

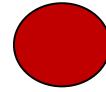


GBE'S IMPACT ASSESSMENT 2014
BY STUDENT CONSULTING FOR DEVELOPMENT

User guide



THIS DOCUMENT IS A REPORT



THIS DOCUMENT IS NOT A PRESENTATION

Why this report format?

The format of this report, which is also referred to as a *Slideument*, is an innovative output inspired by the McKinsey decks.

It is not a presentation, nor is it intended to be used as such. This document is a report which formatting has been specifically designed to be **easily disseminated and communicated with stakeholders**.

How to read this report?

There is more than one way to read this report:

- (i) you can read only the final page of each chapter (with the red sidebar) and be done with the reading in **10 minutes**: use the [hyperlinks](#) to navigate from one page to the next,
- (ii) in addition you can also take the time to read the external and internal analysis of GBE and the methodology followed by the report, and be done with the reading in **30 minutes**,
- (iii) finally you can read it all including and be done in less than **60 minutes**.

Each chapter can be read independently.

Summary

I. BACKGROUND INFORMATION

GBE – External context

GBE – Internal context

Introduction to impact assessment

II. IMPACT ASSESSMENT

Environmental impact

Economic impact

Social impact

III. CONCLUSIONS

Monitoring GBE's impacts

Testimonials

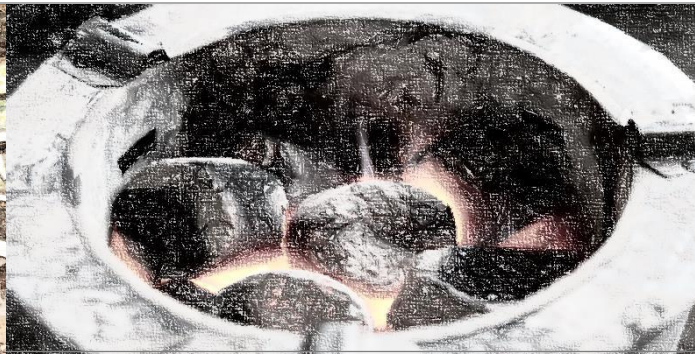
IV. APPENDIX

Methodology of the report

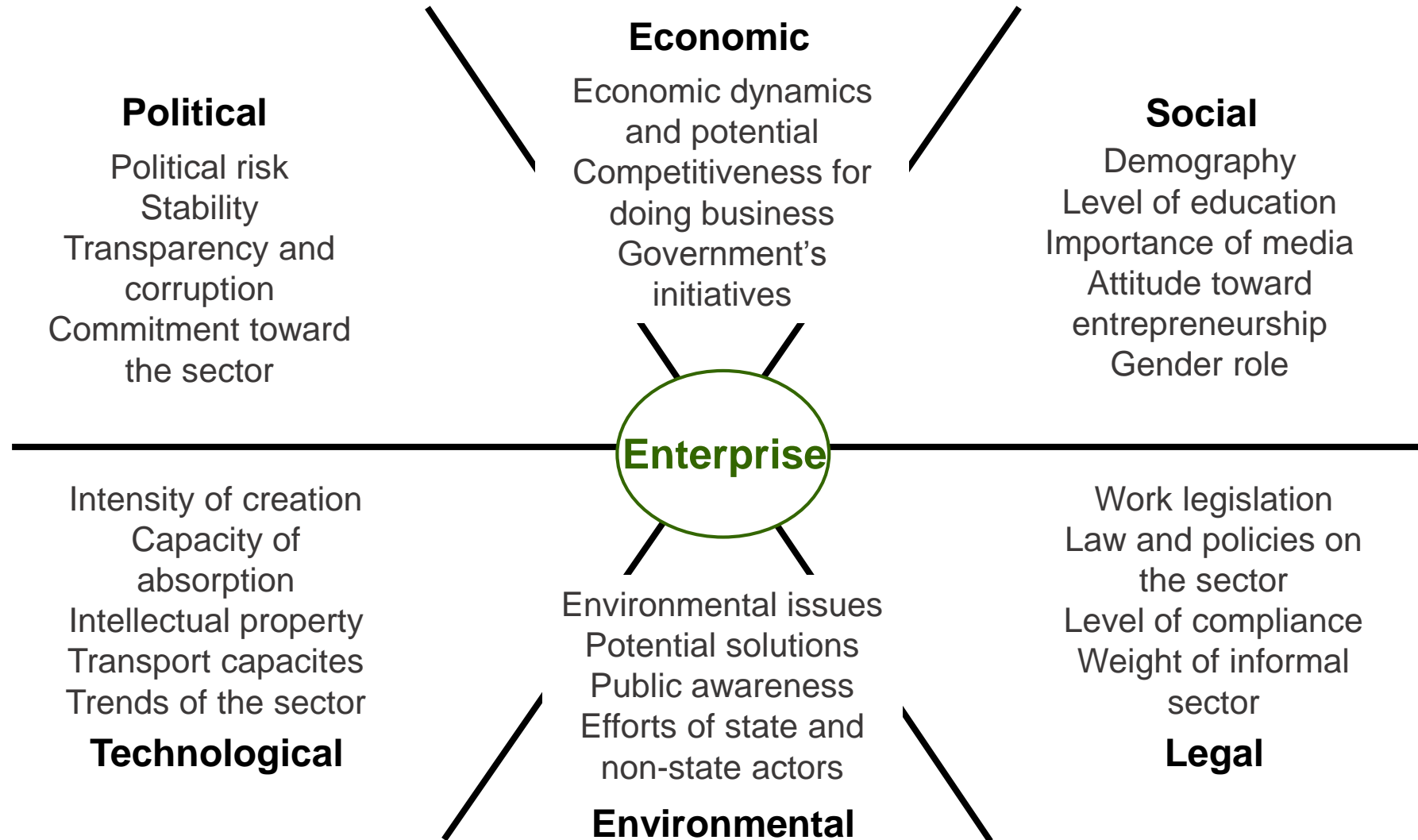
V. BIBLIOGRAPHY



GBE – External context



PESTEL Analysis of GBE's External context



Political

- Since coming to power in 1986, President Yoweri Museveni has progressively established **political stability** and relative democracy:
 - Although political stability has been restored since the 1980s, security has mainly improved since the 2000s (Joseph Kony's Lord Resistance Army left the Ugandan territory and the Karamoja region was brought back to relative peace);
 - Electoral reforms ensuring freedom and fairness are recommended for the next elections due in 2016: past elections, only multi-party since 2005, have been marked by distribution of money and gifts from the ruling party, disenfranchisement, and an opposition largely disadvantaged (the leader of the main opposition party, Kizza Besigye, has been jailed several times);
 - Substantial powers have been devolved to Local Governments in the 1995 Constitution of the Republic of Uganda and the 1997 Local Government Act, with the objective of improving the delivery of services.
- **Corruption remains severe, well-known and cutting across many sectors** in Uganda, as the country is ranked 142th (out of 174) in the 2014 Transparency International's Corruption Perception Index: despite repeated pledges to eradicate corruption and good technical work from investigators and prosecutors, Uganda lacks political will and fails to hold high members of its government accountable for large scale bribe, while crippling anti-corruption institutions (interference, harassment, and threats).
- The promotion of sustainable energy is pushed by two national public entities working with local governments and private sector:
 - The Ministry of Energy and Mine with the Promotion of Renewable Energy and Energy Efficiency Programme (PREEEP);
 - The **National Environment Management Authority (NEMA)**, an autonomous body ensuring the integration of environmental concerns in overall national planning through coordination with the relevant ministries, departments and agencies.
- At the international level, Uganda is an active part of all organizations relevant to the promotion of renewable energies, especially SE4All (**Sustainable Energy for All**), which promotes integrated country actions that strategically transform energy systems.

Economic

- After a great economic decline due to chronic political instability and erratic economic management until the 1980's, Uganda was left among the world's poorest and least-developed countries, but has shown great potential these last decades:
 - In 2014, Uganda's nominal GDP was estimated at \$27.616 billion (101th out of 188 economies ranked), GDP per capita amounted up to \$726 (166th out of 185 economies ranked), 62.9% of the population lived with less \$2 per day, and inequality was still high in comparison with international standards (World Bank Gini: 0.438);
 - But Uganda is now ranked among the 20 top fastest development economies of the world, with a GDP growth averaged at 7% per year these last two decades and good forecasts for the future (5.6% in 2014/15);
 - With a **liberal, investments and exports-driven economy with great macro-economic stability** (single digit inflation and small debt), Uganda's potential is based on natural resources, including fertile soils and regular rainfall (agriculture representing 40% of the GDP even if limited by supply-side constraints), sizable mineral deposits and now oil reserves.
- However Uganda is ranked 150th (out of 189) in the World Bank's Doing Business Index and 122th (out of 144) in the World Economic Forum's Competitiveness Index, which demonstrates clear difficulties to run a small/medium-size business:
 - **Increasing commercial lending rates, now close to 30%** (highest rates in East Africa);
 - An urgent need to improve power generation (the Government plans to double the length of its power grid within four years) and transport infrastructure, as well as reduce red tape and non tariff barriers;
 - Low levels of higher education, training and innovation in general.
- Recent initiatives to facilitate cross-border trade (East-African Community's Single Customs Territory and Tripartite Free Trade Area), and to reduce constraining regulation (abolition of a number of business licenses, one stop shop for business registration) should help, as will oil investments and the large infrastructure program.

Social (1/2)

- Uganda remains in the low human development category according to UNDP's HDI ranking, ranked 164th (out of 187) in 2014.
- The Ugandan population, still largely rural (85%), is soaring (growth rate of 3.3%), bringing about opportunities and challenges:
 - Uganda is the **second youngest population in the world**: 52% of the 37.58 million Ugandans are under 15 years old, 78% under 30, and the life expectancy stays particularly low at 59 years old;
 - Such a big young population will exert more pressure on the economy (increasing dependency burden at the household level and demand for social services such as education and health), unless it is transformed into a productive work force;
 - Mounting urbanization makes people shift from wood to charcoal: 1/3 of the Ugandans should be urban by 2030.
- Religion gives a certain structure to Ugandan's lives: 41.9% Roman Catholics, 42% Protestants, 12.1% Muslims, 1.5% Adventists.
- The Ugandan class system is dominated by a small, educated middle class consisting of professionals, wage earners (working for the state), and a small number of commercial farmers; most of the rest of the population consisting of subsistence farmers.
- The education levels are improving but are still low in comparison with international standards:
 - In 2011, school enrollment was 91% in primary and 28.08% in secondary (25.77% for girls and 30.41% for boys);
 - Highest primary school illiteracy rate in East Africa: 7.5 million Ugandan children need lighting to study at night.
- Although journalists continue to face intimidation which may engender self-censorship, the independent media remain vibrant:
 - Journalists are often supported by Ugandan courts which throw out cases brought against them by the State;
 - Social media's importance is increasing (15% of Ugandans access the Internet through computers or phones);
 - **Ugandan media play a crucial role in improving people's welfare by highlighting issues and raising public debate.**

Social (2/2)

- Uganda shows a substantial entrepreneurial energy, whose potential is hindered by high discontinuation and a lack of ambitions:
 - Ugandans reflect good entrepreneurial individual attributes: high perceived opportunities (76.9%) and perceived capabilities (84.9%), low fear of failure (12.6%) and high entrepreneurial intentions (60.2%);
 - The Ugandan society values entrepreneurship (good career choice, high social status, media attention);
 - Uganda's **TEA (Total early-stage Entrepreneurial Activity): 35.5%** of the 18-64 years old – **the second highest of all countries evaluated in 2014**, 80.8% being opportunity-driven and only 18.9 necessity-driven;
 - Uganda's established business ownership rate is 35.9% – the highest among all countries evaluated in 2014;
 - Uganda however experiences by far the highest discontinuation of businesses (21.2% of the TEA), which results in wasted resources and reflects a low preparedness of ventures and lack of an entrepreneurship ecosystem;
 - In addition, the Ugandan entrepreneurs show little ambition: 89% think their business will create less than 5 jobs, less than 1/3 think they are innovative (new product or new market) and 70% don't sell outside Uganda.
- Uganda stays a patriarchal society where **males have more access to socio-economic resources than females**:
 - Uganda is ranked 88th (out of 142) in the World Economic Forum's gender gap index, particularly showing weak economic participation and opportunity, and low educational attainment for women;
 - In terms of entrepreneurship, women's TEA is higher than men (37.15 vs. 33.73%), with similar perceived opportunities and capabilities, but slightly higher fear of failure and motivations necessity-driven more than opportunity-driven in comparison with men (21.89 vs. 15.20%);
 - Women play a **crucial role in the widespread adoption and use of clean cooking solutions** (as producers, designers, end-users, distributors, awareness-raisers) because of their central responsibility for cooking and managing household energy.

