



# LIGHT YEARS AHEAD

INNOVATIVE TECHNOLOGY FOR BETTER REFUGEE PROTECTION

How supporting UNHCR can  
transform the lives of hundreds of  
thousands of vulnerable refugees  
by providing access to innovative  
technologies







# WHAT DOES IT MEAN TO BE A REFUGEE?

The absence of light is a major problem in many refugee camps

UNHCR / E. Hockstein

Forced displacement continues to affect millions of people across the globe. Complex conflicts, human rights violations and natural disasters are among the causes of population displacements every year. Despite the best efforts of the UN Refugee Agency and its partners to provide life-saving and humanitarian assistance, sexual and gender-based violence continues to confront displaced women and men and the living conditions we have to offer are basic and austere.

In Sub-Saharan Africa, 6 out of 10 refugees – like Gloria from Darfur – live in camps. Even though these makeshift shelters provide vital respite for refugees, many families are housed in crowded, open-sided sheds with grubby mattresses on crumbling floors, and thin sheets hung for scarce privacy. Hundreds of thousands more make their homes in the white tents and temporary shelters characteristic of refugee camps. For survival, refugees depend largely on humanitarian aid. Forced displacement can last for decades, as drawn-out conflicts and persecution prevent refugees from returning home quickly. So they continue to wait, just like Gloria from Darfur.

## GLORIA'S STORY

DARFUR, SUDAN. Only some time ago, Gloria was eking out a sparse, but adequate living in the dusty Darfur region of western Sudan. Now she's subsisting on a handful of maize a day in a windblown tent at a UNHCR refugee camp on the Chadian border, waiting patiently for the day when she can return home.

It all started when militants attacked her village, shooting firearms and slashing with machetes. Feigning death, Gloria waited until nightfall before escaping into the desert.

After walking for days, surviving by eating insects and roots and stung by the incessant, wind-blown sand, she was finally found by a UNHCR field team. Her ordeal was over at last. Now the horrors are behind her. But so is the old life that she dearly misses. Gloria lives in hope that one day, she will return. One day.



UNHCR / H. Caux



# ARRIVAL AT A REFUGEE CAMP IS JUST THE BEGINNING

Sometimes walks to collect firewood  
can leave women isolated and prone  
to violent or sexual attack.

UNHCR / B. Heger

## PERSONAL AND FAMILY SECURITY IS A BIG CONCERN

Despite all the work of UNHCR, local authorities and refugee communities to ensure safety within the camps, refugees are still vulnerable to insecurity and personal attacks. A simple and effective means of augmenting their safety, such as installing street lights, remains largely outside of our grasp due to insufficient funds. With your assistance, UNHCR can broaden its reach and provide simple but vital security measures.

By helping us provide street lights, you can help us protect the lives of women and children, who are most at risk of violence and rape.

## NORMAL ROUTINES AND SCHOOLING OF CHILDREN IS A STRUGGLE

UNHCR provides buildings, teachers and materials to enable refugee children to return to school. Naturally, parents are anxious to re-establish a sense of normality and opportunity for their children.

In camp life, "normal" takes on a whole new meaning. In makeshift shelters, refugee children do not have a source of light by which to study. Reading and homework is impossible in the dark. UNHCR

has begun to address this challenge by providing solar lanterns to refugee families. But with demand far outweighing our meagre supply, we need more financial help to continue to provide this simple solution.

## COMPETITION FOR SCARCE RESOURCES PUTS WOMEN AND CHILDREN AT RISK

Even as refugees, women continue performing domestic duties, including the preparation of family meals. To do so, they must collect firewood for cooking. In areas with sparse natural resources they often travel hours on a daily basis to gather the necessary load. As local communities watch their resources dwindle as a result of this foraging, tension ensues. Not only does this situation create new opportunities for conflict and violence, particularly against women, it negatively impacts the surrounding environment, and the depletion of the natural resources takes years to replenish. Providing refugees with fuel-efficient stoves that require less firewood is a winning solution, helping to lessen the potential for conflict with local populations, saving refugee women time and protecting the environment.



