PROJECT RWANDA

A United Nations Clean Development Mechanism Programme of Activities: distributing 600,000 advanced water filters and 600,000 high efficiency cookstoves to the poorest 30% of Rwandan households, about 3 million people.

The water filters comply with WHO and Rwandan standards and eliminate microbiological contamination. The cookstoves use less wood and burn more efficiently, thereby reducing climate harming greenhouse gases and helping to reduce diseases caused by air pollution. As of June 2015, more than 100,000 households have benefited from advanced water filters and high efficiency cookstoves.

CARBON CREDITS / CERS

Volume: At full rollout, the programme will reduce emissions by more than 1 Million tCO$_2$e/year.

Verification and Issuance: First verification undertaken in April 2015, with first issuance in Q3 2015.

Standards and Registration: Registered ‘Programme of Activities’ under the United Nations Clean Development Mechanism.

Registered with the American Carbon Registry.

Registration with the Gold Standard (as CDM Gold Standard) is expected in 2016.

PROJECT BENEFITS

- Reduce water borne diseases
- Reduce smoke inhalation
- Reduce child mortality and morbidity
- Increase productivity
- New employment opportunities and livelihoods
- Increased contact with Community Health Workers (CHWs) – improved health awareness and education
- Increased time for children to go to school and/or play, due to less time spent collecting wood and less time debilitated due to sickness
- Reduced greenhouse gas emissions
- Reduced particulate emissions, including Short Lived Climate Pollutants (SLCPs)

Due to the household and kitchen-centred nature of the intervention, these benefits accrue disproportionally to women and girls.
DISTRIBUTION
Providing high quality stoves and water filters under the authority of the Government of Rwanda and through established community mechanisms including community meetings and community leadership.

As of June 2015, more than 100,000 advanced water filters and high efficiency cookstoves (202,968 in total) have been distributed.

EDUCATION AND BEHAVIOUR CHANGE
Health education is the cornerstone of making our project a success. By enabling behaviour change and encouraging the use of improved water treatment and cooking methods through Community Health Workers, we increase the health impact.

Equipment distributions are followed within three days by household level education and ongoing visits by Community Health Workers to track the performance of the programme, and to map each installation with GPS coordinates collected on the smartphone-based survey.

The name of our health campaign is Tubeho Neza, which translates as “Live well” or “Be well”.

EVALUATION
DelAgua is working with several universities including the University of Rwanda to conduct controlled research studies on our programmes. These independent studies are designed to examine the technology adoption, behaviour change and public health impacts of our programmes.

Our research programme is conducted in full partnership with the Rwanda Ministry of Health, with oversight and approval from the Rwanda National Ethics Committee.

Continued financing of our programme and the anticipated expansion requires the demonstrated coverage and use of the intervention hardware. A research team led by Portland State University and the London School of Hygiene and Tropical Medicine (LSHTM) is responsible for evaluating the adoption rates and health impacts of the technologies. This is conducted through two primary activities.

1. A Randomised Control Trial (RCT) to evaluate health impacts and adoption
2. Remote sensing monitors installed on a statistically significant sample of the installed technologies to provide near real time monitoring of use, that can be correlated with more conventional household surveys that evaluate adoption and use.

PAY FOR PERFORMANCE
Carbon credits are earned only after comprehensive monitoring and reporting on continued use of the new water filters and cookstoves. Monitoring reports are verified by independent qualified auditors, before being quality assured by the UNFCCC process.

HIGH QUALITY, HIGH CREDIBILITY EMISSION REDUCTIONS
DelAgua’s carbon credits comply with the rigorous UN Framework Convention on Climate Change (UNFCCC) requirements of the Clean Development Mechanism. Rwanda is recognised as a ‘Least Developed Country’, making the programme eligible for EU recognition in the European Union Emissions Trading System post-2013. DelAgua’s carbon credits represent more than emission reductions - they are also a proxy measure for a range of health, gender, employment, education, environment and other development benefits. This distinguishes DelAgua’s carbon credits as unique and high value.