Technological

- Uganda has a weak domestic scientific and technological base, relying on acquisition of foreign-owned technology and know-how to support industrial development:
 - The commercialization of innovations brought by academic institutions is limited by a lack of linkages to the private sector;
 - Technology transfer through foreign investors will only benefit Uganda if **stakeholders are in a position to better absorb knowledge and to use it in their particular environment**, which implies an enhanced ability to understand foreign technologies and adapt them to local conditions and preferences, or to come up with new uses of existing products.
- Great strides have been made by the Government to put in place new intellectual property (IP) laws since 2005 (most of the existing dating back to the colonial era), but their enactment still poses challenges due to inadequate capacity to develop regulations, weak IP institutions and coordination between stakeholders, and weak enforcement.
- With increased funding and the establishment of the Uganda National Roads Authority (UNRA) in 2008 to directly take charge of the road sub-sector, a lot of work has been accomplished on all the eight major road corridors in Uganda.
- Modern technologies are not likely to disrupt the heavy reliance on wood-based fuels for the energy needs of most Ugandans:
 - **The energy poverty in Uganda is high** according to IEA definition as “the absence of sufficient choice in accessing adequate, affordable, reliable, quality, safe, and environmentally friendly energy services to support development”;
 - **96% of the overall Ugandan population still uses wood-based energy**: Liquefied Petroleum Gas (LPG) or electricity still fail due to the high upfront investment and consumption costs they entail for users, as well as their inaccessibility (electricity is only accessible to 15% nationally and 6% in rural areas) and inadaptability to traditional Ugandan cooking;
- Demographic growth and mounting urbanization actually make populations **shift from fire wood to wood charcoal**, whose consumption increases at a rate of 6% per year: 74.5% of Kampala’s population now relies on wood charcoal, whose prices are rising (multiplied by 25 between 1996 and 2010).

Environmental (1/2)

- The way wood-based fuels are used is largely responsible for the increasing deforestation and climate change in Uganda, as well as for the escalation of indoor air pollution:
 - The high demand and misuse of wood-based fuels have resulted in the depletion of forests, and exacerbates land degradation : Uganda has lost **2/3 of its forests over the last 20 years** and could lose them all by 2050;
 - Even if Uganda remains a low emitter of carbon with CO2 emission at 0.1 metric tons per capita, **CO2 emissions have increased by 358% in the country since 1990**;
 - Wood-based fuels cause indoor air pollution through a range of health-damaging pollutants,
 - The tools mostly used to consume wood-based fuels are characterized by a very **low energy efficiency**: three-stone fire (main cooking device), firewood stoves, charcoal stoves and charcoal-production kilns.
- Only 40 % of the waste generated in Kampala are collected; the remaining is usually burnt and/or dumped in unauthorized sites, causing health and environmental problems
- Uganda's economic development and the well being of its people are **highly vulnerable to climate change and deforestation**:
 - In particular, they are likely to mean increased food insecurity, shifts in the spread of diseases like malaria, soil erosion and land degradation, flood damage to infrastructure and settlements, and shifts in the productivity of agricultural and **natural resources on which the economy largely depends**;
 - These negative impacts will hit the poor and vulnerable hardest: the Karamoja region, which is the most hit by poverty, is reported as undergoing these consequences already, threatening the survival of local populations;
 - In Uganda, approximately 19,700 people die as a result of indoor air pollution (IAP) each year and 23% of children under five suffer from an acute respiratory related disease.

Environmental (2/2)

- The **potential of renewable resources** to mitigate these environmental threats is still **under-exploited** in Uganda:
 - Renewable sources of energy, excluding large hydropower, contribute less than 2% of Uganda's total energy consumption;
 - Yet with the escalation of fossil fuels' prices, renewable sources of energy are increasingly becoming competitive;
 - Bioenergy, apart from hydropower, is considered to be the second pillar to secure energy supply, particularly in rural areas;
- The financing mechanisms and other incentives to facilitate investment, communication, promotion and dissemination of renewable-energy technologies are still lacking, resulting in **low public awareness** about their efficacy and potency:
 - Although many environmental seminars and public awareness programs have been conducted, many people especially at the grassroots level still lack the knowledge required to preserve their environment;
 - Even if Ugandans are aware of the existence of renewable-energy technologies, their potential as well as technical constraints are generally underestimated;
 - The lack of mechanisms to monitor standards for renewable energy has made possible for low quality technology to be commercialized, which has to some extent damaged the overall image of the sector.
- **Civil society with support from international NGOs has the potential to play an important role** in supporting an effective response to deforestation and climate change in Uganda:
 - Such organizations as National Association of Professional Environmentalists (NAPE) or World Wide Fund for Nature (WWF) already federate expertizes and actions in the fight for environment preservation;
 - A recognized best practice in this sector is the initiatives undertaken this last decade to conserve biomass resources, for example through the promotion of improved cook stoves.

Legal

- Uganda has recorded significant strides in its efforts to update and **streamline labor legislation with international conventions**, notably through the *Uganda Labor Law Reform Project*, promoting ratification of ILO Conventions.
- The **Ugandan legal framework for the energy sector yet compartmentalized** is dominated by one main law affecting the energy sector: the Energy Policy for Uganda, voted in 2002 and reestablished into the Renewable Energy Policy for Uganda in 2007:
 - It spells out government's commitment to renewable energy resources with the overall policy goal of increasing the use of modern renewable energy, **from the current 4 per cent to 61 per cent of the total energy consumption by the year 2017**;
 - One specific objective is the goal to improve efficiency in the use of biomass resources, in recognition that biomass will remain the biggest and cheapest source of energy for most Ugandans in the foreseeable future;
 - As part of the implementation of this specific objective, in 2014 was launched the **Biomass Energy Strategy (BEST)**: while recalling that biomass is a renewable energy only if its exploitation is done in a sustainable manner, the strategy promotes the use of energy saving charcoal stoves and calls for concentration on non-woody biomass to ease the pressure on trees;
 - With support from the UNDP, the government is also implementing key interventions in charcoal production, which includes increasing the charge that NEMA levies on charcoal burners;
 - However, the implementation and level of compliance with environment and natural resource policies, laws, institutions, regulations, standards and guidelines are still considered very low.
- The informal sector is still accounting for 43% of the economy, while absent from official statistics:
 - The informal sector consists of all economic activities that escape government regulation, taxation or observation;
 - **Informality overlaps with poverty** as most informal workers are without secure income, employments benefits and social protection, while it reduces the government's resources to fund its national budget.

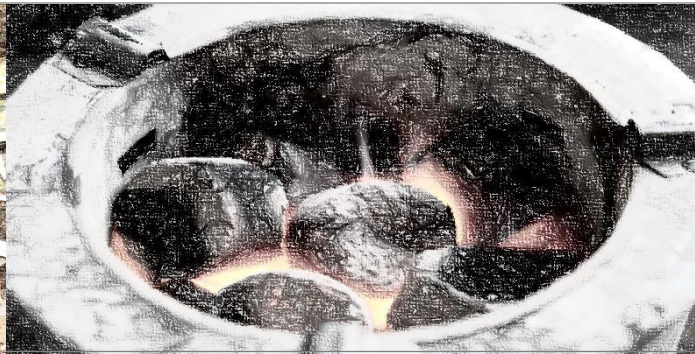
Main implications of the PESTEL Analysis for GBE

<p style="text-align: center;">POLITICAL</p> <ul style="list-style-type: none">▪ A weak democracy and high corruption represent dangers as they fuel social unrest and hinder business activities;▪ Because there is a significant political will toward the renewable energy sector, GBE should seek support from the national and local administrations and try to link into current policies.	<p style="text-align: center;">ECONOMIC</p> <ul style="list-style-type: none">▪ GBE's commitments to make its products affordable to the BoP and to employ local workforce make sense facing the high levels of poverty prevailing in the country;▪ GBE will benefit from the high economic growth and economic reforms of the country on the long-run.	<p style="text-align: center;">SOCIAL</p> <ul style="list-style-type: none">▪ Awareness is best raised using media, which exercise a rising influence (traditional and social media);▪ The high entrepreneurial spirit of Ugandans bolsters GBE's value-chain based on micro-entrepreneurs;▪ GBE's work on women empowerment will help to best achieve its objectives.
<p style="text-align: center;">TECHNOLOGICAL</p> <ul style="list-style-type: none">▪ GBE's approach to innovation based on local content (Briketism) is best adapted to the lack of technological capacities in Uganda;▪ Wood-based fuels are not likely to be disrupted soon and should remain omnipresent in both Ugandan rural areas and cities, even at higher prices.	<p style="text-align: center;">ENVIRONMENTAL</p> <ul style="list-style-type: none">▪ GBE's activities contribute to curbing deforestation and climate change in Uganda through the dissemination of energy-saving solutions as well as the awareness raising on environmental issues;▪ A coordination with other civil society actors of the sector is relevant.	<p style="text-align: center;">LEGAL</p> <ul style="list-style-type: none">▪ Complying with the Ugandan labor legislations will enable GBE to follow ILO's recommended practices;▪ GBE should leverage the laws favorable to the sector of renewable energies;▪ The work of GBE with micro-entrepreneurs should take into account and lead them out of their informality.

[Next chapter's final slide](#)



GBE – Internal context



Introduction to Green Bio Energy (GBE)



Green Bio Energy (GBE) is a green social enterprise created in 2011 with the twofold objectives of reducing poverty and stopping environmental destruction. These goals are effectively achieved through GBE's **Briketism** – an innovative local content approach with a systematic use of state-of-the-art technological and marketing expertise.

- Products : eco-friendly briquettes and improved energy-efficient cook stoves (cf. following slide).
- Process : instead of using capital-intensive production processes and/or relying on importation, GBE has always exclusively leveraged local human and material resources all along its value chain, in the benefit of everyone: supply chain actors & distributors gain useful knowledge and get additional incomes, customers are offered high-quality yet affordable products and GBE can optimize and strengthen its value chain.

GBE's products and services (1/2)

Briketi Charcoal Briquettes

Long burning

90 min cooking time vs. 45 min with traditional charcoal

Eco-friendly

100% recycled materials

Money saving

Up to 40% of the money usually spent on cooking fuel

No soot, No Smoke

Cleaner kitchen



Briketi Eco-Stove



Energy saving

Up to 40% less charcoal

Money saving

117 USD/ households in 2 years

High durability

Last between 2-5 years

GBE's products and services (2/2)

Training and consultancies

Technical training

Set-up of a briquette production unit, construction of mud stoves

Education

Sensitization on climate change & clean energy sources

CSR projects

Design & implementation

Consultancies

Pre-appraisal missions, monitoring & evaluation, project auditing, local content and value chain analysis.



