Development of methods and tools to report progress on SDG 11.2 “Access to Public Transport” and complementary indicators to ensure accessibility, affordability, convenience and inclusiveness

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SDG 11.2 “Access to Public Transport”

Target 11.2
By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, and children, persons with disabilities and older persons

Indicator 11.2.1 (Tier II)
Proportion of the population that has convenient access to public transport by sex, age and persons with disabilities

Custodian Agency: UN-HABITAT
FOR A BETTER URBAN FUTURE
Metadata Methodology – a guide to assist Nat. and Loc. Governments to monitor and report on SDGs

Sustainable Development Goal 11

Metadata Methodology

Training Manual SDG 11.2
The Transport Community is discussing SDG 11.2.1 and monitoring methodology

- EGM held on 19-20 Oct 2017 in Berlin
- Virtual EGM held on 1 April 2019
Updates To Metadata: 1

Core Indicator of 500 m Walking Access to transit stop (instead of buffer)

From buffer to road network - distance of 500 m (or 1km)
Alternative metrics of “convenient access”:
e.g. 1km to high capacity

Transit system performance: e.g.
frequency of service, capacity, safety/security, comfort

Affordability

Modal shift to sustainable transport:
e.g. Modal share, Passenger-KM travelled on a certain mode of transport

Obstacles to reaching stations:
Universal Accessibility

Access to opportunities:
Achieving a higher level of “convenient access”
GLOBAL OVERVIEW
UN Habitat Interventions

Ideal Scenario:
Countries are capacitated and report on SDG 11.2 to UN-Habitat and partners

Reality:
Capacity gaps and lack of tools in Countries

Goal is to empower national agencies to generate data, report and inform action

Actions include:
• Bring together actors/experts to support
• Develop methodologies and tools
• Train countries on broad indicator aspects
• Support direct data generation initiatives
• Quality control
• Use of data
Regional Overview (data for 550 cities)

- **North America & Europe**: Cities: 90, Countries: 20
- **Western Asia & Northern Africa**: Cities: 46, Countries: 12
- **Sub-Saharan Africa**: Cities: 89, Countries: 18
- **Eastern Asia & South-eastern Asia**: Cities: 92, Countries: 13
- **Central Asia & Southern Asia**: Cities: 107, Countries: 10
- **Oceania**: Cities: 4, Countries: 3
- **Australia & New Zealand**: Cities: 29, Countries: 2
Data on SDG 11.2.1 is available for more than 550 cities

Share of population with access to public transport

- Global Average: 49
- Sub-Saharan Africa: 35
- Central Asia and Southern Asia: 37
- Eastern Asia and South-eastern Asia: 41
- Western Asia and Northern Africa: 48
- Latin America and the Caribbean: 54
- Northern America and Europe: 72
- Australia and New Zealand: 80
Data Situation

- Different actors generating transport data → Data sharing challenges
- Huge variation in data availability in countries
  - City/National level – GIS format data
  - Open sources – OSM/GTFS
- Capacities to generate data at the local level
- Resolution of population data (spatial and temporal)
- Challenges gathering qualitative data (frequency of modes, comfort/accessibility/safety, convenience)

Available data for Kampala (left) and Milan (right) on public transport from online sources.
DATA INPUTS AND PROCESSING
Data Compilation Work Flow

City Level Data on Location of Public transport stops and street networks available

Create service areas of 500 m walking access to PT stop

Integrate population and estimate share with access

Visualize data, integrate qualitative aspects for decision making

Where city level data is not available

- OSM
- GTFS
- Google Streets (tile server)
- Other Sources
  - WhereIsMyTransport
  - ITDP
  - WB
Establish the functional urban area

(EXAMPLE CASE: ULAANBAATAR, MONGOLIA)

Legend
- FUA - Urban Extents approach*
- FUA - DEGURBA Approach**

Pop. Data source: GHSL Population Grids, 250M

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*GHSL Population Grids, 250M

**GHSL Population Grids, 250M
Step 2: Collect data on location of public transport stops

- From city authorities, ministries in charge of transport, etc.
- Open source platforms – e.g. OSM, GTFS
- Extraction from satellite imagery, google streets tiles

General Transit Feed Specifications has downloadable data on location of stops, frequency of service, etc. for some cities

Google streets can be used as source of data

Visual interpretation from high resolution imagery offer a good data source where general public transport structure is known
Step: 3

Create service area for each bus stop

- Delimiting areas within 500 meters walking distance along street network to bus stops, 1000m to high capacity modes
- Service areas for all spaces merged to avoid double counting (GIS network analyst tools)
- Identify barriers to accessing stops – e.g. where streets are not walkable, where pedestrian crossings/bridges are missing on major highways
Step: 4
Integrate population data

How many people live in the enclosed area?

- NSO high resolution population data
- Gridded population
Step 5

Compute indicator for total population and different interest groups

\[
\text{% with access to public transport} = 100 \times \frac{\text{Population with convenient access to public transport}}{\text{City Population}}
\]

Disaggregate by:
- Age
- Gender
- Persons with disabilities

There is a major challenge of disaggregating the indicator by different groups where high resolution population data is lacking.
Data Generated > Computations done > packaged and sharing with countries for validation ongoing

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Challenge (stops known from open sources VS stops known after paratransit mapping)

Bus stops available on OSM and Google street

Bus stops gathered from a detailed survey by ITDP
Challenge (access based on open sources VS access known after paratransit mapping)

Population with access to PT = \(\frac{487,588}{3,076,879} = 15.8\%\)

Population with access to PT = \(\frac{1,555,521}{3,076,879} = 50.6\%\)
Example Tozeur, Tunisia: Accessibility of 500 m around Bus Stops VS Bus Line
Example Cairo: Formal and informal bus routes, and stops showing the geographic distribution of the mapped network
Job accessibility indicators of different parts of Cairo in 2019.

Data source: Transport For Cairo GTFS feed, opportunities dataset, CAPMAS population dataset; in WB funded study “Multimodal transport strategy for the Greater Cairo Region”, draft 2019
NEXT STEP

• Submission of revised metadata and data for tier reclassification to UNSD/ IAEG-SDGs

• Collaborate with partners to support countries in data collection and reporting

• Pilots on Disaggregation

• Establishment of global urban indicators platform

• Complementing existing spatial indicator with qualitative analysis