BIOMASS AS FUEL
About half of the world’s population uses unsustainable, biomass-based energy sources for indoor fuel. The daily use of biomass as a fuel contributes to extensive forest degradation and deforestation and harmful indoor air emissions that are prevalent in low-income countries. This imposes an unnecessary burden on the public health and economic development of the vulnerable populations of these countries. Rwanda now faces a growing wood fuel deficit. DelAgua is addressing these problems through one of the biggest programmes of its kind anywhere in the world.

TRANSFORMING FROM SOURCE TO SINK
At full implementation, the DelAgua programme will reduce the demand for fuel wood to below the current sustainable supply, based on the Government of Rwanda statistics and supplemented by the UN Food and Agriculture Organisation’s statistics.

That means the project will transform the Rwandan ecosystem from being a net source of emissions (forest loss and degradation from fuelwood collection) to a net sink of emissions (absorbing emissions from the atmosphere growing trees and in soil sequestration).

Click to view our ‘Partner With Us’ video

WWW.DELAGUA.ORG
SMART TECHNOLOGY

LIFESTRAW FAMILY 2.0 WATER FILTER

The LifeStaw Family 2.0 is a high volume point-of-use water filter. It converts microbiologically contaminated water into clean, safe drinking water, filtering up to 30,000 litres. This is enough to supply a family of five with clean drinking water for three to five years.

It works by using advanced hollow fibre technology. Water is forced through narrow fibres under pressure, clean water then exits through tiny pores in the walls of the hollow fibres and deposits into the safe storage container. The filter removes virtually all bacteria, protozoan parasites and viruses. Turbidity is also reduced by filtering particulate matter larger than 0.02 microns.

- Enhanced estimated lifetime filtration capacity of 30,000 litres
- Filter removes virtually all bacteria (99.9999 percent), protozoan parasites (99.99 percent) and viruses (99.999 percent) that can contaminate water
- Made of durable plastic
- Doesn't require electricity, batteries or replacement parts

ECOZOOM DURA COOKSTOVE

The Zoom Dura Cookstove provides a cleaner cooking stove solution by reducing fuel usage by up to 60% and smoke emissions by up to 70%. This means less toxic smoke is inhaled by cooks and their families, and fewer resources are needed for fuelling stoves. The cookstove burns wood and other dry solid biomass. It features an abrasion resistant insulated combustion chamber that forces gases to mix with flames, decreasing harmful emissions through supreme burn efficiency.

- Sturdy steel handles with silicone grips keep handles cool while stove is hot
- Durable three-pronged cast iron top offers stability for any pot or pan
- Reinforced metal door frame for increased durability
- Refractory metal lined combustion chamber
THE PILOT

In July 2012, DelAgua piloted the deployment of the Rwanda programme through one Umudugudu (a village-level group of homes) in the Western Province of Rwanda. 100 Vestergaard-Frandsen LifeStraw Family 2.0 water filters and EcoZoom Dura cookstoves were distributed at an Umuganda – a community meeting and work-day. Distributions were logged with barcodes linked to household identification numbers, and complete records were uploaded in real-time over smartphones to the cloud. The distributions were followed by household level education and follow up visits by Ministry of Health Community Health Workers to track the performance of the programme, and to map each installation with GPS coordinates collected on the smartphone-based survey.

PHASE 1
The first phase of the programme, covering 15 Umudugudu was completed in October 2012. 147 Community Health Workers were trained and devices were distributed at Umuganda meetings – a community based meeting and work day.

PHASE 2
The second phase of the programme saw the beginning of large scale distribution. This work began on 15th September 2014 and was completed on time and on budget by 10 December. Updates and items from the implementation campaign can be seen on our blog.

PHASE 3
The third phase of the programme, commencing in July 2015, will see over 2 million people receive cookstoves and water filters. This phase of work will also include the further development of a long term retail campaign to make cookstoves and filters available for purchase to the less poor Rwandan population.

