

A VREF PROGRAMME

**MOBILITY
& ACCESS**

in
African
Cities



VREF

VOLVO RESEARCH
AND EDUCATIONAL
FOUNDATIONS



THE UNIVERSITY OF
ALABAMA

Alabama
Transportation
Institute



UNIVERSITY OF
DAR ES SALAAM

Stakeholder Perspectives on Efficient Allocation of Paratransit

VREF –MAC Research Forum

Wednesday, 6 December 2023

Motivation

- Make cities inclusive, safe, resilient and sustainable is recognized – **SDG 11.2**
- **Access** to social and economic opportunities – an indicator of population welfare
- **Access disparity:** a type of access difference that is linked to economic, social, or environmental disadvantage
- **Equity:** the commitment to eliminate access disparities and in its determinants



Motivation

- Access is facilitated by **Public transport** – mostly Paratransit in SSA
- **Passenger transport:** the extent to which landuse and transport systems enable individuals to reach opportunities





Motivation

Current paratransit is **inefficient & unsustainable**

- Lack of **equitable allocation**
- Unreliable **transport access** for passengers
- Unreliable **revenue stream** for operators
- **Unsafe road environment** for pedestrians, road users, passengers, etc.



Study Focus

Challenge Being Addressed

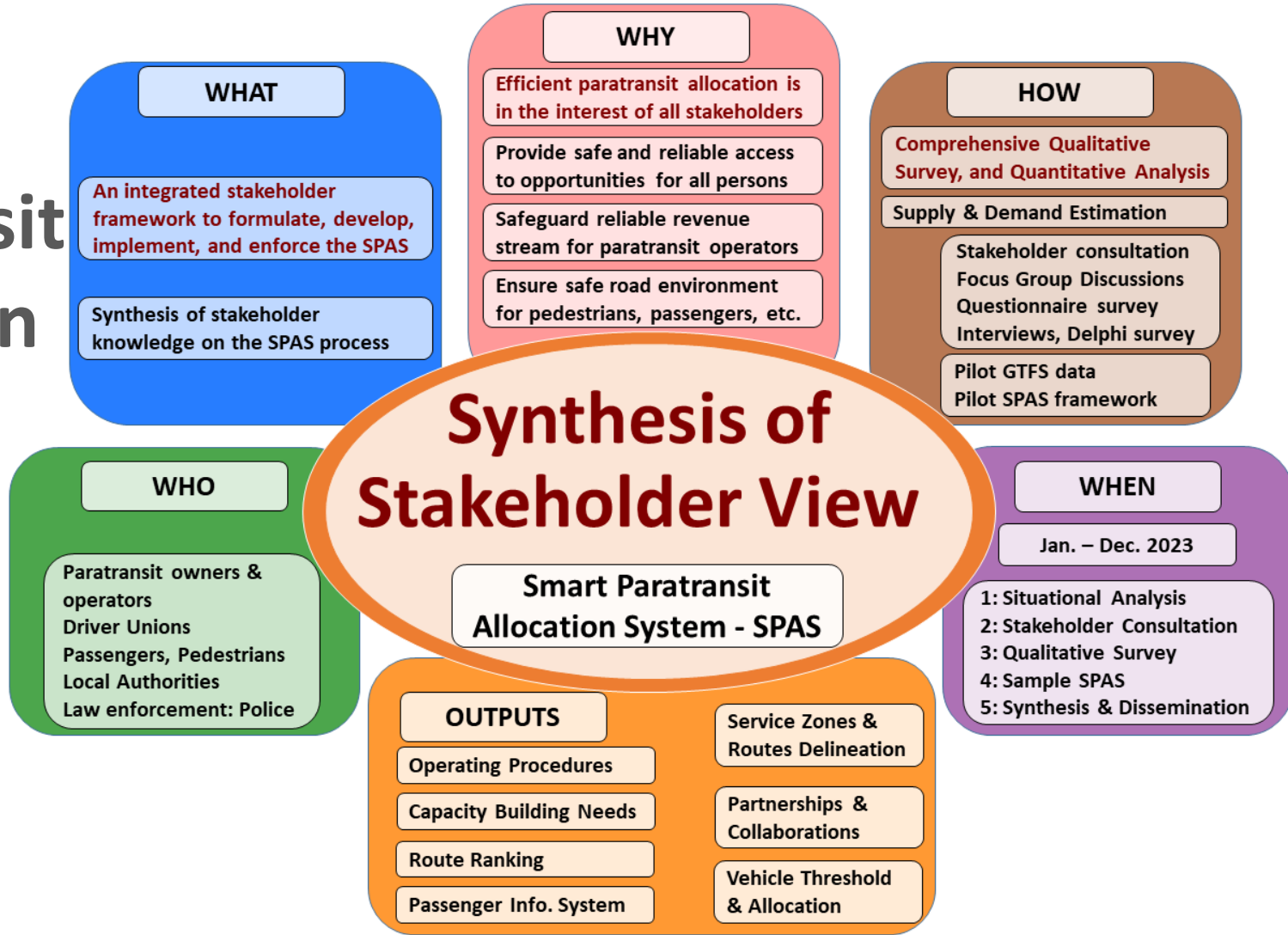
- How can a **Smart Paratransit Allocation System (SPAS)** be co-formulated, co-developed, co-implemented, and co-enforced in SSA cities: Accra-Ghana & Dar es Salaam-Tanzania?





