



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF HOUSING AND URBAN AFFAIRS



RESOURCE REQUIREMENTS AND GAPS FOR URBAN BUS SYSTEMS IN INDIA

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Version 1.36
long range planning tool for STUs

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BACKGROUND

- It is understood that accessible and affordable urban mobility can be best provided by urban bus systems.
- Even though bus-based PT requires least investments, it is not possible with zero subsidies/state support – this needs to be acknowledged and accepted.
- Next step is to have a clear quantifiable understanding of this resource requirement for supporting bus systems – in order to meet mobility and sustainability objectives.
- However this number is not accessible to decision makers, sometimes due of lack of policy, sometimes due to lack of acknowledging the need of state support
- Future resource requirements to account for, changing - mode share, urban travel demand, service characteristics, operational characteristics, service composition, fleet composition, etc.

A TOOL TO ESTIMATE ANNUAL RESOURCE REQUIREMENTS FOR BUS SYSTEMS

UserForm1 ×

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Version 1.7
long range planning tool for STUs



Thumb Rule Estimator

Detailed Estimator

DEVELOPER
SGArchitects

S SHAKTI
SUSTAINABLE ENERGY
FOUNDATION

SGArchitects

THE DEPLOYMENT

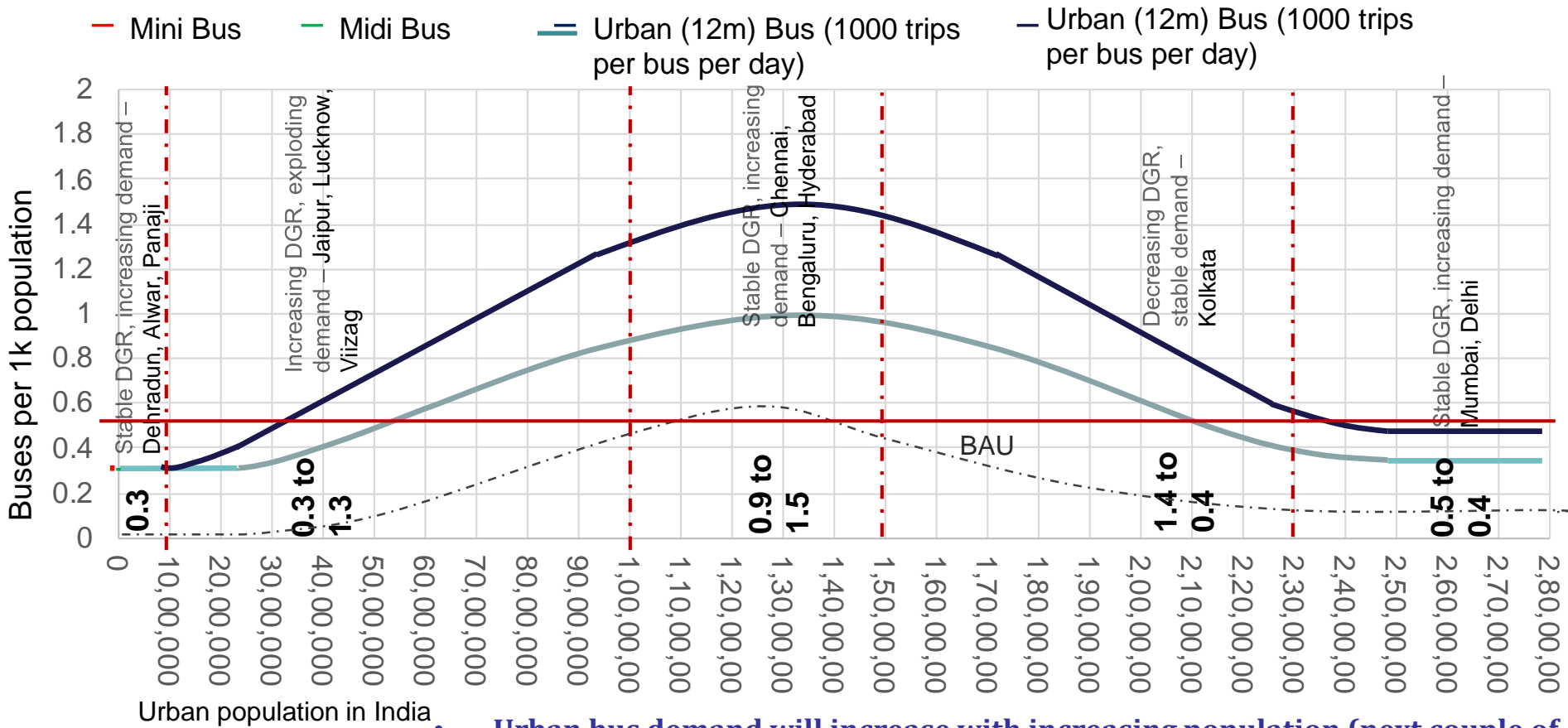
Primary estimator - STUs

- **Himachal-SRTC**
- **JK-SRTC**
- **Maharashtra-SRTC**
- **AP-SRTC**
- **Orissa-SRTC**
- **BMTC**

Secondary estimator - CITIES

- **Delhi**
- **Chennai**
- **Vishakhapatnam**
- **Ahmedabad**
- **Jaipur**
- **Lucknow**
- **Dehradun**

LEARNINGS – BUS DEMAND (FLEET SIZE)



Urban bus demand will increase with increasing population (next couple of decades)

- Demand Growth Rate (DGR) will vary with city size
- Many Indian cities are in exploding demand range over next 2 decades
- In a BAU scenario, capacity will not be more than 1/3rd potential demand

LEARNINGS – STAFF & LAND REQUIREMENT

Key Facts

- 1 depot per 120 buses in fleet
- 1 bus terminal per 50 buses in fleet
- Depot land required per bus in the fleet = 160 to 170 sqm
- Terminal land required per bus in the fleet = 70 to 80 sqm
- 5.2 personnel per bus