Machinery



High quality

Reliable, efficient and innovative machinery

Locally made

100% Made in Uganda, affordable and cost-effective machinery

GBE's beneficiaries

END USERS	EMPLOYEES	VALUE CHAIN ACTORS	WOMEN
<p>In 2014, 17,489 end-users directly benefited every day from GBE's energy-saving solutions and services:</p> <ul style="list-style-type: none">• Briquettes: $(300,000/365)/2*5 = 2,055$ <small>Average consumption of briquettes: 2kg per day for average 5-people households 300,000 kg of briquettes sold by GBE in 2014</small>• Stoves: $6,000/2*5 = 15,000$ <small>Average consumption of stoves: 2 stoves used for average 5-people households 6,000 stoves sold by GBE in 2014</small>• Trainings: 434	<p>In 2014, GBE directly employed a total of 60 people:</p> <ul style="list-style-type: none">• 16 tinsmiths for the briquettes' production;• 16 for the stoves' production;• 8 employees for logistics and sales;• 6 employees for administration and executive management;• 7 for house cleaning/security/driving;• 6 interns (constantly renewed).	<p>In 2014, GBE directly involved 235 people in its value-chain:</p> <ul style="list-style-type: none">• 10 communities for processed agricultural residues;• 80 charcoal retailers for recycled charcoal;• Several entrepreneurs for other raw materials;• A network of 50 micro-entrepreneurs for distribution.	<p>Women play a crucial role in the widespread adoption and use of clean cooking solutions (as producers, designers, end-users, distributors, awareness-raisers) because of their central responsibility for cooking and managing household energy</p>

GBE's value chain analysis

GBE's Infrastructure		<ul style="list-style-type: none"> • Strong and complementary management team (executive and middle management) • Financial consolidation in progress 			MARGIN
Human Resource Management		<ul style="list-style-type: none"> • Continuous training & mentoring provided to all employees and value-chain actors • Relatively weak corporate culture 			
Research & Development		<ul style="list-style-type: none"> • Strong innovation spirit : continuous prototyping / trial & errors process • Local content approach enabling proximity with customers and their needs 			
Procurement		<ul style="list-style-type: none"> • Strong and reliable relationships with supply chain actors • Quality inputs due to upstream training 			
Inbound Logistics	Operations	Outbound Logistics	Marketing & Sales	Service	
<ul style="list-style-type: none"> • Good logistics planning • Long-term relations built with suppliers 	<ul style="list-style-type: none"> • Weather variation can slow down the process • Women still reluctant to work on production 	<ul style="list-style-type: none"> • Obstacles due to transport fees & space rent fees 	<ul style="list-style-type: none"> • Efficient but modest promotion strategy • More investments necessary to face the lack of visibility and awareness 	<ul style="list-style-type: none"> • Guarantee on products sold • Culture of customer care and follow-up well established 	

GBE's core competencies

LOCAL CONTENT APPROACH

- **Adaptation to local market realities and habits**
- **Multi-partnership with local stakeholders**
 - Local workshops for manufacturing machines and equipment
 - Women communities for waste recycling
 - Community-based micro-entrepreneurs for retailing the products
- **Stakeholders' empowerment**
 - Capacity building
 - Income generation

BRIKETISM

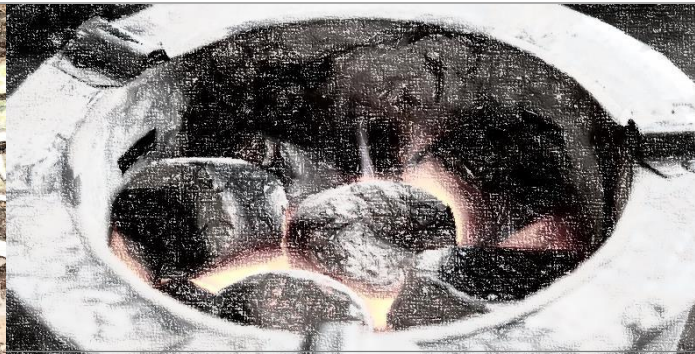
FOREIGN IMPORTS

- **Innovation-driven mindset**
 - State of the art machines
 - Continuous improvement (prototypes)
 - Trial and errors process
- **Engineering expertise**
 - High-quality product development
 - Continuous quality control
- **Business management expertise**
 - Methodology for marketing (focus groups, surveys...)
 - Operations management (flexibility, quality control...)
 - Processes optimization (IS, CRM...)

[Next chapter's final slide](#)



Introduction to Impact Assessment



What is impact assessment?

Impact Assessment includes the processes of **analyzing** and **monitoring** the environmental, economic and social consequences of planned interventions (programs, plans, projects) and **any change processes** invoked by those interventions. Its primary purpose is **to bring about a more sustainable and equitable human environment.**

[International Principles for Impact Assessment](#)

Benefits

- Clarity on Governance
- More effective and focused decisions
- Investment mentality
- External and internal inspiration

Limitations

- Risk of over-monetization
- Interpretation
- Exhaustiveness versus feasibility
- External accreditation

This report is a first step for yearly evaluation

Why assess the impact?

TO ASSESS

To evidence your social impacts and see how you meet your social mission and how you could maximize it

TO MONITOR

To set up practical social metrics to follow, monitor and scale-up your social impacts in the future

TO COMMUNICATE

To design communication tools for investors and local partners, providing them with concrete outcomes

SCD chose to work on the SROI methodology as a baseline. However, SROI is an academic and scientific framework that needs to be **more flexible for social entrepreneurs**. SCD therefore adapted the SROI methodology to the social project assessed and its specificities.

How to assess social impact?

Definition

The *Social Return on Investment* is a principle-based method for **measuring social and environmental value** (not currently reflected in conventional financial accounts) and compare it to resources invested. The SROI framework incorporates social, environmental and economic costs and benefits, providing a bigger picture of how value is created or destroyed.

Guideline

At the end of the process, SROI is able to assign a monetary figure (“the ratio”) to the value created (“how much social value created for \$1 invested”). **But more than credible numbers, SROI provides a framework that captures the main components and benefits of a project.**

What we kept

- The stakeholders’ approach
- The theory of change
- The impact map framework
- The cross-cutting of external/internal sources

What we changed

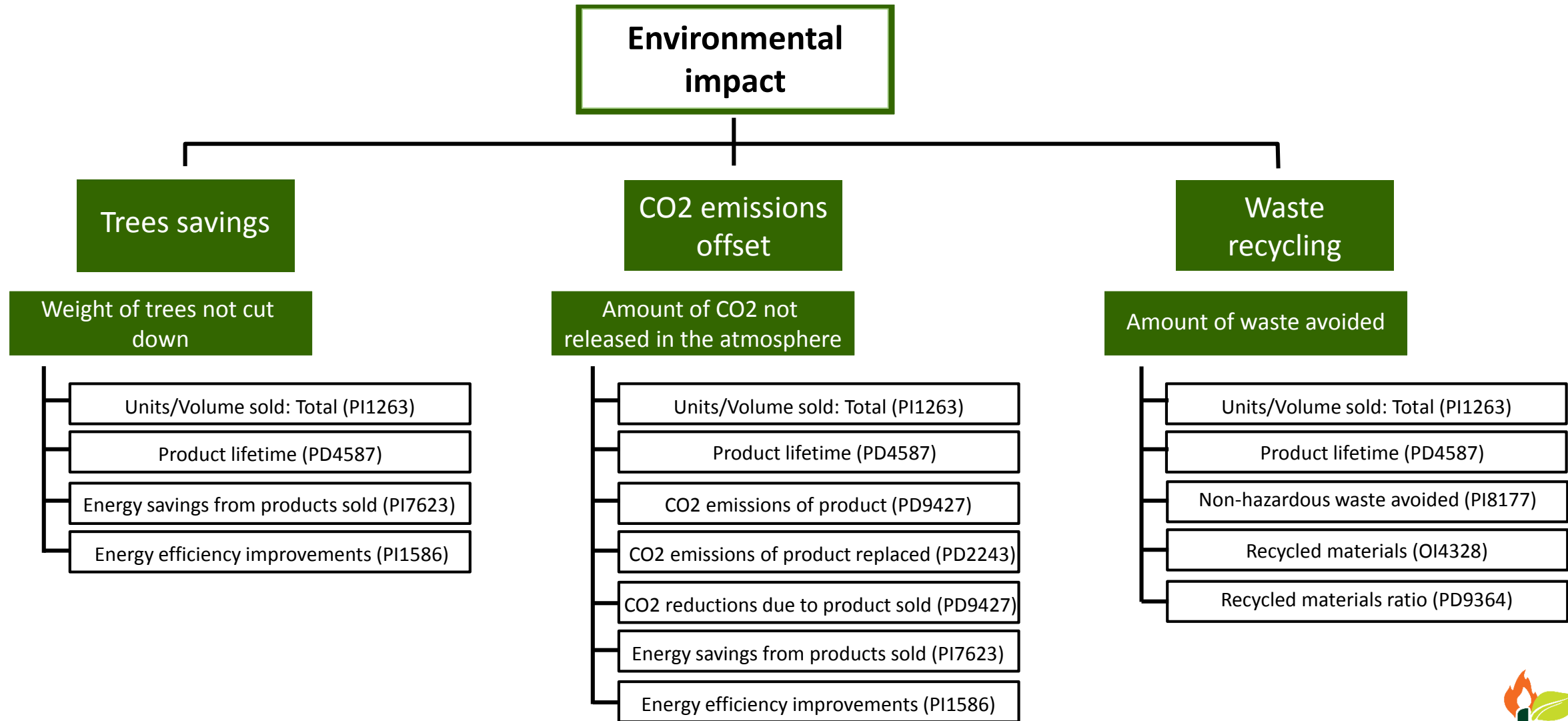
- Addition of qualitative results to complete the quantitative approach
- A focus on the primary/direct stakeholders
- The final monetization



Environmental Impact



IRIS metrics used to assess GBE's environmental impact



Trees saving – GBE's briquettes

Amount of green trees consumed for the production of 1 ton of charcoal

Calculation: Amount of dry wood * Specific gravity conversion factor = $[1 * 100/12 * (1 + 0.1)] * 1/0.5 = 9.17 * 1/0.5 = 25$ tons

Details:

- Amount of dry wood = (Weight of charcoal) x (100/Traditional charcoal yield) x (1 + Waste factor)

Traditional charcoal yield: conversion factor from dry wood to charcoal using traditional production techniques: 12% (FAO 2002)

Waste factor: proportion of the charcoal produced not used for cooking because lost or crushed in transport and distribution: 10% (FAO 2002)

- Specific gravity conversion factor = 1/0.5 on average
- Specific gravity conversion factor for softwood: 1/0.463; for hardwood: 1/0.529

Amount of green trees consumed for the production of 1 ton of GBE's briquettes

Calculation: 0 ton

Details: GBE's briquettes are made out of 100% waste so that no trees have to be cut

$$\boxed{25} - \boxed{0} = \boxed{25}$$

Tons of green trees saved for 1 ton of GBE's briquettes produced and used

Trees saving – GBE's stoves

Amount of green trees saved thanks to the use of one GBE's stove over its 3-year lifespan

