children, violates international laws)	Financial risk	Medium/Low	Business partners, Local communities	Operations Manager, COO, Business partners
Affected communities	Communi-ties' eco-nomic, social, and cultural rights	Water and sanitation, land-related impacts	Upstream	Actual	Positive: diverted waste from landfill avoids leach-ing of toxic materials to land and water, Burning of non-valuable components avoided	Positive (improved health outcomes)	Financial opportunity	Low	Business partners, Local communities	Operations Manager and COO

TOPICS*	SUB-TOPICS	DESCRIP-TION	VALUE CHAIN	TYPE OF IMPACT	ENVIRON-MENTAL IMPACT	SOCIAL IMPACT	FINANCIAL IMPACT	RISK	STAKE-HOLDERS	RESPONSI-BLE
Business conduct	Corruption/ bribery	Prevention, detection and training	Upstream	Potential	n/a	Negative (corruption has potential negative impact on fairness and ethical practices)	Financial risk	Medium	Customers, Investors, Business partners, Authorities	CEO and COO
	Management of relation-ships with suppliers including payment practices	Fair and transparent payment practcies and business relationships	Upstream	Actual	n/a	Positive (job creation, improved relation-ships)	Financial opportunity	n/a	Business partners, Authorities	CEO and COO

APPENDIX E: GHG BREAKDOWN

TOTAL EMISSIONS	2023 GHG EMISSIONS (tCO_2e)	2024 GHG EMISSIONS (tCO_2e)
Scope 1	–	–
Scope 2	1.05	1.05
Scope 3	163.88	32.62
Total	164.93	33.67

Total Emissions Notes and Sources:

Scope 2 emissions were provided by our Energy provider for 2023 and can be broken down into the following: 82.02% gas, 13.67% wind, 3.95% solar, and 0.36% biomass. The office and the provider did not change, so it is assumed that we consumed the same in 2023 and 2024.

SCOPE 3 EMISSIONS	2023 GHG EMISSIONS (tCO_2e)	2024 GHG EMISSIONS (tCO_2e)
Shipping emissions	13.83	9.23
Trucking within Africa	0.07	0.85
Flight emissions	15.42	22.54
Smelting and Recycling emissions	134.56	–
Total	163.88	32.62

Scope 3 Emissions Notes and Sources:

Not all Scope 3 emissions were included due to data gaps. The following were not included, and we are working on including them in the future:

- Equipment-related emissions of our partners (forklift, etc)
- Energy and electricity emissions of our local service providers
- Travel emissions of our local service providers
- Transport related emissions for employee-owned cars or rental cars

- Shipping emissions were directly provided by our shipping partner.
- Flights and trucking were tracked and calculated internally.
- Smelting and recycling emissions were provided by our recycling partners.

APPENDIX F: RECYCLING PROCESS