firstclimate
Climate Neutral & Water Services

DEDICATED, NATURALLY.

UGANDA: REDUCING DEFORESTATION WITH IMPROVED COOK STOVES

Uganda currently loses about 2% of its forest cover annually, fuel wood use being the second driver after land-clearing. Around 95% of Ugandan households use wood fuel as a primary energy source for cooking. Wood fuels include both the direct use of firewood and the use of charcoal. Urban dwellers use predominantly metal charcoal stoves. In rural areas, households still mostly burn firewood in traditional three-stone fireplaces. The demand for wood puts Uganda's forests under tremendous pressure. In addition, smoke from indoor cooking also causes respiratory diseases, particularly among women and children. Globally, the World Health Organisation attributes approximately 4,3 million premature deaths per year to indoor air pollution.

The project focuses on the Ugandan capital Kampala. In total, by the end of 2013 the project had promoted the commercialization of up to 350.000 cook stoves. The improved charcoal cook stoves achieve fuel savings of 35% to 50% compared to conventional metal stoves. Users also enjoy a much healthier cooking environment since the cleaner burning stoves cause significantly less smoke and fewer carbon monoxide emissions.

SUSTAINABILITY BENEFITS

This project contributes to the United Nations' Millennium Development Goals.

1 ERADICATE EXTREME PROVERTY AND HUNGER

The improved wood cook stoves save almost 60% compared to common appliances. An average family can cut their charcoal use by some 300 kilograms per year. This saving - equivalent to about 110 USD- is substantial considering that the per capita income in Uganda was about 547 USD in 2012 (World Bank). The project has also generated about 230 positions for local artisans constructing the stoves and more than 900 retail positions selling them, thereby increasing income for local population.

3 PROMOTE GENDER EQUALITY AND EMPOWER WOMEN

Ugandan women are disproportionately affected, as they spend 3-7 hours per day preparing food. Reducing the amount of firewood needed for cooking frees up time for more productive activities, such as the education of children, economic or agricultural tasks.

6 COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES

Improved cook stoves reduce the emission of harmful substances. Air pollution from cooking with solid fuel is a key risk factor for childhood acute lower respiratory infections, as well as for respiratory, cardiovascular and ocular diseases. According to the WHO, every year almost 20,000 people in Uganda die from indoor pollution.

7 ENSURE ENVIRONMENTAL SUSTAINABILITY

In Uganda, only about 8% of the harvested wood originates from renewable sources. Efficient cook stoves reduce demand for wood or charcoal, therefore easing pressure on forest resources in Uganda. This yields direct benefits like slowing soil erosion, the destruction of natural habitats and loss of biodiversity.

8 GLOBAL PARTNERSHIP FOR DEVELOPMENT

The project promotes locally manufactured technology with optimized energy efficiency, which improves technological self-reliance and allows for self-sustaining development.

KEY FACTS

Location:
Kampala region, Uganda

Project type:
Energy efficiency

Project standard:
Gold Standard

Total emission reductions:
>> 300.000 t CO_2 e p.a. <<

Validator:
TÜV Rheinland

Verifier:
Bureau Veritas

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TECHNOLOGY BRIEF - HOW IT WORKS

Most cook stoves combine three main design features for improved fuel efficiency. Firstly, the improved cook stoves achieve a higher combustion efficiency. In conventional fireplaces, the combustion of fuel – and thereby conversion to heat - is incomplete. Part of the fuel is effectively lost because it is converted to carbon monoxide and ash. Advanced designs use the so-called smoke-stack effect. Rising hot air induces an updraft, sucking fresh air into the stove.

The excess supply of oxygen raises the combustion temperature, which allows for a quicker and cleaner burning of fuel. A higher combustion temperature in turn amplifies the updraft in the stove that again raises combustion temperature. This positive feedback cycle raises combustion temperature until a stable, significantly higher level has been achieved. Secondly, better stove insulation boosts this effect and improves general heat retention to minimize loss of unused heat. Lastly, heat loss is reduced further by optimizing heat transfer between the stove and the pot. The wood stoves use the well-proven rocket technology, which raises the cooking pot to the hottest point above the flame. The institutional rocket stoves further increase heat transfer by having the cooking pot rest within a skirt.

