



UPCYCLING WASTE FOR GOOD

2023 Annual Review





Safisana in 2023

2023 was a remarkable year for Safisana. We achieved steady growth in the first half of the year, culminating in a major milestone in Quarter 3: reaching operational break-even in Ghana. This long-awaited achievement demonstrates that our circular economy model not only creates real value for local communities but is also financially viable. At the same time, it challenges us to carefully manage and build on this success.

Our **Asase Gyefo organic fertilizer** sales grew strongly, supported by a renewed sales strategy, marketing campaign, and impactful demonstration plots at fairs and conferences. Partnerships with NGOs and agri-tech companies such as Farmerline are further strengthening our market reach. Looking ahead, we are seeking funding to expand our services to more smallholder farmers, invest in research, and diversify into new crop markets.

The **Ghana team** has made impressive strides toward stability and efficiency under the leadership of **General Manager Elikplim Asilevi**, who joined in early 2023 and continues to leave a strong mark on our operations. We have moved from early-stage conversations to confident collaborations, including a new fertilizer hub in Kumasi with Clean Team Ghana and advancements in our compressed gas initiative, which promises further environmental innovation.

To support these achievements, we have strengthened our organizational development processes. Looking forward to 2024, we have developed a clear roadmap, co-created by our Ghana and Netherlands teams, that focuses on **sustaining operational break-even, pursuing new business opportunities, and expanding our investor portfolio**—all to deepen our positive impact on the communities we serve.

