Innovative, Locally Adapted and Resource-Efficient Electric Vehicles
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The Overview of E-bike companies in Africa

**APPROACH**

- Direct result of insights shared by 18 companies
- Focus on productive applications such as urban deliveries, bike-sharing systems, commuter use, and localised value creation
- Not an exhaustive overview but a starting point that may be enriched with further case studies

**SCOPE**

- Two- and three-wheeled pedal-assist electric bicycles; throttles *only* if including pedals
- Both pedelecs and speed pedelecs
- New electric bicycles and retrofitted bicycles
Overview of the featured electric bicycle innovations

- Morocco: Cloudbike, Watt SC
- Egypt: Baddel
- Nigeria: Thinkbikes
- Benin: Africrooze
- Uganda: Africrooze, eBee, Karaa
- Ghana: Wahu!
- Togo: Wahu!
- Rwanda: eBee, GuruRide
- Namibia: Africrooze, Electric4Africa
- Tanzania: Africrooze, Greenfoot, TOIO
- South Africa: Anywhere, Africa, Green Riders

Key Africrooze facts:
- 250 Africrooze e-bikes active on the African continent, with another 240 to be delivered before the end of 2023
- Job creation and increased daily earnings, including reduction in transport costs
- Focus on sectors like education, waste, farming, markets, and the health sector

**AFRICROOZE - THE AFRICAN BIKE**

"We are fully convinced that the product comes at the exact right time and looks forward to it entering the markets in Africa." - Martin Kitzing, Manager without Borders

**DESCRIPTION**

Africrooze (Oberflak) was founded by the NDC 2003 e.V. to boost a bike adaptation in Africa, after six years of successfully developing products promoting social networking, climate modeling, and African robotics. Working in partnership with the UN Environment Programme (UNEP) and the ITU (International Telecommunication Union), their primary mission is to develop low-cost, efficient, and accessible electric bikes for Africa. Africrooze is committed to understanding the local infrastructure and working with stakeholders to ensure the bikes are built in Africa.

**ACHIEVEMENTS**

Africrooze’s e-bik development is a groundbreaking innovation for Africa’s infrastructure, as it promotes equity and accessibility. In the short term, the bikes will help reduce congestion and pollution in African cities. In the long term, it is expected that the Electric Bike Africa initiative will improve mobility, facilitating economic self-sufficiency.

**DESIGN FOR THE AFRICAN MARKET**

The Africrooze e-bikes were designed with a highly sturdy frame and 180 kg maximum weight. The bikes are available in various models, from entry-level to high-end, and come equipped with features like suspension, hydraulic brakes, and advanced battery systems. The bikes are produced locally to ensure accessibility and affordability.

We see a growing e-bike market in urban and rural Africa. To satisfy the transport demands of the fast-growing African middle class, the ministry of transport is focusing on an overall strategy to zero-emissions electric mobility.

**SOCIAL MEDIA**

- https://twitter.com/Africrooze
- https://www.facebook.com/Africrooze
- https://www.instagram.com/africrooze
- https://www.youtube.com/watch?v=O8Y4bK

*Number of companies*

- 1
- 2
- 3
- 4
- 5
- 6
Types of bicycles

<table>
<thead>
<tr>
<th>TYPES</th>
<th>NEEDS</th>
<th>POSSIBLE ELEMENTS OF A TAILORED-MADE DESIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional form of a two-wheeled electric bicycle</td>
<td>Need to transport heavy loads (goods or passengers)</td>
<td>Large and sturdy rear carrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strong braking system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strong motor</td>
</tr>
<tr>
<td>Front-load variant</td>
<td>Need for a robust vehicle to navigate through unpaved or bumpy terrains</td>
<td>Sturdy frame</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suspension</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wide tyres that can resist punctures</td>
</tr>
<tr>
<td>Back-load variant</td>
<td>Need to cover long distances, e.g. in peri-urban and rural areas</td>
<td>Sufficient battery capacity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Double battery system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Battery system that can be charged on a regular socket or swapped</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Several levels of electric assistance</td>
</tr>
<tr>
<td>Trailers on two-wheeled electric bicycles</td>
<td>Need to be able to maintain and repair the electric bicycle locally</td>
<td>Standard spare parts that can already be found in the country or the region</td>
</tr>
<tr>
<td>Three-wheeled electric bicycles</td>
<td></td>
<td>Training of mechanics as an integrated activity of several companies</td>
</tr>
</tbody>
</table>
The current e-bicycle fleet

- Rapid increase in the adoption of EVs and supportive government policies in Africa
- Electric two- and three-wheelers making a remarkable 79% of the electric fleets
- 19% of electric mobility companies in the continent offer a variety of electric bicycles according to the Africa E-mobility Readiness Index by UNEP and AfEMA
Use cases – Part 1

- Urban or peri-urban, for various types of small parcels
- Rural, e.g. transport of food products for farmers
Use case – Part 2

PASSENGER & HEALTH

- Urban or peri-urban
- Personal commute
- Ambulance
- Shared uses
Significant advantages highlighted

- **Enhanced spatial accessibility through electric bicycles as a new mobility option**
  - Faster than conventional bicycles, longer trips
  - More affordable to operate than petrol motorcycles
  - Enhanced accessibility in rural or peri-urban areas, e.g. farmers, SMES
  - In cities, increasing modal choice and option for the first and last mile
  - In cities, convenience to address hills or hot climate

- **Economic savings and opportunities for users**
  - More affordable to purchase and operate than petrol motorcycles
  - Companies connecting riders with e-commerce platforms
  - *Potentially* decreasing transportation costs for commuters

- **Significant GHG emission and air pollution reductions if electric bicycles replace petrol vehicles**
  - For instance, when replacing urban last-mile deliveries using fossil-fuel motorcycles or larger vehicles
Electric bicycles in Africa – Realistic and promising

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► Electric two- and three-wheelers making a remarkable 79% of the electric fleets

► 19% of electric mobility companies in the continent offer a variety of electric bicycles according to the 2023 Africa E-mobility Readiness Index by UNEP and AfEMA
More action is needed ...

- Often confused with electric motorcycles in East Africa when calling them “e-bikes”
- Mainly absent from e-mobility policies and fiscal incentives in African countries
- Do not have a separate registration category, i.e. often categorized as standard goods
- Suffer from a negative perception of cycling as mobility of “the poor”, or used for sport or tourism
Thank you!

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