

AUGUSTINUS FONDEN

GO GREEN Tanzania

- Access to sustainable energy
solutions in rural Tanzania

2016-2019



Country	Tanzania
Project title	<i>Go Green</i> - Access to sustainable energy solutions in rural Tanzania
Objectives	<p>Overall objective: Contribute to increasing the number of women in Tanzania adopting and directly benefitting from clean energy products</p> <p>Results:</p> <ul style="list-style-type: none"> • Result 1: Three private clean energy suppliers (with formally certified products) are selling competitive and quality products to 450 women entrepreneurs through three established district level energy hubs in Kilimanjaro Region. • Result 2: 450 women entrepreneurs have established clean energy businesses and are selling competitive and quality products according to the demands of the population in rural areas of Kilimanjaro Region; 30,000 products will be sold, reaching 150,000 indirect beneficiaries. • Result 3: Increased awareness among energy sector stakeholders - throughout the value chain - of key barriers and drivers for adoption of new clean energy technologies.
Alignment to Global Strategies and Programmes	<ul style="list-style-type: none"> • Sustainable Development Goals: <i>SDG 5 – gender equality</i> <i>SDG 7 – affordable and clean energy</i> • Sustainable Energy for All, a global initiative launched by UN Secretary-General Ban Ki-moon in 2011. Governments from 106 countries including Tanzania and the European Union are key partners.
Target groups	<p>Primary target groups: 450 women entrepreneurs in peri-urban and rural localities of Hai, Same and Moshi Rural districts of Tanzania's Kilimanjaro Region.</p> <p>Indirect beneficiaries: 1,800 household members of the women entrepreneurs¹, who are positively affected by increased household disposable income, and 150,000² individuals in Hai, Same and Moshi Rural districts of Tanzania's Kilimanjaro Region that benefit from having clean energy products in the home.</p>
Partners	<p>The project will be implemented in close collaboration with a number of both private suppliers of clean energy products and local Tanzanian civil society organisations. These have now been pre-identified by CARE based on past experiences and collaboration, but remain un-specified until due diligence has taken place. Thorough due diligence and selection will take place during the initial three months inception phase, after decision by Augustinus Foundation to fund the <i>Go Green</i> project.</p> <p>3-4 Private Suppliers of Clean Energy Products 1-2 local Tanzanian partner organisations in Kilimanjaro Region.</p> <p>See section B.4 for further information on partners.</p>
Amount applied for	3.379.335,14 DKK
Implementation period	3-month inception phase (October-December2016) January 2017 – December 2019 (3 years) Total 39 months

¹The average household size in Tanzania is 5; multiplying 450 * 4 to prevent double counting the entrepreneur

²Calculated as 30,000 products sold, and an average five individuals per household.

Introduction

Go Green is a three-year project seeking to increase the number of women in Tanzania adopting and directly benefiting from clean energy products through an innovative market-based approach. *Go Green* will directly introduce business opportunities for rural women in the clean energy market, by facilitating links with the private sector to improve last mile distribution at district and village level, thereby increasing disposable household income for women entrepreneurs. By increasing provision and access to solar lamps and clean cook-stoves for Tanzania's rural population, the project will indirectly contribute to reducing health problems from indoor pollution, reducing the workload of women, saving fuel costs for families and reducing forest degradation.

There will be an important learning agenda within this project, primarily focused on exploring the barriers for market driven expansion of clean energy products in rural Tanzania, where only 3% of the population has access to electricity. Throughout the first year of the project, CARE and partners will conduct research with the view to answering the specific question: ***Given the plentiful number of clean energy projects in existence, why are products not already sold and distributed throughout East Africa?*** The learnings will further feed into the implementation strategy of the *Go Green* Project hence improving project sustainability and impact. See Section A.3 for an overview of current state of knowledge and learnings on last mile distribution in rural areas of new energy products, and what we expect to learn through this agenda.



CARE will work with our proven successful models of Community Based Trainer's (CBTs) and Village Savings and Loans Associations (VSLA's) as the point of entry for recruiting and empowering women entrepreneurs to sell and distribute solar lamps and improved cook stoves. CARE is widely recognized for its organization of poor, rural communities in VSLA groups across the world, and the method is a well-tested way of providing the unbanked and financially excluded poor, with saving and credit services. CARE is pioneering the development of informal savings groups in Tanzania, through linking the formerly unbanked with formal financial institutions, increasing use of mobile technology within the savings sector and empowering women to have autonomous access to financial literacy.

CARE has designed *Go Green* using extensive knowledge of the sector in Tanzania including expert input and learnings from the recently completed three year wPOWER pilot programme also implemented by CARE. wPOWER demonstrated that women members of Village Savings and Loans Associations (VSLA's) are a huge untapped market for clean energy products that can help fill the "last mile" gap in the distribution chain, and that women entrepreneurs in the VSLA's have shown themselves to be successful last mile distributors of clean energy products. During the wPOWER pilot programme, over 180 women entrepreneurs were trained and sold more than 4,600 improved cook stoves and 3,500 solar lamps, largely to members of VSLA's. These women entrepreneurs collected a total revenue of over \$158,000 USD, of which \$18,000 USD are profits.

Go Green aligns to the United Nations Environment Programme (UNEP) and the UN Women flagship programme to promote Women's Entrepreneurship for sustainable change. *Go Green* builds on their thinking, research, knowledge and experience, which shows that an integrated set of actions is required to remove gender specific barriers and shift the current paradigm from one where women are passive providers and users of energy, to one where they are agents of change in promoting sustainable energy technologies and their productive uses. We know that women are the strongest people to carry this forward. CARE's 2014 wPOWER Hub Learning Report shows women entrepreneurs can demonstrate more than twice the business capacity and success than men.

CARE International has been working in Tanzania since 1994 and has extensive experience and knowledge of sustainable natural resource management and rural development, climate change and women's empowerment. CARE has well established relationships and collaboration with government, research, civil society and private stakeholders involved in rural development, including the sustainable energy sector which will be drawn upon in *Go Green Project* to ensure project relevance and sustainability.

