



Food Systems
Accelerator

Delivering Climate-Smart
Innovations at Scale



FOREST AFRICA ZAMBIA LTD Agri-Innovation Report



FOREST AFRICA

ZAMBIA LTD

Agri-Innovation Report

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Cover Photo: Adam Ojdahl / IWMI (Drip irrigation is powered by solar pumps.)

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FOREWORD



Agribusinesses are the bedrock of the African food systems economy. These enterprises are not just commercial ventures; they are essential contributors to food security, economic development, and sustainable livelihoods across the region. With a myriad of value chains, they are intricately woven into the fabric of East and Southern Africa's agricultural landscape.

However, a stark reality is hindering growth in the sector. Agribusinesses find themselves chronically underfunded, facing a complex web of challenges that hinder their potential. Two key reasons underlie this financial constraint. First, the lack of access to affordable credit and investment opportunities hampers their ability to expand operations and adopt modern, efficient technologies. Second, market instability and unpredictability deter investors and lenders from engaging with agribusinesses.

The CGIAR Food Systems Accelerator presents innovative and effective solutions to strengthen the agribusinesses and support them in delivering impact at scale.

By providing a blend of demand-driven, science-based technical assistance and investment-readiness, the program is designed to bridge the gap between potential and progress. By connecting agribusinesses with leading food systems scientists, we are equipping agribusinesses with the tools, knowledge, and resources they need to thrive.

The results of the 6-month engagement represent tangible evidence of the program's impact. From the development of Africa's first vegan milk made from indigenous fruits, to improved irrigation systems that enhance productivity while reducing environmental impacts, to new product lines for baby food made from soy, these examples illustrate the real-world benefits of our collaborative efforts.

This report is a testament to CGIAR's serious commitment to address the funding challenges facing agribusinesses. It showcases our collective determination to create a future where agribusinesses flourish, investments flow, and research translates into practical change. We invite you to explore these success stories and consider joining us in reshaping the future of agribusiness in East and Southern Africa.

Thank you for your engagement and support.

Sincerely,

Hauke Dahl

Food Systems Accelerator Co-Lead

AGRI-INNOVATION REPORT

This report presents the consolidated outputs of the CGIAR researchers involved in the first cohort of the CGIAR Food Systems Accelerator. The first half of the report describes the methods that were applied, the second half presents the results.

The Food Systems Accelerator was established to bolster Ukama Ustawi, a CGIAR initiative focused on transforming agri-food systems in East and Southern Africa (ESA). This program, spanning from 2022 to 2024, aligned scientists with agribusinesses to bring CGIAR innovations to scale in ESA. It achieved its objectives by providing CSA Technical Assistance to agribusinesses, enabling the adoption of climate-smart agricultural practices and de-risking their operations. Furthermore, the program offered Impact Measurement and Management support, helping agribusinesses measure and manage their environmental and social impacts effectively. Lastly, it provided Investment Readiness Technical Assistance to increase the agribusinesses' capacity to absorb capital, facilitating their access to funding for sustainable growth and ecological impact. By combining science-driven support and investment readiness, the Food Systems Accelerator Program aims to ensure resilient and sustainable agribusiness development in ESA

1.

INTRODUCTION TO THE PROGRAM



Photography: Ukama Ustawi

1.1. Description

1.1.1. CGIAR

The Consultative Group on International Agricultural Research (CGIAR) is a global research partnership for a food-secure future dedicated to transforming land and water systems in a climate crisis¹.

1.1.2. Ukama Ustawi

Ukama Ustawi is a CGIAR initiative developed to transform agri-food systems in East and Southern Africa (ESA) through sustainable intensification through mixed-maize systems and crop diversification to de-risk other systems. The program aimed to empower women, young farmers, and value chain actors to promote healthier diets and protect natural environments from further degradation. Ukama Ustawi was born from the in-depth understanding that some major underlying reasons for poor agricultural performances in ESA are associated with less efficient agricultural value chains, and the systems are characterized by low climate resilience. Numerous agricultural value chains are fragmented and characterized by unstable relationships between off-takers, smallholders, and emerging farmers, and the inefficiencies mostly affect the farmers. Farmers face significant market dynamics and systems hurdles, i.e., affordable inputs, advisories, logistics, finance, and market linkages. Agribusinesses address these challenges through various means, i.e., their products and services and farmer support to improve productivity, income, and resilience to climate change. These are particularly important in ESA, where farmers primarily produce maize, which is vulnerable to climate change. Maize faces a 15% climate-related yield decline without adaptation and challenges from diminished cropland sustainability, poor agronomic inputs and management, and degraded environmental bases with declining soil fertility and degraded water systems².

2.

OBJECTIVES OF THE FOOD SYSTEMS ACCELERATOR

The Food Systems Accelerator Program was set up to support Ukama Ustawi in designing a Climate-smart Agriculture (CSA) business support program that can be implemented in ESA. The Food Systems Accelerator Program is aimed at creating a demand-driven, responsive to market needs, gender, and youth-inclusive and targets high-growth, high-impact agribusinesses that express demand for technical assistance and links to financing opportunities to strengthen food systems and advance sustainable and inclusive growth. The Food Systems Accelerator Program achieved these objectives through **3 main thematic areas** implemented across the four selected countries in ESA over the initiative's duration between 2022 and 2024.

The objectives were achieved through:



Provision of CSA Technical Assistance (TA): the agribusinesses were provided with coordinated and specialized evidence-based TA support that encouraged adoption, strengthened their CSA practices, and addressed their concrete ecosystem challenges. CSA TA supported the de-risking of agribusinesses (especially those involved in production) and improved their bankability. The CGIAR network of scientists provided this TA.



Provision of Impact Measurement and Management (IMM) Technical Assistance: Understanding how to effectively measure and manage impact is critical to ensuring agribusinesses achieve their desired result in contributing towards positive environmental and social impact. The agribusinesses were encouraged to use the IMM data to improve business performance, identify areas where values can be created, and make informed decisions to maximize positive impact while minimizing negative impacts. Further, agribusinesses were advised to use IMM data if impact or responsible investors require it. The CGIAR network of experts provided the training.