Calculation: Tons of charcoal saved in the 3-year lifespan of GBE's stove * Amount of dry wood
= [Stove's energy-saving ratio * Yearly consumption * Stove's average lifespan * KG to Ton ratio] * Amount of dry wood
= $[40/100 * 365 * 3 / 1,000] * 9.17$
= $0.438 * 9.17$
= 4.015 tons

Details:

- Stove's energy-saving ratio: 40%
- Yearly consumption = Number of days in 1 year * Average quantity of charcoal used per day in 1 stove
Number of days in 1 year: 365
Daily charcoal consumption: 1kg per stove for an average family of 7 people
- Stove's average lifespan: 3 years
- KG to Ton ratio: Factor used to convert KG into tons: 1/1,000
- Amount of dry wood consumed to produce 1 ton of charcoal: 9.17 (see previous calculation)

4.015

Tons of trees saved for 1 stove produced and used during its 3-year lifespan

CO₂ offset – GBE's briquettes

Amount of CO₂ released when trees are transformed into 1 ton of charcoal:

Calculation: $\text{MTCO}_2\text{e} = \text{Amount of dry wood} * 0.5 * 3.67 = 9.17 * 0.5 * 3.67 = 16.81 \text{ tons}$

Details:

- Amount of dry wood: 9.17 (see previous calculation)
- 0.50: Conversion factor to obtain the comparable weight of entire tree's sequestered carbon
- 3.67: Conversion factor to obtain a comparable weight of CO₂ equivalent

Amount of CO₂ emitted with the use of 1 ton of GBE's briquettes (60% carbon content):

Calculation: $\text{mC} * \text{nCO}_2 / \text{nC} = 600 * 44 / 12.1 = 2.184 \text{ tons}$

Details:

- $\text{CO}_2 = 1 \text{ C} + 2 \text{ O}$
- $\text{n}_{\text{CO}_2} = \text{n}_\text{C} + 2 * \text{n}_\text{O} = 12.1 + 2 * 16 = 44.1$

$$\boxed{16.81} - \boxed{2.184} = \boxed{14.63} \text{ Tons of CO}_2 \text{ offset for 1 ton of GBE's briquettes produced and used}$$

CO₂ offset – GBE's stoves

Amount of CO₂ offset thanks to the use of one GBE's stove over its 3-year lifespan

Calculation: Tons of charcoal saved in the 3-year lifespan of GBE's stove * MTCO₂e = 0.438 * 16.8 = 7.3584 tons

Details:

- Tons of charcoal saved in the 3-year lifespan of GBE's stove: 0.438 (see previous calculation)
- MTCO₂e: 16.81 (see previous calculation)

7.36

Tons of CO₂ offset for 1 stove produced and used during its 3-year lifespan

Waste recycling – GBE's briquettes

Amount of waste recycled for the production of 1 ton of GBE's briquettes (60% carbon content)

Calculation: Amount of carbonized organic waste recycled + Amount of charcoal dust recycled
= $(40/100 * \text{Weight of briquettes}) / \text{Carbonization ratio} + 60/100 * \text{Weight of briquettes}$
= $(40/100 * 1) / (1/10) + 60/100 * 1$
= 4.6 tons

Details:

- Carbonization ratio = 1/10 on average

Ratio used to assess the quantity of organic waste needed to produce the char composing 40% of GBE's briquettes

- The organic waste are bought from communities trained to carbonize and sell them to GBE
- The charcoal dust is bought from charcoal suppliers all around Kampala

4.6

Tons of waste recycled for 1 ton of GBE's briquettes produced

Waste recycling – GBE's stoves

Amount of clay and sawdust recycled to produce one GBE's stove

Calculation: Amount of clay recycled + Amount of sawdust recycled

= 3 kg + 0.6 kg

= 2.777 kg per liner

Details:

- The clay is bought from an enterprise making bricks and producing clay waste in their processes (broken bricks)
- The sawdust is bought from a small wood workshop otherwise wasting it in their processes

0.0036

Tons of waste recycled for 1 stove produced

GBE overall impact on environment in 2014 – Calculations

$$25 * 300 + 4.015 * 6,000$$

= **31,590** Tons of green trees were **saved**

$$14.63 * 300 + 7.36 * 6,000$$

= **48,549** Tons of CO2 were **offset**

$$4.6 * 300 + 0.0036 * 6,000$$

= **1,402** Tons of waste were **recycled**

GBE overall impact on environment in 2014 – Results

31,590

Tons of green trees were **saved**

Deforestation contributes to severe erosion, the disappearance of water resources, the decline in agricultural productivity, the increase in diseases, the lack of energy, the destruction of some animals' habitat etc.

48,549

Tons of CO2 were **offset**

Greenhouse gases contribute to global climate change and droughts which, as numerous studies show, has and will continue to hit the poorest hardest

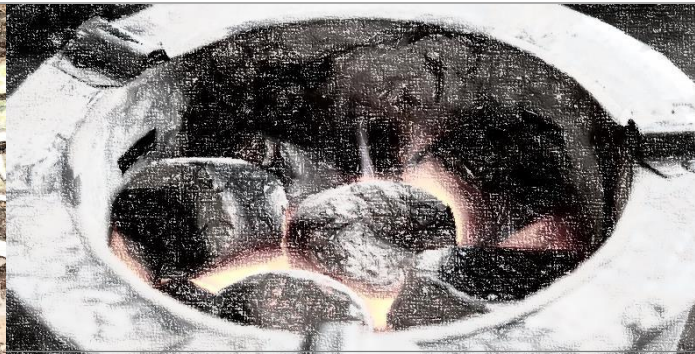
1,402

Tons of waste were **recycled**

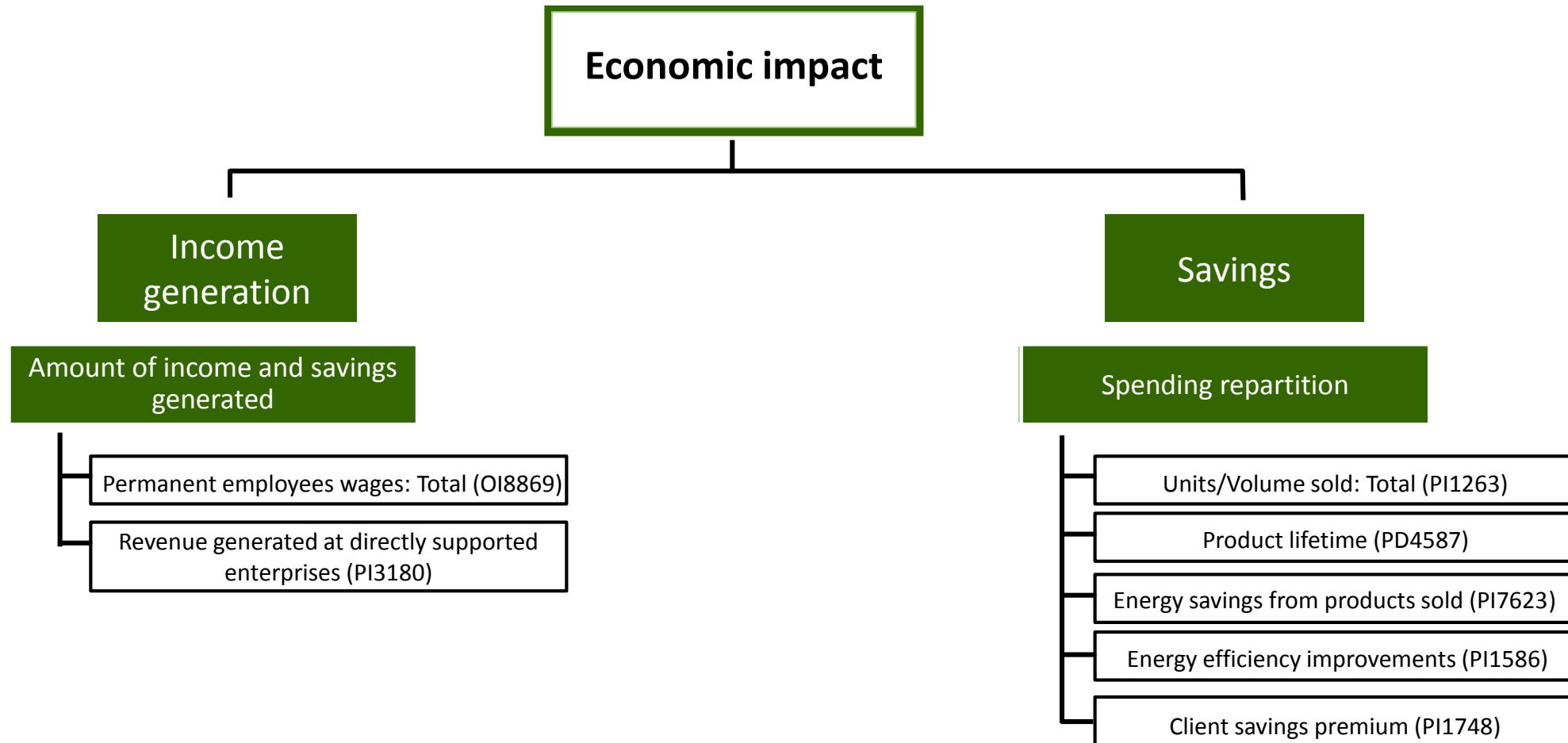
Only 40 % of the waste generated in Kampala are collected; the remaining is usually burnt and/or dumped in unauthorized sites, causing health and environmental problems



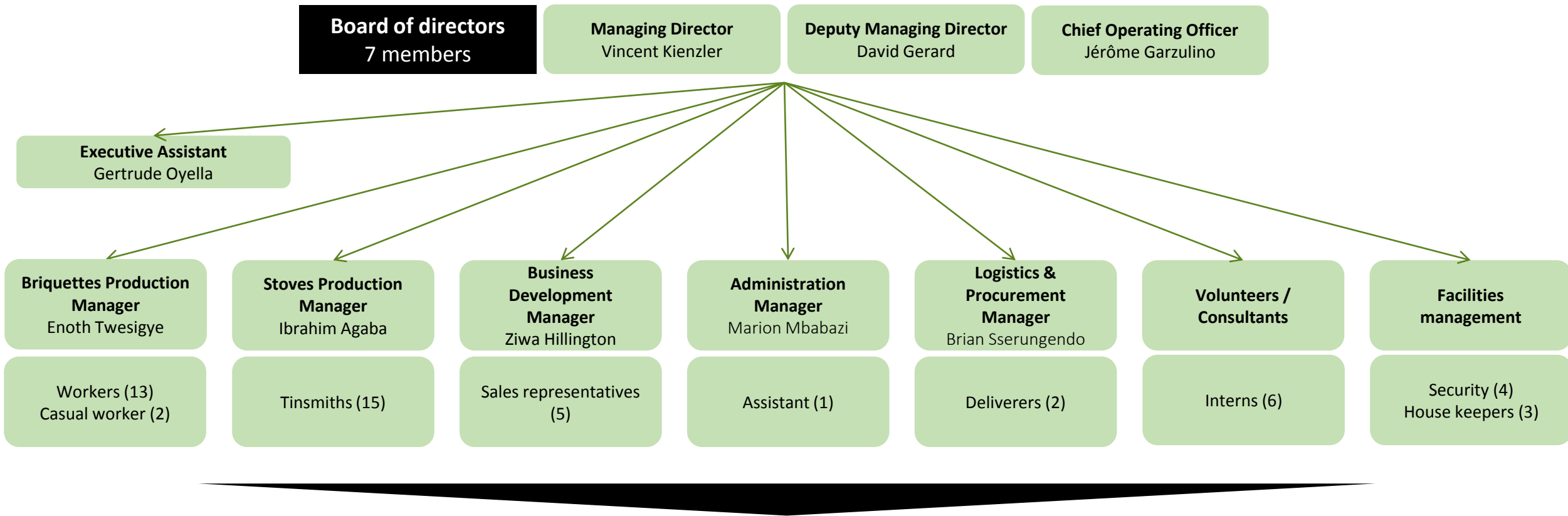
Economic Impact



IRIS metrics used to assess the economic impact



Income generated – Employees



240,000,000

UGX of income generated for the 60 employees of GBE in 2014

Income generated – Suppliers

10 communities (each composed of 10 women) recycling and processing their organic waste to sell them to GBE