PART A: Context and Problem Analysis

A.1: Context

A.1.1: Country Overview

Tanzania ranks 151 out of 188 on the UNDP Human Development Index (2015); despite being a net exporter of gold, and having a world-renowned tourism industry, the gap between rich and poor across the country is increasing, and despite great strides towards meeting the Millennium Development Goals, Tanzania faces an enormity of development challenges. Two thirds of the country live in multi-dimensional poverty with 43.5% of the population living below the poverty line (UNDP 2015). Stunting (a sign of chronic malnutrition) affects 42% of children under five (Unicef), and is the third highest rate in Sub Saharan Africa, behind only Ethiopia and Democratic Republic of Congo. Tanzania's population is the fastest growing on the African continent; with a current population of 50.8 million, projections are that by 2035, it will have doubled to 100 million.

A.1.2: Kilimanjaro Region and Climate Change

This project will be working in three districts of the Kilimanjaro region – Moshi Rural, Hai and Same. The Kilimanjaro Region is one of Tanzania's 30 administrative regions, and has a population of 1,640,087 (48.4% male, 51.6% female). The population is split into 1,242,712 living in rural locations (76%) with the remaining 24% (397,375 people) living in urban locations. The overwhelming majority of the population are farmers (60.4%) with the next highest economic activity, at 6.8%, being Service Workers, Shop and Stall Sales Workers.

The Kilimanjaro Region is one of the worst affected in Tanzania by the impacts of climate change and climate variability. It used to be known as one of the greenest and coldest regions (specifically Moshi Rural District) but is experiencing unusual heat and recently, registered the hottest day in the country, reaching 36°C during the Equinox (20 March 2016). Over the past 30 years, the region has experienced a general increase in temperature, decrease in precipitation levels, heavy and unpredictable rainfalls, floods and droughts. A 25-60% increase in short rain precipitation and an increase of 20-45% precipitation of the long rains has been recorded³. The World Wildlife Fund (WWF) have reported that Mount Kilimanjaro's ice fields have decreased by 80% in the past 100 years and what remains is likely to disappear between 2015 and 2020, and that loss of 'cloud forests' has resulted in 25% annual reductions of water sources derived from fog, affecting annual drinking water of 1 million people living in Kilimanjaro region⁴.

A.1.3.: Women, Girls and Health

Women and girls in Tanzania continue to be disadvantaged and marginalized in every day society. In relation to the household, women and girls are the main provider of domestic chores, including fetching water, cleaning, cooking, looking after children/siblings and collecting household energy supplies - firewood and charcoal. For this last task, the long distances they walk puts women and especially girls at heightened risk of sexual and gender based violence, obstructs their access to education and is a time-consuming and physically burdensome activity. The continued reliance on inefficient cook stoves and fuels leads to health and economic burdens that disproportionately impact women and girls, resulting in women unfairly bearing the burden of energy poverty - exposed to significant health and safety risks from household air pollution, from carrying heavy fuel loads, and from the lack of lighting.

The Global Alliance for Clean Cook Stoves estimate that on average, **women provide 91% of households' total efforts in collecting fuel and water with an average working day of 11-14 hours⁵**. The 2016 WHO report - *Burning Opportunity: Clean Household Energy for Health, Sustainable Development, and Wellbeing of Women and Children* - shows that **girls in households that cook with polluting fuels spend, on average, 18 hours a week gathering fuel**. A reduction in time spent collecting fuel and cooking enables women to spend more time with their children, tend to other responsibilities, enhance existing economic opportunities, and pursue income-generating or educational opportunities, leisure activities and rest – all of which contribute to poverty alleviation. The WHO Burning Opportunity report shows that, in households using clean fuels, girls spend just five hours a week gathering fuel, a reduction of 72%.

The report additionally shows that 60% of all premature deaths attributed to household air pollution (HAP) occur in women and children, who experience higher exposure levels than men. The single biggest killer of children aged under five, in Tanzania⁶, is pneumonia. Worldwide, more than 50% of pneumonia deaths are caused by exposure to HAP⁷. Clean energy technologies have the potential to address domestic energy burdens, improve gender health inequalities and reduce harmful emissions that are contributing to climate change. Women are a critical component in the journey needed to secure widespread uptake of clean household cooking solutions.

³ <https://www.weadapt.org/knowledge-base/national-adaptation-planning/kilimanjaro-findings>

⁴ http://wwf.panda.org/about_our_earth/aboutcc/problems/rising_temperatures/hotspot_map/tanzania.cfm

⁵ This is compared to 10 hours on average for men

⁶ 2013; WHO report for Tanzania shows 22% of post neonatal deaths (1-59 months) are due to Pneumonia, followed by Malaria at 16%. [who.int/maternal_child_adolescent/epidemiology/profiles/neonatal_child/tza.pdf](http://www.int/maternal_child_adolescent/epidemiology/profiles/neonatal_child/tza.pdf)

⁷ Page IX: <http://www.who.int/indoorair/publications/burning-opportunities/en/>



A.1.4.: Women's access to financial capital

In Tanzania, women lack access to a lot of the basic resources needed - such as land and credit - to be able to engage in economic opportunities. For female entrepreneurs seeking to start (or expand) a business, such financial exclusion can seriously hinder their ability to achieve their full potential. With no credit rating to speak of, women are denied loans, or offered loans with interest rates of up to 18%, often to buy an item as small as a chicken, making the end cost of the item, incomparable to its market value. By providing financial services - both formal and informal - to women and including them within the financial market, they are provided with an opportunity to invest in their future, opening up the potential of rising income, improved health, better education and greater participation in their communities.