Provision of Investment Readiness Technical Assistance: Funding provides crucial resources enabling agribusiness to develop new products, expand production capacity, and access new markets. Securing financing is essential in establishing a foundation for long-term growth and sustainability. However, agribusinesses must be investment-ready to secure long-term growth and sustainable funding. Management teams were made to understand their growth plan and financing needs to ensure that new funding must support instead of hindering their paths to sustainability. Further, agribusinesses were equipped on how to position their businesses to potential investors and further negotiate with them. This support was provided by the IFDC-2SCALE and its network of scientists. The outputs of this workstream are provided separately.

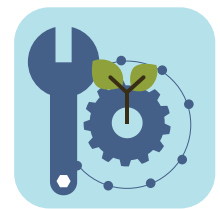
2.1. Program design

The impact logic of the Food Systems Accelerator Program is to ensure the support and development of sustainable (diversified and di-risked) and resilient agribusinesses across ESA. The unique blend of investment readiness and science-driven technical assistance supports commercial growth while ensuring sustainable ecological and social impact.

2.1.1. Phases

There were three (3) phases of technical assistance (TA) delivery:

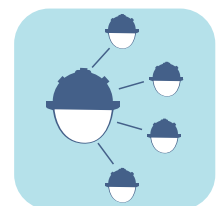
Design and diagnostics: In February 2023, the CSA technical team organized in-person design and diagnostic sessions for the agribusiness. The session was instrumental in assessing the company's technical needs; after that, the design and diagnostics sessions' outputs informed the program curriculum's design³.



Co-development: As soon as the sessions to identify the company's needs were concluded, the technical team and the agribusiness co-designed a curriculum and structure of TA delivery systems. These included the number of sessions, durations, specific topics to be covered, types of trainers required, and the targeted outputs. The technical team provided a wide spectrum of advisory services throughout the implementation period, using hybrid delivery methods and a mix of group sessions for general training and one-on-one sessions to address more specific needs. To ensure the effectiveness of the co-development phase, the TA experts received prior general guides and recommendations on how best to prepare for training and mentoring sessions from the accelerator team⁴.



Delivery: The agribusiness received training from the TA experts according to the identified needs. The accelerator program provided high-quality TA experts with proven practical experience. Execution-oriented training enabled the agribusiness to deliver concrete and tangible results.



2.2. Overview Of Workstreams

Four different workstreams were established to provide a comprehensive support mechanism. Those four workstreams are on the Enabling Environment, Gender and Social Inclusion, Impact Measurement, and Innovation-specific Technical Assistance. Each company has received advisory services across the four workstreams, resulting in various outputs that support the companies in their development. The workstreams are described below, and the results are summarized in Section 3.



2.2.1. Enabling Environment

In successful agribusiness acceleration, a supportive enabling environment is as fundamental as addressing the financing gap. The enabling environment comprises policies, rules, and regulations created by governments that are fundamental for agribusinesses to launch and grow successfully. Challenges in devising a conducive enabling environment reflect upon enterprises with high risks and transaction costs and prevent them from making a profit in return for their investment. Enabling environment technical assistance under the Food Systems Accelerator seeks to help agribusinesses tackle these challenges to the extent it is realistic during the program period. The team thereby adapts a low-hanging fruit strategy that will help address some of the biggest challenges highlighted by enterprises in a time-efficient manner. The prioritized assistance is research-based and short-term: mapping the policy and regulatory environment and the opportunities for public-private partnerships and market expansion. Examples may include providing demand-driven transparent information regarding quality standards and environmental compliances, bureaucratic processes, and land and water rights and fees. For some enterprises, the action plan includes identifying key partners and public- and private-sector parties and linking them with enterprises to form market and partnership connections. Apart from that, long-term assistance includes policy advocacy, such as working with governments to design incentives and enact export duty and tax exemptions for agribusinesses, driving significant social and environmental change. During the first cohort of the FSA Program, the Enabling Environment Unit supported five agribusinesses.



2.2.2. Gender Equality and Social Inclusion (GESI)

Gender and Social Inclusion (GESI) is a key strategic factor that determines the economic, social, and environmental (climate) resilience and sustainability of any business, especially Agribusinesses in Africa. This element of the technical assistance focused on highlighting why GESI should matter to businesses while illustrating why women and youth require additional support to participate fully in agricultural value chains. A business case was made by outlining what strategic benefits the Accelerator partners would enjoy by being more inclusive. An individual GESI Action Plan was developed for each Partner.

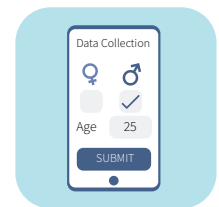
A GESI Action Plan is a powerful mainstreaming tool that will help the Accelerator Partners derive the benefits and impact of being GESI smart by guiding them and their teams in the development and adaptation of inclusive strategies and practices. Additionally, the plan will help monitor the implementation progress of the same. An effective plan allows the business to attain better performance, manage risk, retain good talent, implement business solutions more effectively and efficiently, and engage with aligned gender lens investors effectively.

2.2.2.1. GESI ACTION PLAN DEVELOPMENT APPROACH

The following key steps were followed in developing the GESI Action plan. They included base-line data collection, analysis, and development of gender goals and activities.

A. BASELINE DATA COLLECTION

The process began with collecting gender and age-disaggregated baseline data through an online questionnaire guided by the 2X Criteria. Data was collected on entrepreneurship (founding and ownership), leadership (senior management and board positions), employment (internal and external workforce and partners), and consumption (products, services, and communication).



B. DATA ANALYSIS

The baseline data was analyzed to understand and assess the current gender equality and social inclusion profile of the business. The identified gaps and opportunities for higher inclusion formed the plan’s basis.



C. DEVELOPMENT OF GESI GOALS AND TARGETS

Following the GESI analysis and assessment and identifying inclusion gaps and opportunities, a list of goals and activities was developed and summarized into a GESI action plan presented as a schedule/ table (Section 2.3 in each plan). The targets were developed for the primary themes/gender outputs that guided the collection of the baseline data, as summarized above.