10,000 PEOPLE

500,000 PEOPLE

2,250,000 PEOPLE

15 VILLAGES (UMUDUGUDU)

2,600 VILLAGES (UMUDUGUDU)

13,000 VILLAGES (UMUDUGUDU)
RANDOMISED CONTROL TRIAL RESEARCH TO EVALUATE ADOPTION AND HEALTH IMPACTS

The London School of Hygiene and Tropical Medicine, with Emory University, the Oregon Health and Science University and the University of Rwanda, are conducting a large scale Randomised Control Trial across the Western Province of Rwanda in 2015 to evaluate the effectiveness of the DelAgua intervention.

This evaluation focuses on “outcomes” (e.g. fewer cases of disease) and “impact” (lower healthcare costs, increased school attendance and productivity) rather than “inputs” (e.g. number of units delivered or people covered). At the same time, since reducing exposure is a necessary condition to the effectiveness of environmental health interventions, the research team is monitoring the impact of the intervention on critical intermediate outcomes such as microbiological water quality and indoor air quality.

The study employs a randomised control design to evaluate the impact of the intervention on environmental exposure indicators for water quality and indoor air quality in a sample of the target population and a control group.

INSTRUMENTED MONITORING OF A SAMPLE OF THE INSTALLED TECHNOLOGIES TO EVALUATE ADOPTION

Within the Randomised Control Trial, a sample of the households will receive water filters and cookstoves equipped with cellular network based remotely reporting sensors that record the performance and usage. Reporting remotely can provide solutions to many of the issues around sustainability of water treatment, energy and poor infrastructure in developing communities such as unreliable survey data and relying on spot checks to assess performance.

Once the technology interventions are instrumented with the Portland State University sensor package, surveys of families and communities who have monitoring devices will be conducted to determine differences between survey data and the monitoring system. Specifically, usage and performance data will be recorded to gain insight into the operational effectiveness.

In parallel, a blinded reactivity study is being conducted within the Randomised Control Trial, to evaluate if knowledge of the sensors impacts the households behaviour.

KEY FINDINGS

Preliminary results suggest that after 2 years, the Phase 1 programme achieved a 46% reduction in diarrhoea in children under 5, a 73% reduction in household air pollution for families cooking outdoors, and a 28% reduction in cookstove emission exposure among children. If similar reductions are sustained throughout Phase 2, this programme may save more than 30 children’s lives a year, and avert over 2,500 disability-adjusted life-years (DALYs) annually.

MONITORING

DelAgua utilises mobile data collection and a central database for programme implementation, analysis and record keeping. All distributions, education and evaluation activities are conducted through smart-phone based database tools.

During distribution, the community health workers log the names, phone numbers and national identification numbers of the recipients and scan barcodes of the distributed technologies.

During household visits, the team re-scan barcodes and take household identification information, as well as GPS coordinates. All survey questions are conducted through the phone, allowing for consistency betweensurveyors as well as automated quantitative evaluation of programme performance.

Through the implementation of mobile data collection DelAgua is able to effectively administer and manage large-scale development programmes with expedited technology rollouts, detailed household level education campaigns and comprehensive technology product tracking.

FUNDING SOURCES

The funding of DelAgua Health’s Rwanda programme comes from a number of sources, primarily the private sector. As it is anticipated to be a 20-year programme, the amounts and sources of revenues will vary over time but among them are carbon credits, corporate partnerships and the retail campaign.

There are a number of ways by which your organisation can partner with DelAgua and be involved in our projects. We will work with you to explore what opportunities best fit your organisational needs and desires.

ABOUT DELAGUA

DelAgua is a multidisciplinary organisation focused on improving the health of people and building sustainable communities around the world.

DelAgua was founded at the University of Surrey in 1985, initially to design and manufacture portable water testing kits. In 2006 the company was spun out into DelAgua Water Testing Ltd, now part of the DelAgua Group of companies. Whilst DelAgua continues to manufacture and distribute water testing kits, its business has grown and we now work with many major aid agencies, governments and academic institutions in more than 150 countries globally.

Please visit www.delagua.org for further information.