CARE International in Tanzania is at the forefront of identifying solutions to ensuring women are financially included and empowered. CARE is the largest International NGO in Tanzania that works with VSLA's. Out of the NGO supported 45,854 VSLA's operating across the country, CARE is connected to 22,933 (50%) of them with a membership of 545,412 (average 70% women). Within a VSLA, each member will pay a small amount each week into the savings pot. At the end of the year, the combined total will be shared out among loan applicants, who repay with interest – this allows the un-banked to access loans and ensures savings accrue interest.

A.2: Problem analysis and solutions

Globally, over 1.3 billion people lack access to electricity and 2.6 billion people live without clean cooking facilities. The world's energy poor are negatively affected by the low availability of sustainable and reliable energy, with increasing difficulty in remote areas⁸. Within sub-Saharan Africa, it is reported that 600 million people, about two-thirds of the population, live without electricity⁹. This means that 43% of the global population living in the dark, are based on the African continent.

⁸ <http://www.snv.org/sector/energy>

⁹ <https://www.lightingafrica.org/about-us/>

According to the 2016 WHO report - Burning Opportunity: Clean Household Energy for Health, Sustainable Development, and Wellbeing of Women and Children - 3 billion people worldwide are relying on polluting energy sources such as wood, dung and charcoal for cooking, with almost 1 billion relying on kerosene lamps and other polluting devices to light their homes¹⁰.

In Tanzania, 15.3% of the population have access to electricity¹¹; in rural areas this goes as low as 2-3%¹². In fact, Tanzania is in the lowest 10 countries globally for population access to electricity¹³, with the vast majority of the rural population left in the dark, limiting economic and educational opportunities. Subsequently, these households spend inordinate amounts of both time, and money on alternative forms of energy. A typical rural household in Tanzania dedicates 33-35% of its total income on purchasing costly and inefficient energy (including kerosene lamps)¹⁴. Whilst kerosene has long been known to be an expensive source for energy, the 2012 Lighting Africa produced report - *The True Cost of Kerosene in Rural Africa* - shows a further disparity between the cost implications on rural and urban households, with rural households spending up to 35% more per liter for small quantity purchases¹⁵.

Additional to the use of kerosene for energy, solid fuels such as firewood and charcoal are widely utilized in Tanzania - figures estimate that 90% of households use solid fuels. The often inefficient use of these solid fuels for cooking and heating results in: high rates of deforestation and forest degradation, increased Green House Gas emissions and short-lived climate pollutants – the most significant of which is Black Carbon. Data from the Global Alliance for Clean Cookstoves shows that

¹⁰ <http://www.who.int/indoorair/publications/burning-opportunities/en/>

¹¹ <http://data.worldbank.org/indicator/EG.ELC.ACCS.ZS>

¹² Almost 75% of Tanzania's population is reported to live in rural areas.

¹³ <http://www.worldatlas.com/articles/countries-with-the-lowest-access-to-electricity.html>

¹⁴ *Let The Sunshine In: An explorative study on the value chain of pico-solar products for the rural areas of Tanzania*

¹⁵ This is based on the median price per liter (for small volume purchases) of kerosene in rural villages in Senegal, Mali, Ghana, Tanzania and Kenya in comparison to nearby urban centers.

25% of all black carbon emissions come from burning solid fuels for household energy needs. Between 2009 and 2014, a National Forest Resources Monitoring and Assessment of Tanzania mainland was conducted by the Tanzania Forest Services Agency with technical support from the UN Food and Agriculture Organization. The report found that the **total annual loss of forest and woodlands in Tanzania is 372,871 ha per annum**¹⁶. With a rapidly increasing population, such a rate of deforestation will soon be irreparable.

According to the 2012 census, use of modern sources of energy (electricity or gas) for cooking in the Kilimanjaro region is 7% (average), rising to 10% in urban districts and plummeting to 2% in the rural areas. The majority of households - 89.6% - used wood-fuel, 77.8% firewood and 11.8% charcoal as the main source of energy for cooking. The use of electricity as the main source of energy for lighting increased from 17% in 2002 to 32% in 2012. Of the remaining 68%, the vast majority of them (61%) are using kerosene (in wick lamps, lantern or chimney) for lighting.

Clean energy technologies such as clean cook stoves and solar lighting have the potential to provide a means to address such domestic and gender energy burdens. A 2012 market intelligence study conducted by SNV in the northern Lake Regions of Tanzania showed that over 40% of rural households indicated solar and improved cooking facilities as their most preferred type of energy technologies, but just 3.5% of rural households were identified as owning solar technologies. Despite the obvious market potential and relevance of access to sustainable energy, dissemination and uptake of clean energy products remains hampered by the following four main barriers.

- Insufficient access to finance
- Inadequate awareness of (good quality) products and services
- Inefficient distribution channels
- Insufficient skills to install and use clean energy products and troubleshoot problems

Solutions: The project will address the four identified barriers to accessing clean-energy products through a well-defined, structured and market-led supply chain that enables access to appropriate, good quality and affordable products.

1. Insufficient access to finance for women entrepreneurs to establish their businesses

- Deliver the project in areas where CARE is delivering Link-Up, a financial inclusion programme working with Tanzanian national NMB bank to offer affordable loans to VSLA's (loans will be available from early 2017)
- Use VSLA's as the point of entry for entrepreneur recruitment

- Explore a partnership with a 'pay as you go' solar supplier whereby women entrepreneurs will, as agents, access the product free of charge, making commission on weekly top-ups

2. Inefficient distribution channels from supplier to entrepreneur

- Work with suppliers to establish hubs at district level to facilitate sale and distribution

3. Inadequate awareness of products and the cost benefit of shifting to clean energy products

- Awareness raising initiatives across multiple platforms
- Train entrepreneurs in providing a cost-benefit analysis with end users to increase understanding and sales

4. Sufficient skills to install and use clean energy products and troubleshoot problems

- Provide demonstrations and installation support at point of sale
- Train community members in troubleshooting

A.3 Learning Agenda

The learning agenda for this project will delve further into these four barriers, identifying sustainable and realistic solutions to overcome the obstacles that have to date, slowed the development of the clean energy market in rural Tanzania. There are a number of reports that have been produced in recent years, along with CARE's own learnings from the wPOWER programme; combined, these mean that we are already in a strong position to utilise these learnings and build upon them.

