UN HABITAT
FOR A BETTER URBAN FUTURE

Measuring progress against the Sustainable Development Goals (SDG) and implementing the New Urban Agenda

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A Global Vision to Promote Sustainable Urban Mobility

THE GLOBAL GOALS
For Sustainable Development

**TOGETHER IN ACTION**
H | III
NEW URBAN AGENDA

PARIS CLIMATE AGREEEMENT

Better facilities for Walking & Cycling + Improved Public Transport = Universal Access = Cities for All

Reduction of transport emissions, zero emission mobility

Sustainable Mobility contributes to all Global Commitments

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Action Framework for Sustainable Urban Mobility in the New Urban Agenda
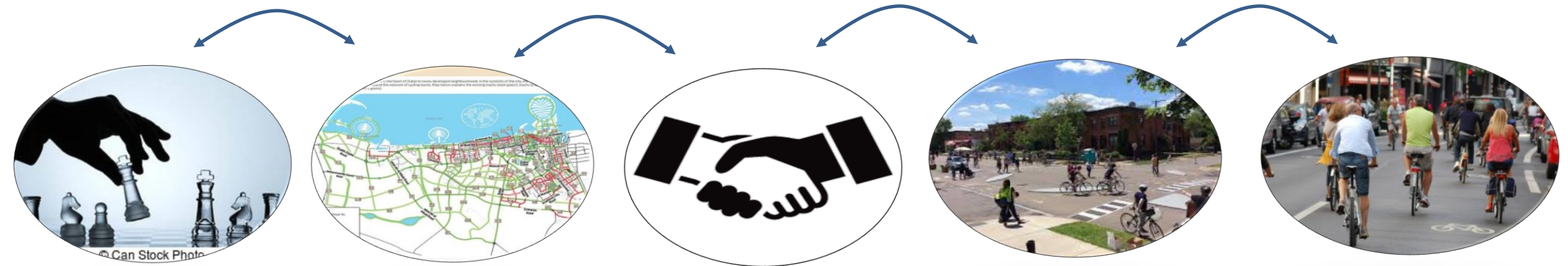
National Policies

National Urban and Mobility Policies, Integration between transport, urban , environmental policies, Road safety targets, laws etc.

Urban Regulations

Sustainable Urban Mobility Plans, urban regulations such as limits on parking, development control

Financing

National allocation, municipal revenues, Priortising Sustainable Mobility in IFI negotiations, charges, e.g. for parking, taxation

Urban Planning and Design

Mixed land use, compact and dense neighborhoods, ToD, complete street designs, parks and public spaces

Physical Implementation

Action, Re-designs, Pilot projects, Road Safety Events, Open Street Days, Intersections

