

## Seventh Regional Stakeholders cum Coordination Meeting (RSC7)



### IMPROVING URBAN AIR QUALITY


#### Role of Dhaka Bus Network and Regulatory Reform



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### Controlling air quality in cities needs more than testing motor vehicle emissions- or even controlling them

- » In parallel, cities must reduce dependence on cars and make a fundamental shift into **mainstream use of more efficient public transport**
- » Not only to improve air quality, but to:
  - Reduce congestion and improve mobility
  - Restore productivity (less wasted time) and improve economic performance
  - Improve quality of life through a more liveable city




### Many people equate improved public transport with MRT rail systems, ignoring the essential role of buses

- MRT is very expensive to build and operate
- A few kilometres or a single corridor of MRT will not solve the cities problems

Bangkok's BTS *SKYTRAIN* corridor - an excellent public transport alternative

- But did not solve 'on-ground' problems & traffic congestion
- Rail carries 5% of all public transport trips (2005)
- Buses are stuck in traffic



MRT rail has a role to play in high volume corridors


*Bus systems are also a viable option and are sometimes better placed to address the problems*

- Bus Rapid Transit (BRT) systems offers:
  - A high capacity corridor system
  - Is able to be well-integrated into the city providing a full network
  - At a far lower cost
- The challenge cities face, is how to manage bus reform, and make it financially sustainable

### An affordable and efficient public transport is vital for the development of Dhaka, given the current socioeconomic framework

- The current population in DMA is estimated at over 11 million people, expected to grow significantly in the coming years (over 3% annually)
- Around 30% of this population lives in poor conditions; the average income per capita is only 550 USD/year
- Population densities are very high, reaching over 45,000 persons/km<sup>2</sup> in the downtown area
- High mobility needs: over 21 million trips per day inside DMA only

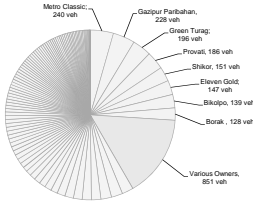
There is a need for an efficient and affordable public transport system in order to support the future development of Dhaka



### The bus industry is extremely fragmented and the vehicle fleet in operation is not suitable for a megacity such as Dhaka

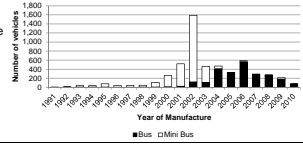
**Fragmented bus operation:**

- 137 companies are currently operating in the network
- The 8 biggest companies only account for 26% of the fleet
- 73 companies have less than 50 vehicles
- In addition, there are several individual owners operating
- Often various operators share the same route



**Vehicle fleet issues:**

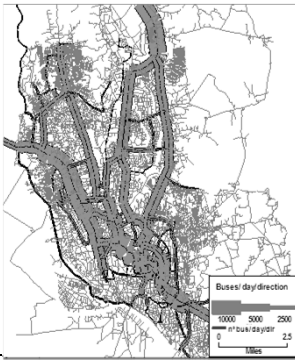
- Private operators: 7,053 buses or minibuses
- BRTC: 974 buses
- 50% of the vehicle fleet has already reached its service life (10 years)
- Low vehicle maintenance standards are common
- Authorities wish to gradually phase out minibuses, but it has not always been possible due to pressure from the operators



**The current bus network provides low coverage, has several route overlaps and does not meet passenger trip patterns**

**Issues of the existing route network:**

- 152 bus routes
- They are basically distributed in 40 different corridors, having long and frequent overlaps
- Several areas have a low coverage (especially in Old Dhaka and the suburbs)
- Buses pile up in the arterials, with combined frequencies that even reach 9 buses per minute in the same direction
- For 22% of users, the travel distance using public transport is over 2 times the travel distance using a car
- The passengers most affected are those making east-west trips, given that most routes are north-south



**The current road network is a big part of the public transport problem:**

- 88% of the roads are local streets, which are normally too narrow to host bus services
- There is a lack of east-west arterials

**Furthermore, road congestion is creating excessive pollution in Dhaka. Improving bus capacity and design standards should alleviate the problem**

- There are around 250 µg/m<sup>3</sup> of suspended particulate matter in Dhaka air (5 times the acceptable limit)
- Congestion increases the average trip times and, hence, fuel consumption

**The current bus fleet is not environmentally friendly:**

- Excessive vehicle age (50% of the fleet over the service life)
- Inadequate maintenance status
- 55% of the fleet are minibuses, with more emissions per passenger than standard buses

**Need for improvements in the current fleet and its management:**

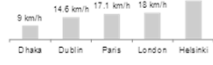
- Use vehicles with higher passenger capacities and lower levels of emissions
- Improve levels of maintenance
- Scrap the vehicles that exceed the recommended service life

**The current network is not profitable, which means that the service quality could further decrease and/or fare prices would rise**