- We know which models do, and don't work – throughout wPOWER the modeling structure evolved, with different emphasis on supplier/CARE responsibilities, development of training materials, and various versions of how to get product to the entrepreneur. The final and most successful model was that of establishing hubs in each district, as it overcomes the barrier of getting stock to entrepreneurs; we are proposing to continue and build on this within *Go Green*.
- We now know which private suppliers make for successful partners, and the expectations on what CARE will bring to the table – there are a number of key players in the clean energy market in Tanzania, some of whom have greater experience than others in working with NGOs. They each have a slightly different approach, and we are using a combination of experience and research to identify the three private suppliers that will play a key role in the delivery of this project. wPOWER has taught us the power of CARE's added value, in terms of strong VSLA networks and on the ground presence, but it has also demonstrated what we can learn from the private sector and how they should be involved from

¹⁶Page V: <http://www.fao.org/forestry/43612-09cf2f02c20b55c-1c00569e679197dcde.pdf>

a programming perspective – such as inputting to entrepreneurship training as business minded and focused individuals.

- We know that solar products continue to outsell cook stoves, which is in part, due to the more costly price tag attached to cook stoves – also due to high VAT and import taxes on clean cook stove products in Tanzania - and there is a greater behaviour change requirement in adapting cooking techniques, making the change slower.

While wPOWER and other initiatives have already provided insights on barriers and drivers for rural clean energy, there are still a number of issues that need further exploration. These are the key issues to be covered by the *Go Green* project learning agenda:

- The best way to overcome the cook-stove barrier. Prices will likely remain high, and there is currently only one company importing them. A couple of approaches we wish to try, include:
 - » Looking further into bio-gas and gas as an alternative means for energy for cooking – we have conducted an initial gas analysis and know there are some market options, but need to investigate this further as part of the learning agenda, as well as continue conversations with gas and bio-gas providers in country.
 - » Working with the only current importer of clean cook stoves, to begin small scale assembling of one wood and one charcoal cook stove in Kilimanjaro Region. It is anticipated that this will reduce the cost, as well as provide an additional jobs and business opportunity to entrepreneurs. Women entrepreneurs can form cooperative groups with this model, pooling their funds to purchase the 'flat pack' stoves – and sell either directly to the end user, or to a social enterprise soon to start work in the region. See Appendix B for further information.
- Why it is proving so hard for clean energy private companies (especially solar) to find good agents that can sell consistently well at the last mile of distribution. We know from wPOWER that women entrepreneurs had strong networks through which to sell, and increased motivation to sell, having a bigger personal understanding of the time and human-energy moving to clean energy products can save. We are repeatedly hearing however that it remains a major obstacle for private suppliers. We will use the first year to further explore what it takes, to maintain good agents, to ensure we're providing the women entrepreneurs with the best start for their business journey.
- Why awareness raising messages aren't resulting in direct uptake. We're targeting a range of groups to look into this further, including rural village meetings, VSLA groups and youth through schools. We want to see, whether aiming the messages at a cross-sector of society, and using the outcomes from our focus group discussions to tailor the messaging, can help

to increase uptake. We will additionally pilot the use of mass SMS messaging to increase the reach of our awareness raising activities, with follow up monitoring SMS messages to gauge the impact of this approach.

- How we can increase the multiplying effect of this project approach. We know from wPOWER that women entrepreneurs are still buying from the private suppliers we linked them to, demonstrating sustainability, however we did not within the wPOWER pilot programme explore how we can multiply impact, for example through the use of train the trainer schemes, or apprenticeships. Within the first year of *Go Green*, this is something we will concentrate on, to create heightened sustainability and successful replication, to ensure the market continues to expand beyond the lifespan of the funding.

To support the learning agenda, we will pilot a number of monitoring tools, outlined in section C3.



A.4: The Landscape

Following the conduction of a thorough analysis, review of wPOWER programme and numerous conversations with both the private and public sector, we know that there's both a strong need and the market to scale up our work from wPOWER¹⁷. Through taking the learnings, and increasing the scope and reach, *Go Green* has the potential to create more clean-energy using households, and enable more women to become economically empowered and financially independent.

We have conducted an external analysis of the landscape, which demonstrates that while there are a number of both private and development led clean energy programme's going on in Tanzania's northern regions, they're clustered in the Lake Zone (west of Kilimanjaro Region) due to the ongoing Payment by Results (PBR) energy initiative. This has drawn a vast number of suppliers to households in the Lake Zone, leaving an unmet need in other neighbouring regions – such as the Kilimanjaro region.

There are a number of national bodies, including TaTEDO (the Tanzania Traditional Energy Development Organisation) and TAREA (Tanzanian Renewable Energy Association) which play an important role in lobbying, advocacy, awareness raising and research. The *Go Green* Project will collaborate with and complement these existing initiatives, translating the research and findings into practical action and testing on the ground. Within our target districts in the Kilimanjaro Region, there remains a huge need to increase access to private supply, and ramp up the level of awareness to stimulate the market.

PART B: Project description

The *Go Green* project has been designed based on extensive research, lessons learned from our previous three-year wPOWER pilot programme and engagements with private suppliers, social enterprises and other NGOs working in the sector. We have compiled an in depth analysis of the landscape in Tanzania, including the key policies and players. This analysis has fed keenly into a lot of our decisions, especially the modelling for how we will be working with distributors and suppliers of clean energy products to shorten the value chain thereby ensuring the product is affordable to both the end user, and the entrepreneur.

B.1: Objectives and indicators

The overall objective of the project is to:

¹⁷The analysis has not been attached as an appendix due to the level of detail it goes into; we would be more than happy to supply a copy of it should that be requested.

Contribute to increasing the number of women in Tanzania adopting and directly benefitting from clean energy products.