12/9/2019

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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**
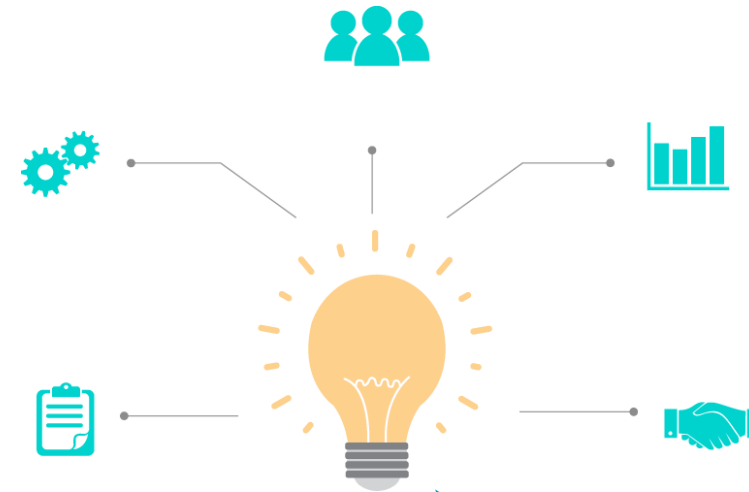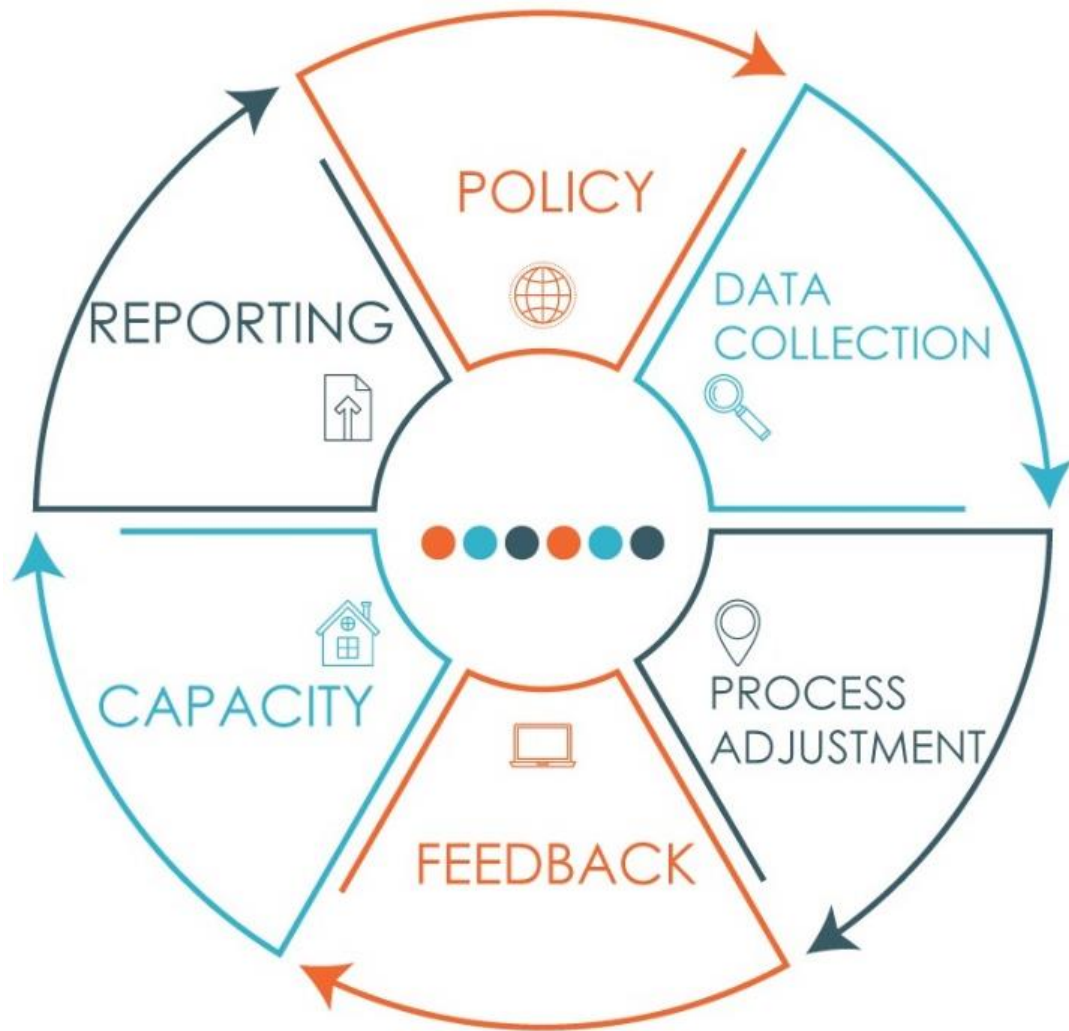
Indicator 11.2.1 (Tier II)

Proportion of the population that has **convenient access to public transport** by sex, age and persons with disabilities

Custodian Agency:

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Monitoring Not For the Sake of Monitoring and Reporting...but for informed policy-making
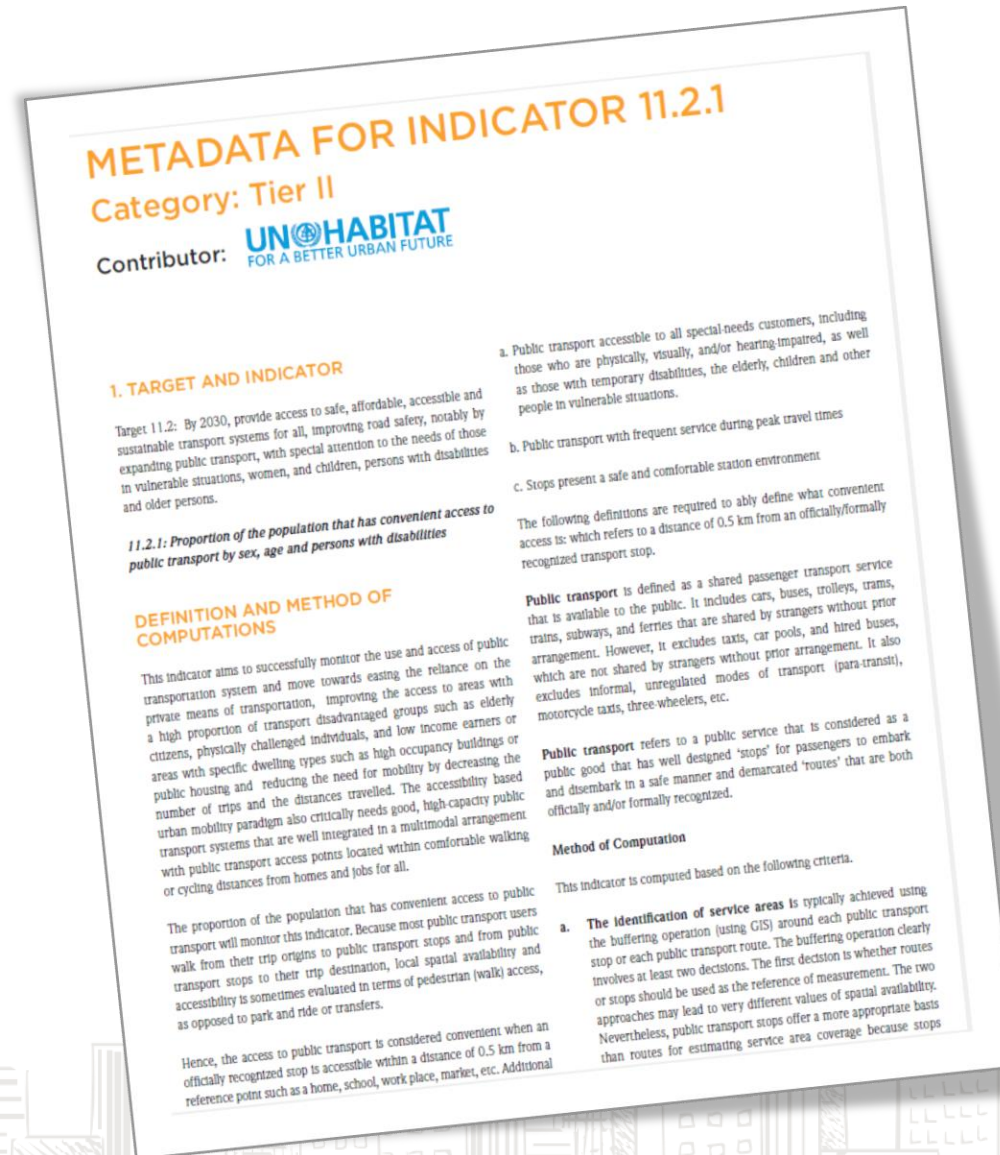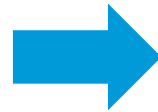

- Monitoring Frameworks and Data Systems need to be developed to build capacity, direct action and track progress, compare and forecast

- UN is tasked to develop simple, but meaningful indicators and methodologies, that are universal in their application

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Metadata Methodology – a guide to assist Nat. and Loc. Governments to monitor and report on SDGs