- With increasing fleet size cannot be supported by increasing land availability and trained staff.
- 230 to 250 sqm per bus - **23 to 25 hectares of land for every 1000 buses** added in fleet
- **5200 new trained personnel for every 1000 additional buses** in the fleet

Master plans to allocate land for bus infrastructure in line with long range plans for bus systems – they should be included in ToD

LEARNINGS – STATE FINANCIAL SUPPORT

Key Facts

- Avg. daily occupancy = 65%
- Average per km fare = 1Rs
- Average trip length= 10km
- Average vehicle utilization = 200km/day
- Average CPK Rs. 35 to 45
- **Average subsidy = Rs. 5 to 15/km (Rs. 1,000 to 3,000 per day)**
- Capital cost of the bus = Rs. 4 to 20 million (10 year life)
the annual capital investment per bus = Rs. 0.5 to 2 million (min. 50% low floor buses)
- Annual subsidy per bus (operations & maintenance) = Rs. 0.4 to 1 million
- Annual infrastructure development cost = Rs. 0.1 million
- When budgetary allocation is made for purchase of buses, 0.5 to 1.0 million per bus per year should be set aside for operations & maintenance
- Total state support required for urban bus service = Rs. 1.0 to 3.0 million per bus per year – increasing by 3% per year due to increasing demand
- **State financial support for urban bus services = Rs. 1.0 to 3.0 billion (100 to 300 crore) per 1k buses per year**

State transport departments need to have a separate annual budgetary head for urban bus operations

SCALE OF RESOURCE REQUIREMENT IN CITIES

Cumulative resource requirement **till 2030** for 7 Indian Cities

City	Fleet size	Buses to be acquired	Land (Ha)	Operational Manpower to be added	Budget (Cr)
Dehradun	270 → 405	360	3	700	330
Vizag	670 → 861	750	3	1,000	490
Lucknow	160 → 2,073	2,100	47	10,000	2,100
Jaipur	400 → 2,628	2,600	52	11,600	2,600
Ahmedabad	1,072 → 9,391	9,200	191	43,000	9,300
Chennai	4,000 → 14,400	13,700	240	54,000	13,700
Delhi	5,969 → 9,904	8,900	150	13,700	9,200

NATIONAL RESOURCE REQUIREMENT FOR URBAN BUS SYSTEMS (NEXT 10 YEARS)

- **Urban population to increase from 480 million today to 590 million in 2030**
- **480 lakh plus cities, 53 million plus cities in India**
- **Estimated National, annual resource requirement for bus systems over next 10 years**
 - **46,000 buses, 700 hectares of land, 0.2 million trained manpower, ~50,000 crore (USD 7 billion) in funding/budgeted support**