The results will be:

- **Result 1:** Three private clean energy suppliers (with formally certified products) are selling competitive and quality products to 450 women entrepreneurs through three established district level energy hubs in Kilimanjaro Region.
- **Indicators:**
 - » Number of private clean energy suppliers selling competitive and quality products to women entrepreneurs through district level energy hubs in three districts of the Kilimanjaro Region
 - » Number of entrepreneurs buying competitive and quality products from private clean energy suppliers.
- **Result 2:** 450 women entrepreneurs have established clean energy businesses and are selling competitive and quality products according to the demands of the population in rural areas of Kilimanjaro Region; 30,000 products will be sold, reaching 150,000 indirect beneficiaries.
- **Indicators:**
 - » Number of women that have established clean energy businesses that meet the demands of the population in rural areas of Kilimanjaro Region.
 - » Percentage increase in entrepreneur's household income from sale of clean energy products.
- **Result 3:** Increased awareness among energy sector stakeholders - throughout the value chain - of key barriers and drivers for adoption of new clean energy technologies.
- **Indicator:** Number of stakeholders aware of the key barriers and drivers for adoption of new clean energy technologies

B.2: Target group

This project directly targets 450 women entrepreneurs from 120 VSLA groups, and the wider community. The women will be identified by community based trainers (CBTs), who will in turn train and support them to start their energy distribution businesses, obtaining working capital primarily through their VSLA groups, loans from financial institutions, and through supplier credit (if working with the 'pay as you go' supplier). These entrepreneurs will be the 'last mile' distributors, meaning they will access women who are currently an 'untapped' market - those living in remoter rural locations.

The awareness raising component of the project will reach

an estimated further 8,520 direct beneficiaries, made up of 3,000 VSLA members, 1,800¹⁸ students, 720 public meeting attendees and 3,000 SMS recipients.

Additionally, this project will have a positive impact on a number of indirect beneficiaries, including:

- 1,800 household members of the women entrepreneurs. One of the outputs we expect to see, is that the clean energy entrepreneurs increase their household income by 30% through the sale of solar lamps and clean cook stoves; with that additional income, the indirect beneficiaries will benefit through increased disposable income, alleviating household poverty levels.
- 30,000 households in Hai, Same and Moshi Rural, that purchase clean energy products, equating to 150,000 individuals¹⁹. These household members will be positively impacted through both the financial savings made and health benefits from moving to clean energy products.
- 34,080 household members receiving the awareness raising messages, indirectly.

B.3: Targeting strategy

The targeting strategy will ensure the project interventions reach those most in need, exposing the poorest and most marginalized households to clean energy products.

Location: We have targeted to work in the Hai, Same and Moshi Rural districts of Kilimanjaro Region for four key reasons: 1) it has an exceptionally low percentage of households using modern sources of energy (just 2% in rural areas); 2) CARE has well established collaboration with key stakeholders in the area, including a local office, 3) it is one of the poorest areas of the country and 4) our analysis shows there remains an untapped need in the region.

CARE International already has a presence in the region, enabling quick start up. Additionally, our recently concluded clean energy programme - wPOWER - was delivered in the same districts, meaning we're building on an already strong foundation. The villages we work in will be different to those targeted during wPOWER, to ensure the market and entrepreneurs are in place to make this project viable; the villages will be selected based on the VSLA targeting strategy, as below.

It must be noted that working within the same districts as the formerly delivered programme is not a sign that it did not work, but a sign of the scope for potential, and the sheer size

¹⁸ The average household size in Tanzania is 5; multiplied by four so as to not double count the entrepreneur.

¹⁹ The average household size in Tanzania is 5



of Tanzania. In 2012, the districts we're targeting had a combined population of just under 1 million inhabitants (with population figures rising annually, it is estimated to be well over 1 million in 2017). It must be recognised that there becomes a limit to the distance an entrepreneur can travel for sales, due to time and cost – and vice versa, for rural households travelling to buy. The targeting for this project will very specifically focus on villages and VSLA groups that were not reached previously, to multiply impact. Something that we intend to investigate within the learning agenda, is how the entrepreneurs can further multiply their impact, through train-the-trainer, and the potential to training apprentices.

VSLA's: VSLA's will act as the point of entry for this project, and we will identify the specific VSLA's to work with during the inception phase. Targeting will be based on a number of criteria, which will be addressed through the 'healthy VSLA' checklist – identifying if the VSLA is fully functioning, meeting regularly as per the CARE guidelines and able to engage in this opportunity. Once identified, an introductory session will be held at each VSLA to target the women entrepreneurs, as below. As part of CARE's VSLA modelling, we work with Community Based Trainers (CBTs), who are individuals connected to up to 10 VSLA groups; their role is ongoing learning and training for members, ensuring inclusive governance, data collection and monitoring, among others. The *Go Green* project will make use of these CBTs for the outreach work with VSLAs, including awareness raising, training, biannual top-up training, and coordinating direct one-to-one support for members.

Women Entrepreneurs: following the awareness raising sessions, women entrepreneurs from the VSLA groups will be identified; during the inception phase, we will develop a criteria list to ensure the right women are selected. This will include criteria such as whether they're known and accepted by the community, whether they already show business skills, whether they can keep records and whether they have the time and capacity to engage in establishing a business.

Private Suppliers will be targeted based on their experience (both in Tanzania and the Kilimanjaro Region), their willingness to work with CARE International on this project, whether their business is legally registered in Tanzania and that they'll only supply certified products to the entrepreneurs. Our early research has led us to a handful of private suppliers that would add a lot of value to this project; each at the forefront of the evolving clean-energy landscape, providing quality, affordable and accessible products. Whilst we have not confirmed partnerships at this stage, we will use the three-month inception period of the project to continue conversations, determine roles, added value and strengthened ways of working together to achieve the project objective. *See Appendix B for additional information on the identified suppliers and their added value.*

B.4: Partners

The project will be implemented in close collaboration with a number of both private suppliers of clean energy products and local Tanzanian civil society organisations. CARE works in partnership with local Tanzanian non-governmental organisations, who are supported to lead on the implementation of project activities. CARE's role is that of a facilitator and supporter of local change agents rather than as implementers. We believe this is a more sustainable and empowering strategy.

