ENHANCING ENERGY EFFICIENCY OF THE FREIGHT TRANSPORT SECTOR

Perspectives from the Global South: Green freight and electric mobility to mitigate climate change in Africa

GREEN FREIGHT
ELECTRIC MOBILITY FOR HEAVY DUTY VEHICLES
About Sustainable Transport Africa

Green freight to enhance energy efficiency in Africa

Electric mobility to mitigate climate change in Africa

Utility value of eMobility in Africa
Sustainable Transport Africa (STA) is an NGO based in Nairobi

Projects include the introduction of eMobility in Africa

Previous projects included work on clean fuels and vehicles in Africa

Involved in advocating for policy changes to support greener transport in Africa

Developed Kenya’s Transport NAMA at COP21 - Electric BRT for Nairobi
RAISING EV AWARENESS

- Sustainable Transport Africa hosts workshops on battery electric vehicles
- Raising the profile of EV players in the sector
- Marketing the results of the EV pilot program
- Works with national and regional standards bodies to set standards on EVs
- Support EV players against established ICE vehicle industry and fuel marketers
STA KEY PROJECTS

- P4G (WRI) – SUNRUN Partnership
- Innovate UK – REVUP Consortium
- UNEP – eMobility programs
- GIZ – Climate Change Workshops
- THE WORLD BANK – Vehicle Fleet Rationalization in Africa
- FIA Foundation – cleaner vehicles
- GFEI – fuel efficiency
STA EMOBILITY

• STA are currently involved in eMobility
• 100 eMotorcycles were imported to raise awareness
• 50 were sent to Uganda and 50 to Kenya
• The eMotorcycles are being used to raise awareness on eMobility
• The program is carried out on behalf of UNEP
• The program targets local manufacturing for eMobility
Governor of Kisumu County Hon. Prof. Anyang Nyong’o launches the eMotorcycles program as he enjoys a ride.
BENEFITS OF EMOBILITY FROM SOLAR PV IN RURAL COMMUNITIES

- Reduced carbon emissions
- Improved air quality
- Cost savings
- Increased energy independence:
- Economic development:
- Improved access to transportation
- Increased safety
Electric vehicle manufacturing and assembly from SKD and CKD kits in a number of African countries already reducing freight emissions from shipping and land logistics delivery of fully built up units.
GREEN FREIGHT TO ENHANCE ENERGY EFFICIENCY

- First Green Freight Strategy launched under the Northern Corridor Transit and Transport Coordination Authority (NCTTCA) in 2017
- Links six countries; DRC, South Sudan, Burundi, Rwanda, Uganda and Kenya
- Handles over 30 million tons of cargo with 96% on road freight
- Strategy targets include:
  - Improve fuel economy litres per ton-km for trucks by at least 5% by 2021
  - Reduction in Particulate Matter (PM), Black Carbon emissions and Oxides of Nitrogen (NOX) grams per ton-km by at least 10% by 2021
  - Reduction of CO2 emission intensity grams per ton-km by 10% by 2021
  - Reduction of road accidents by 10% per million truck-kilometers

AFRICA’S ROAD AND RAILWAY CORRIDORS

Trans-African Highway Network 56,683 Km

African Union of Railways – disjointed & disconnected
Challenges for the Green Freight Strategy in Africa include:

- Addressing excessive vehicle loading
- Effective and targeted inspection and vehicle maintenance
- Improvement of road and related infrastructure
- Sensitization on fuel standards
- Vehicle technology improvements
- Advocacy and sensitization
- Removal of tailpipe emissions control system components to boost power is the biggest challenge
AFRICAN E-LOGISTICS

- In Africa drivers/operators schedule own jobs:
  - No cargo for the return route “empty runs”
  - Drivers idle for days
  - Logistics costs double that of 1st World nations
- New African e-logistics companies:
  - Patch supply chain gaps
  - Increase in intraregional trade (AfCFTA)
  - Reduced emissions from efficiency gains

E-LOGISTICS COMPANIES OPERATING IN AFRICA

Based in Nigeria, LORI enhances trade efficiency

Based in Kenya, KOBO360 facilitates efficient trade
ELECTRIC MOBILITY TO MITIGATE CLIMATE CHANGE

- Electric mobility in Freight Transport to mitigate climate change in Africa
  - HDV Road Freight vehicles
    - Introduction of electric HDV 12+ meter passenger eBRT buses already operating in Africa
    - Smaller electric HDV commercial trucks and buses being introduced in Africa
    - Expectation is that larger capacity electric HDV trucks will be gradually introduced in Africa as charging networks at designated truck stops are introduced
  - Railway Networks
    - Older rail corridors are powered by diesel engines with little scope for emissions reduction technologies
    - Recent rail corridors have hybrid electric trains with the diesel engine as the generator
    - New rail corridors are increasingly fully electric powered and on compatible railway gauges for regional interconnectivity
HDV ELECTRIC COMMERCIAL TRUCKS AVAILABLE IN AFRICA
ELECTRIC COMMERCIAL VEHICLES AVAILABLE IN AFRICA
ELECTRIC HDV FREIGHT TRUCKS IN SOUTH AFRICA

- Shoprite Group became the first retailer to pilot eHDV trucks
- The refrigerated truck and can hold 16 pallets.
- Nine batteries totalling 300 kWh
- CCS type 2 plug-in connection with 130 kW / 200A DC charging
- Range of 350 km in city driving cycles, depending on the load
- Electric motor @ 230kW/1,300Nm 295kW/2,200Nm (peak)
- Solar panels fitted to its roof and a fully electric cooling system
- The vehicle will be used for local deliveries
- Recharged using solar PV renewable energy
Sustainable Transport Africa participated in the 2,000 Km road trip in South Africa with a fleet of eight full battery electric vehicles from Pretoria to Cape Town via Port Elizabeth launching rapid DC charging stations.
Electric vehicles with reverse charging capability; can be used to power home appliances as shown here at Nelson Mandela University powering a fridge using an inverter during the EVRT.
E-MOBILITY PROGRAM BY SUSTAINABLE TRANSPORT AFRICA

- Piloting Electric Vehicles
- Raising Awareness on EVs
- Charging Infrastructure
- Local EV manufacturing