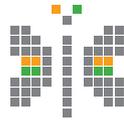




Ministry of Housing
and Urban Affairs
Government of India



Smart City
MISSION TRANSFORM-NATION

TRANSIT

Accessibility Benchmarking For Metro Systems In India

Smriti Bhatnagar, Rahul Khanna, YSK Prerana

Mentor: Dr O.P. Agarwal

Premise

Indian cities are experiencing rapid urbanization and as a result, are sprawling horizontally. This has, in turn, resulted in the increase of trip lengths, sudden spike in private vehicle usage and an acute shortage of mass transport infrastructure (National Transit Oriented Development Policy, Government of India, 2014). As an immediate response to the crisis, Indian cities are in dire need of effective mass transit systems. India currently has ten operational metro rails which include Kolkata Metro in West Bengal, Delhi Metro in the National Capital Region (NCR) of Delhi, Bangalore Metro in Karnataka, and Hyderabad Metro in Telangana. Similar rail projects are being planned and/or are under construction in Ahmedabad in Gujarat, Bhopal and Indore in Madhya Pradesh, Chandigarh, Ludhiana in Punjab, Jaipur in Rajasthan, and Pune in Maharashtra.

Though ten cities have executed metro projects, their existing ridership hasn't matched the forecasted ridership. A study conducted by School of Planning and Architecture (New Delhi) ascertains that the ridership of Delhi Metro was 20% of projected ridership in 2006, and had risen to only 26% of projected ridership in 2009. Similar was the case with the Bangalore metro (Lakshmi, Kumar, Madhavan & Gupta, 2014).

A key reason as identified for the low ridership of these metro systems was the lack of accessibility. Besides inaccurate demand estimates, inadequate accessibility to the metro station is one of the predominant reasons for lower than expected patronage of metro rails. A system for measuring the performance of accessibility indicators has not been institutionalized in metro agencies, which is where Team Transport wishes to intervene.

Planned Intervention

As benchmarking is an important mechanism to instil accountability in service delivery, this work aims to provide a standardized framework for performance measurement of accessibility indicators and would thus enable metro authorities to monitor and evaluate accessibility service level against these benchmarks. The measurement of accessibility is important as it will help in shaping policies related to designing transport systems (within a city), shaping land use mix, establishing connections for non-motorized transport (including walking paths, cycling paths) and shaping an inclusive (wrt gender, caste, income levels etc.) mass transit systems (Satpal, 2018; Munshi, 2018; Chava, 2018; Bahadure, 2018).

Various indicators affecting accessibility will be first identified and grouped under four pillars of Infrastructure; Landuse; Temporal and Transport factors. Empirical data on all these indicators will be collected from various metro stations to develop and establish benchmarks for different accessibility indicators. In addition, a toolkit will also be developed which will help authorities in meeting the set benchmarks.