



SOUTH AFRICAN RESEARCH CHAIR:

Intellectual Property,
Innovation and Development



WORLD IP DAY 2020

Green Innovations in Africa

It is World IP Day on 26 April 2020! The theme for this year's celebration is: *Innovation for a green future*.

To commemorate the day, the South African Research Chair in Intellectual Property, Innovation and Development at the University of Cape Town celebrates all the pioneering inventors and creators in Africa who are working to shape a future that is green and from which the world will benefit. Highlighting green innovations from each sub-region of the continent: Southern Africa (South Africa); West Africa (Ghana); East Africa (Uganda); North Africa (Egypt) and Central Africa (Cameroon), the brochure celebrates each invention and inventor and highlights how the role of IP in the world of (African) green innovation.

We also put together a podcast discussing green innovation in Africa and the role of IP. Visit www.ipchair.uct.ac.za to listen.



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Photo: courtesy of UN Climate Change

WEST AFRICA: GHANA

Climate change and air pollution caused by greenhouse gas emissions is a significant health risk factor. While alternative means of transportation such as bicycles have been lauded as a way to reduce the pollution caused by cars and trains that use fuels, there are still concerns around bicycles made from steel or aluminium. The steel or aluminium used in traditional bicycles contributes to greenhouse gas emissions.

GHANA BAMBOO BIKES INITIATIVE

Ghana Bamboo Bikes Initiative is a Ghanaian company that takes advantage of locally sourced resources - bamboo - to tackle climate change, poverty, rural-urban migration and youth unemployment.

Bernice Dapaah and Winifred Selby established Ghana Bamboo Bikes initiative in 2008 to carry out a pledge Bernice made at the Clinton Global Initiative University while studying for a business degree and to create a solution to the socio-economic problems in rural communities in Ghana.

Towards a green future...

- Ghanaian Bamboo Bikes Initiative uses bamboo to build the entire frame of bikes.
- It plants 10 new bamboo plants for every 1 plant that is cut down increasing the number of bamboo trees that help prevent soil erosion and improve water and air quality.
- Ghana Bamboo Bikes Initiative hires several women to ensure that they are empowered and it also donates bikes to schoolchildren to enable them get to school through its partnership with US-based African Bicycle Contribution Foundation.

Ghana Bamboo Bikes Initiative launched its trademark in 2016.



The transportation industry has shown great interest in Ghana Bamboo Bikes Initiative's eco-friendly use of bamboos.