A victim of sexual violence receives counselling from UNHCR



# YOUR SUPPORT CAN GREATLY IMPROVE THE LIVES OF REFUGEES

## EDUCATION: [LIGHT TO LEARN BY](#)

- In camps without electricity or light, girls and boys cannot study at night, which is often the only time they get a chance to do homework. Evidence shows that the schools drop-out rates increase when students cannot complete or keep up with their studies.
- In nearly half of all refugee camps worldwide at least 1 out of 3 refugee children cannot go to school or have dropped out, often to help support the family. In only one-quarter of all camps do most refugee children attend school.



The Solar Lantern: US\$39

## WOMEN AND GIRLS: [SAFETY FROM VIOLENCE AND SEXUAL ASSAULT](#)

In Africa, 72 refugee camps have no electricity. The inhabitants live in the dark at night.

- Without the security and protection afforded by light, women and girls may not feel comfortable going out at night, even to latrines or washing areas. Darkness provides cover for crime and vandalism, and puts women and girls at risk of rape and sexual harassment.
- In refugee camps in Kenya, roughly 40% of gender-based violence happens at night, with a significant number of the survivors being children.
- With increasing firewood resource depletion, refugees in Africa have to walk from one hour to one day to find firewood for cooking, repeating this ritual up to four times a week. As women and girls are usually responsible for collecting firewood, they are at a higher risk of abuse in the isolated areas where trees can still be found.



UNHCR / L. Taylor

## THE ENVIRONMENT: PROTECTING NATURAL RESOURCES

- Wood consumption in and around refugee camps greatly exceeds natural replenishment. Deforestation is rampant.
- As refugees walk ever increasing distances to find fire wood, environmental degradation spreads.
- The traditional cooking stove used by most refugees consumes 667 kg of firewood per year. An innovative fuel-efficient stove consumes 80% less. If a mere 1,000 refugee families use fuel-efficient stoves, 1,168 metric tons of firewood can be saved per year.

"I am satisfied with the new stove because I now spend less time searching for firewood. Before, I spent four days a week with a bundle of firewood on my back in places far away. Now I go and collect firewood only once a week. Especially for older people, the new stove is great. I am getting really tired when carrying firewood."

Mariam, 52 years old, about the Save80 improved cooking stove. She is a Sudanese refugee living in Touloum camp, Chad.



The Save80 stove reduces firewood use by 80%: cost per stove US\$72



"Protecting refugees and protecting the environment must go hand-in-hand. Put solar lighting in camps, for example, and you help ensure the safety of women refugees, while also benefitting their children, as they have more time for their studies. It's in our interest at UNHCR to be eco-friendly, and it's through new partnerships with the private sector and philanthropists that we hope to scale up good practices."

António Guterres, United Nations High Commissioner for Refugees



# SAFER CAMPS AND BRIGHTER OPPORTUNITIES



## SOLAR STREET LIGHTS CAN:

- reduce the risk of sexual and gender-based violence
- lower the incidence of crime and vandalism
- break the cycle of lethargy from living for years in a refugee camp
- improve the lives of refugees generally, enabling more community gatherings and social activities

## SOLAR LANTERNS CAN:

- allow girls and boys to study at night, at no cost and without wasting electricity. School attendance and retention rates are likely to increase, depending also on other factors in the camp.

*"Since we have the new street lights, there is less vandalism and bad people hanging around at night in our area of the camp."*

Mahamat, 39 years old, shares his opinion on the solar street lamps. He is a Sudanese refugee living in Iridimi camp, Chad.

## SAVE80 FUEL-EFFICIENT COOK STOVES CAN:

- reduce firewood consumption by up to 80% - potentially sparing 100,000 metric tons of firewood per year and reducing the deforestation trend around refugee camps
- reduce the risk of rape or sexual assault for women and girls in charge of collecting firewood for the family
- free time for other productive activities, like skills training or employment opportunities
- reduce the threat of conflicts with host communities

*"I was able to wake up at 3am and read till 7:00am without worrying about lighting."*

Kirumba, a refugee at Kyaka II refugee settlement, Uganda who emerged top of his District in final exams – something he attributes to reading more as a result of having a solar lamp.