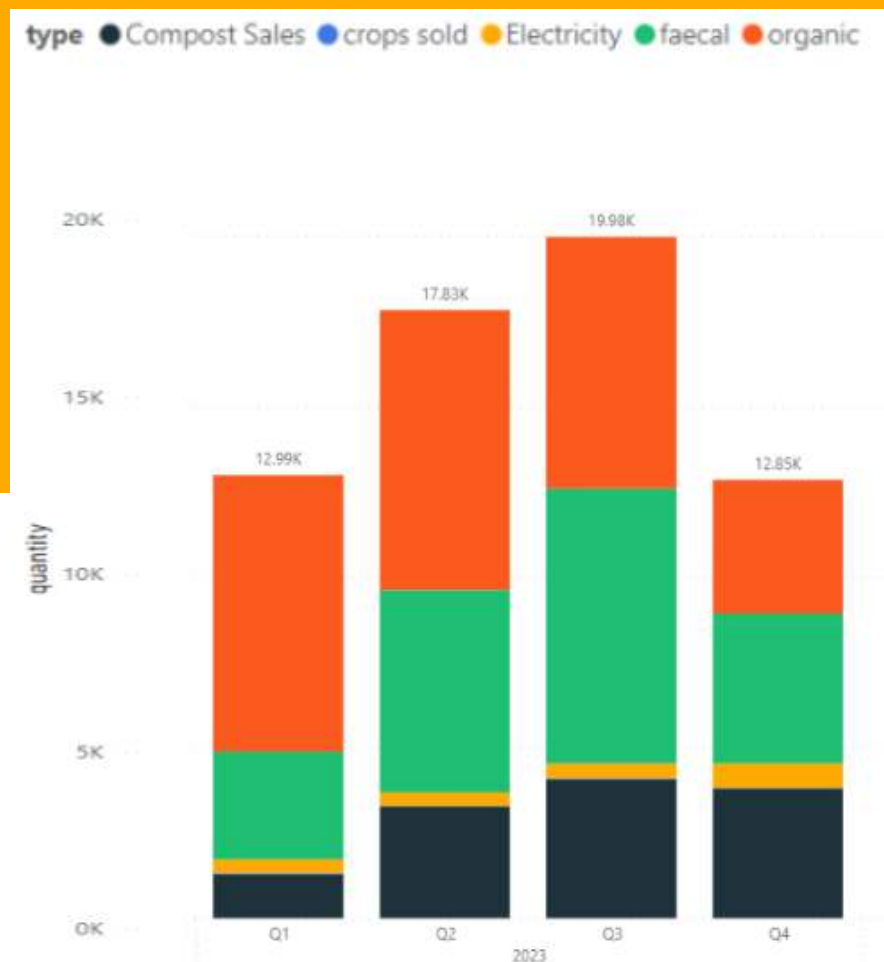


IMPACT ON PEOPLE AND CLIMATE

As part of World Toilet Day, celebrated yearly on the 19th of November, we created a digital impact campaign capturing various testimonials of stakeholders in the sanitation value chain, from ordinary people to local toilet operators, public toilet users, and fecal truck drivers. We had the privilege of [speaking with Emmanuella](#), a schoolteacher who educates her schoolchildren on safe sanitation

These testimonials shed light on the practical implications of lacking sanitation services, offering direct insight into how access to proper facilities significantly influences daily lives and overall well-being. Find all testimonials on our [Impact Blog](#).

In 2023, Safisana had a direct impact on almost 65,000 individuals, predominantly through core activities involving the collection of organic and faecal waste, along with the sale of compost.





OPERATIONS GHANA

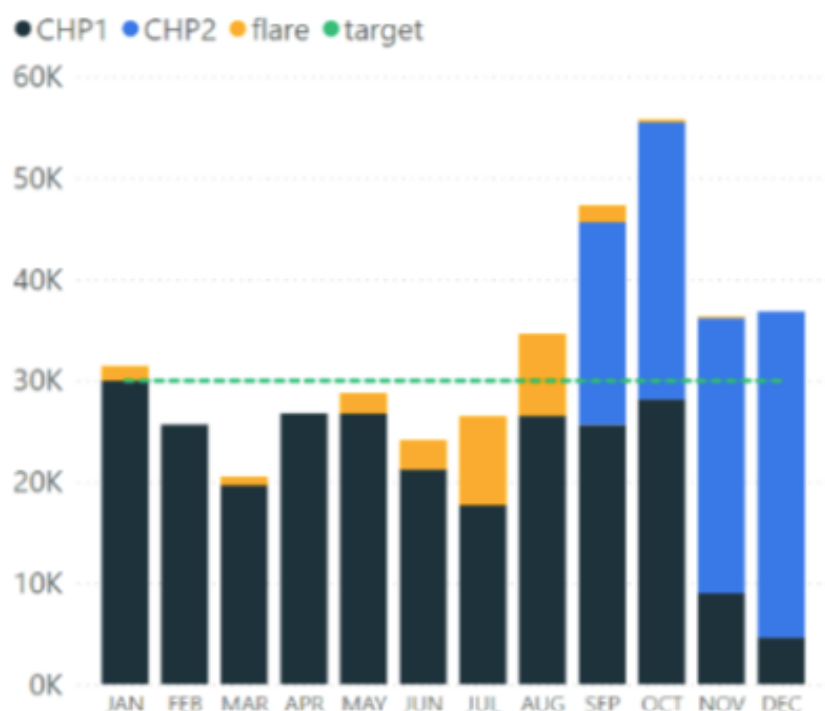
We were delighted to announce that the Ashaiman plant reached 100% cost coverage in September. While this is a major milestone for Safisana, we must maintain all efforts to maintain this situation. Having achieved our breakeven level, our primary objective is to sustain this milestone and continue our surge for profits to be invested back into the organization. However, and as seen on a global level, the challenge lies in the current upward trend of inflation. To address this, we plan to focus on smarter and cost effective repair and maintenance, aiming to keep costs at a minimum. It's critical that we continue prioritizing the efficiency of operations in order to control costs effectively; particularly with a view to coping with current high inflation levels.

Sourcing

The significant inflation in Ghana (which rose to over 40% in 2023) has posed challenges to the waste sourcing processes. Since the middle of last year, we have adjusted our waste collection approach for organic waste to reduce costs. We have had to carefully balance out which industries can deliver waste at a reasonable cost and considering collecting it ourselves using hired trucks. However, when we collect it directly, the costs for the client are higher due to factoring in the hiring expenses and inflation in the dumping fee. The introduction of our own waste truck, will significantly impact our operations, allowing us better cost control and increased efficiency in waste management processes.