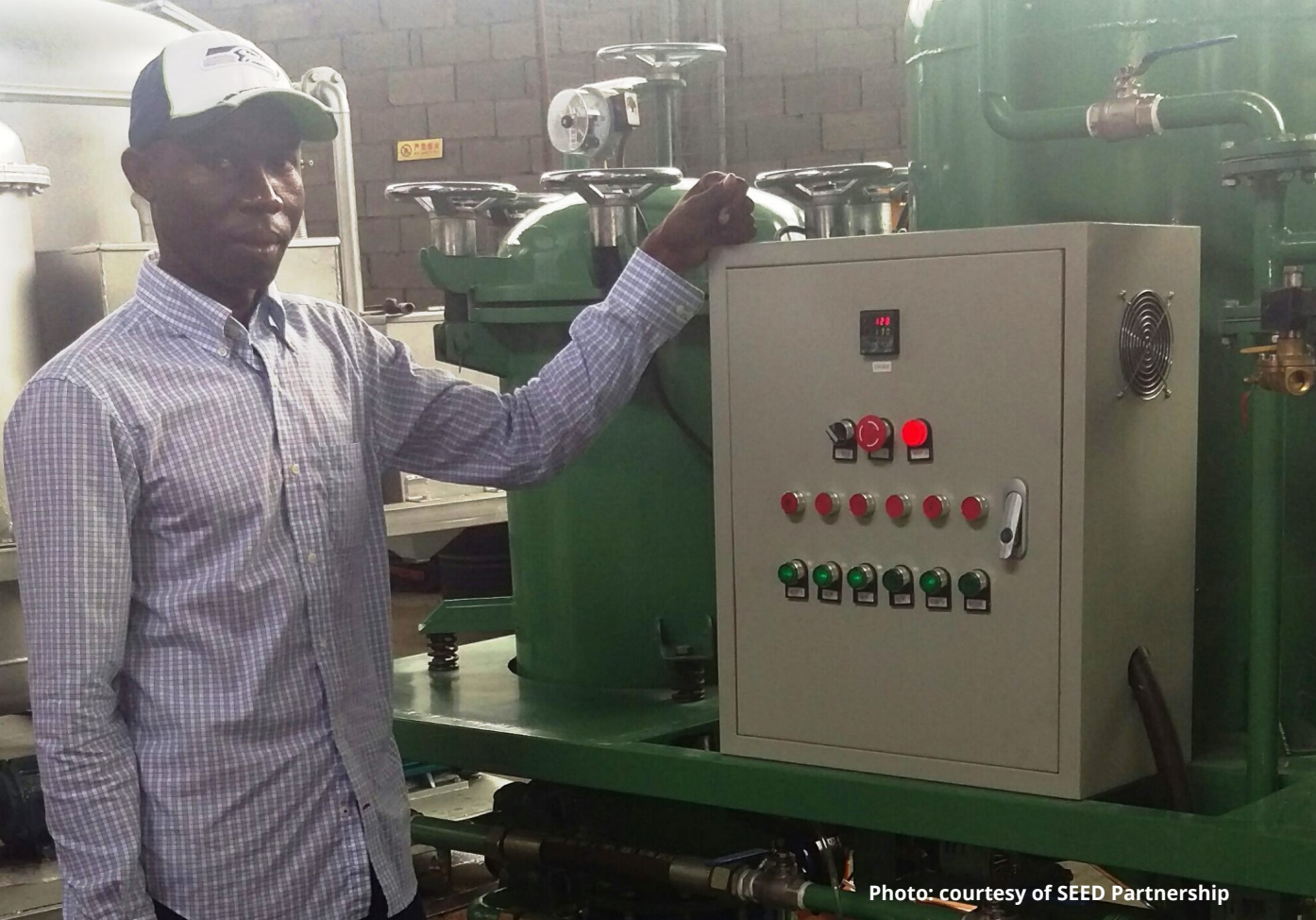


Photo: courtesy of SEED Partnership

EAST AFRICA: UGANDA

Petroleum has many uses - products derived from petroleum oil provide fuel for vehicles, heat for homes, and energy for the machinery used in many industries. Other products derived from petroleum, including plastics and pharmaceuticals, provide us with convenience and help to make our lives more comfortable. However, while the uses of petroleum are extensive, the environmental impact of the petroleum industry is correspondingly extensive and expansive.

Oil spills, whether accidental or intentional is a major concern for the environment, especially the marine ecosystem. They endanger public health, imperil drinking water, devastate natural resources, and disrupt the economy.

BRENT TECHNOLOGIES

Brent Technologies, a Ugandan startup is using an innovative, low-cost technology (S-TECH) to reduce the harmful impact of oil pollution by transforming waste motor oil into fresh motor oil, diesel fuel and roofing asphalt shingles.

Brent Technologies was set-up in 2015 by Geoffrey Ssekatawa and his friends, Kayuki Mike and Zzimula Frank. The company won the 2017 SAG-SEED award for Clean Energy - an annual awards scheme designed to identify the most innovative and promising locally led start-up eco-inclusive enterprises in developing and emerging economies.

Towards a green future...

- Brent Technologies developed Surfactant Technology as well as a yet to be patented technology for recycling used motor oil.
- It engages a wide network of collectors from various cities and suburbs to help supply waste motor oil and reimburses for the resources supplied.
- Brent Technologies also deploys an eco-friendly supply chain in distributing the products to the market.

A trademark can be registered to distinguish Brent Technologies' products from those of other enterprises.

REFINING WASTE OIL - BRENT TECHNOLOGIES

The training manual illustrates the following process:

- Used Oil** (represented by a yellow truck) is processed into **Waste Lube** (shown in two beakers).
- The **Waste Lube** is sent to a **Blending Unit** (industrial machinery).
- The output of the **Blending Unit** is **LUBRICANTS** (various oil containers).
- The **LUBRICANTS** are then **Packaging** (shown in a factory setting).