80 charcoal retailers

1 cassava roots supplier

1 metal sheets supplier

1 clay supplier

1 mica supplier

1 sawdust supplier

104,100,000

UGX of income generated for the 185 direct suppliers of GBE in 2014

Income generated – Distributors

50 micro-entrepreneurs promoting and selling GBE's products, composed of 80% of women

Period	Briquettes		Stoves		Total revenues		
	Purchase cost (UGX)	Retail price (UGX)	Purchase cost (UGX)	Retail price (UGX)	Purchase cost (UGX)	Retail price (UGX)	MARGIN (UGX)
January 2014	5,006,200	5,889,647	195,000	240,741	5,201,200	6,130,388	929,188
February 2014	4,070,220	4,788,494	744,000	918,519	4,814,220	5,707,013	892,793
March 2014	4,361,940	5,131,694	626,320	773,235	4,988,260	5,904,929	916,669
April 2014	4,763,300	5,603,882	382,000	471,605	5,145,300	6,075,487	930,187
May 2014	4,171,820	4,908,024	474,000	585,185	4,645,820	5,493,209	847,389
June 2014	5,468,600	6,433,647	1,089,000	1,344,444	6,557,600	7,778,092	1,220,492
July 2014	4,931,120	5,801,318	936,000	1,155,556	5,867,120	6,956,873	1,089,753
August 2014	5,783,180	6,803,741	914,000	1,128,395	6,697,180	7,932,136	1,234,956
September 2014	4,634,440	5,452,282	479,700	592,222	5,114,140	6,044,505	930,365
October 2014	3,368,900	3,963,412	310,000	382,716	3,678,900	4,346,128	667,228
November 2014	5,185,820	6,100,965	758,000	935,802	5,943,820	7,036,767	1,092,947
December 2014	5,049,600	5,940,706	1,331,000	1,643,210	6,380,600	7,583,916	1,203,316

11,955,281

UGX of income generated for the 52 micro-entrepreneurs of GBE in 2014

Savings – GBE's briquettes

Money saved thanks to the use of 1 KG of GBE's briquettes

Calculation: Money saving ratio * Charcoal retail price = $30/100 * 1,000 = 300 \text{ UGX} = \0.12

Details:

- Money saving ratio: 30/100 on average

GBE's briquettes burn longer, up to 4 hours, while traditional charcoal needs to be refilled at least every hour

From GBE's testing and customer feedbacks, it is estimated that 0.8 kg of briquettes is equivalent to 1 kg of traditional charcoal of average quality

Briquettes are up to 40% cheaper than traditional charcoal, depending on the charcoal supplier and on the quality of the charcoal

- Charcoal retail price: 1,000 UGX for 1 KG on average (up to 1,200 UGX)

0.12 \$ saved for 1 KG of briquettes bought and used

120 \$ saved for 1 ton of briquettes bought and used

Savings – GBE's stoves

Money saved thanks to the use of 1 GBE's stove for one day

Calculation: Stove's energy-saving ratio * Daily charcoal consumption cost = $0.4 * 1,000 = 400 \text{ UGX} = \0.16

Details:

- Stove's energy-saving ratio: 40%
- Daily charcoal consumption cost: 1kg per stove for an average family of 7 people, costing on average 1,000 UGX

0.16 \$ saved for 1 stove bought and used for one day

175.2 \$ saved for 1 stove bought and used for its 3-year lifespan

GBE overall economic impact – Calculations

$$240,000,000 + 104,100,000 + 11,955,281$$

=

356,055,281

UGX of income were **generated** for value-chain actors and employees

=

112,855

\$ of income were **generated** for value-chain actors and employees

$$120 * 300 + 175.2 * 6,000$$

=

1,087,200

\$ were **saved** by customers

GBE overall economic impact – Results

112,855

\$ of income were directly **generated** for 255 value-chain actors and employees

Official Ugandan urban average incomes are still low and unequal (\$57 for men and \$41 for women), and are marked by informality (42% of the activities), which show a need for stable and secure additional sources of income from the private sector

1,087,200

\$ were **saved** by customers

Ugandan poor families, 64.7% of which living on less than \$2 a day, use a significant part of their daily income (\$0.8) on expensive wood-based cooking fuel, largely wasted in rudimentary, inefficient and energy-guzzling cook stoves: this money cannot be allocated to education, health needs, and access to food and clean water

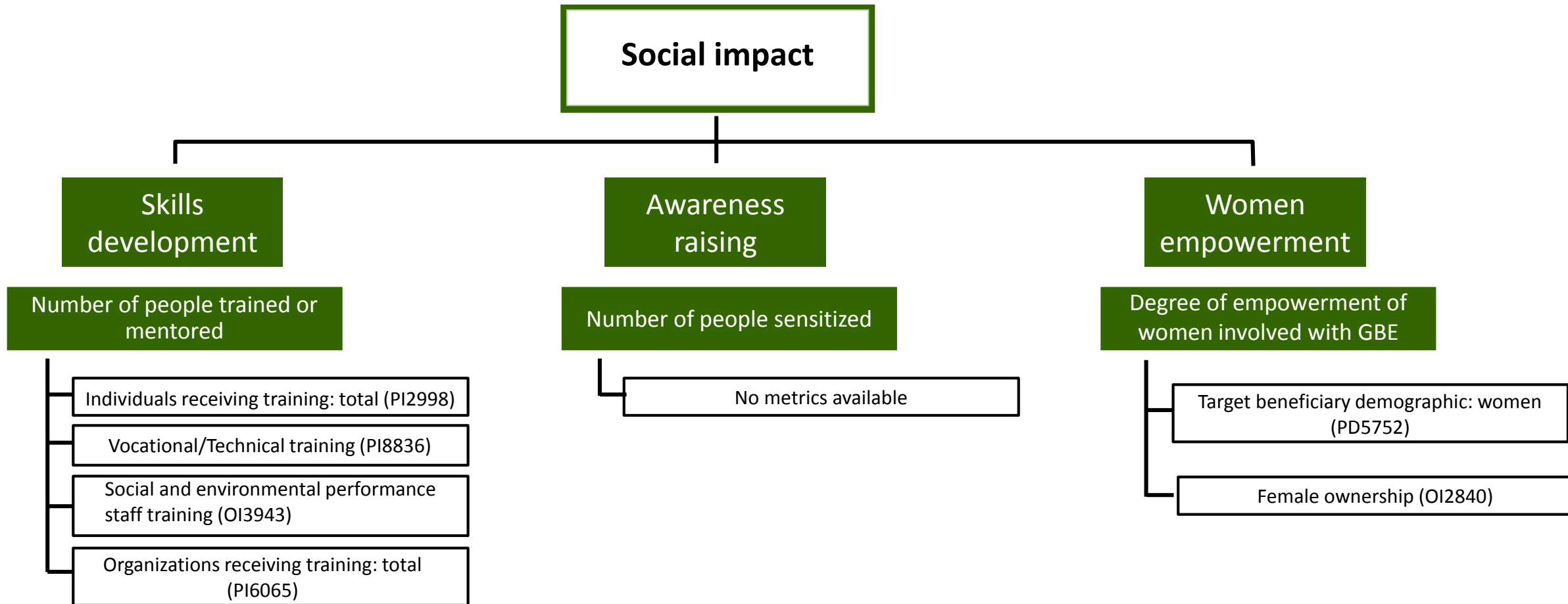
[Next chapter's final slide](#)



Social Impact



IRIS metrics used to assess social impact



Skills development – Training of value-chain actors

1 training session for the 11 communities supplying processed organic waste

Content: Training to recycle and process their organic waste

Results: Recycled waste as a source of income “one man’s trash is another man’s treasure”

2 training sessions and continuous mentoring for 40 out of the 52 micro-entrepreneur B-Points

Content: How to operate a business, how to market new products and how to educate people as to the advantages of using eco-friendly energy solutions, in order to become self-sufficient business leaders, empowered to not only lift their own communities out of poverty, but protect the environment simultaneously, etc.

Results: 20 of these entrepreneurs are currently performing very well, making 250\$-400\$ of sales revenue per month

51

Value-chain actors beneficiaries of the trainings provided by GBE in 2014

Skills development – Training of employees

4 training sessions and continuous mentoring for 6 Sales staff

Content: How to strategically prospect for clients, how to structure a sales speech, how to follow-up on clients, etc.

Results: Best complement to the studies currently being taken (evening classes) or taken in the past (graduated).

4 training sessions and continuous mentoring for 34 Production and Logistics staff

Content: Processes of production, quality controls, planning organization, waste management, safety processes, etc.

Results: On-the-field training provided to workers who mostly didn't have the opportunity to develop skills at school.

12 training sessions and continuous mentoring for 3 Administration staff

Content: Cost accounting and management control, Financial management, Information systems, etc.

Results: Clear added value in their future professional life, either in business administration or other fields

43

Employees beneficiaries of the trainings provided by GBE in 2014

Skills development – Training on third-party contracts

Training for 10 JEEP's staff

Content: Training of trainers to initiate briquettes production in communities (technical skills).

Results: The trainees can supply their communities with eco-friendly energy, which provides them with an income and social statute.

Training for 10 Nature Uganda's staff

Content: Training of trainers to initiate briquettes production and sales in communities (technical and business skills).

Results: The micro-entrepreneurs are independent and run a comprehensive and valorizing – but also challenging – business.

Training with Renewable Energy Incubator for 20 entrepreneurs

Content: Training for entrepreneurs on briquettes production and sales (technical and business skills).

Results: The entrepreneurs learn how to complement their business with an additional impactful activity.

Training with BRAC for 300 community members

Content: Training on large-scale rocket mud stoves production and dissemination.

Results: The trainees can provide an eco-friendly cooking tool to their communities, which gives them an income and social statute.

340

Beneficiaries of the trainings provided by GBE on third-party contracts in 2014

Awareness raising - Events

20 school sensitizations involving 2,000 students in total

Type of interventions: 20 classes/workshops/debates in Ugandan primary, secondary and vocational schools (~100 students each).

Content: Education on environmental issues tackled by GBE: deforestation, climate change and waste management.

117 public events gathering 30,000 people in total

Types of interventions:

- 104 promotion days (~250 people each);
- 3 fairs (~1,000 people each);
- 10 exhibitions (~100 people each).

Content: Presentations and talks on environmental issues of Uganda and GBE's social commitment.

137

Awareness events (co-)organized by GBE gathering approximately 32,000 people in 2014

Awareness raising - Media campaigns

4 online campaigns reaching 6,710 potential people in total

Types of interventions: 600 followers on Facebook, 70 on LinkedIn, 40 on Twitter, 6,000 on YouTube.

Content: Continuous updates on of GBE's activities to tackle social, economic and environmental issues.