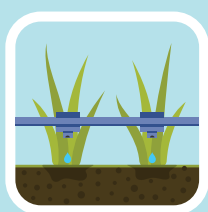
Three main frameworks guided the GESI outputs and target development: the 2X Global Criteria, the CGIAR GESI framework, and the gender-responsive business model canvas.



2.2.3. Climate-Smart Agriculture technical assistance

The Food Systems Accelerator focused on four specific Innovation Themes. In their application to the program, successful companies demonstrated the ability to scale an innovation that falls into one of the four themes. Through the participatory co-design of action plans, companies and researchers created a TA program that matched the companies' needs with relevant researchers' areas of expertise.

The four innovation themes are the following:



A. MECHANIZATION AND IRRIGATION

Mechanization in agriculture involves using machinery to boost productivity, encompassing tools and equipment for farming. In contrast, mechanized irrigation, using pumps and other methods, enhances water efficiency, contributing to climate action through innovations like solar-powered irrigation and storage solutions.



B. CONSERVATION AGRICULTURE

Conservation agriculture promotes minimal soil disturbance, permanent soil cover, and crop diversification to enhance natural processes, reduce the need for chemical fertilizers, and improve overall agricultural sustainability. This approach is based on three principles: minimal soil disturbance, soil cover maintenance, and crop diversification, along with other practices like sustainable intensification, Integrated Soil Fertility Management, and Integrated Pest Management.



C. NUTRITION

Nutrition-sensitive, climate-smart agriculture is the solution to decreasing the trade-offs between agricultural productivity, climate change, and human and animal nutrition. They make farming more climate-sensitive and produce more nutritious food while maintaining productivity. Some examples of innovations under this theme include products such as legumes, cassava, livestock, dairy, oil seeds, horticulture (fresh produce and vegetables), and other staples.



D. AGRICULTURAL RISK MANAGEMENT

Agricultural Risk Management (ARM) is the identification, evaluation, and prioritization of risks in agricultural activities, including coordinated and economic applications to minimize, monitor, and control the probability or impact of unfortunate events and maximize opportunities. They make farming more predictable and increase the resilience of farmers. Some examples of innovations under this theme include advisory services, market linkage services, digitizing the value chain, and financial products (microinsurance, savings, lending, and credit guarantees).



2.2.4. Impact Measurement and Management

Measuring and managing impact helps agribusinesses to (i) attract new finance streams, such as climate-oriented impact investors and emerging funds for incentivizing climate-smart business models; (ii) identify risks and opportunities for building the climate resilience of their supply chain(s); (iii) build credibility and competitive advantage on the market; and (iv) periodically revisit and refine their business models to maximize returns and impacts.

This technical assistance aimed to improve companies' understanding of and access to practical, science-informed tools to assess their contribution to climate-smart agriculture impacts for smallholder farmers and rural, peri-urban, and urban communities.

These impacts refer to (i) sustainable increases in productivity and incomes to ensure food and nutrition security;

(ii) reduced vulnerability, increased adaptive capacities, and climate resilience; and (iii) reductions or capture of greenhouse gas emissions⁵.

Throughout the technical assistance, the agribusinesses were engaged in a co-design and co-learning process, allowing them to develop tailored solutions while building their knowledge and skills with their peers. The program equipped agribusinesses with the essential steps to measure and manage CSA-related impacts on their business operations. The knowledge and skills were then harnessed to craft robust impact pathways, which showcase how business innovations provide solutions for addressing poverty, food insecurity, malnutrition, and climate vulnerabilities by creating new jobs, improving farm productivity, profitability, and livelihoods, by increasing resilience to climate risks and reducing contributions to climate change. These impact pathways are integrated into their business models and foundation for identifying, measuring, and tracking indicators pertinent to each agribusiness.

3.

COMPANY OVERVIEW

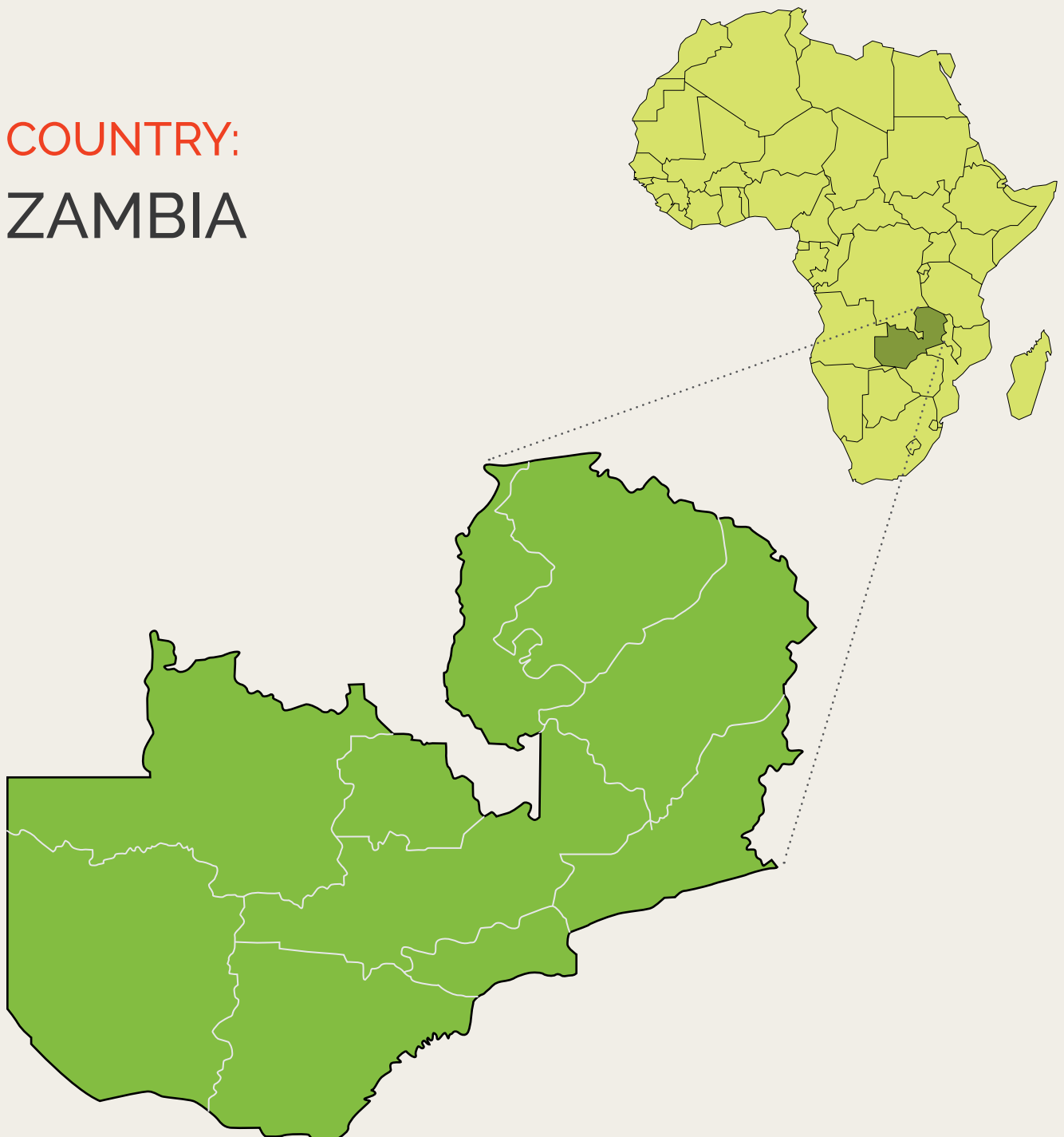
COMPANY NAME:

FOREST AFRICA ZAMBIA LTD



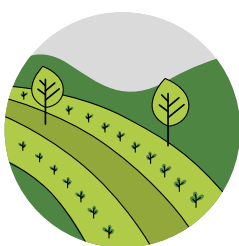
COUNTRY:

ZAMBIA



Forest Africa Zambia Ltd is an entrepreneurial initiative established in 2017 and based in Zambia, focusing on Non-Timber Forest Products (NTFP), including organic and healthy indigenous wild fruits, i.e., Mabyu (Baobab), Monkey Bread, and Ngai (False Medlar). The company gathers and processes these organic wild fruits into nutritious fruit juices while upholding the zero-waste principle. Forest Africa Zambia Ltd employs a business model centered around rural community empowerment and commerce to address rural poverty and pressing environmental issues, i.e., deforestation, of the 21st century. The company works closely with over 200 rural households to source wild fruits for juice processing. The fruit powder is processed at the factory into a nutritional organic juice, and seeds are pressed to extract oils for skin and hair products. The baobab fruit's fibrous funicles are also used for making antioxidant-rich tea, while the shells are processed into charcoal briquettes that provide an energy source for the factory.

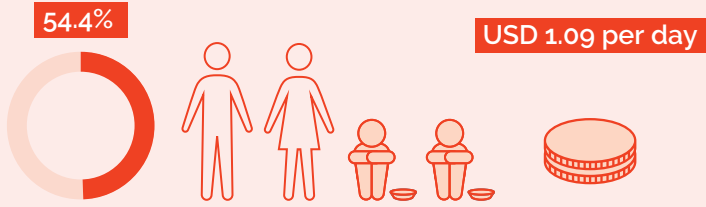
Further, a portion of the fruit seeds is set aside for reforestation purposes⁶. Forest Africa Ltd's indigenous fruit processing model ensures the produce's circularity and that the zero waste principles are upheld. Forest Africa Zambia Ltd. is further collaborating with scientists from the International Institute of Tropical Agriculture (IITA) to continuously improve the shelf life of its juice products and further develop other products, including milk from the baobab fruits. The scientists from IITA have further assisted Forest Africa Zambia Ltd. in developing improved standard operating procedures and manuals for raw material handling and processing and new product development (i.e., yogurt from baobab milk). The collective efforts from external scientists have indirectly improved rural income and alleviated poverty of the communities supplying the fruits through the increased company's income and earnings⁷.



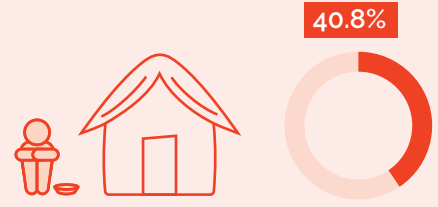
3.1. Sector Spotlight

The Statistical Office 2015 reported that 54.4% of the Zambian population lives below the poverty line of about USD1.09 per day, and about 40.8% of this population is classified as living in extreme poverty. The country's rural poverty is estimated at 76.5% compared to 23.4% in urban areas, and female-headed households are generally poorer than male-headed households⁸.

In 2015

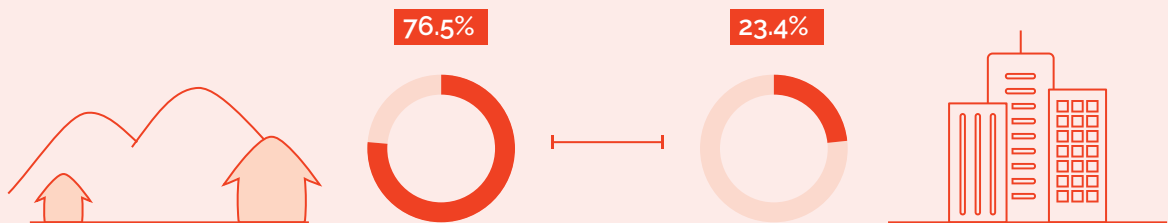


54.4% of the Zambian population lives below the poverty line of about USD1.09 per day



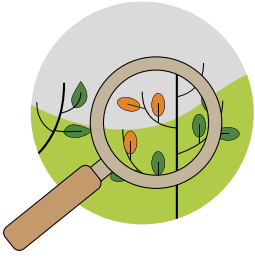
40.8% of this population is classified as living in extreme poverty

In 2015



The country's rural poverty is estimated at 76.5% compared to 23.4% in urban areas





3.2. Challenge

3.2.1. What problems is the company solving?

Zambia is endowed with several indigenously growing organic wild fruits⁹. However, the country faces alarming deforestation rates, resulting in forest cover loss of about 300,000 hectares yearly¹⁰. The alarming deforestation is a climate change response to flood and drought-driven climate affecting agricultural outputs amongst the rural communities. In response to climate change-induced flooding and drought, rural communities often resort to tree-cutting for charcoal production as an alternative source of income. The overreliance on charcoal production has dire environmental consequences, including habitat degradation and deforestation. On top of the deforestation and degradation problem, rural communities often utilize conventional methods of wild fruit harvesting and processing, resulting in waste and unrealized benefits of the potential value chain of wild organic fruits. Furthermore, rural communities cannot trigger fruit demand and require strong market linkages to enhance rural commerce¹¹, which may enhance the quality of livelihoods and improve rural poverty.