Study Approach

Smart Paratransit Allocation System





Study Activities

Completed and Ongoing

- Comprehensive literature review
- Questionnaire survey
- Stakeholder Consultation
- Data analysis
- Synthesis and reporting





Study Survey

Questionnaire survey

- Paratransit vehicle and operation costs
- GTFS-like data: routes, terminals, stops, fares

Stakeholder Consultation

- Interview
- Focus group discussion





Questionnaire Survey

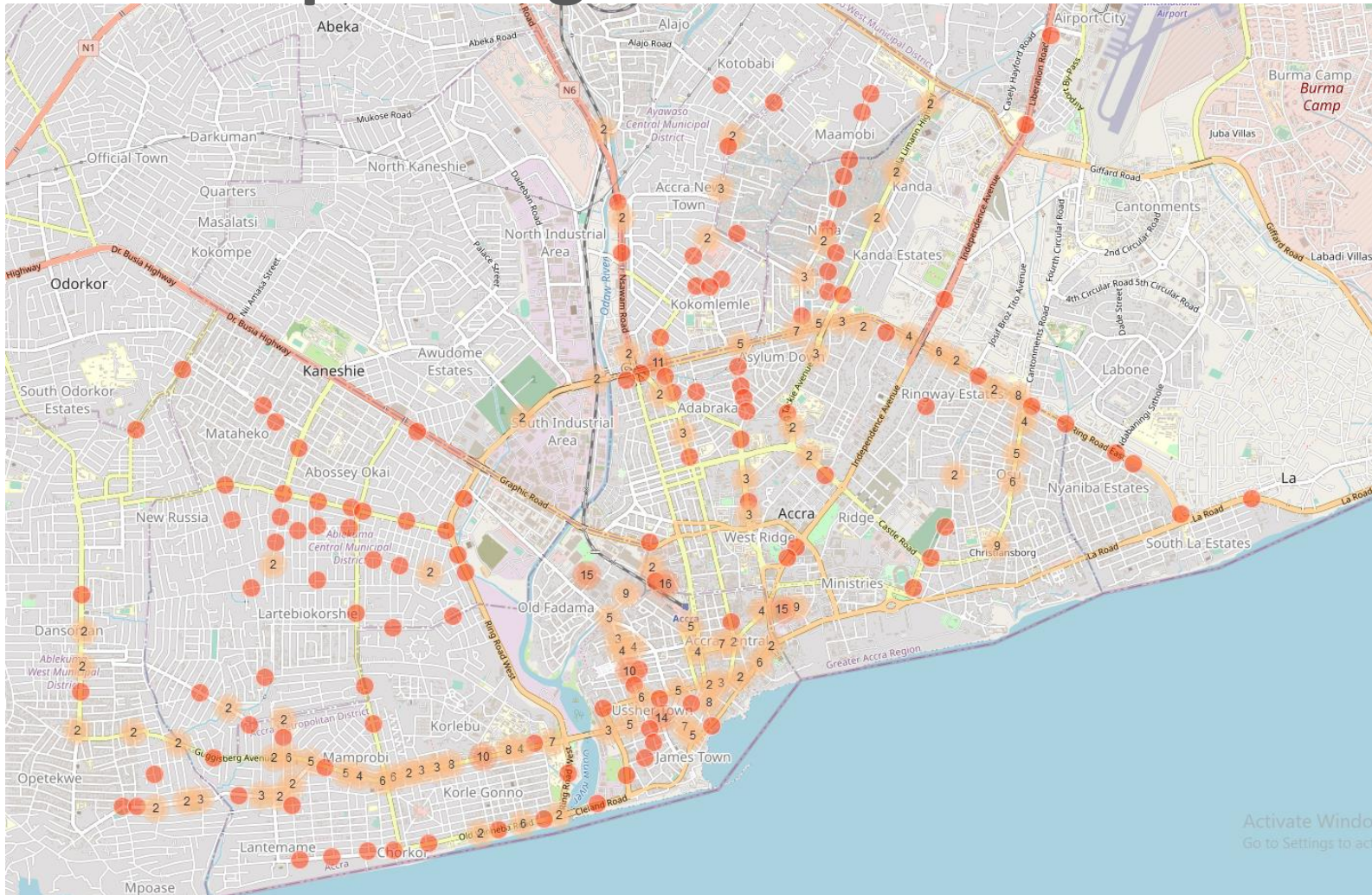
- General vehicle characteristics
- Vehicle capital cost
- Basic vehicle route information
- Vehicle operation costs – vehicle and labour
- Vehicle operation costs – maintenance and administrative
- General background of vehicle operators