The profitability of each route has been assessed considering: vehicle type, age, number, fare levels and operating costs

**Results are very negative** → **Average profitability: - 31%**  
Some routes would lose as much as 92%  
Only 12 routes would be profitable, from 0 to 12%

**Main reason** → • Very low commercial speeds that increase operating costs and reduce passenger capacity



City	Average Commercial Speed (km/h)
Dhaka	9
Dublin	14.6
Paris	17.1
London	18
Helsinki	26

**Likely consequences** →

- A. Increased fare prices → **Negative social impacts**
- B. Reduction of:
  - Wages
  - Maintenance levels
  - Vehicle frequencies
  - Hours of operation
 → **Reduced level of service**

Reassignment of vehicles to other routes

**The existing public transport culture creates a low quality service, adds to road congestion and has negative social impacts**



**Unsuitable public transport culture:**

- Competition between operators for passengers
- Reckless and untrained bus drivers
- Long pedestrian queues in ticket booths
- Lack of use of designated stopping locations
- Buses laying over at the road sides
- No seats available for women

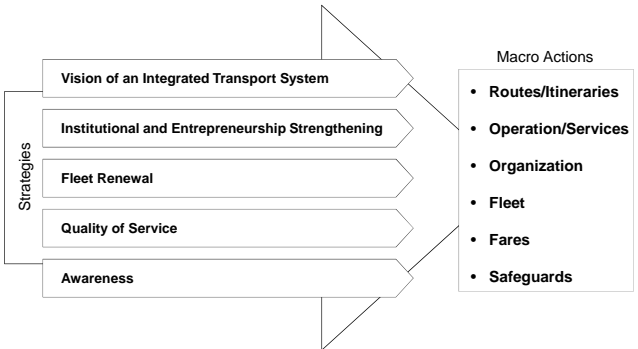
**Core problems behind these issues:**

- Multiple, uncoordinated and weakly regulated bus operators
- Inadequate level of training among their employees
- Significant disregard for passenger safety
- Lack of respect for female passengers
- Inefficient and unintegrated fare payment methods
- Inexistence of adequate infrastructure (bus stops, lanes, depots)

**In Dhaka, the DTCA is undertaking major efforts at bus system reform**

1. Infrastructure (high capacity BRT system along main corridors) and priority bus routes as feeders
2. The Management Model : Public- Private Partnership
3. The Business Model - sustainable

**The strategies to address the issues detected will imply a deep restructuring of the sector, based in 6 macro actions**

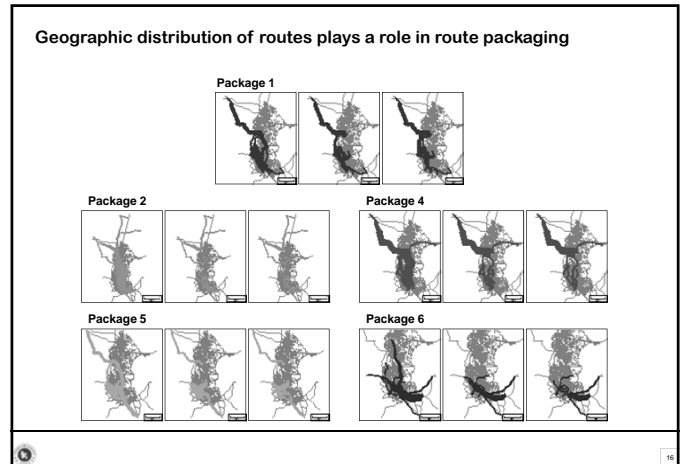
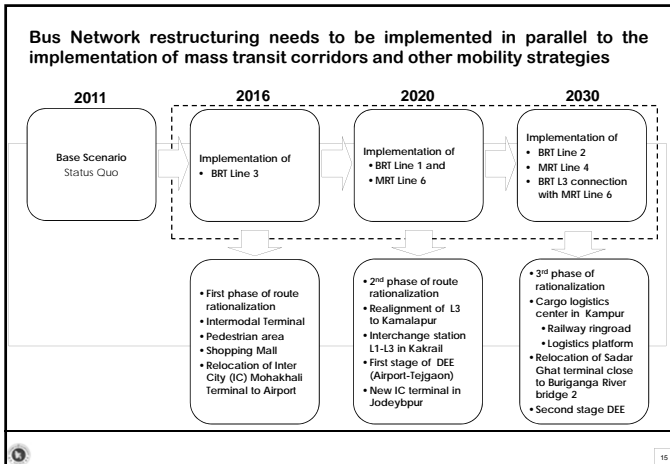
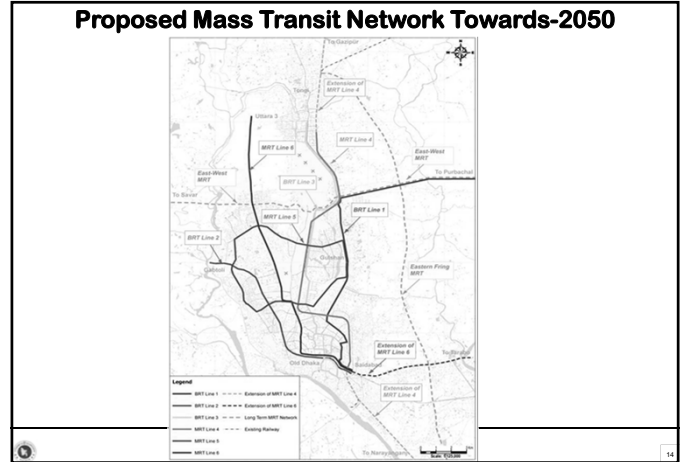
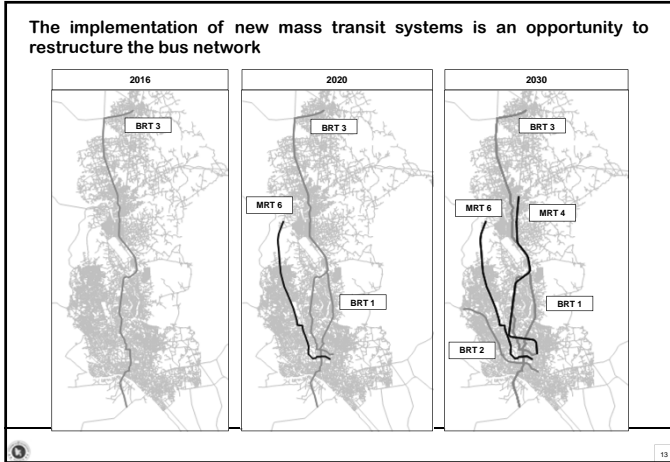