## INTRODUCING NEW TECHNOLOGY

### SOLAR STREET LIGHTS

UNHCR employs three types of solar street lights, depending on local needs, durability and maximum coverage to enhance security. Whether basic or highly sophisticated, the street lights are tailored to improve visibility and safety in public and remote areas, with more sophisticated ones in close proximity to schools and clinics. The street lights are manufactured, adapted and installed by partners with experience working in developing countries. Highly resistant to damage, more energy-efficient and with added theft protection, these lights have a lifespan ranging from 90,000 to 120,000 hours, (the equivalent of 10 to 20 years).

### SOLAR LANTERNS

The solar lantern is lightweight, easy to carry and hangs simply from a ceiling. It provides a warm, white-coloured light suitable for when children study. They are designed to be lockable for security during charging in the sun and are also water-resistant. They can also be adapted to provide solar charge to mobile phones.

The solar lantern works for approximately 8 to 9 hours at a time, with the light itself designed to last 50,000 hours, and the battery can function for up to 2 years before requiring replacement.

### SAVE80 COOKING STOVES

UNHCR has tested different models of improved cooking stoves at many field locations around the world. A recently developed fuel-efficient stove, called Save80, has proven to be sturdy and is widely accepted by refugees and agencies as the most robust and efficient available. These stainless steel stoves last up to 10 years, are easy to transport and save up to 80% of firewood through the use of heat-retention boxes. On-site assembly helps drastically cut down on shipping costs.

Heat-retention systems (such as hay or cloth-lined baskets) are a traditional and efficient means of continuing to cook items once the right temperature has been attained on the stove. The Save80 set includes the stove, a heat-retention unit and two cooking pots and has been designed to improve fuel efficiency.

**The items introduced by this project are *light years ahead*, in terms of innovation. Not only are the products pioneering, they are the most effective and low-cost available. Fulfilling essential needs, solar-powered lights and energy-efficient cooking stoves have the potential to transform the lives of refugees.**



# LIGHT YEARS AHEAD WHAT WE'VE DONE, WHAT WE STILL HAVE TO DO ...



UNHCR have been involved in the research and development of various innovative projects to trial and introduce the new technologies.

Since the launch of this project, reports from the communities involved cite improvements in security, quality of life and increased opportunities, particularly for women and children. Below are just some of the results from the questionnaire conducted in three countries following the pilot project launch:

- Nearly all respondents commented that their previous source of lighting was a fire hazard and a health hazard to their families.
- 100% of respondents are able to use the solar lantern safely.
- 96% of all respondents now go less often to collect cooking fuel each week.
- 86% of respondents said the new solar lantern now allows them to study at night, something they could not do before.
- 60% of respondents feel safer using the bathroom at night.

Funding is the main challenge that we face in expanding the pilot phase and in 2011 UNHCR launched the Light Years Ahead initiative to address this. We are grateful for the contributions we have received from companies, foundations and many individuals – but we still need to do so much more.

Full details of the costs of these technologies can be found on page 10.

UNHCR conducts regular monitoring of activities through our network of offices at the capital and field level in all countries where we operate.

With Light Years Ahead, we monitor the use and impact of Save80 stoves, solar lanterns and street lighting through the annual collection of data and anecdotal evidence - using questionnaires designed to assess the positive change in refugees' lives. We expect to see improvements, such as enhanced security for women and children, more time and opportunity for studies, and reduced deforestation and environmental degradation.

Your support of this initiative brings the world closer to reaching the UN's Millennium Development Goals.

## **TARGET 2.A**

Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.

*Sub-Saharan Africa is home to the vast majority of children out of school.*

## **TARGET 7.A**

... Reverse the loss of environmental resources.