Preliminary Findings

Paratransit stops along routes - Accra

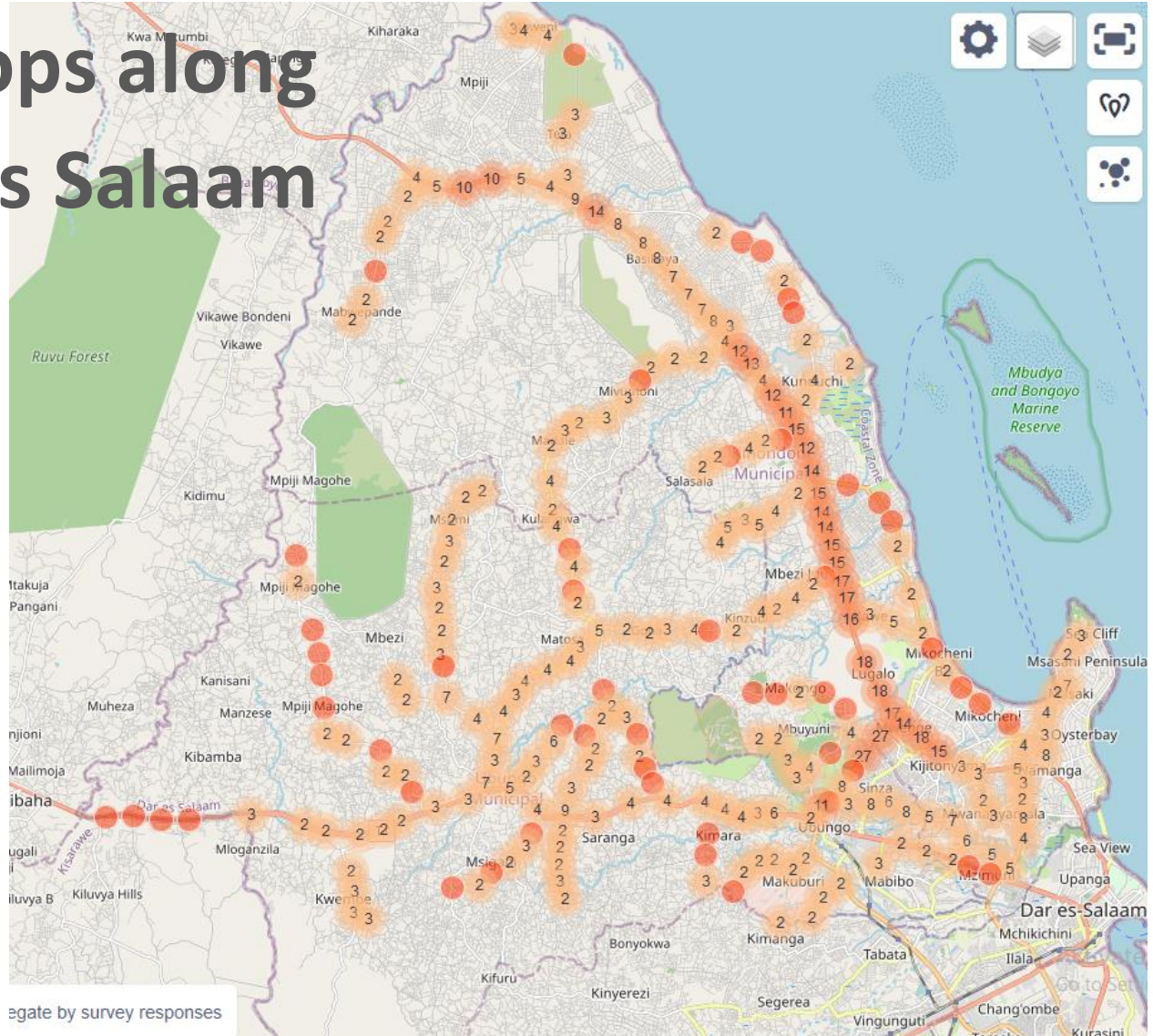


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Preliminary Findings

Paratransit stops along routes – Dar es Salaam



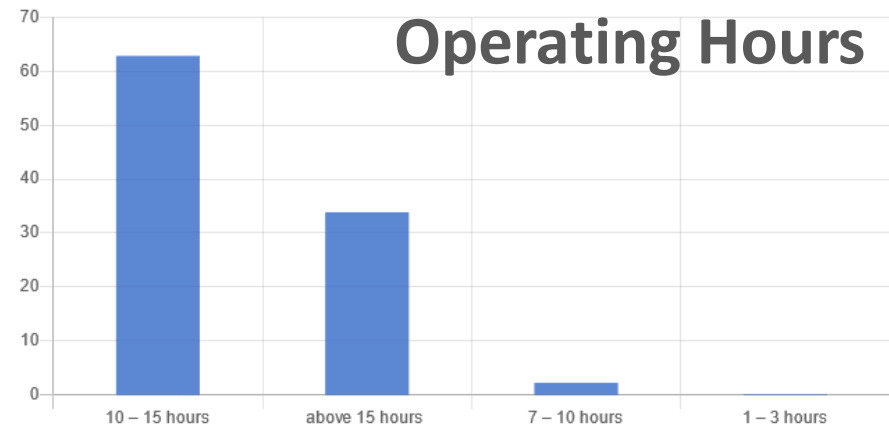
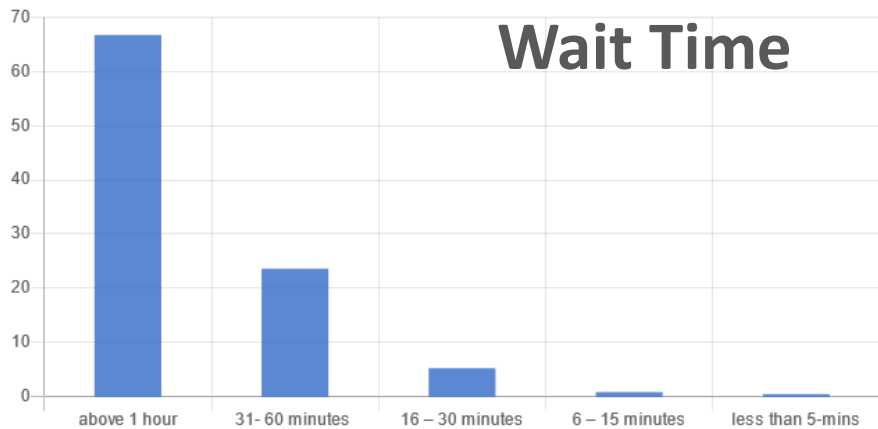