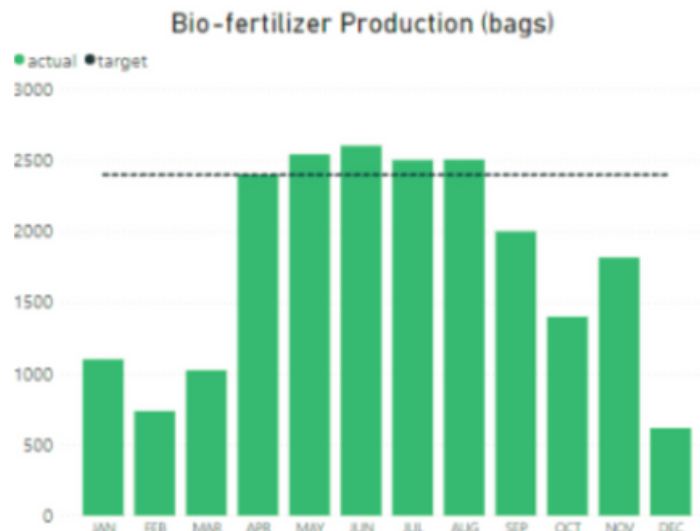
Biogas production

After the installation of the CHP in August, biogas production experienced a significant spike. However, as mentioned earlier, the operations team increased the waste fed to the digester to match the second CHP's excellent performance. This led to difficulties in the drying beds managing the increased digestate effectively. In response, the operations team decided to reduce the digester's feeding until the issue with the drying beds is resolved. Despite the reduced feeding and biogas production, the overall production remained above the target level.

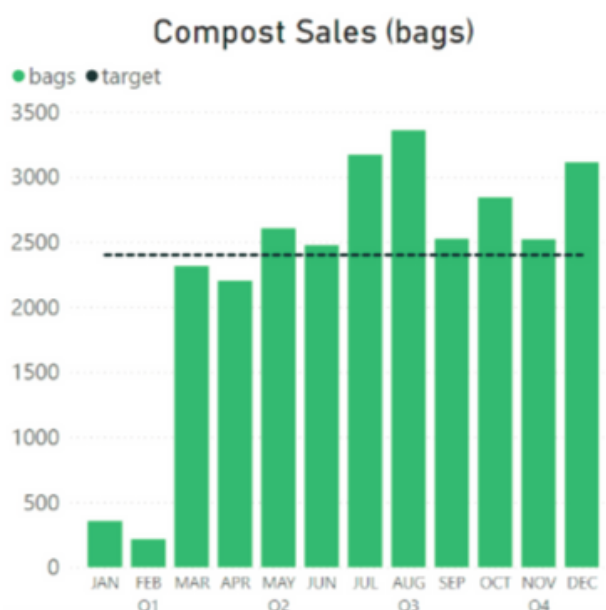


Production: Organic Fertilizer

The production of organic fertilizer decreased due to heavy rainfall in September. Additionally, the malfunctioning drying beds slowed down production, as the digestate cannot filter through them optimally. Currently, expert engineering firms are being consulted on the liquid separation process, so that we can anticipate running at full capacity by the end of Q1. In the meantime, we will maintain operations at the break-even level.