3.2.2. Why is it important?

Against the previous context, Forest Africa Zambia Ltd was inspired by the need to explore sustainable alternatives to address the challenges while promoting economic development, potentially reducing rural poverty, and encouraging and supporting healthier consumption choices¹². Forest Africa Zambia Ltd has successfully established a business model that has enabled it to produce about 15,000 liters of juice per month and supply its products to over 200 retail outlets in and around Lusaka, Southern, and Copperbelt Provinces¹³.

4.

RESULTS



4.1. Enabling Environment

4.1.1. Lead advisor profile

Dr. Idil Ires is a political economist-consultant specializing in agrarian change, trade, and industrialization in East Africa. She will assist the Accelerator Partners by conceptualizing an Agribusiness Enabling Environment (AEE) focusing on targeted technical assistance, mapping, and policy advocacy. This aided in tackling significant operational barriers, prioritization of the agribusiness partner's needs, providing relevant industry associations, and establishing policy harmonization.

4.1.2. The enabling environment

Forest Africa Zambia has faced hurdles in securing short and long-term financing due to high-interest rates, often up to 33 percent. Such rates have significantly impeded the company's potential to secure working capital to grow its business. Also, its operations are encumbered by an excessive number of mandatory licenses, presenting operational obstacles and inhibiting business growth. Lastly, Forest Africa and other local Zambian SMEs face a lack of monetary or fiscal incentives from the government that are tailored to support them. Current incentives predominantly favor incoming foreign investors and companies, placing local businesses, like Forest Africa, at a disadvantage. In addressing these challenges, the TA team reached out to the Zambia Development Agency (ZDA). It provided key contacts to Forest Africa for the enterprise to access the Zambia Credit Guarantee Scheme, which can negotiate with financial institutions to secure flexible loan terms and significantly mitigate financial risks associated with loan applications. Moreover, the enterprise is linked with the Ministry of Green Economy and Environment to explore concessional green finance options and investigate funding opportunities from the Citizens Economic Empowerment Fund. Moreover, a comprehensible summary of the Investment, Trade, and Business Development Act of 2022 has been provided for the enterprise to understand the investment incentives, and it recommended that it contact ZMD to explore concrete opportunities.



