**Why BRT systems?**

In the last decade, public transport systems across Asia showed a rapid decline in patronage. The increasing motorization across cities resulted in longer commuting time, worsening pollution and increasing traffic accidents. The deterioration in the public transport mode share combined with limited financial sources for public transport forced policy makers to look for out of box solutions to improve public transport. This resulted in several cities experimenting with BRT systems as a more economical alternative for efficient public transport, and has now evolved into a broader urban transport solution.

BRT systems are considered as a viable alternative to traditional light rail public transport. It provides the quality of light rail systems with the flexibility of buses at a fraction of the cost. Instead of a train or metrorail, BRT systems use buses to ply a dedicated lane that runs at the center of the road. At specific locations, passengers can embark or disembark at conveniently located stations, which often feature ticket booths, turnstiles, and automatic doors. BRT stations are designed in such a way that they can be easily accessed from surrounding areas, and if combined with pedestrian paths, cycle tracks and access to other transport modes, they provide good intermodal connectivity.

**How BRT systems were introduced in Asia**

BRT systems are not a recent development. It all started in 1970’s in several Brazilian cities – especially Curitiba which developed the first role model for BRT systems. Although these initial experiences were highly successful, it was not replicated elsewhere as planners assumed that these systems were unique for conditions of Brazilian cities. However, twenty years later BRT gained momentum with planners in Bogota successfully replicating the system with several innovations. Bogota’s success was contagious, and in 2000 the TransJakarta and Seoul BRT systems started operating, thus leading Asian cities in transforming their public transport systems.

Since then, BRT systems rapidly advanced. BRT cities in Asia can be divided into two categories—cities with a bus rapid transit (BRT) system and cities that want to have a BRT system. Currently, there are over 80 BRT systems in development in Asia.
What are the benefits of BRT systems?

Experience from various projects has shown that BRT systems are

- Cheaper and faster to build (1-10 million USD/km, executed in 1-3 years)
- Profitable for bus owners
- Able to carry up to 45,000 passengers per hour per direction
- Inexpensive for commuters compared to other motorized transport modes
- Able to provide mobility at 20-35 km/hr
- Easily integrated into existing land use, and in fact can help transform existing land use to provide co-benefits
- Providing environmental benefits – for example literature shows that the reduction in CO₂/km for a two lane BRT system can vary from 900 tons to 5000 tons/year

Literature review suggests co-benefits (CO₂ reductions, PM-NOX reductions, accident savings, fuel savings etc.) from BRT systems result primarily from

- Improved public transport vehicles
- Model shift from private automobiles
- Compact development
- Operational efficiency improvement

However, it is noted that designing BRTS as an immediate solution for reducing congestion may not be totally effective unless combined with a good feeder system. Literature suggests that nearly 30% of trips to BRT systems come from private modes and taxis.
Typical Capital Costs vs. Passenger Capacity for Urban Transport

BRT = bus rapid transit, km = kilometer, LRT = light rail transit.

Based on Hidalgo, Embarq (2009) 1

Access modes to BRT systems

% Mode shift

- Walk
- Cycle
- 2W
- Car
- IPT
- Train
- Bus

To Jakarta BRTS (%)  To Ahmedabad BRTS (%)  To Changzhou BRTS (%)
What are the Elements of Good BRT System

The following are some of the elements of a good BRTS:

- Exclusive lanes (median)
- Good access to pedestrians and cyclists
- At grade and barrier free stations
- Prepaid ticketing with advanced technologies for fare collection and control
- Integrated fare collection with other public transport
- Differentiated services (local, accelerated, express) with integrated feeder services
- Intersection priority
- Large buses, multiple doors, low emission buses, level platform
- Implementing demand management strategies in the affected zone
- Application of ITS technologies and information system
- Performance based contracts with operators – no subsidies, or clearly defined subsides
- Land use management (densification, mixed uses around stations – transit oriented development)
- Branding of the system
- Station separated from junction by min of 70 meters
- Operation Plan

Suggested Literature

- Comparing transit alternatives after recent developments in BRT in Latin America, Dario Hidalgo, Embarq
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