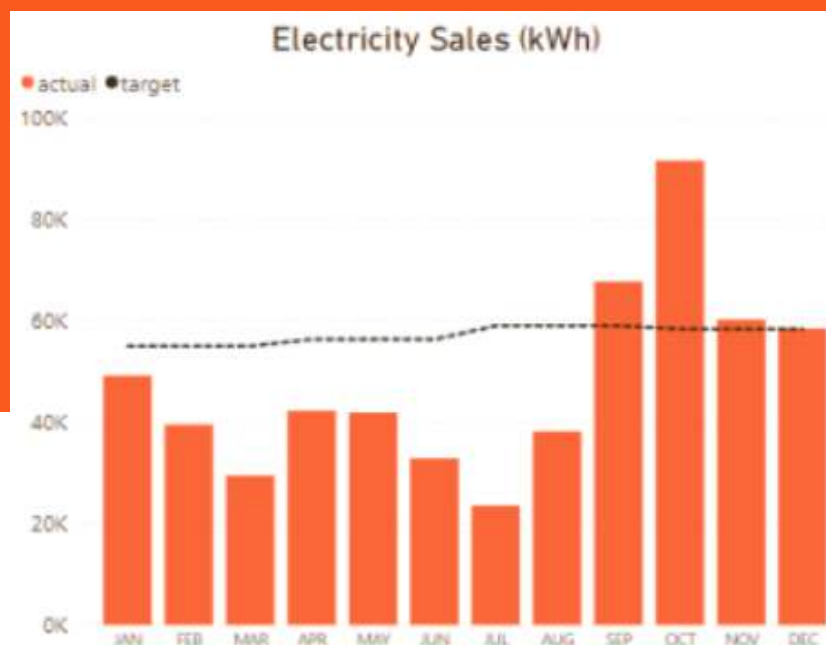
Sales: Organic Fertilizer



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Sales Electricity

Following the installation of the second CHP, there was a substantial increase in electricity production and sales. However, in November and December, the production capacity plateaued at a lower level due to the repairs on the drying beds. We anticipate running at full capacity by the end of Q1 2024.



The old and new (left) CHP working alongside each other!



Challenging times

Despite our joy with the break even status, we are very aware that the scaling of production capacity in Ashaiman took more time than expected. The installation of the second CHP was initially planned for early 2023 but eventually took place in September. The delays with the second CHP installation (supply chain issues, delivery delays due to post covid travel restrictions and impact of Ukraine war) were frustrating and significantly delayed revenue generation by increase of electricity produced by the CHP. Other complications were the modifications needed to the new screw press as we had made a number of changes in the recipe of the digestate which had not been fully taken into account in the planning for the use of the new screw press. It is certainly a case of always learning as we continue to innovate and test, using lean manufacturing protocols to optimize ways of working and use of plant space and we are now very well positioned to really maximize operations with two CHPs and new screw press.

We experienced unforeseen challenges in September due to heavy rainfall, resulting in flooding that damaged our wastewater treatment plant and composting areas. This caused significant losses, with compost batches being washed away. Additionally, the drying beds didn't work well because of the increase in waste fed to the digester to maximize the excellent performance of the second CHP. Unfortunately, the drying beds couldn't handle this increased waste efficiently. Despite these challenges, Safisana maintained performing at break level, and we're collaborating with engineering firms SUEZ, LeAF, and GMB to improve the liquid-solid separation process for better drying bed performance.



Heavy rainfall resulted in flooding; washing away compost batches



Advocacy & awareness

Ties with the local governments of Ashaiman and Greater Accra Municipal Assembly and national government bodies and ministries have become stronger by organizing awareness campaigns throughout the year, one in March around **Global Recycling Day** and one towards the end of the year around **World Toilet Day** within the communities.

Farmers Day

Every year on December 1st, Ghana celebrates National Farmers Day, established by the government in 1985 to honor the crucial role farmers and fishermen play in the country's economy. Safisana participated in the Farmers Day celebration with the Ashaiman Municipal Assembly, emphasizing the benefits of using organic fertilizer for healthy food production and soil nurturing.



Farmer Day: tree planting and celebrations with the Ashaiman Municipal Assembly



Over the course of 2023, Safisana saw a steady increase in traffic, followers and engagement on the different Safisana channels as a result of an increase in content production and storytelling as compared to the previous year.

Our Communication Strategy focuses on strengthening relationships with partners through joint content creation and recurring storytelling campaigns around key topics such as sanitation & health, carbon & climate, agriculture and food.