15 TV & radio campaigns reaching potentially millions of people

Types of interventions:

- 1 campaign on France 24 with an average audience of 45.9 millions people worldwide;
- Participation in the Sustainable Energy Forum (with no actual figures on audience):
 - Campaign on NBS (over 12 million viewers) and UBC (among the top 3 most watched television stations in the country);
 - 12 radio programs in English and five local languages (Ateso, Luo, Runyakitara, Luganda and Lumasaba) reaching millions of listeners (with no actual figures on audience): Continental Radio, Voice of Teso, Voice of the Nile, Voice of life, Metro FM, Mboona FM, KBS, Open Gate, Kinkinzi, KKCR, BBS and Voice of Toro.
- 1 radio campaign on RFI with an average audience of 40.5 millions people worldwide.

Content: Presentations of GBE's social purpose and social business concept through its products, services and processes.

19

Media campaigns carried out by GBE potentially reaching millions of people in 2014

Women empowerment – Mapping

As cooking is mainly done by women in Uganda, they play the role of **“household managers of energy”** and are by far the main beneficiaries of **GBE's high-quality and low-price products and services**

GBE's micro-entrepreneur **B-points are held by 60% of women**, who are **“GBE's Ambassador at the Bottom of the Pyramid”**

GBE buys wastes from **100 women suppliers** in Kampala, who receive a stable wage and technical training

GBE has always tried hard to **recruit women in the company** (e.g. 40% of the sales & marketing department)

GBE's products have always been **designed and developed in interactions with its women stakeholders**

GBE **partners with NGOs promoting** women's empowerment such as Living Goods, BRAC, or Watoto

Degree of empowerment of women value chain actors

CATEGORY	PERSON	RESULTS (X/148 QUESTIONS)			FINAL EMPOWERMENT DEGREE (%)
		INDIVIDUAL LEVEL	HOUSEHOLD LEVEL	COMMUNITY LEVEL	
SUPPLY CHAIN	Procey	62/87	10/15	25/27	75,2%
	Nakato	40/87	10/15	25/27	69,8%
	Natabi	74/87	13/15	25/27	86,8%
	Musomesa	65/87	12/15	25/27	79%
	Rose	79/87	11/15	27/27	90,1%
	Mary	74/87	8/15	27/27	84,5%
	Jane	64/87	6/15	26/27	74,4%
	Iziwa Arietti	81/87	11/15	27/27	92,2%
	Nalwada	73/87	12/15	23/27	83,7%
	Joyce	76/87	13/15	25/27	88,4%
DIRECT EMPLOYEES	Pamella	70/87	12/15	27/27	84,5%
B-POINTS (DISTRIBUTORS)	Deborah	65/87	12/15	24/27	78,3%
	Dr. Banga	9/87	1/15	6/27	12,5%
	Jelinah	57/87	13/15	26/27	74,4%
TOTAL					76,70%

76.7

% of empowerment of women involved in GBE's value chain

SOURCE: Primary research



GBE overall social impact

434

Individuals directly trained

- Most Ugandans lacking the requisite skills, the informal sector has become the major alternative source of employment and job creation

155

Awareness campaigns carried out and potentially reaching millions of people

- Although many public awareness programs have been conducted, many people especially at the BoP still lack the knowledge required to preserve their environment

76.7

% of empowerment of women involved in GBE's value chain

- Empowered women have the confidence to work towards their goals and to contribute much to society by getting things done and promoting a happier environment



Monitoring GBE's impact



Impact objectives

One main goal to achieve by 2020: Reach 100,000 households every day with energy-saving solutions

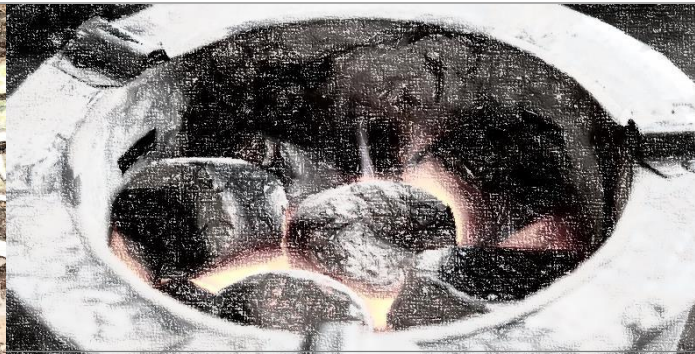
Impacts		Indicators	2014	2015	2020
Environmental impact	Trees savings	Weight of trees not cut down (tons)	31,590	151,775	621,050
	CO2 emissions offset	Amount of CO2 not released (tons)	48,549	264,183	714,168
	Waste recycling	Amount of recycled waste (tons)	1,402	2,196	62,812
Economic impact	Income generation	Amount of income generated by GBE's activities (UGX)	112,855	650,000	1,300,000
	Savings	Amount of money saved thanks to GBE's products (UGX)	1,087,200	6,186,000	13,896,000
Social impact	Skills development	Number of people trained by GBE	443	1,000	3,500
	Awareness raising	Number of awareness campaigns carried out by GBE and potentially reaching millions of people	155	200	500
	Women empowerment	Degree of empowerment of women involved in GBE's value chain (%)	76.7%	80%	95%

Recommendations to achieve the objectives

Impacts		How to increase the impacts
Environmental impact	Trees savings	The insulation of the cookstove and the combustion temperature in the combustion chambers need to be improved, as well as supplying good air to fuel ratio, to increase the thermal efficiency and reducing heat loss
	CO2 emissions offset	Charcoal briquettes though less polluting still have a carbon footprint, which could be reduced with the help of testing partners (e.g. the D-Lab of the Massachusetts Institute of Technology)
	Waste recycling	The process of carbonization of the waste can certainly have a negative impact, which should be monitored closely
Economic impact	Income generation	Some micro-entrepreneurs are still lagging and could be supported by the best performing ones
	Savings	No micro inclusion and micro lending platforms are available to make the products financially inclusive to all (especially the cookstoves)
Social impact	Skills development	The lack of mechanisms to monitor standards for renewable energy has made possible for low quality technology to be commercialized: propositions for standards should be made according to the best products on the market
	Awareness raising	The efforts should be multiplied as the potential of renewable-energy technologies and their technical constraints are generally underestimated, even if Ugandans are now generally aware of their existence
	Women empowerment	The manufacturing work on the production site is physically laborious, which has made it difficult until now to hire women workers and which shows the need for optimizing the production processes - notably by splitting the tasks



Testimonials



Employees testimonials

- *“GBE gave me the opportunity to become a leader: I have an outstanding position (Head of accountability) which enables me to interact with many different persons. Besides, GBE has helped me to strengthen my personality and dare to speak up, especially in front of men who despise women. I daily fight for gender equality in that sense. Finally, GBE has made me an independent woman: even if the money I earn is little, it still enables me to rent my house and contribute to my family's needs. I've learnt how to save and budget my money.”*

– Marion, Head of Administration at GBE since 2012

- *“What I find great is that, contrary to most organizations, GBE allows me to study while working, and are thus flexible about my working schedule. The money I earn with GBE helps me finance my academic studies: I can pay for all my school's fee requirements. After I graduate, I don't know why I should go elsewhere, besides I get along well with my bosses, which is not the case in most other companies where bosses are generally feared.”*

– Pamella, sales woman at GBE since 2014

- *I've gained accountability skills with GBE, which I know will be useful for my future. I've also learnt how to deal with customers and how to handle the commercial part of a business.”*

– Faridah, Accountant at GBE since 2014

Micro-entrepreneur distributors' testimonials

- *“GBE has brought many things to me: I made new friends, I am able to earn money on my own, I have gained skills - especially in marketing, which I love, and overall, I gained in self-confidence.”*
 - Deborah, B-point located in Seeta since 2013
- *“GBE pays the rent of my plot, my diverse costs and gives me a stable salary. This altogether greatly helps me in establishing and managing my B-point successfully.”*
 - Theresa, B-point located in Jinja since 2014
- *“My interest has always been to reach out people and tell them how important conserving the environment is. Thanks to GBE, some people (the customers) are unknowingly helping in conserving the environment: they indeed only see in the briquettes cheaper, cleaner and longer lasting products compared to the traditional charcoal. It's only when I explain to them its environmental benefits that they understand. The main thing my customers really appreciate is the quality of the briquettes and I pray that GBE keeps the quality high, so that we do not lose trust from our customers.”*
 - Margret Banga, B-point located in Kyebando since 2013
- *“GBE gave me opportunities to find ways to improve myself, socialize and get an income. Indeed, selling products require to get in contact with people, so it helped me to improve my marketing skills. I definitely have gained in self confidence.”*
 - Samuel, B-point located in Bunga since 2014

Supply chain actors' testimonials

- *“Before working with GBE, I had nothing to do, so I couldn't decide on anything either for myself or in the household. But now that I do this activity, I feel I can decide fully for myself. Besides, I feel proud because we are appreciated by our community to clean it by processing the waste.”*
- Procey, Bwaise community
- *“As we are cleaning the community's area, people have better health standards thanks to our work, and I can besides make a proper living.”*
- Nakato, Bwaise community
- *“Since GBE gave me the necessary training and tools to coordinate the processing and sales of our community's organic waste, I have been called “Musomesa” in the community, which means “the teacher” in Luganda (local language).”*
– Mirembe, leader of Bwaise community group
- *“I didn't have self-confidence before. Now, I do: I actually consider myself so strong. I can do things for my own, I've learnt how to work by myself, I can express my feelings and I keep myself busy with this work. Besides, I like preaching for my work. So, we take pictures of what we do and we send them to our friends.”*
member of Bwaise community
– Rose Katusabe, community
- *“People of the community admire me since I work here, and I find it so rewarding. I am proud of my job because it values me.”*
– Jane, Bwaise community
- *“Before, I didn't earn money so I had to wait for the money brought by my husband to do anything. Now that I earn my own money, I can make plans before my husband comes back with the money.”*
– Iziwa Arietti, Bwaise community



Appendix

– Methodology of the report



Overview of the methodology

Mapping the impact

1

2

Secondary
research

3

Monitoring

4

Primary
research

Spread
the word

Step 1: Mapping the impacts

The Impact map

- To best assess the impacts of an enterprise, SROI specialists recommend to develop an impact map that depicts the enterprise's theory of change, that is to say the relationships between initiatives strategy and intended results. The impact map helps the enterprise to understand how it creates environmental, economic or social changes by linking his mission, his objectives and his activities with the impacts.

How to map the impact?