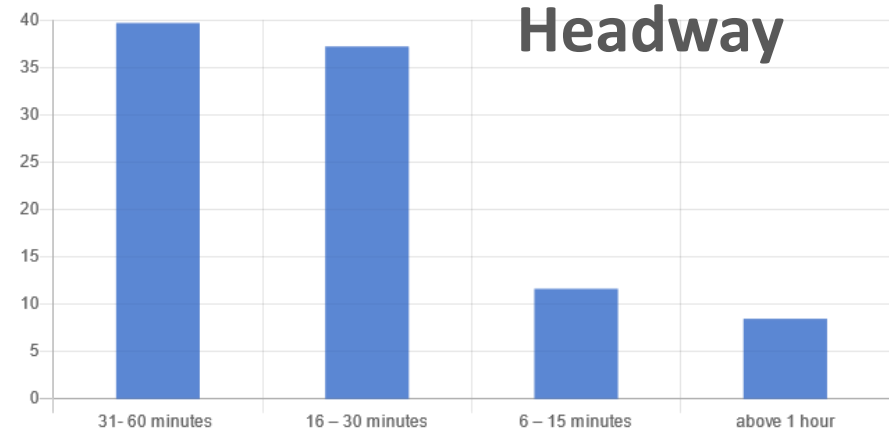
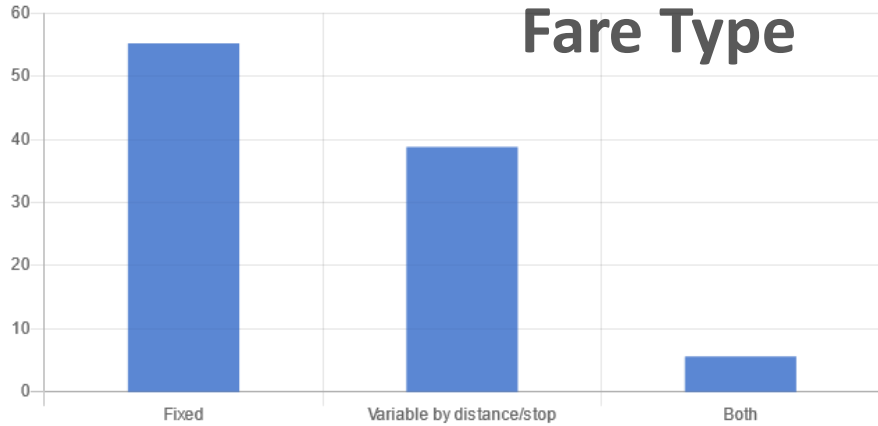


Preliminary Findings

- **Operational Indicators** - Kilometres per vehicle per day, Fare revenue per kilometre, Passengers carried per vehicle per day, load factor, etc.
- **Vehicle Indicators** - Vehicle availability at peak periods, Expenditure per kilometre on fuel, tyres, and maintenance, Fuel consumption, Kilometres per mechanical breakdown, Average age of fleet, etc.
- **Personnel Indicators** - Number of personnel per vehicle, Expenditure per kilometre on salaries and wages, Kilometres per man hour, etc.

