MOBILITY FOR AFRICA USING A RENEWABLY-POWERED ELECTRIC TRICYCLE FOR RURAL AREAS IN ZIMBABWE

Mobility for Africa provides last mile, green mobility services to rural communities in Zimbabwe using custom-built electric tricycles that run on bespoke long-life batteries charged by renewable energy. By leveraging technological know-how and manufacturing, Mobility for Africa produces low-cost, quality, renewably-powered electric tricycles built for a rural, off-road environment.

Since 2019 the company has been providing a shared electric mobility service based on “Hambas”, tricycles powered by a standardized solar energy battery swap system. The aim of the company is to transform the mobility in rural Africa communities with a business model experimented in Zimbabwe that can be replicated across the Sub-Saharan Africa region.

Investing in 4 years of R&D and pilot testing, the green mobility solution in rural Zimbabwe consist in using an E-tricycle, the hamba, along with an off-grid charging station and battery swapping model.

The Mobility for Africa headquarters and factory are based in Harare, Zimbabwe. Every Hamba is assembled by their dedicated teams of technicians in Harare and managed by site and roving technicians. The company, in fact, also operates on other three sites in Zimbabwe and the committed Research Team rotates between sites to liaise with customers and potential customers.

Mobility for Africa was implemented to positively disrupt the rural African economy by bringing the electric vehicle revolution to ordinary people, especially women and in rural areas. Their website presents the main problems that the initiative set out to address them when it was launched in 2019.

In African countries, faced with a lack of services and infrastructure, rural women carry a great part of the burden in providing water and fuel for their households. For example, according to UN Women, women from Africa collectively spend about 40 billion hours a year fetching water. By the end of 2020, there were 10 million electric cars on the world’s road and more than 70 new 4-wheel car models designed. Yet in rural Africa, where women still spend hours walking long distances and carrying heavy loads, the potential of electric 3 and 2 wheelers to overcome last mile mobility is still untapped.

In many parts of rural Africa, neither regular supplies of energy nor petrol are available. This means most transport is expensive, often

unreliable and doesn't reach many rural off-road areas. While there has been investment in building main roads, there is still a huge network of rural areas that depend on gravel roads that are not served by regular and reliable transport.

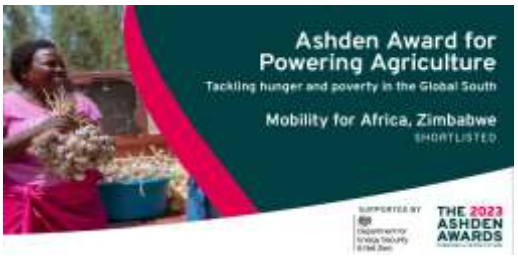
Rural farmers are often far away from main transport roads - less than 40 percent of rural Africans live within two kilometers of an all-season road. They suffer huge cost in both time and finances to get their goods to market. It is estimated that moving goods can be 2-3 times higher than in other more developed parts of the world. Not only because of slow travel time due to the poor state of roads, but because of transport costs related to delays, poor competition in the transport industry leads to higher prices, and a dependency on fossil fuels.

A tough, electric transport could provide an avenue for rural communities, to overcome these barriers to mobility. It could ultimately provide the incentive for increased economic activity, creating new commercial markets and generating more sustained rural activity.

Since 2019 Mobility for Africa works to sustainably improve mobility and working conditions, while helping reduce pollution. The company provides a standardized, replicable, scalable mobility solution. They have trained rural women in how to drive the tricycle, local technicians in how to assemble and repair, and have tested how different payment options can service different segments of the market. The e-tricycles are optimized for local conditions and can carry up to 400 kg, improving access to markets and services for smallholder farmers and entrepreneurs. The electric tricycles run on swappable, solar-charged li-ion battery packs as a fleet system with central charging stations.

Known locally as 'Hambas,' Mobility for Africa's electric three-wheelers service answer to the daily transport needs of small-scale farmers – often women's cooperative groups – who buy or lease the trikes to transport their produce to markets. Reduced journey time and access to markets in larger towns enable farmers to sell their produce at higher prices whilst also minimizing post-harvest losses, increasing income generation. Healthcare professionals also use 'hambas' to reach patients across large geographical areas and rough terrain. The vehicles also enable the transportation of firewood, water and passengers, reducing the energy and burden of time for women. The vehicles are also designed to be comfortable for women to drive.

In particular, the company offers customers a management system for fleets as 3 units; Fleets for small-scale farmers; Fleets for Service Delivery and Fleets for Agricultural business & Aggregators. The available models of the services offered are: Hamba Rental; Transport and logistics service; Battery swapping and maintenance service and Battery Rental. Other Services included for costumers are the Trained mechanical team; An online, Supply, Customer and Inventory Management System**;** Driver's Training Courses**;** Systems for repairs and maintenance**.**



Mobility for Africa has established collaborations with important organizations working in African countries. In 2022, for example, the EEP Trust Fund announced Mobility for Africa as the 2022 EEP Africa Scale Up Project of the Year. The Energy and Environment Partnership Trust Fund (EEP Africa) is a clean energy financing facility hosted and managed by the Nordic Development Fund (NDF) with funding from Austria, Denmark, Finland, Iceland and Switzerland.

In the EEP website is possible to find interesting information about the results of the company. For example they inform " Mobility for Africa had a number of impressive achievements during 2022". Each individual charging site servicing 50 Hambas is profitable and modular making the company's model highly scalable with battery swaps every two days. They created job opportunities through the Transport & Logistics Service Delivery, which transport anything and everything from: building materials, kids to school and produce for market. Mobility for Africa supported local government with 7 vehicles for police officers and the health sector. Their service further prevented food waste by setting up a fleet management system with the Mayfield Milk Collection Center (MCC) in Chipinge, Zimbabwe. Since the introduction of the Hamba, the Milk Collection Center says production has increased by 40%".

InfraCo Africa, part of the Private Infrastructure Development Group (PIDG), has also signed an agreement committing US$2 million to scale up the offering of Mobility for Africa for delivering affordable, cargo-carrying solutions for underserved communities in rural Zimbabwe. InfraCo Africa's investment will finance four hundred new Hambas, six hundred batteries and eight new charging stations at strategic locations across eastern Zimbabwe. This agreement will be strategic to scale up the impact of Mobility for Africa company, which also could de-risk investment from other DFIs.

Mobility for Africa has been recognized as Finalist of the 2023 Awards for powering Agriculture by the Ashden organization.

To know more

Mobility for Africa website

Mobility for Africa Impact

Mobility for Africa in Facebook

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Mobility for Africa awarded 2022 scale up project in eepafrica website

Mobility for Africa in InfracoAfrica website

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Mobility for Africa in climate-chance.org