

DATUM FOUNDATION

HANDMADE SOLAR IN AFRICA

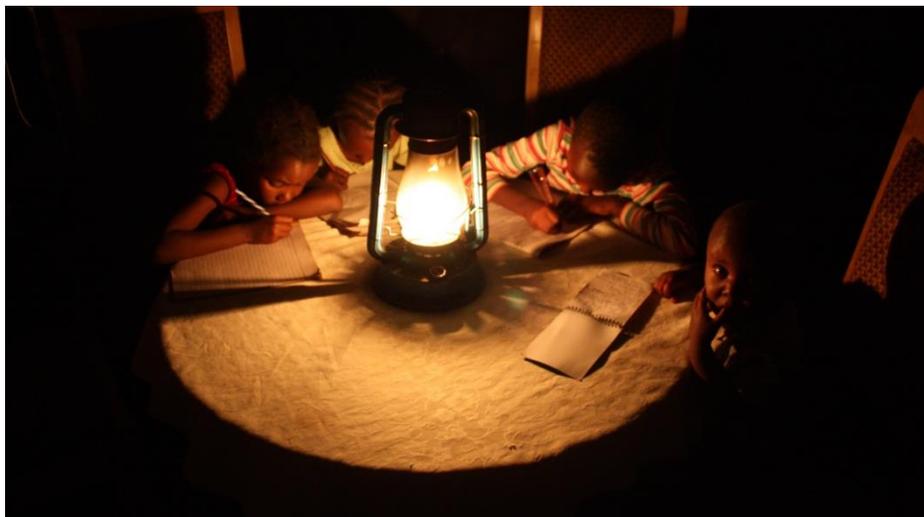
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The lack of access to electricity can profoundly affect people's lives.

Electricity is central to all aspects of modern life, including access to clean water, agricultural productivity, health care, job creation, education, and environmental sustainability.

“Today around 1.5 billion people worldwide lack access to electricity.”

Yet millions of households in developing countries still lack access to modern energy services that are affordable, clean, reliable, and safe.



Once the sun has gone down families without access to electricity generally use candles or lanterns to light their homes. Kerosene lamps are widely used but can be difficult to light and impose serious fire hazards and health risks. The high cost of fuel for these appliances is unaffordable for many poor households.

“Access to even the smallest amount of electricity can make a huge difference to people’s lives.”

A single 15 Watt fluorescent bulb has 600 times the intensity and is 4000 times the efficiency of a wax candle. It also eliminates many of the risks associated with lighting with traditional fuels.

This increased quality of light can offer improved conditions and longer hours for pursuing household work, income generating activities and studies.

Additionally other appliances such as radios and mobile phone chargers can bring the advantages of increased access to news, entertainment and telecommunication facilities.

From DATUMS’s point of view, access to affordable electricity can also play an important role in education.

The availability of lighting allows pupils to do their homework and read after dark.

In addition the electrification of schools can offer improved educational service and conditions that can reach all students, including those from the very poorest households.

Norman Phipps, with the support of DATUM, has developed a method to make solar photovoltaic panels (PV) affordable to poor people. Broken solar cells are trimmed and soldered together by hand and sealed behind glass to form a viable PV panel at a significantly reduced cost.



This simple process keeps all the skills and money earned in the local area.



In 2010, Norman travelled to the town of Kumbo in Cameroon to undertake preliminary trials. Working with the charity SHUMAS he trained local students to make a simple PV panel from salvaged materials.

This was installed on the roof and still provides essential lighting for students.

Following this first experiment in constructing handmade solar panels DATUM, working with Norman, have developed additional prototypes.

In October 2012 further field trials were held in the village of Kisongo in Tanzania. Five local young adults were trained to solder and assemble the photovoltaic chips.

Simple circuit boards were fabricated and the whole mounted in a timber frame. Enough material was donated to allow the group to make some 500 panels.

The first handmade panel is proudly shown here by Jessica.





In May 2013 four other students were invited to the UK from Senegal, Guinea, Cameroon and Zimbabwe to be trained to make solar panels by hand. This was a great success.

It is hoped that such training can be offered to other young people across Africa to allow this accessible technology to spread and provide much needed lights to children.

Such affordable solar photovoltaic panels have the potential to provide much needed electrical power in developing countries.

A small installation with a battery connected to a LED light can make a great difference by allowing schoolwork and family life to continue after sunset.

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