**Sustainable Development
Goal 11**

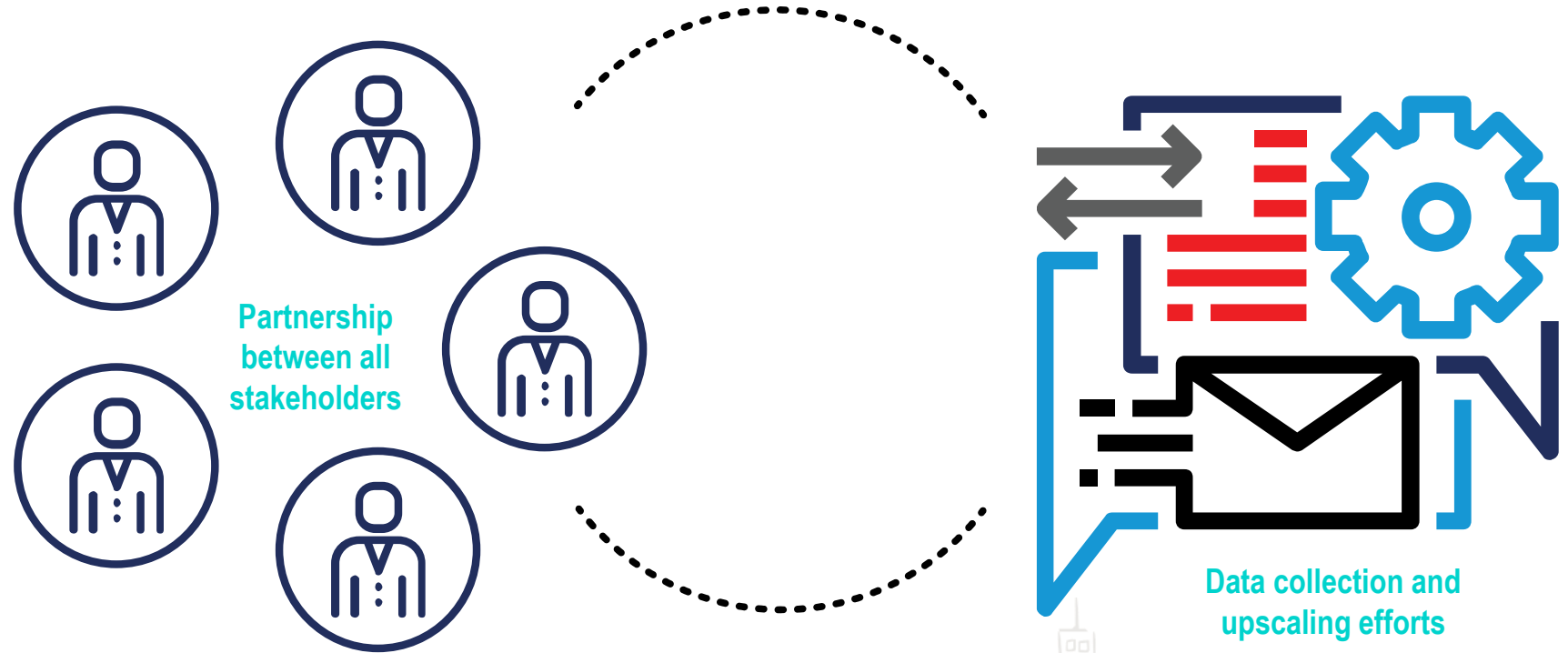# The Transport Community is discussing SDG 11.2.1 and monitoring methodology

WhereIsMyTransport

WORLD RESOURCES INSTITUTE

Partnership on Sustainable Low Carbon Transport

Wuppertal Institute for Climate, Environment and Energy

International Transport Forum

ITDP Institute for Transportation & Development Policy
Promoting sustainable and equitable transportation worldwide.

German DLR Aerospace Center

WORLD BANK GROUP

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European Commission

Digital Transport for Africa

Transformative Urban Mobility INITIATIVE

UNECE

UITP ADVANCING PUBLIC TRANSPORT

- **EGM held on 19-20 Oct 2017 in Berlin**
- **Virtual EGM held on 1 April 2019**