Building on past collaboration in the area, CARE has pre-identified two potential partners to work with in the Kilimanjaro Region; Jenga Community Outreach and Praxis. They are based in Moshi and are well respected within the region. There is no commitment from CARE until due diligence has taken place.

Thorough due diligence and final selection of partners will take place during the initial three months inception phase, after decision by Augustinus Foundation to fund *Go Green* project. This is standard practice in CARE's programmes to ensure appropriate financial and non-financial risk management. The due diligence will be conducted by a CARE team representing both the programme department focusing on organisational capacities and governance aspects as well as the finance department focusing on financial aspects and statutory requirements.

The overall split of roles between CARE and the implementation partner will be:

- Partner: *Day-to-day project implementation in the field, data collection for monitoring purposes*
- CARE: *Overall project and financial management, monitoring and evaluation and reporting. CARE will also lead on the learning agenda and private sector facilitation.*

Additionally, CARE will provide capacity support to the partner, in areas identified throughout implementation – e.g.: financial management and reporting. We intend to support the partner so that by the end of the project, they are in a position to deliver their own project and continue quality work on their own.

B.5: Implementation strategy

CARE's experience, research and technical input to the design of this project, has led us to the following implementation strategy, as the most appropriate and successful approach. The modelling lessons learned from wPOWER, mean that *Go Green* has, in essence, already been piloted – this allows the funding to go further and have more impact, whilst allowing some key, unanswered questions, to be addressed in year one.

The project strategy is for CARE and partners to identify and **build the capacity** of women entrepreneurs, following which, we will **facilitate links** between entrepreneurs and private sector suppliers. We will build the capacity of entrepreneurs to link poor women in rural areas to clean energy products. Additionally, the project will **raise awareness** at a community level of the importance of adopting clean energy products to increase demand, and **highlight critical learning** about the challenges and barriers to successful uptake of clean energy products. *See Appendix A for the logic model for the implementation strategy.*

Building Capacity: The success of this project hinges on the need to build the capacity of women entrepreneurs, to enable them to engage with the private market, purchase products and understand sales. Working with community based trainers (CBTs), will enable us to identify women with the relevant passion, focus and skills to be strong entrepreneurs. The CBTs will provide the entrepreneurship training, followed by biannual one day 'top up' sessions, providing ongoing support and the potential to address the changing markets and upcoming obstacles. We envisage this ongoing support will also strengthen commitment and motivation among entrepreneurs.

Facilitate Links: For sustainability of this project, a key role for CARE International and our partners is to act as enablers to facilitate the link between entrepreneurs and the private sector, as well as between financiers/finance mechanisms and entrepreneurs. We have identified these to be two key barriers

that make last mile distribution of clean energy products challenging and prohibitive. We have existing relationships with the private sector, and have already begun to build relationships with new actors; additionally, the project has been designed so as to remove the financing obstacle – see section A.2 for more information on this.

Raise Awareness: Without increased understanding and appreciation for why a household should adopt clean energy products – particularly clean cook stoves and solar – sales and behavior change will remain low. We have identified three key groups to target with awareness raising sessions in the first year of implementation: rural women and men members of VSLA's; other community members²⁰; and students. We will also pilot the dissemination of awareness raising messages via SMS, which will be followed up with questionnaire SMS messages, to ascertain if purchasing behaviour has changed as a result. The cost of replying to the SMS questionnaire will be covered under *Go Green*, to ensure responses aren't bias towards those that can afford to reply.

Additional to these target groups, two components of the entrepreneurship training will enhance the chances of success for both sales, and sustained use of the clean energy products:

- Entrepreneurs will be taught how to conduct cost-benefit analyses for households interested in buying a product. Experience shows that households can be reluctant to invest a higher than usual amount initially in clean fuels, due to the low understanding that in the long run, it will be cheaper. By providing entrepreneurs with the skills to walk a household through their current and forecasted expenditure, we anticipate this will result in higher uptake of clean energy products and increased satisfaction among buyers in their decision making.
- Entrepreneurs will be encouraged to show their buyer how to use their product at the point of sale; this will serve to remove a known current barrier, of incorrect use of purchased products. This leads to products being discarded, and friends, family and neighbours being discouraged from purchasing them themselves.

Highlight Critical Learning: There have been an increasing number of products available on the market in the past 10-15 years, and still the uptake is relatively low. Through the learning agenda, *Go Green* will contribute to a better understanding amongst key energy stakeholders on why this is the case, and how the barriers can be removed to increase uptake and improve the opportunities for women within the clean energy value chain.

²⁰ Public Meeting Fora's take place quarterly in all villages, and are one identified mechanism for reaching other community members. Extraordinary Meetings can be requested in between the Public Meetings.

B.6: Sustainability Strategy

This project has sustainability at its core, ensuring a smooth exit strategy is both viable and highly achievable. Key components of the project, including entrepreneur capacity building and awareness raising, will provide individuals and communities with the skills they need to flourish on their own. By the end of three years, the entrepreneurs will have sustainable business models and an informed market to sell to. Additionally, due focus will be paid to forming tight and meaningful connections with the private suppliers, enabling ongoing relationships between the entrepreneurs and supplier. The hubs will be established in partnership with the private suppliers, ensuring they remain beyond the project continuing to provide entrepreneurs with access to products.