4.2. Gender Equality and Social Inclusion

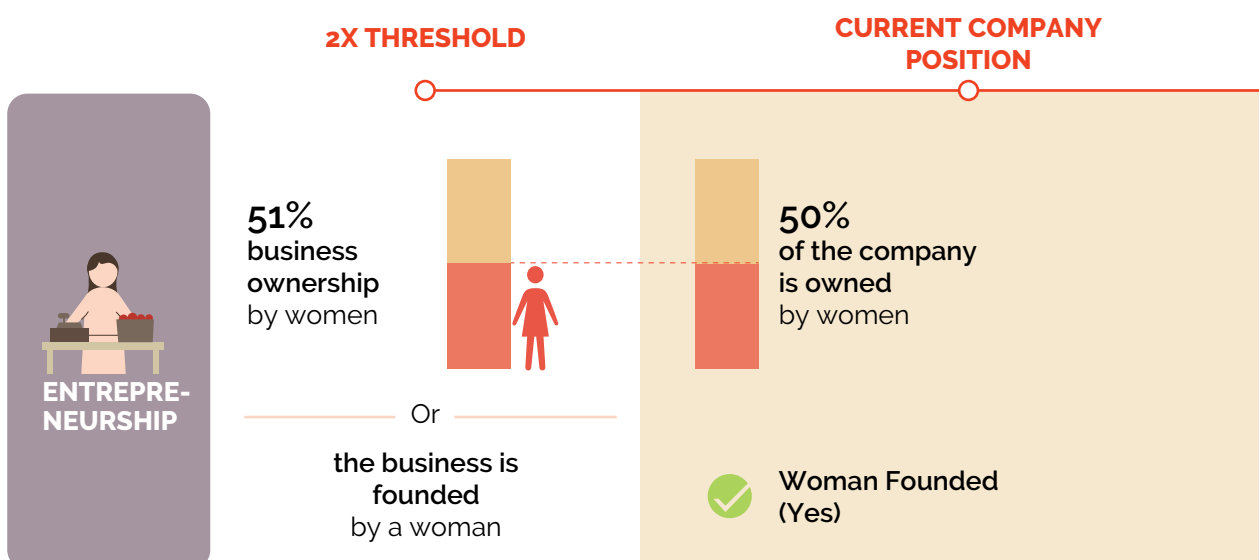
4.2.1. Lead advisor profile

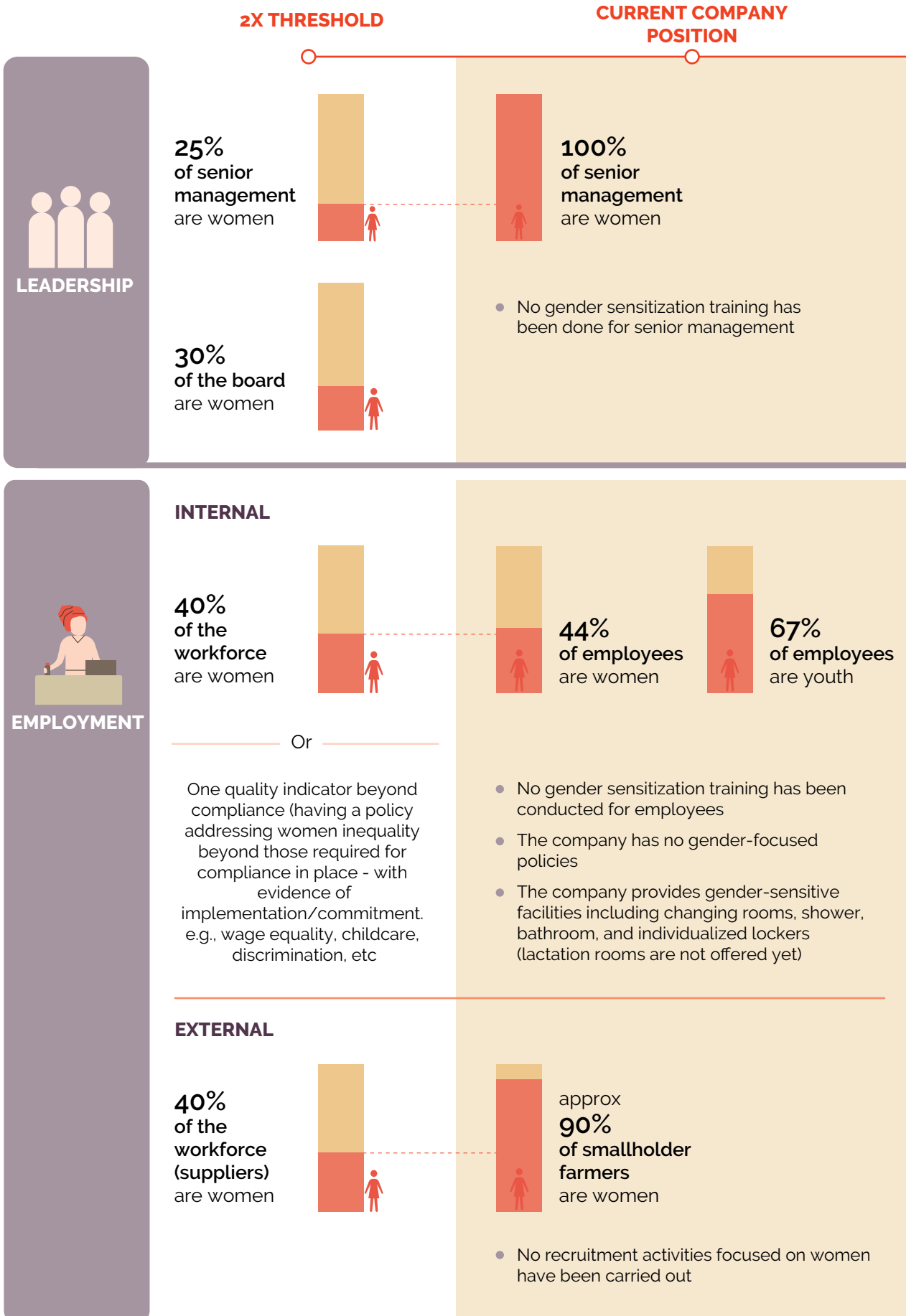
The Gender Equality and Social Inclusion (GESI) technical assistance implementation process was led by The Rallying Cry team in collaboration with Dr. Karen Nortje. The Rallying Cry is an ecosystem initiative working to shift private sector capital at the nexus of gender, climate, and agribusiness. At the same time, Dr. Karen Nortje is a senior researcher and social inclusion subject matter expert. The team supported the Accelerator Partners by equipping them to strengthen the capacity and agency of both the men and women within their agribusiness value chain(s). To achieve this, the team developed a gender action plan for Forest Africa Zambia Ltd to help address the barriers to gender inclusivity.

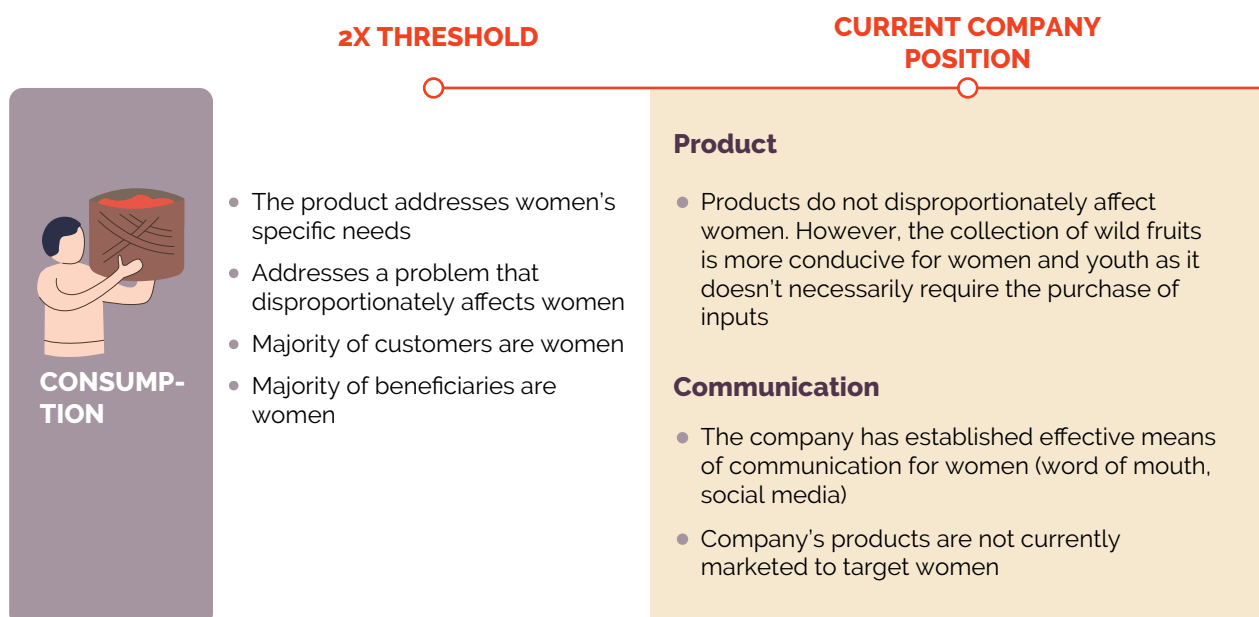
4.2.2. Company GESI profile and summary of activities

The company is woman-founded, owned (50%) and led (100% of senior managers are women). 67% of employees are youth, 44% of employees are women, and 90% of their smallholder farmers are women. The company does not have gender-focused policies, and gender sensitization training has not been implemented yet. However, the company provides employees with individualized lockers and separate changing rooms for women, including showers and washrooms. Additionally, Forest Africa Zambia identified promotional and communication channels that work best for women (e.g., word-of-mouth social media).