*The rate of global deforestation shows signs of decreasing, but is still alarmingly high.*



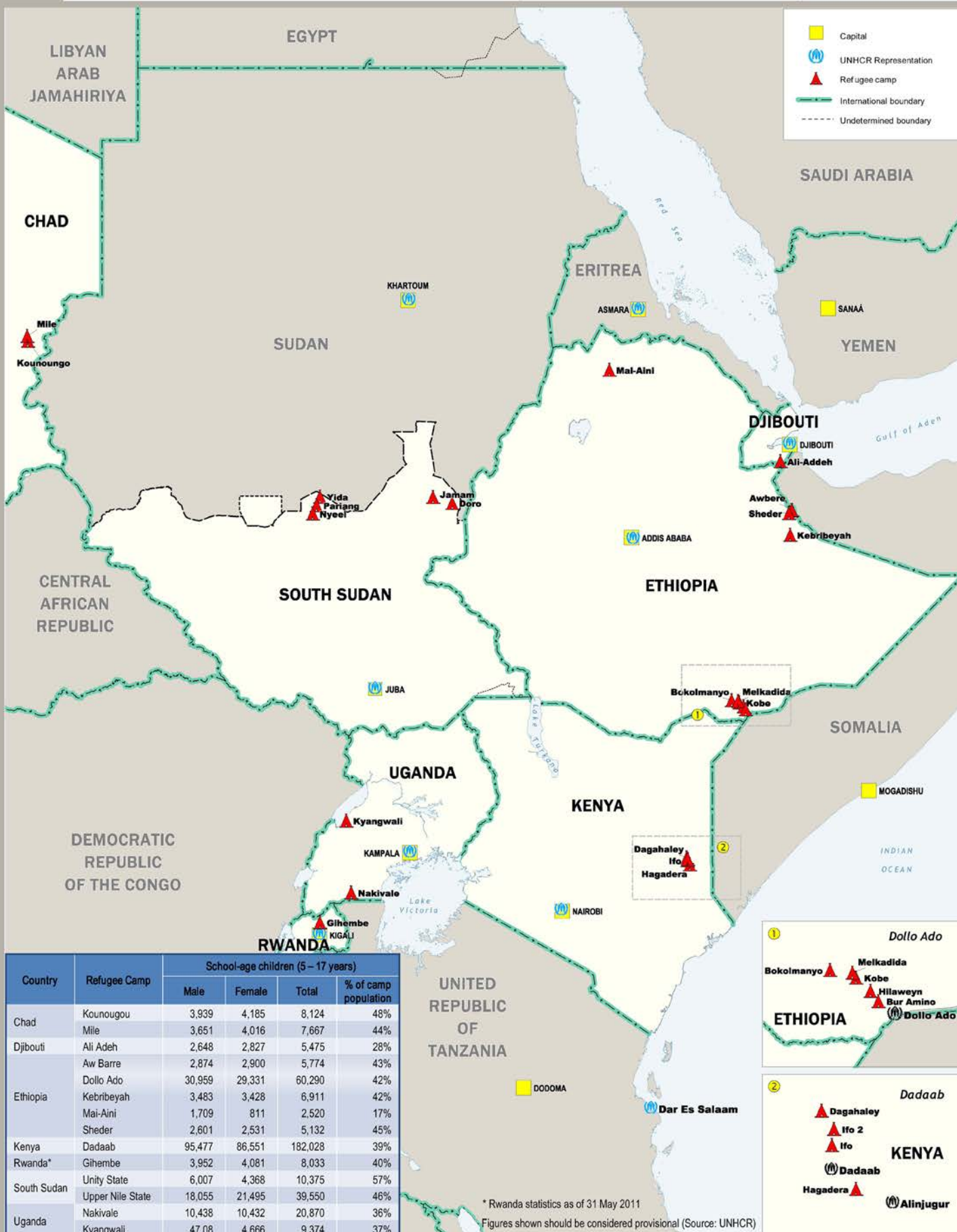
# East and Horn of Africa Light Years Ahead Project Locations

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Sources:  
UNHCR, Global Insight digital mapping © 1998  
Europa Technologies Ltd.