B.7: Outputs and Activities

RESULT 1: *Three private clean energy suppliers (with formally certified products) are selling competitive and quality products to 450 women entrepreneurs through three established district level energy hubs in Kilimanjaro Region.*

OUTPUT 1.1: Three clean energy suppliers identified and linked with entrepreneurs

ACTIVITIES

- Identify three suppliers with certified products: *See Appendix B for researched companies we are interesting in developing relationships with.*
- Develop MOU between selected private supplier and CARE
- Organise trainings on contracts, agreements and purchasing for women entrepreneurs so that they can enter into formal agreements with clean energy suppliers: *To safeguard the beneficiaries we're working with, it is key that they have relevant and tailored information about entering into contracts and agreements with private suppliers, and fully understand any repercussions of such partnerships.*
- Link private sector firms to sell clean-energy products to entrepreneurs: *We will connect the private supplier with entrepreneurs via an introductory workshop, providing the entrepreneurs with the opportunity to ask questions, learn about the product and make an informed decision as to whether to enter a relationship with the supplier.*
- Link entrepreneurs with formal financial institutions to access financial services to pre-finance products

INDICATORS

- Number of private suppliers identified
- Number of MOUs developed and signed between CARE and private suppliers
- Number of private suppliers linked to entrepreneurs
- Number of entrepreneurs trained and equipped with business knowledge to enter into agreements with private suppliers
- Percentage of entrepreneurs accessing formal financial support (banks) to pre-finance products
- Percentage of entrepreneurs accessing informal financial support (via VSLA's) to pre-finance products

OUTPUT 1.2: One clean energy hub created in each intervention district

ACTIVITIES

- Support private suppliers to establish clean-energy distribution hubs within each district, via linking them with local businesses: *these hubs will support the final steps in last mile distribution, ensuring stock can be easily accessed by entrepreneurs (this was identified as a key challenge in wPOWER).*

INDICATORS:

- Number of clean energy hubs created within each intervention district

RESULT 2: 450 women entrepreneurs have established clean energy businesses and are selling competitive and quality products according to the demands of the population in rural areas of Kilimanjaro Region. 30,000 products will be sold, reaching 150,000 indirect beneficiaries.

OUTPUT 2.1: 450 women trained in clean-energy entrepreneurship

ACTIVITIES

- Work with CBTs to recruit entrepreneurs 120 existing VSLA groups
- Conduct entrepreneurship training course in each district, for 450 women, on business skills, with a focus on the clean energy market²¹: *To be delivered by the CBTs, topics will cover: how to pre-finance your business, return on investment, book keeping, understanding your audience, marketing to them effectively, how to sell, and how to provide a cost-benefit analysis for buyers, among others.*
- Provide biannual 'top up' trainings for entrepreneurs to address any emerging issues and market changes

²¹ The same training will take place for entrepreneurs in each district

INDICATORS:

- Number of women entrepreneurs identified
- Number of entrepreneurs recruited
- Number of women trained in entrepreneurship
- Number of biannual top-up trainings conducted
- Percentage of entrepreneurs attending quarterly top-up trainings

OUTPUT 2.2: 22,500 solar lamps and 7,500 clean cook stoves are sold by clean energy entrepreneurs

ACTIVITIES:

- Entrepreneurs sell clean-energy products to 30,000 members of their VSLA's and wider community; estimated sales approaches include:
 - » *Entrepreneurs hold demonstrations at 40 VSLA meetings in each district, community group sessions and door-to-door sales*
 - » *At point of sale, entrepreneurs train end-users in rural households how to use clean energy products and deliver a cost-benefit analysis.*
- Identify and train 60 community members to be able to fix clean energy products and troubleshoot problems
- Send SMS messages to 3000 individuals, conveying clean energy awareness raising messages
- Conduct 24 awareness raising activities in each intervention district, using existing public meeting fora, to raise awareness of the importance of clean energy products²²
- Hold an annual 'Energy Day' in six schools in intervention areas, involving energy related drama, competitions and awareness raising (first and second year only)

INDICATORS:

- Number of people reached with information on clean energy products
- Number of people buying clean energy products from entrepreneurs
- Number of clean energy buyers shown how to use their clean energy product
- Number of community members trained on how to fix clean energy products and troubleshoot problems
- Number of cost-benefit analysis consultations conducted
- Percentage increase in entrepreneur's household income from sale of clean energy products
- Number of SMS awareness raising messages sent
- Number of public meetings attended to deliver awareness raising activities on the importance of clean energy

²² Sessions to take place at: 24 other public meeting fora's in each district

- Number of annual 'Energy Days' held in schools
- Number of students engaging in 'Energy Days' held at schools

RESULT 3: *Increased awareness among energy sector stakeholders - throughout the value chain - of key barriers and drivers for adoption of new clean energy technologies.*

OUTPUT 3.1: Publication of a learning report (in year one) concentrating on why, given the numerous past and present clean energy projects, the products are not already distributed throughout East Africa.

We see this output as something that could be of strong interest to a university/a PhD student working in this field, and/or a research institute, and will make contact with these institutes upon positive feedback from the Augustinus Foundation. Identified universities and research institutes with a strong energy focus include: University of Dar es Salaam (Tanzania), Risø (Denmark), Twente University (Netherlands) and Energia. CARE already has links with the several of these institutes.

ACTIVITIES:

- Hold two focus group meetings per district (six total), with women in rural areas to ascertain the barriers and drivers for adopting clean energy products and methods. 12 women will attend each discussion.
- Coordinate a one-day workshop for 20 key actors in the Tanzania clean energy market to amalgamate existing learnings and share best practice
- Interview five key individuals (private, public and NGO) within the clean energy sector in Tanzania to identify barriers, challenges and suggested solutions to increasing uptake of clean energy products
- Produce engaging report of the findings
- Disseminate the report to a total of 50 sector stakeholders via a breakfast seminar in Dar es Salaam (30 attendees), e-bulletin, social media and presenting at one of the monthly 'Policy Forum' seminars (30 attendees)

- Developing a multi-stakeholder action plan for follow up on key identified issues
- Create dialogue between suppliers and beneficiaries to deliberate on policy and advocacy issues
- Adjust the planned activities for this project, based on knowledge learned and shared
 - » Hold a review meeting (at six months) with CARE Tanzania, CARE Denmark and donor to discuss how to integrate learnings into project delivery to ensure past challenges are being addressed
 - » Produce and sign off a revised implementation plan for years 2 and 3 of the project
 - » Commence implementation of agreed revised action plan