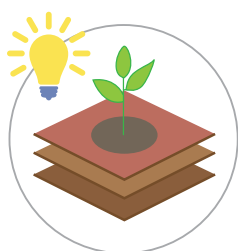
A summary profile is given below:







The company needs to maintain these standards while making some adjustments to be more inclusive including providing regular gender sensitization training, implementing gender-focused policies (e.g., recruitment activities, marketing), and establishing lactation rooms. The company has yet to set up a board, but once it does, women and where practical youth should be represented. These activities are summarized in the company's GESI action plan.



4.3. Climate-Smart Agriculture technical assistance

4.3.1. Lead advisor profile

Dr. Alamu O. Emmanuel is an experienced food chemist with over 17 years of research experience and strong analytical skills in food science and nutrition.

4.3.2. The innovation

Forest Africa Zambia Ltd actively participated in the CGIAR Food Systems Accelerator Program under One-CGIAR Regional Initiative (Ukama Utsawi) to seek technical guidance and capacity to improve its operations and market competitiveness. The program had a bespoke approach to providing Technical Assistance to the Accelerator Partners. In the case of Forest Africa Zambia Ltd, one of the key requirements

was the need to strengthen product portfolio to increase wild fruit offtake from rural communities and to increase revenue. Forest Africa accumulates a rich repository of baobab seeds in its processing activities. Apart from pressing a baobab seed oil, most of the seed was potentially underutilized. There was clear need to find innovative ways to commercially utilize the seeds other than planting and oil pressing. In order to achieve this level of innovation, critical expertise was missing within Forest Africa’s ranks. However, through the CGIAR Food Systems Accelerator Program, IITA (International Institute of Tropical Agriculture) in Zambia were engaged to look into assisting Forest Africa to formulate additional wild fruit-based products. Through IITA, Forest Africa were introduced to Dr. Alamu Oladeji Emmanuel who is an experienced food chemist with over 17 years of research experience and strong analytical abilities in food science and nutrition. Under Dr. Alamu’s direction, Forest Africa Zambia embarked on an innovative path. Creating what could potentially be the first of its kind, a formula for baobab milk using baobab fruit seeds. The vegan milk is a nutritious, vitamin-rich, and antioxidant-rich product. The product was a notable accomplishment under the CFSA support through IITA engagement and key to increase Forest Africa product portfolio and competitiveness. The milk is a base for several additional products that can include tofu, sour milk, cheese, yoghurt. So far, Forest Africa have successfully done trials on baobab seed milk yoghurt which is clearly a new product line.

The baobab Milk based Yoghurt was taken for tests at the University of Zambia and shown results below:

Parameter	Baobab Seed Yoghurt
Moisture	85.86
Crude Fibre	0.00
Crude Protein	2.59
Crude Fat	2.93
Carbohydrates	27.57
Energy	64.34
Calcium	0.59
Total Sugars	8.70
Vitamin C	56.03

The product is currently still undergoing local approvals and certification through the Zambia Bureau of Standards (ZABS). The product is expected to be on the Market once certification from ZABS is received.

STANDARD PROCEDURES

Baobab vegan milk is a nutritious and refreshing beverage that can be easily made using the simple steps involving Sorting, cleaning, Soaking the Seeds, Boiling the Soaked Seeds, blending the cooked Seeds, and finally, adding essential ingredients.

With these simple steps, you can enjoy delicious and nutritious baobab seed milk, rich in vitamins, minerals, and antioxidants. Experiment with the milk by adding flavors like vanilla or cinnamon or using it as a base for smoothies or other culinary creations.



Figure 1: Sample of baobab milk produced using the developed recipe.