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## HELP – ONE PERSON AT A TIME

BENEFITS	IMPACT	COST (US\$)
Access to solar lamps,	Better Protection for 1 Refugee	16
solar street lights in	Better Protection for 100 Refugees	1,660
camps and an	Better Protection for 1,000 Refugees	16,600
improved cooking stove	Better Protection for 10,000 Refugees	166,000

## SUPPORT AN ENTIRE REFUGEE POPULATION

\*New locations

COUNTRY	LOCATION	POPULATION	NEEDS (US\$)
Chad	Kounoungo	16,927	552,699
	Mile	17,382	567,440
Djibouti	Ali Addeh	14,333	468,659
Ethiopia	Aw-barre	13,319	420,969
	Mai-Aini	12,255	625,616
	Kebribeya *	16,408	535,885
	Sheder	11,302	370,462
	Dollo Ado *	144,104	1,199,332
Kenya	Dadaab	443,856	5,935,163
Rwanda	Gihembe	19,853	606,162
South Sudan	Upper Nile State *	100,000	981,183
	Unity State *	30,000	538,495
Uganda	Nakivale	58,555	1,744,519
	Kyangwale	22,668	738,696

**TOTAL NEEDS IN 14 CAMPS (2012 - 2015)      920,962      15,285,280**

Note: Total needs include 7% monitoring, evaluation and support costs.

As per the initial project, Shagarab and Kilo 26 camps in Eastern Sudan have been fully funded thanks for the generous support of our private donors. Total amount allocated to Light Years Ahead in 2011 was \$1,429,567.

In 2011, the refugee population in East Africa and the Horn of Africa drastically increased due to droughts, famines and insecurity. The number of refugees in the camps where the Light Years Ahead project is being implemented has nearly doubled, with four new locations identified as the project is expanded to reach a greater number of refugees. Based on this, project requirements have increased considerably since its inception.

*UNHCR is committed to rigorous monitoring, evaluation and adaptation as needed to achieve full impact of our projects. Staff members regularly visit project sites, and frequently consult with beneficiaries through protection monitoring. They swiftly adapt project activities, timings and planning schedules to operational and changing requirements.*



Thanks to generous donations, since 2006 we have been able to pilot and roll out the procurement, distribution and installation of the innovative technologies in Bangladesh, Nepal, Chad, Djibouti, Ethiopia, Kenya, Rwanda, Sudan and Uganda.

# SETTING OUR GOALS

## SAVE80 STOVES

EACH IMPROVED COOK STOVE COSTS US\$72 and allows a refugee mother to cook for a family of 5.

2010: 1,405

2011: 6,200

2015:  
42,000

By 2015, with your help, we hope to provide innovative lighting and fuel-efficient, clean-cook stoves in 14 or more refugee camps and thereby improve the lives of over 900,000 refugees – our goal is to reach 25% of the refugee camp population per year.

## STREET LIGHTS

EVERY STREET LIGHT COSTS US\$1,200 and makes a neighbourhood safer for some 300 refugees.

2010: 60

2011: 153

2015:  
3,000

## SOLAR LANTERNS

ONE SOLAR LANTERN COSTS US\$39 and helps a child to study.

2010: 2,154

2011: 12,550

2015:  
160,000

A photograph of two women in a refugee camp. One woman, wearing a red dress with a floral pattern and a black headscarf, is lighting a kerosene lamp. The other woman, wearing a blue dress, is sitting next to her. The lamp is glowing brightly. The background shows a simple structure made of corrugated metal.

# ABOUT THE UN REFUGEE AGENCY

- We are on the ground, in the field with refugees. We are there to help every refugee, whatever it takes.
- In Africa we have a vast network of remote field offices. Our staff members visit refugee camps almost every day.
- Partnership with 760 national and international NGOs world-wide helps us to get the job done in an efficient way.
- We depend on voluntary contributions by public and private donors for 97% of our operations. This is in contrast to the UN Secretariat, which is automatically funded through assessed contributions from member states.

The protection of some 33.9 million uprooted or stateless people is the core mandate of UNHCR. UNHCR's primary purpose is to safeguard the rights and well-being of refugees. In its efforts to achieve this objective, UNHCR strives to ensure that everyone can exercise the right to seek asylum and find safe refuge in another state, and to return home voluntarily. By assisting refugees to return to their own country or to settle permanently in another country, UNHCR also seeks lasting solutions to their plight.

Refer to UNHCR's publication, *Ensuring Your Support Transforms Refugees' Lives with Care, with Integrity, with Impact*, for complete information on UNHCR's stewardship of your financial contributions.

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