- 1. Identification of the stakeholders** (people and organizations impacted by the social business) and **the way they are related to the social business**
- 2. Definition of the outcomes:** the potential and measurable benefits related to each activity
- 3. Listing and selection of the indicators to collect** and analyze the data able to assess each impact

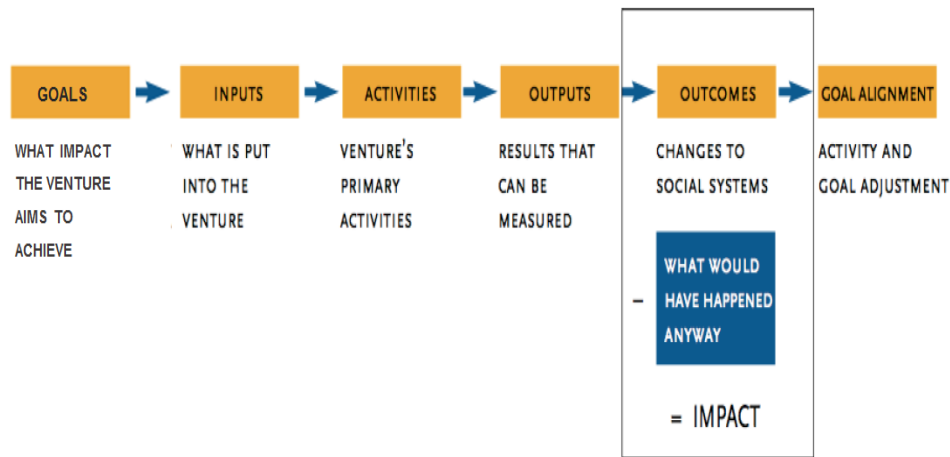
Methods to be used

- **Internal brainstorming:**
 - Within the enterprise
- **Crowdsourcing:**
 - Open Innovation process based on the design-thinking methodology through the [MakeSense network](#)
- **Analysis and processing of the results**

Step 1: Mapping the impacts – Methods to be used

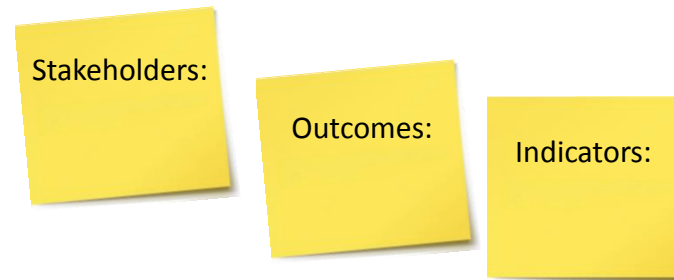
Internal brainstorming

- Workshop organized with the enterprise's management team



Crowdsourcing

- Open Innovation workshop organized through the [MakeSense network](#) (the reference for social challenges crowdsourcing)
- Based on the design thinking methodology



Analysis and processing of the results

- The final results must be MECE: **M**utually **E**xclusive and **C**ollectively **E**xhaustive
- Choosing the most relevant approaches to be used in the assessment

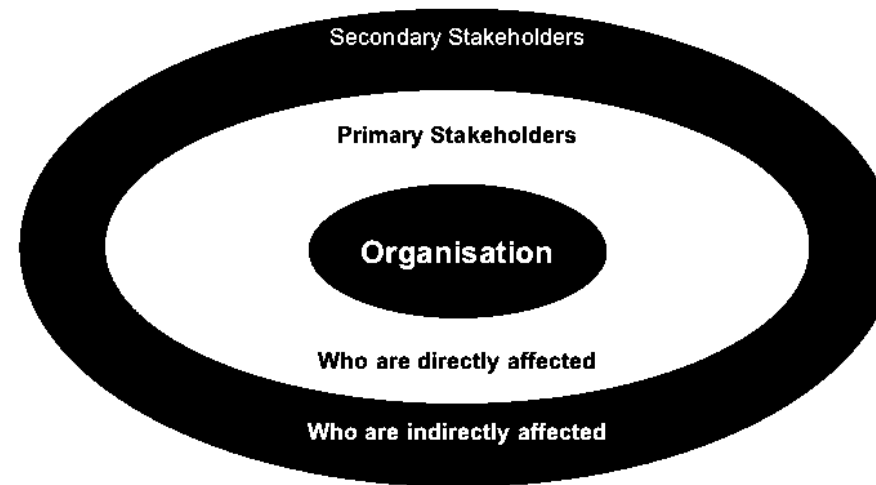
	Impacts	Stakeholders	Nature	Indicators
Environmental impact	Trees savings	End-users / Environment	Direct/Quantitative	Weight of trees not cut down (tons)
	CO2 emissions offset	End-users / Environment	Direct/Quantitative	Amount of CO2 not released (tons)
	Waste recycling	Value chain actors / Environment	Direct/Quantitative	Amount of recycled waste (tons)
Economic impact	Income generation	Employees / Value chain actors	Direct/Quantitative	Amount of income generated by GBE's activities (\$)
	Savings	End-users	Direct/Quantitative	Amount of money saved thanks to GBE's products (\$)
Social impact	Skills development	Employees / Value chain actors	Direct/Quantitative	Number of people trained or mentored
	Awareness raising	End-users	Direct/Quantitative	Number of people sensitized (climate change, deforestation and waste)
	Women empowerment	Employees / Value chain actors / End-users	Direct/Quantitative	% of women assessing they have been empowered through GBE's activities



Step 1: Mapping the impacts - Stakeholders

Stakeholders are the parties with an interest in the impacts caused by the organization in question. In addition to the various people and institutions affected by an organization, the natural ecosystem is one of the stakeholders:

- *Primary stakeholders* - usually internal stakeholders, are those that are directly affected by the organization's actions because they have direct contact with it. For example: employees, customers, suppliers, investors, distributors.
- *Secondary stakeholders* - usually external stakeholders, are those who - although they don't have direct contact with the organization- are affected by its actions. For example the general public, activist groups, business support groups, and the media.



As the impact on secondary stakeholders is negligible, this report focused on the most relevant primary stakeholders

Step 1: Mapping the impacts – Primary stakeholders

Environment

Starik (1995) and Carroll (1993) have persuasively argued that the natural environment should be considered as a primary stakeholder in its own right

End-users

In 2014, 17,489 end-users benefited every day from the energy saving solutions and knowledge of GBE: briquettes, improved cook stoves, trainings

Employees

GBE directly employs a total of 60 people: 16 for the briquettes' production, 16 for the stoves' production, 8 for logistics and sales, 6 for administration and executive management, 7 for house cleaning/security/driving and 6 interns (constantly renewed)

Value chain actors

For its supplies, GBE contracts with 10 communities for processed agricultural residues, 80 charcoal retailers for recycled charcoal and several enterprises for other materials. For its distribution, GBE relies on a network of 50 micro-entrepreneurs

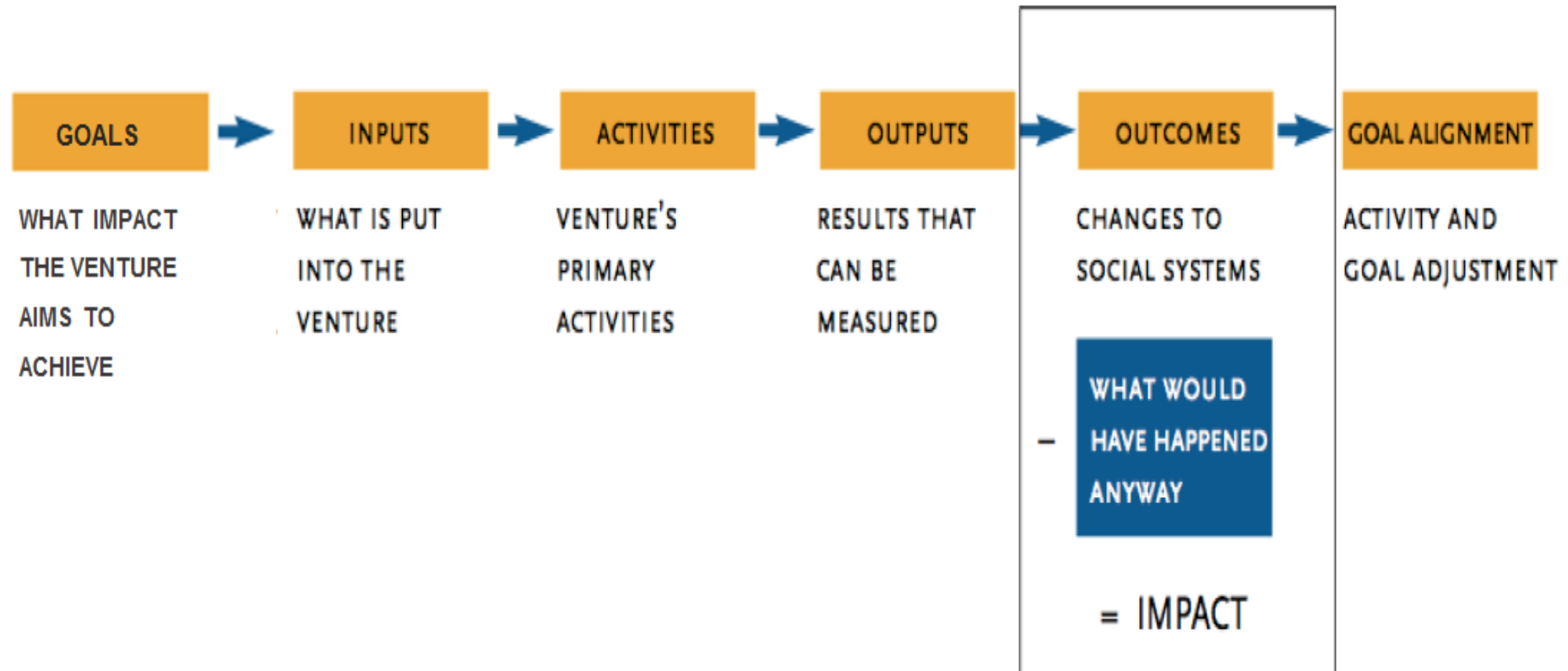
Women

Women are involved all along GBE's value chain, from the production to the consumption: they are cross-cutting stakeholders, being part of end-users, employees and value chain actors

Step 1: Mapping the impacts - Outcomes

Impact Value Chain

Here is a simple but efficient way to understand the process



Step 1: Mapping the impacts – Triple bottom line outcomes

Environmental impact

Each time GBE sells its products which are mainly made out of waste, there are significant reductions of the use of wood-derived fuel as well as greenhouse gases emissions. Through its activities, GBE therefore minimizes deforestation and climate change, while participating in waste management.

Economic impact

An increase in stakeholders' purchasing power is enabled thanks to the low-prices of GBE's products, the reduced frequency of product purchasing, and the incomes generated.

Social impact

GBE makes it a priority to sensitize and train individuals on the importance of using alternative and eco-friendly energy sources, which empowers them by the development of local production capacities and know-how and therefore fuels their self-esteem. Supporting women is also a crucial part of the enterprise's business in a sector largely managed by women.

Step 1: Mapping the impacts - Indicators

How to choose the indicators?

- Each impact has to be measured with relevant indicators. The study has to be confined to 2-3 indicators maximum per impact:
 - To get more precise results during the given evaluation period
 - Because some indicators would require a long scientific approach
 - To highlight qualitative data instead of focusing only on figures and quantitative information

Indicators nature and sources

- The indicators selected can be both quantitative and qualitative
 - They can be measured by different methods: calculation, reports, scientific studies, focus groups, questionnaires...
 - They can be comparable throughout the time
- Two different comparative approaches to design indicators: sample approach (beneficiaries and non-beneficiaries) or timeline approach (situation before and after GBE)
 - Official [IRIS Metrics from the GINN \(Global Impact Investing Network\)](#) were used to create/calculate the indicators: the reference catalog of generally-accepted performance metrics that leading impact investors use

Step 1: Mapping the impacts – Indicators in the impact map

Impacts		Stakeholders	Nature	Indicators
Environmental impact	Trees savings	End-users / Environment	Quantitative	Weight of trees not cut down (tons)
	CO2 emissions offset	End-users / Environment	Quantitative	Amount of CO2 not released (tons)
	Waste recycling	Value chain actors / Environment	Quantitative	Amount of recycled waste (tons)
Economic impact	Income generation	Employees / Value chain actors	Quantitative	Amount of income generated by GBE's activities (UGX)
	Savings	End-users	Quantitative	Amount of money saved thanks to GBE's products (UGX)
Social impact	Skills development	Employees / Value chain actors	Quantitative	Number of people trained by GBE
	Awareness raising	End-users	Quantitative	Number of awareness campaigns carried out by GBE and potentially reaching millions of people
	Women empowerment	Employees / Value chain actors	Qualitative	Degree of empowerment of women involved in GBE's value chain (%)

Step 2: Primary research

What is it ?