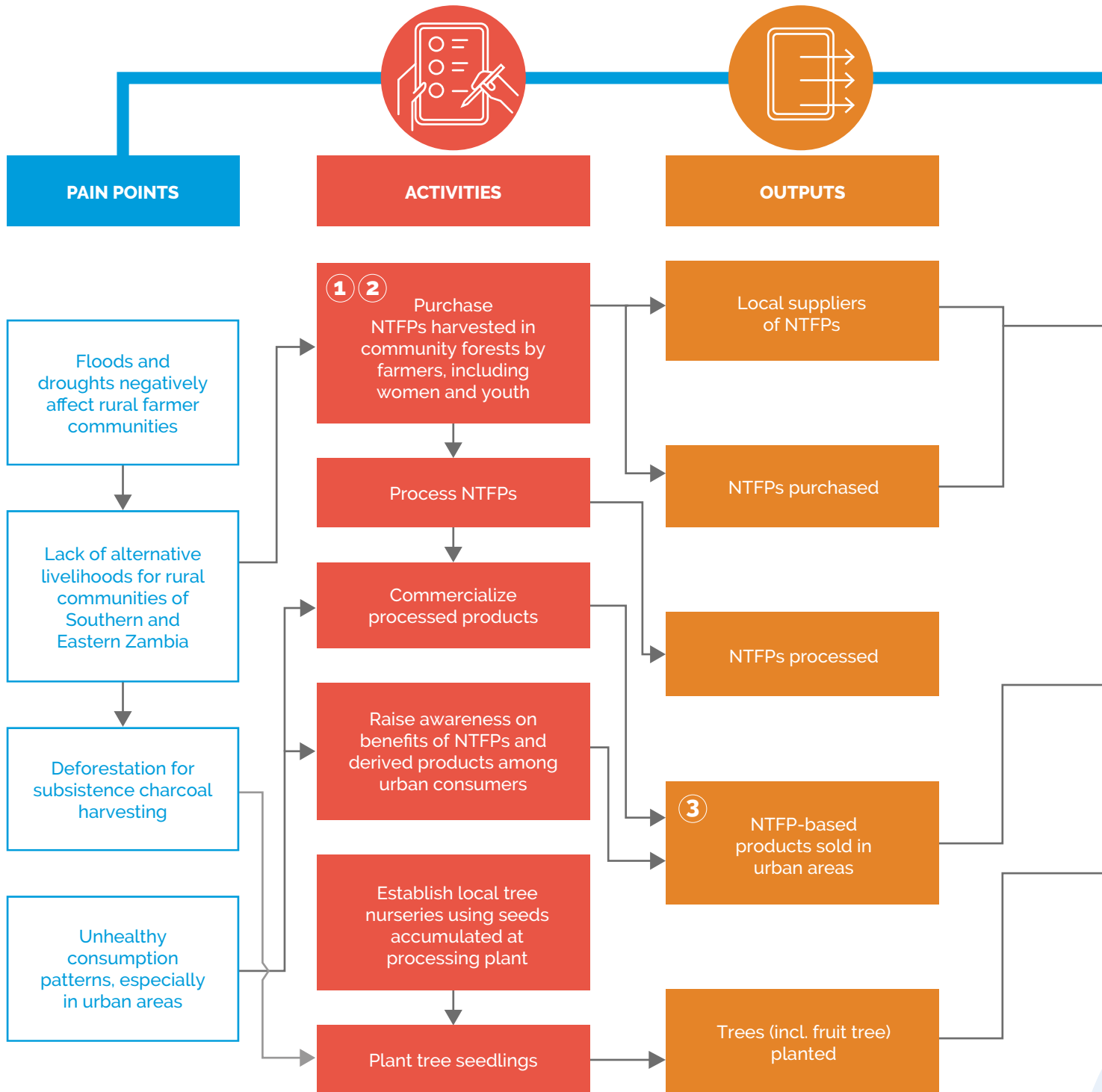


4.4. Impact Measurement and Management

4.4.1. Lead advisor profile

The impact pathway was delivered by Andreea Nowak, a social science researcher at the Alliance of Bioversity and CIAT, with interest in how to improve the assessment and reporting on climate adaptation and resilience. Within the FSA, her interests were to assess the current impact measurements and metrics used by the agribusinesses and develop additional indicators for impact measurement reporting, data collection, consolidation, and fundraising. Together with a team of researchers, she has conducted interviews and workshops and co-designed the below-impact pathway with the agribusiness.

4.4.2. The impact pathways



Assumptions: 1) Communities are willing and able to shift from charcoal production to NTFP-based livelihoods; 2) The local ecosystem can support a sustainable harvest of NTFPs; 3) There is sufficient market demand for NTFPs collected and processed by communities, 4) The income generated from the sale of NTFPs is sufficient to support livelihoods of local communities and discourages them from deforesting new areas for charcoal harvesting.

By focusing on indigenous non-timber forest products (NTFPs), Forest Africa Zambia Ltd addresses pressing environmental and social issues, creating alternative livelihood opportunities for rural communities through Ecosystem-based Adaptation and healthier consumption choices for consumers.



ENDNOTES

- 1 <https://www.cgiar.org/>
- 2 UKAMA USTAWI. 2022. CGIAR Food Systems Accelerator Technical Report (Concept Note). CGIAR and IFDC.
- 3 <https://csa.guide/csa/what-is-climate-smart-agriculture>
- 4 *ibid.*
- 5 <https://www2.deloitte.com/us/en/insights/deloitte-review/issue-22/diversity-and-inclusion-at-work-eight-powerful-truths.html>
- 6 <https://www.cgiar.org/news-events/news/cgiar-food-systems-accelerator-entrepreneur-spotlight-forest-africa-zambia-ltd-redefining-fruit-processing-for-a-greener-future/>
- 7 <https://www.cgiar.org/news-events/news/cgiar-food-systems-accelerator-entrepreneur-spotlight-forest-africa-zambia-ltd-redefining-fruit-processing-for-a-greener-future/>
- 8 Living Conditions Monitoring Survey, Central Statistical Office 2015.
- 9 <https://www.cgiar.org/news-events/news/cgiar-food-systems-accelerator-entrepreneur-spotlight-forest-africa-zambia-ltd-redefining-fruit-processing-for-a-greener-future/>
- 10 Day M, Gumbo D, Moombe KB, Wijaya A, Sunderland T. 2014. Zambia country profile: Monitoring, reporting, and verification for REDD+. Occasional Paper 113, Bogor, Indonesia: CIFOR.
- 11
- 12
- 13 <https://www.cgiar.org/news-events/news/cgiar-food-systems-accelerator-entrepreneur-spotlight-forest-africa-zambia-ltd-redefining-fruit-processing-for-a-greener-future/>

REFERENCES

UNDP, "Human Development Report 2016," 2017, <http://hdr.undp.org/en/content/human-development-report-2016-overview>.

<https://www.forbes.com/sites/forbescommunicationscouncil/2022/03/03/the-importance-of-diversity-and-inclusion-for-today's-companies/?sh=957631649df9>

<https://www.mckinsey.com/featured-insights/diversity-and-inclusion/diversity-wins-how-inclusion-matters>

<https://hbr.org/2019/06/research-women-score-higher-than-men-in-most-leadership-skills>

<https://thebpp.com.au/gender-equality-and-social-inclusion/#:~:text=Having%20a%20diverse%20workforce%20and,views%20to%20solve%20complex%20problems.>

<https://hbr.org/2022/07/we-cant-fight-climate-change-without-fighting-for-gender-equity>

<https://therallyingcry.org/publications/>

<https://www.v4w.org/resources/gtbn-in-agriculture>

https://wrd.unwomen.org/sites/default/files/2022-04/EN%20Women%20in%20Climate%20Resilient%20Agriculture%20in%20WCA_o.pdf

<https://www.un.org/ohrlls/news/young-people%E2%80%99s-potential-key-africa%E2%80%99s-sustainable-development#:~:text=Africa%20has%20the%20youngest%20population,to%20realise%20their%20best%20potential.>

<https://www.nepad.org/blog/gendering-agriculture-empowering-african-women-farmers-using-modern-technologies>

<https://www.nationalgeographic.com/culture/article/partner-content-empowering-female-farmers>

<https://www.un.org/development/desa/disabilities/youth-with-disabilities.html>

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