We were delighted by the invitation from our funder, Grand Challenges Canada to attend their **Grand Challenges Annual Meeting**, (GCAM) in Dakar in October 2023. The GCAM, hosted by Grand Challenges Canada, USAID, and the Bill & Melinda Gates Foundation, brought together innovators, funders and decision-makers to explore ways to advance science and innovation for positive impact. Our General Manager met with the Board of Grand Challenges Canada to discuss further collaborations.

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Farmer Day: tree planting and celebrations with the Ashaiman Municipal Assembly



RESEARCH AND DEVELOPMENT UPDATE

Landspreading

In April the agronomy team carried out an economic analysis on the application of liquid digestate in farming and the effect on crop production. The analysis revealed that using digestate treatments was more cost-effective than traditional farming, saving 40-60% on expenses. Ongoing research is crucial because untreated digestate may contain maize contamination, making it unsuitable for human consumption.

The conclusion of the second phase of the landspreading research, which focuses on contamination levels in maize resulting from untreated digestate, is expected on June 24.



COCOBOD Certification

Cocoa is Ghana's largest export product and the main source of income for 800,000 cocoa farm families in the country. Yet, cocoa farmers are not allowed to use agri-inputs that are not officially certified by the Ghana Cocoa Board (COCOBOD). This year the Cocoa Research Institute of Ghana confirmed completion of our organic fertilizer trial on cocoa seedlings. The certification for our Asase Gyefo organic fertilizer will allow farmers to use our inputs for the production of cocoa seedlings. We aim to start the field tests in 2024 and showcase results by year-end.

Wastewater treatment ponds

Safisana's recycling plant is an efficient, all-in-one solution for sustainable wastewater, solid waste, and faecal sludge management. Pathogens in faecal sludge are significantly reduced in our anaerobic digester. The residual wastewater in the drying beds is pumped into treatment ponds, improving water quality for potential irrigation.



Wastewater treatment ponds in the top right corner

As we constantly strive for best practice, we have noted that the ponds haven't been working optimally, making the treated water unsuitable for crops that can't handle higher salinity levels. To address this, we consulted with engineering companies, [Aquassistance](#) (philanthropic arm of SUEZ) and [LeAF](#), for advice on improving pond quality and began a monitoring project, collecting data towards implementing engineering improvements in 2024.

Trials world-leading F&B Company in Ghana

In September 2023, we started trials to test Safisana's Asase Gyefo fertilizer on white sorghum, a key ingredient for beer production. Collaborating with a world-leading food and beverage company in Ghana and Oyster Agribusiness, we marked plots, applied compost, and planted sorghum in September. Oyster Agribusiness, known for large-scale sorghum and maize production, also supports over 300 farmers.



To explore collaboration further, our marketing team plans to engage with Oyster Agribusiness due to their significant influence. The second fertilizer application on Safisana's sorghum plot took place in October 2023. Harvesting occurred in January, and the results report is expected to be shared in February.

Compressed gas - Ghana

In Ashaiman, we have been exploring potential offtakers for the compressed gas business case: investigating both waste collection and biogas production opportunities for their boilers, aiming to reduce their reliance on fossil fuels and lower their carbon footprint.

Climate: carbon impact

We are at the stage of finalizing the carbon impact assessment together with Ingenia, an innovative engineering firm and expert on sustainability. After calculating the carbon footprint of all our current operations in Ashaiman, we continued our carbon impact assessment with the calculation of the actual reduction/ avoidance of carbon emissions by comparing it to current client scenarios and practices where waste is not treated and non-renewable/fossil energy is used. This mapping exercise looks at all waste streams and their point of origin, all processes at the Safisana recycling plant, and all end products (electricity and organic fertilizer) and their point of exit. This study will help in defining the carbon impact of our products and services and the commercial value that represents for our customers. This final report by Ingenia is to be expected in 2024 and will be the starting point of an investigation on commercial opportunities in the carbon market.