**Strategies:**

- Vision of an Integrated Transport System
- Institutional and Entrepreneurship Strengthening
- Fleet Renewal
- Quality of Service
- Awareness

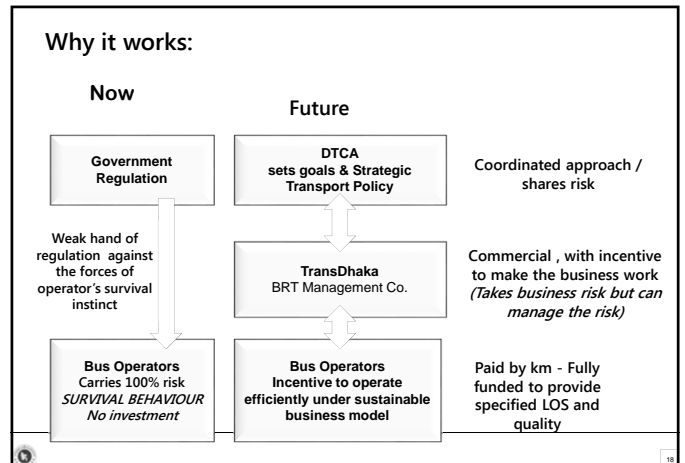
**Macro Actions:**

- Routes/Itineraries
- Operation/Services
- Organization
- Fleet
- Fares
- Safeguards



### Business Model

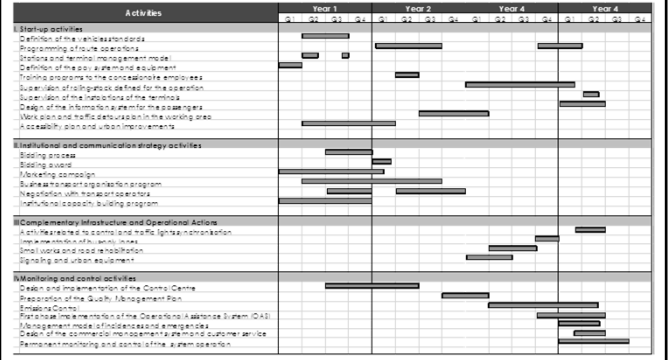
- FOR THE NETWORK MANAGER (Bus Agency)
  - A commercial business model – business like, offering good customer service to ‘win the market
  - No operational subsidy – survives on revenue
- FOR THE BUS OPERATORS
  - Paid commercial rates to provide km of service
  - Quality defined and enforced by contract
  - Develops a win –win partnership between the bus agency and the private sector with risk assigned to where it can be best managed
  - Managed risk will attract investment / greater sustainability



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### Actions associated with the implementation of the first phase are anticipated to occur over a period of 3-4 years



### Major Challenges for Bus Reform

- Political support
- Funding
- Negotiation of routes packages for contract operations( 6 packages) with the operators

Thanks