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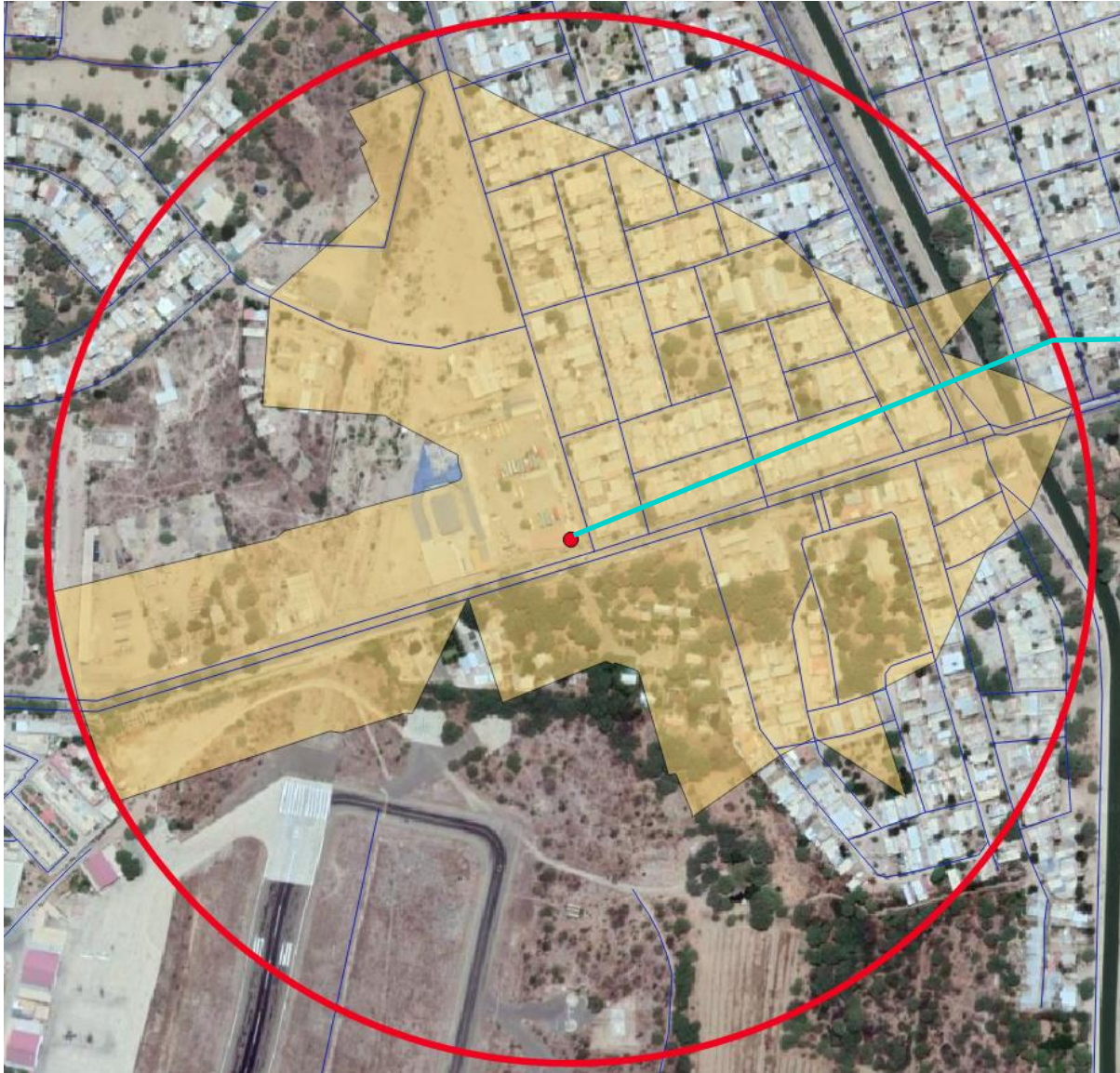# Global Partnerships and coordination are a strategic pre-requisite for SDG 11 monitoring and reporting

Collection of data and upscaling of efforts to track SDG 11 targets and indicators require **new partnerships** and **better coordination** at the local, national and global levels, including those with organizations generating non-traditional forms of data

Partnership between all stakeholders

Data collection and upscaling efforts

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UPDATES TO METADATA

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

From buffer to road network - distance of 500 m (or 1km)

A tiered system – Sub-Indicators

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"
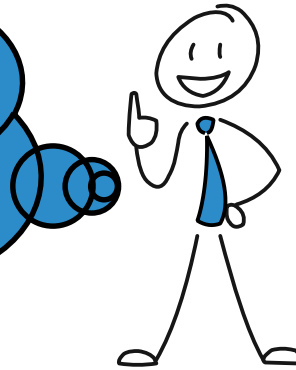
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GLOBAL OVERVIEW
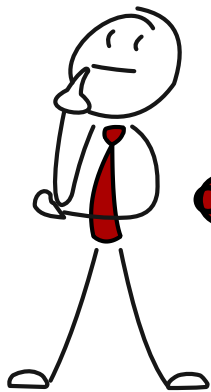
UN Habitat Interventions