BRENT TECHNOLOGIES

“A...ceeds user expectations”

Plot 22
P.O. Box
TEL
Email: brent

Brent Technologies trains refinery workers in the use of the technology for re-refining waste oil. Copyright may be enforced or exploited to protect its training manual.



Photo courtesy of KarmSolar

NORTH AFRICA: EGYPT

Our society has used fossil fuels to produce energy and to drive industry, however, the carbon footprint of these practices is too great for us to continue down this path. There are already renewable and sustainable means of producing energy, however, these means of energy production are not yet efficient enough to warrant a complete shift from fossil fuels. Further development of renewable means of energy production can help address this problem.

North Africa also referred to as the Sun-belt, provides the perfect place for the solar energy production and innovation. The world has increasingly come to embrace solar energy. However, this mode of production is still inefficient due to the fact that it is dependent on environmental conditions. Changes in weather affect the full extraction of the power potential of solar cells. As a solution to this the Maximum Power Points Tracking (MPPT) device was created. This device was created to track the maximum power within a given solar cell and to extract that power. The problem with MPPT devices is that they come with standardised settings, and these settings barely ever match the environment that the MPPT is operating in.

KARMSOLAR

KarmSolar is an Egyptian company that specialises in building solar power stations both on and off the grid. In a bid to ensure that their power plants extract power efficiently, KarmSolar developed an innovative algorithm that took into account the Egyptian environment that their MPPTs function in. Utilising this technology, KarmSolar has been commissioned to develop both on and off the grid power plants in Egypt.

Towards a green future...

- MPPTs make solar energy extraction more efficient, but despite this, the extraction is still largely inefficient.
- KarmSolar developed an innovative algorithm that took into account the Egyptian environment that their MPPTs function in.
- The use of solar power is a “locally integrated value chain”.

Patents may be filed to protect KarmSolar’s innovative technology and can further encourage the development of new technologies in this field.

SOUTHERN AFRICA: SOUTH AFRICA

Plastic waste is a global problem and contributes to pollution and climate change. It has been estimated that over 640million tons of plastic will be produced by 2034 leading to health hazards due to pollution and climate change.

Around 2003, several companies in India came up with the idea of using plastic to construct roads. This proved to be an innovative solution as it reduces plastic waste by reusing the plastics. This idea has spread to many countries across Europe, North America, Australia and recently, South Africa.

SHISALANGA CONSTRUCTION

Shisalanga Construction is a South African company that tackles the waste problem in South Africa and contributes to the improvement of the quality of the roads in South Africa using recycled plastic milk bottles.



Photo courtesy of Shisalanga Construction

Towards a green future...

- Shisalanga procures plastics from landfills. The plastic is turned into pellets at a local recycling plant and then heated until they dissolve, and are mixed with additives.
- Shisalanga also has three high-pressure, environmentally friendly hydro cutters that are used in surface texturing, rubber and spillage removal.

A service mark may be used to designate Shisalanga's plastic recycling and road construction services, allowing its consumers to distinguish Shisalanga's services from the services of others.



CENTRAL AFRICA: CAMEROON

Cameroon is the world's fifth largest cocoa producer and cocoa is one of the country's largest exports. However, due to the prolonged rainy season (9-10 months) has necessitated the use of locally made firewood ovens to dry out the cocoa beans for export. Using these ovens comes with the challenge of low quality cocoa as the beans are often burnt due to overheating.

SOCOPROCAON COCOA COOPERATIVE

A cocoa cooperative in Cameroon, SOCOPROCAON has received training and support from a non-profit organisation called Green Cocoa Business Service Centre, to improve their farming and drying techniques. The cooperative has built professional solar dryers, with modern humidity meters and temperature control, which ensure that even during the long rainy season, cocoa can be dried without the risk of burning. As a result, the cocoa beans are now of a superior quality.

The cooperative also help train young women and men in the production of cocoa powder and cocoa butter, providing much-needed income to many families.

Towards a green future...

- SOCOPROCAON has jettisoned firewood ovens for solar dryers to ensure superior quality cocoa beans.
- It also helps train young women and men in the production of cocoa powder and cocoa butter, providing much-needed income to many families.

Certification marks may be used to certify that solar dried cocoa beans meets certain established standards.



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