INDICATORS

- Number of women involved in focus group discussions around barriers and drivers for adopting clean energy products
- Number of workshops held for key actors within Tanzania's clean energy market
- Number of key individuals interviewed to identify barriers, challenges and suggested solutions to increasing uptake of clean energy products
- Number of reports produced
- Number of attendees at breakfast seminar
- Number of stakeholder's learnings are disseminated to
- Percentage of e-bulletin recipients opening the report
- Number of bi-lateral meetings held to deliberate policy and advocacy issues
- Number of revised action plans implemented



B.8: Assumptions, Risks and Mitigation

RISKS	MITIGATION
Women are not interested in becoming clean energy entrepreneurs.	We will incorporate learnings from wPOWER to encourage women entrepreneurs to engage in the project, including strengthening the access to finance, and finding strong private partners to work with.
Private suppliers are not engaged and cannot see the benefit of working with CARE.	We have already established relations with a number of private suppliers, demonstrating the added value of working with CARE – VSLA access, entrepreneurs, innovative thinking and experience in both the market and location. The existing relationships we have from wPOWER, along with the new relationships already being formed, will mitigate against this.
Households do not respond to awareness raising messages and purchasing of clean energy products is low.	Women entrepreneurs will be encouraged to carry out demonstrations at VSLA meetings, and will also be shown how to conduct cost/benefit analyses for households, confirming the benefits of moving to clean-energy. Awareness raising messages will be targeted and wide spread across various fora in the intervention districts, including VSLAs, public meetings and at schools to ensure we reach multiple household members with messaging.
Women do not find the products useful or beneficial upon buying them	Demonstrations will be conducted to ensure women know how to use products, and the benefits of shifting to them; additionally, 60 community members will be trained as trouble-shooters, to fix any small issues and support women to transition to a new way of cooking and lighting. We will only work with suppliers with guarantees on products, so that any faulty product can be replaced.

B.9: Project implementation plan

This project will commence with a three month inception phase, with the project beginning activities in January 2017. See Appendix C for the full implementation plan.

PART C: Project organisation and management

CARE will have the overall responsibility for project management, with most of the activity implementation being carried out by the local partner with technical support from CARE. The following staffing will be required from CARE and the partner's side.

C.1: Staff and Functions

STAFF ROLE & LEVEL OF EFFORT (P/A)		FUNCTION
Full time CARE project staff		
Project Coordinator (1)	100%	The Project Coordinator will assume the responsibilities for the overall management of the successful implementation of activities as outlined in this proposal. S/he will be based in Moshi.
Full time partner project staff		
Project Officer (2)	100%	Two Project Officers will be recruited for the project, and will report to the Project Coordinator; they will be based within the partner organisation in Moshi. They will support the Project Coordinator with implementation, including trainings, workshops, outreach, stakeholder liaison and entrepreneur support. The person specification for this position will specify that candidates will need to have previous financial advice experience.
Driver	30%	A Driver based in Moshi will work 30% of the time on this project.
CARE support staff		
Technical Director, GEWE	10%	The Technical Director, Gender Equality and Women Empowerment will be accountable for the overall successful implementation of the project. Based in Dar es Salaam, he/she will supervise the Project Coordinator. S/he will have a specific role in policy dialogues and private sector engagement, based on the learning agenda.
Monitoring and Evaluation (M&E) Coordinator	20%	The M&E Coordinator will be responsible for leading on all monitoring including managing the baseline survey, data collection tools, monitoring data, reporting, conducting the focus group discussions and end-line survey.
Sub Grant Officer	20%	The Sub Grant Officer will be responsible for managing the due diligence, finances, reporting and capacity building of the selected partner. S/he will be regularly involved in management of the project finances.

C.2: Coordination

CARE will be working closely with the Ministry of Energy and Minerals, national networks promoting the use of clean energy as well as private sector firms engaged in the production and supply of clean energy solutions in Tanzania. The project will seek any necessary support from the Ministry of Energy and Minerals (MEM) and the Rural Energy Agency (REA) that will ensure sustainability and access to clean lighting and cooking to majority of rural Tanzanians. Additionally, *Go Green* will work with the Tanzanian Renewable Energy Association (TAREA) throughout for coordinated working with actors across the sector, and specifically for dissemination of learnings.

We will monitor the effectiveness of the SMS awareness raising messages, by sending follow up questions (via SMS) to determine whether recipients' behaviour has changed as a result of increased knowledge. We will cover the cost of the reply SMS messages, to ensure the monitoring data received is in no way biased by the recipient's poverty levels.

We will pilot the use of the Carbon Keeper app among a small selection of entrepreneurs in the first year of implementation. Carbon Keeper is an open source software for android phones, specifically designed for clean energy entrepreneurs to streamline the monitoring of sales, offering real time data as well as analysis, providing more robust and timely monitoring an evaluation. If trialling the use of this app is successful, we will determine the best way of rolling it out further.

C.3: Reporting, Monitoring and Evaluation

CARE will produce narrative and financial reports at time intervals agreed with the Augustinus Foundation, covering the progress made against targets well as challenges encountered and proposed mitigation measures. At the end of the project, there will be a final narrative report along with the final financial and audit report. One of CARE's Monitoring and Evaluation Coordinators will be responsible for ensuring tight monitoring tools and practices are in place from the outset of implementation, and will provide technical and troubleshooting support to the project coordinator and officers. They will be responsible for ensuring baseline data is collected

C.4: Financial management and reporting

CARE will ensure that reporting and auditing practices will adhere to the Augustinus Foundation guidelines. The selected implementation partners will be supported to live up to requirements and the donor guidelines will be shared and explained at the outset of the project.

PART D: Supporting documentation

Appendix A: Model Logic for Implementation Strategy

Appendix B: Supplier Added Value

Appendix C: Implementation Plan

Appendix D: Detailed budget



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