SCALING UPDATE

The business development and scaling activities are driven by a dedicated team tasked with transforming emerging opportunities into commercially viable projects. Over the next two years, the primary emphasis for business development opportunities will be on Ghana as well as the team continuing to conduct market scans for potential projects outside of Ghana.

Kumasi - Ghana

While our collaboration with Clean Team Ghana on the Oti landfill continues, Safisana has been invited by the Kumasi Metropolitan Assembly (KMA) to participate in the 'Keep Kumasi Clean: Let's Recycle' project, funded by the EU program HORESD (Holistic Reinforcement for Sustainable Development). The project's goal is to enhance sanitation and waste management in the Kumasi Metropolitan Assembly, with funds allocated for waste containers, refuse collection trucks, and the setup of transfer stations to segregate waste.

The waste, including additional organic material, will be sorted at the Oti landfill's transfer station, providing a valuable source for composting. With our operational fertilizer production hub, plans are underway to expand the site from April pending funding. The expansion, involving site preparation and equipment procurement, is expected to take six months, with full-scale production anticipated to begin in Q3. In the event of signing an offtake agreement with Guinness for the compressed gas case, we also aim to enhance the fertilizer production hub by incorporating an anaerobic digester and a compressed gas installation.

Tamale - Ghana

Following the scoping work that began in September, our General Manager made a second visit to Sama Sama in Tamale in November. Sama Sama is a sanitation provider and, similar to our successful partnership with Clean Team Ghana, the goal is to manage their waste and produce organic compost.

As discussions continue, Safisana is planning a market scan in Q2 to identify potential collaboration opportunities and evaluate the availability of waste sources for composting, and potentially for a digester. At present, our collaboration involves fertilizer distribution, capitalizing on Sama Sama's extensive network of farmers in the region.

Masterplan 2024

Every year, we focus on improving our organization and preparing for the next year. In the early stages of Q4, we held the Masterplan 2024 session, involving all colleagues in the Netherlands and Ghana. This collaborative effort helped us set clear goals and objectives for 2024. Now, everyone is on the same page, understanding their responsibilities and what we aim to achieve as a company in the coming year. This inclusive approach strengthens our shared vision for a successful 2024.

In December 2023, Safisana was pleased to present its 10-year roadmap to the Safisana funders group. The session and accompanying context paper detailed Safisana's long-term vision for its business model and scaling strategy. A key feature of Safisana's approach is its modularity. This modular approach has resulted in the identification of three operational model types: A, B, and C. Each model type functions in specific contexts – urban, peri-urban, and rural – with distinct combinations of waste streams, end products, and volumes. To promote and ensure financial viability, Safisana plans to use a mix of these models at the country level, recognizing the importance of contextual analysis and adaptability.

Looking ahead, for the next two years, our focus will be on building on our successes in Ghana. Simultaneously, we'll explore market opportunities in countries outside of Ghana to expand our impact and reach.





PARTNERSHIPS

Farmerline

Safisana Ghana is partnering with Farmerline, a prominent agri-tech company working closely with farmer cooperatives to provide fertilizers and agricultural inputs. This collaboration has helped with our increased fertilizer sales, enabling us to efficiently reach more farmers, including women farmers. The partnership focuses on training farmers on the benefits of organic fertilizer, aiming to boost sales and enhance food security in arid areas, particularly in northern Ghana. This collaboration addresses growing concerns about food security in Sub-Saharan Africa.

Plan International

We are in talks with Plan International to develop a pilot project in collaboration with Plan Ghana, set to kick off in 2024. The project aims to raise awareness about clean living environments through waste sorting and recycling, promote safe food practices, and create livelihood opportunities for women and youth. Focused on increasing the use of organic fertilizer, reducing carbon emissions, and empowering communities, especially women, the collaboration leverages Plan's expertise in awareness creation and community mobilization. Safisana will handle engineering and production, while Plan International will support in creating social and environmental impact. The pilot's success will serve as a blueprint for scaling to other locations and attracting donors interested in funding public/private partnerships.



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Ghana Coalition of NGOs in the
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YEAR 2023



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