Africa E-mobility Forum

Dar es Salaam

20-24 March

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Dar Rapid Transit Agency - DART

March 21, 2023
Sustainable and urban electric mobility

Dar es Salaam
Tanzania
About DART Agency

- DART inaugurated on--- 16th June 2008

Proven track record of solid performance:

Social, Environmental and Economic Impacts of Dar Rapid Transit

- Initially, 34% of monthly Income was spent on Transport
- Reduced peak hour travel time from 90 min in 2015 to avg. 20 min

Phase One (Completed) - Operational

- +10m people
- Megacity status by 2030
- Can transport
- +28,000 passengers per direction @ hr
- Capacity: +400k passengers/ day

Phase 2: (On-going)

- Construction of 20.3km of roads
- Exclusive BRT lanes
- Non-Motorized Transport (NMT) facilities
- To benefit at least 1.2 million 25% of the DSM Population

Phase 3: (On-going)

Lot 1: Roadworks

- To build 154.4 Km trunk lanes in Six Phases by 2030.
- 23.33Km

- Eliminates bottlenecks to traffic flow to various economic activity centers
- Initially, 34% of monthly Income was spent on Transport
- Reduced peak hour travel time from 90 min in 2015 to avg. 20 min

- Improves resources and productive time
- Improved quality of life
- Reduction in fuel consumption. Fuel consumption is 3.5x higher in congested traffic
- Reduction in Carbon emissions
## SOOT FREE BUS INDUCTION PLAN (ROADMAP)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>2021-25</th>
<th>2025-30</th>
<th>2030-35</th>
<th>2035-</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRT Corridor (km)</td>
<td>41.2</td>
<td>94.9</td>
<td>120.9</td>
<td>154.4</td>
</tr>
<tr>
<td>BRT Average Daily Ridership</td>
<td>2,082,009</td>
<td>3,962,931</td>
<td>5,026,088</td>
<td>5,260,024</td>
</tr>
<tr>
<td>Euro III &amp; IV - Diesel Bus</td>
<td>305</td>
<td>165 (Phase I)</td>
<td>95 (Phase I)</td>
<td>-----</td>
</tr>
<tr>
<td>Euro VI Diesel Bus</td>
<td>-----</td>
<td>286 (Phase 2)</td>
<td>286 (Phase 2)</td>
<td>-----</td>
</tr>
<tr>
<td>CNG Buses</td>
<td>-----</td>
<td>1894</td>
<td>1964</td>
<td>2345</td>
</tr>
<tr>
<td>Electric Buses</td>
<td>-----</td>
<td>405</td>
<td>840</td>
<td>945</td>
</tr>
<tr>
<td>Total Buses</td>
<td>305</td>
<td>2750</td>
<td>3185</td>
<td>3290</td>
</tr>
</tbody>
</table>
Total Cost of Ownership (TCO) which measures the cost of acquisition, maintenance, and operation of DART System is

TCO = I + O + M + D − R

where,

I = the initial cost – buses & infrastructure (purchasing/leasing, taxes, interests, etc.);

O = the operation cost (fuel, salaries, insurance, training, licenses, etc.);

M = the maintenance & repair cost (spares, expertise, consumables, infrastructure, etc.);

D = the downtime cost (during maintenance); and

R = the remaining/residual value
Total Cost of Ownership for DART System - 12 m bus technologies

- Diesel Euro IV
- Clean Diesel Euro VI
- CNG Euro VI
- Battery Electric

The chart shows the total cost of ownership in USD per km for different bus technologies. The chart breaks down the cost into capital cost, maintenance, fuel, labor, and insurance, license, training, etc.
Total Cost of Ownership for DART System- 18 m articulated bus technologies

Bus Technology

- Diesel Euro IV
- Clean Diesel Euro VI
- CNG Euro VI
- Battery Electric

Cost Components:
- Capital Cost
- Maintenance
- Fuel
- Labour
- Insurance, License, Training etc.
Global platform for e-mobility

Four year programme, 2020-2023
Funded under Horizon 2020 call GV-05-2019
Total budget: €20,233,098
Exploring the electrification of feeder three-wheelers to the BRT
Electric feeder bajajs

Assessing
- Feasibility assessment to electric feeder three-wheelers in Dar es Salaam: organisational, financial, spatial patterns, typical mileage
- Capacity building on charging infrastructure; peer learning with Indian cities on electric three-wheelers

Promoting local R&D
- Selection of two local companies via UN-Habitat
- Exploring of new vehicles and design
- Exploring of conversion of ICE three-wheelers

Expanding the e-fleet
- Ongoing funding call for more e-three-wheelers
- Upcoming DART procurement of chargers for key locations near BRT stations
Innovative e-mobility forms

Testing
- Pedal-assist electric bicycles for urban deliveries
- Transport of medical supplies
- Partnership with EURIST, FABIO, DIT, Aga Khan Hospital

Promoting local R&D
- Local assembly and charging at DIT
- Supporting the cycling cooperative FASTA

Expanding the e-fleet
- Regional opportunities
- Study to scale the use of e-bikes for urban deliveries
Working on a conducive policy environment

Policies

- Assessment of barriers to the uptake of electric mobility in Tanzania
- Policy paper on electric mobility policies in Tanzania
- Tanzania National Urban Mobility Policies and Investment Program
Thank You

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