THE UN MILLENNIUM DEVELOPMENT GOALS

The eight Millennium Development Goals (MDGs) – which range from halving extreme poverty rates to halting the spread of HIV/AIDS and providing universal primary education, all by the target date of 2015 – form a blueprint agreed to by all the world's countries and all the world's leading development institutions. They have galvanized unprecedented efforts to meet the needs of the world's poorest. Explore the efforts of the UN and its partners for building a better world here: www.un.org/millenniumgoals/

>> PROJECT VIDEO: HTTPS://VIMEO.COM/97518819

FACTS & FIGURES

1,5 million people benefiting from the project

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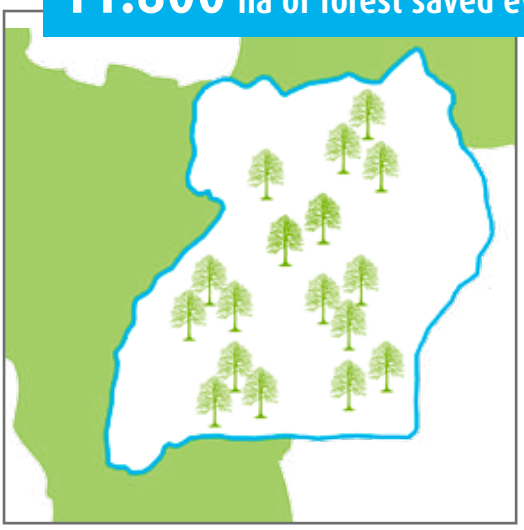
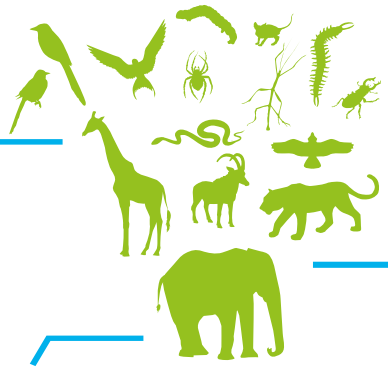
FACTS & FIGURES

11.800 ha of forest saved every year



Uganda is home to more than

1,015 types of birds



5,000 plant species

345 species of mammals

1.130 new jobs

900 retailers - 230 artisans

Fuel savings per household every year

110 US $

GDP per capita **547 US $**

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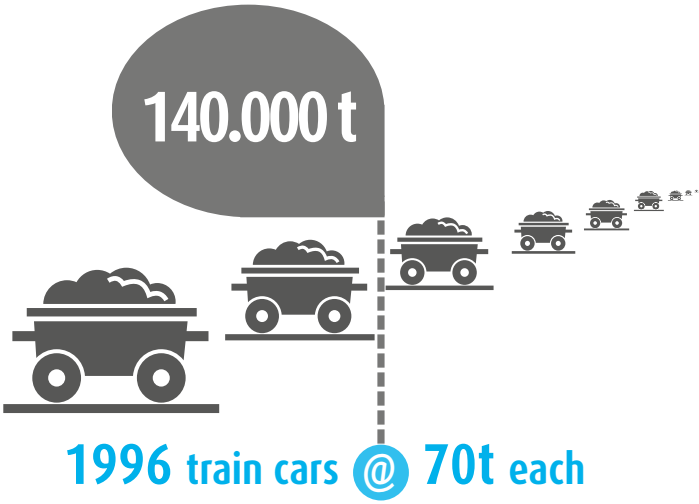
FACTS & FIGURES

Avoided consumption of charcoal



Freeing up time from cooking

Ugandan women spend
3-7 hours
per day preparing food

Reduced exposure to carbon monoxide and other toxic chemicals.

Deaths due to household air pollution in Uganda every year:

20.000

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For more information on other projects in our portfolio please visit our website:

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