Primary research (field research) involves gathering new data that has not been collected before, using questionnaires or semi-structured interviews with groups of people in a focus group:

Questionnaires

- Comprehensive: large amounts of primary data
- Inexpensive means
- Simple designs
- Quickly distributed to large numbers of subjects
- Individual interview: only viable method to administer the survey in developing countries

Semi-structured interviews

- Open interviews in opposition to rigorous structured interviews
- Enable new ideas to be brought up as a result of what the interviewee says
- Framework of themes to be explored to complete the questions

Step 2: Primary research – Methods to be used

3 steps in the primary research

1. **Build the data collection form:** build the questionnaires based on the impact map, to measure effectively the indicators
 2. **Collect the data** through interviews on the field
 3. **Aggregate the collected data** on its server and extract it in useful formats presented in this report
-

Iterative design of the questionnaires

A questionnaire has to be changed according to on-the-field observations, hence the use of semi-structured interviews:

- Some questions may not be relevant/clear/useful enough
- Some questions/indicators needed to be changed to better measure an impact
- Questions must be added to collect unpredicted valuable information

Step 2: Primary research - Women empowerment (1/4)

Women Empowerment Survey

Necessary to assess the degree of *empowerment* of women working along GBE's value chain: *enhancing an individual's or group's capacity to make choices and transform those choices into desired actions and outcomes*

Survey construction

Survey based on quota sampling method (representative individuals are chosen out of a specific subgroup):

Determination of the survey's scope (sample size & error margin determination)

- Representation of women in GBE's value chain
 - Supply chain: 100 women out of 100 workers
 - Direct employees: 10 women out of 60 employees
 - Distribution network: 30 women out of 50 entrepreneurs
- Sample size: **1 out of 10**
- Error margin determination:
 - Level of confidence : **90** ($z = 1,645$)
 - Error margin = $z * \sqrt{\frac{p(1-p)}{n}}$ (p : sample proportion, n : sample size) = **4%**

Questionnaire construction

- Empowerment is measured by assessing 3 categories which intervene at 3 different levels: autonomy, responsibility and participation at the individual, household and community levels.
- Every question is answered by either: "Strongly Agree" (3pts), "Agree" (2pts), "Disagree" (1pt) or "Strongly Disagree" (0).

Step 2: Primary research - Women empowerment (2/4)

CATEGORY	QUESTION	SCORING
INDIVIDUAL LEVEL		
Self-confidence		
SELF ESTEEM	Since GBE, I have seen an overall increase of satisfaction in my life	SA=3, A=2, D=1, SD=0
	Since GBE, I have certainly felt useless at times	SA=0, A=1, D=2, SD=3
	Since GBE, I think I have had more good qualities than before	SA=3, A=2, D=1, SD=0
	Since GBE, I feel I have had more to be proud of	SA=0, A=1, D=2, SD=3
	Since GBE, all in all, I have been inclined to feel I was a failure	SA=3, A=2, D=1, SD=0
	Since GBE, I have taken more of a positive attitude toward myself	SA=3, A=2, D=1, SD=0
PSYCHOLOGICAL WELLBEING	Since GBE, I have considered myself more of a very happy person	SA=3, A=2, D=1, SD=0
	Since GBE, I have generally felt a sense of accomplishment from what I did	SA=3, A=2, D=1, SD=0
	Since GBE, it has been easier for me to express my ideas and opinions	SA=3, A=2, D=1, SD=0
	Since GBE, people have cared more about me than before	SA=3, A=2, D=1, SD=0
	Since GBE, I feel I have been able to count on more people	SA=3, A=2, D=1, SD=0
CHOICE & CONTROL OVER ONE'S LIFE	Since GBE, I have had better control over the things that happen to me	SA=3, A=2, D=1, SD=0
	Since GBE, I have been able to solve more of my problems on my own	SA=3, A=2, D=1, SD=0
	Since GBE, I have felt like my future mostly depends on me	SA=3, A=2, D=1, SD=0
	Since GBE, I have had more confidence in my opinions, even if they were contrary to the general consensus	SA=3, A=2, D=1, SD=0
	Since GBE, I have had a clearer vision of how to lead my life	SA=3, A=2, D=1, SD=0

Step 2: Primary research - Women empowerment (3/4)

CATEGORY	QUESTION	SCORING
INDIVIDUAL LEVEL		
CHOICE & CONTROL OVER ONE'S LIFE	Since GBE, I have felt life was full of opportunities	SA=3, A=2, D=1, SD=0
	Since GBE, a gain in self confidence has allowed me to do things that were important to me	SA=0, A=1, D=2, SD=3
	Since GBE, gain of money has allowed me to do things that were important to me	SA=3, A=2, D=1, SD=0
Autonomy		
TECHNOLOGY / MOBILITY	Since GBE, I have been much more equipped with devices	SA=3, A=2, D=1, SD=0
	Since GBE, I have had an increased access to technology	SA=3, A=2, D=1, SD=0
	Since GBE, I have used the technology more than before for my work	SA=3, A=2, D=1, SD=0
	Since GBE, I have used the technology more than before for my personal life	SA=3, A=2, D=1, SD=0
	Since GBE, I have used better quality devices than before (new car, new phone...)	SA=3, A=2, D=1, SD=0
	Since GBE, I have traveled more on my own	SA=3, A=2, D=1, SD=0
Responsibility		
CONTROL OVER ASSETS	Since GBE, the income I have earned has significantly improved my life	SA=3, A=2, D=1, SD=0
	Since GBE, I have been the only one to decide how to spend my money	SA=3, A=2, D=1, SD=0
COMMITMENT TO THE JOB	How important is your work for GBE?	Essential (I could not do without) =3 ; Very important (brings me a status, income, safety...)=2 ; Important (helps me as a side activity)=1 ; Not important (I can do without)=0

Step 2: Primary research - Women empowerment (4/4)

CATEGORY	QUESTION	SCORING
HOUSEHOLD LEVEL		
Decision-making power		
GENDER EQUALITY/ MONEY DISTRIBUTION & ALLOCATION	Since GBE, when decisions have been made regarding the household, I have been the one who normally takes the decisions	SA=3, A=2, D=1, SD=0
	Since GBE, I feel my views have had equal weight when making an important decision about major household expenses	SA=3, A=2, D=1, SD=0
	Since GBE, I have had an increased decision making power within the household	SA=3, A=2, D=1, SD=0
	Since GBE, I have considered gender equality as a very important issue	SA=3, A=2, D=1, SD=0
	I am very satisfied with the money I earn thanks to GBE	SA=3, A=2, D=1, SD=0
COMMUNITY LEVEL		
Agency opportunities		
GROUP ESTEEM	Working and getting an income from GBE has positively changed my social relationships	SA=3, A=2, D=1, SD=0
	Since GBE, I have had a more important social status	SA=3, A=2, D=1, SD=0
	Since GBE, I have been more valued in society	SA=3, A=2, D=1, SD=0
	Since GBE, I have dared to speak up	SA=3, A=2, D=1, SD=0
	Since GBE, I have had my views much more taken into consideration	SA=3, A=2, D=1, SD=0
ACCESS TO INFORMATION	Since GBE, I have constantly looked for opportunities	SA=3, A=2, D=1, SD=0
	Since GBE, I have considered networking as very important	SA=3, A=2, D=1, SD=0
	Since GBE, I feel I have had more abilities to network	SA=3, A=2, D=1, SD=0
	Since GBE, I have thought getting involved in community groups could help me in my business	SA=3, A=2, D=1, SD=0

Step 3: Secondary research

What is it?

Secondary research (desk research) involves gathering existing data that has already been produced. For example, researching the internet, newspapers and company reports.

How?

In most cases this means finding information from third-party sources such as research reports, scientific reports, surveys or the Internet in general.

But in actuality any information previously gathered, whether from sources external or internal, such as company documentation, material from previous research, results of empirical tests etc.

Benefits

- Low expenses in comparison to primary research: no new research to carry out
- Expertize of the sources

Limitations

- Risk of outdated data
- Less room for maneuver to target the exact issue required

Step 3: Secondary research – Sources

MIT

The D-Lab of the Massachusetts Institute of Technology (MIT) aims to build a global network of innovators to design and disseminate technologies that meaningfully improve the lives of people living in poverty. Considered as one of those technologies, GBE's briquettes are regularly studied by the lab, the latest study being in July 2014.

CREEC

The Center for Research in Energy and Energy Conservation aims to apply and adapt energy technologies in Uganda. In the framework of its Stoves-Regional Testing and Knowledge Centre (RTKC), it conducted in April 2014 water boiling tests on GBE's stoves, following the official guidelines of Global Alliance for Clean Cooking (WBT 4/2.2).

University of Warwick

In September 2013, Warwick School of Engineering assessed the performance and emissions of every Ugandan cook stoves (among which were GBE one) through the conduction of water boiling tests, emissions tests and insulation tests.

Calculation tools

The different formula and other scientific principles used for the calculations were picked from expert entities such Alabama Forestry Commission.

The feedbacks and outcomes of the scientific studies mentioned above significantly help GBE in its iterative innovation process and enable the improvement of its products. The outcomes are explained and detailed in the Impact Assessment part.

Step 4: Monitoring

Turn the impact map into a monitoring matrix

- Impact map: count something
- Monitoring matrix: make it count

Impacts		How to increase the impacts

Handover to run new Impact Assessments

- Training and sensitization of GBE's management team
- How to leverage the impact assessment (assess, monitor, communicate)
- How to carry out further and regular impact assessments in the future (once a year)

Spread the word

Include the impact study in the digital strategy of the company

Through its digital strategy, GBE aims at spreading ideas and models that could inspire every potential change-maker

COMMUNICATE...

- To include the results of the impact report on the enterprise's digital communication tools (website, social networks, web profiles, etc.)
- To send the results to the current investors, donors and partners
- But also to communicate internally



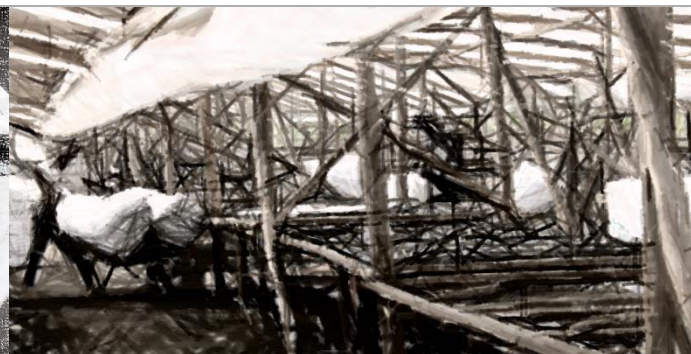
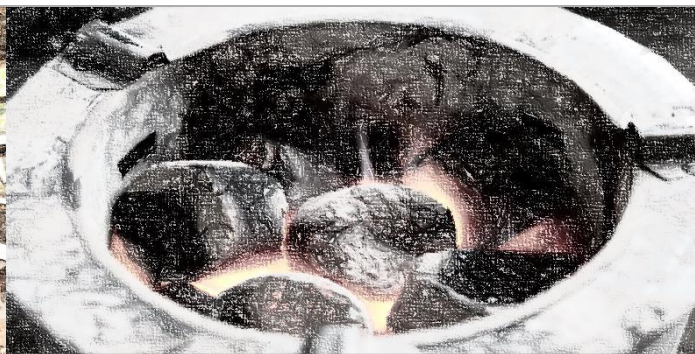
SPREAD THE WORD

... TO INSPIRE

- To commit every stakeholder to the social objectives
- To prove the relevance of the enterprise's social business model and thereby help it scale-up (franchise system?)
- To participate in the increasing peer pressure concerning companies' social impact assessment and monitoring



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