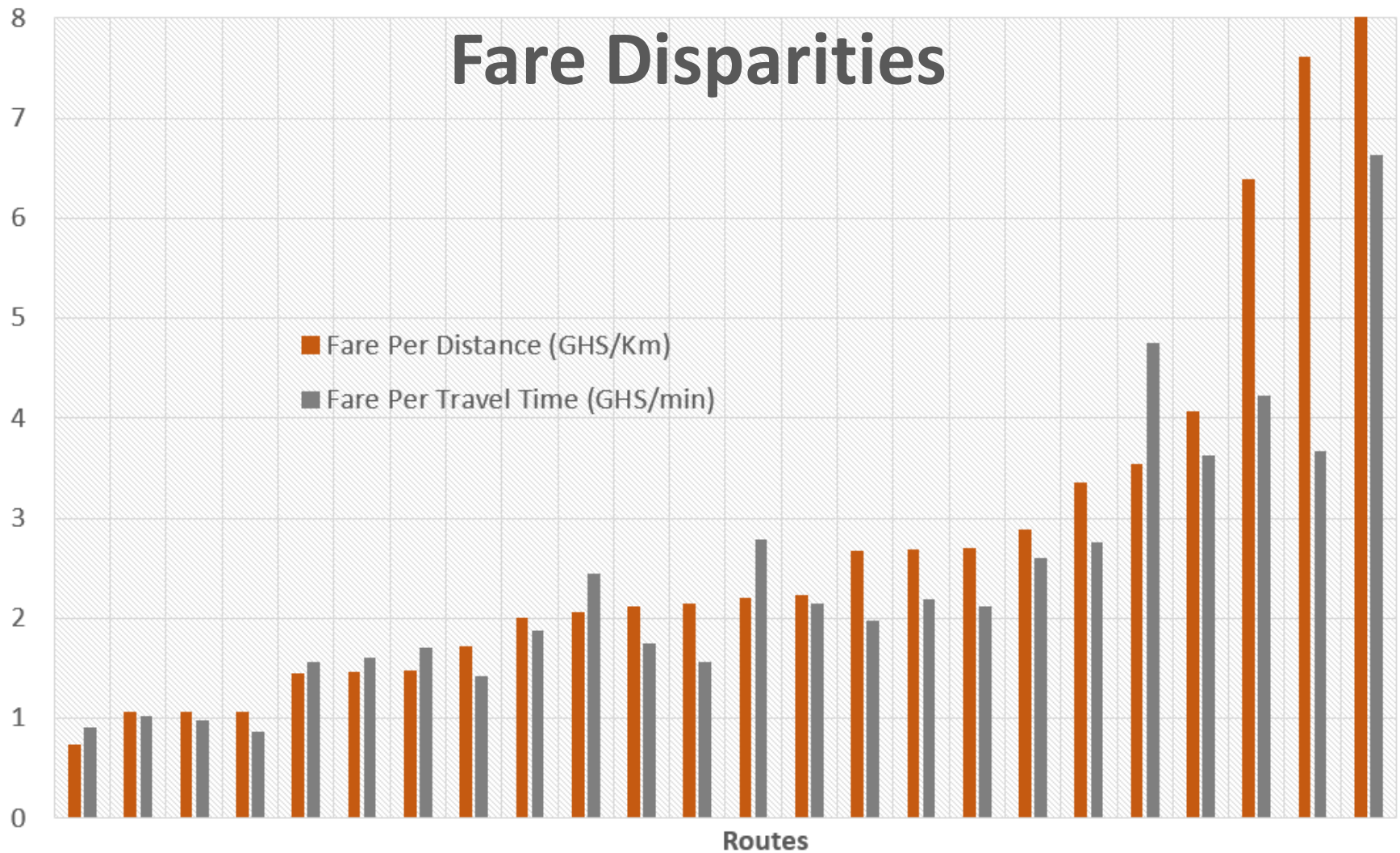


Preliminary Findings





Preliminary Findings





Stakeholder Consultation

- Stakeholder background & goals
- The current public transport system
- Route setup and fares
- Vehicle allocation & route ranking
- Service zones & delineation
- Passenger information system
- Operation procedures
- Capacity building needs





Stakeholder Consultation

Stakeholder Consultation Workshop in Accra, Ghana



Ongoing Activities

- Data analysis
- Stakeholder consultation
- Dissemination activities: reports, manuscripts, policy briefs, etc.



Take Home Message

- Good knowledge of the **current public transport** – Paratransit is vital to any policy framework
- **Detailed performance indicators** – fleet, operation, labor, maintenance, etc.
- Basis for **evidence-based frameworks** for public transport systems