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
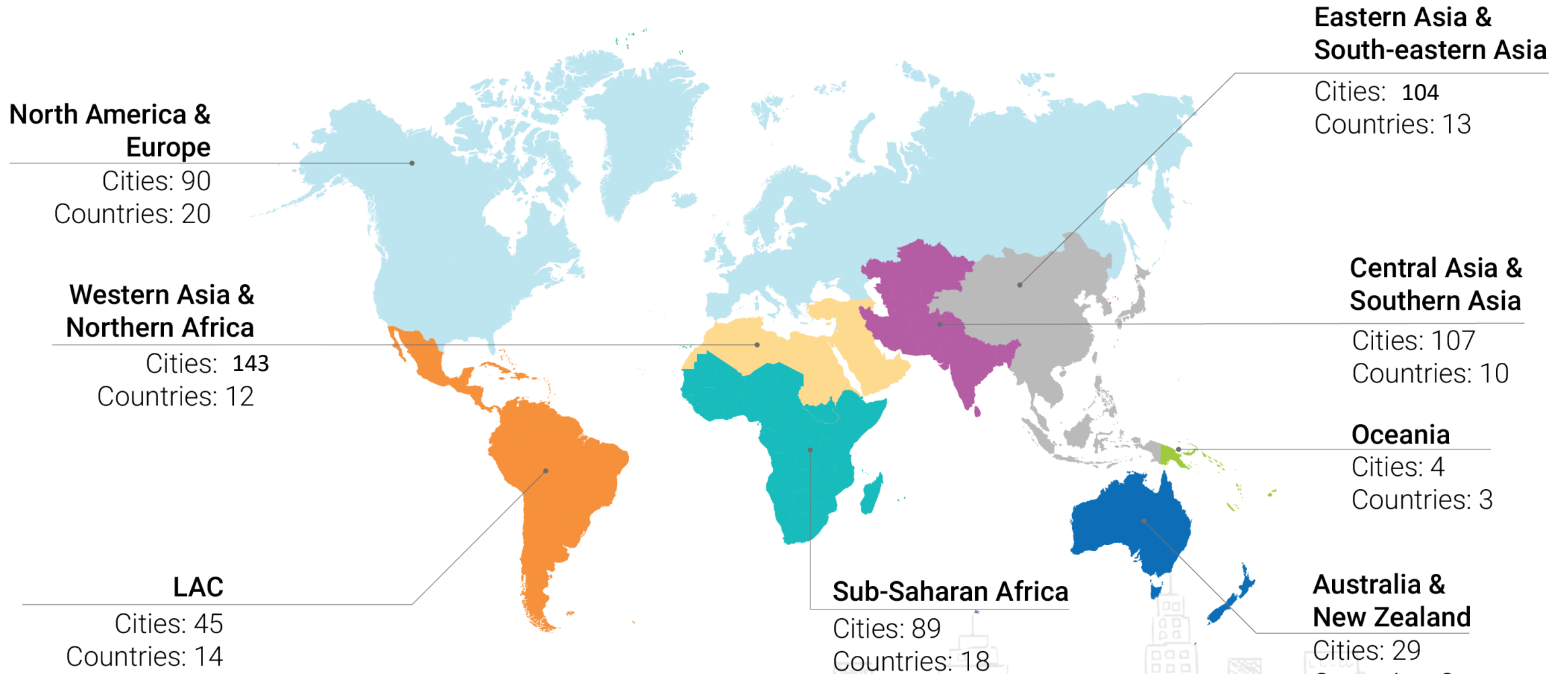
Actions include:

- 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

**Eastern Asia &
South-eastern Asia**
Cities: 104
Countries: 13

**North America &
Europe**
Cities: 90
Countries: 20

**Central Asia &
Southern Asia**
Cities: 107
Countries: 10

**Western Asia &
Northern Africa**
Cities: 143
Countries: 12

Oceania
Cities: 4
Countries: 3

LAC
Cities: 45
Countries: 14

Sub-Saharan Africa
Cities: 89
Countries: 18

**Australia &
New Zealand**
Cities: 29
Countries: 2

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Data on SDG 11.2.1 is available for more than 600 cities

Share of population with access to public transport

Region	Value
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
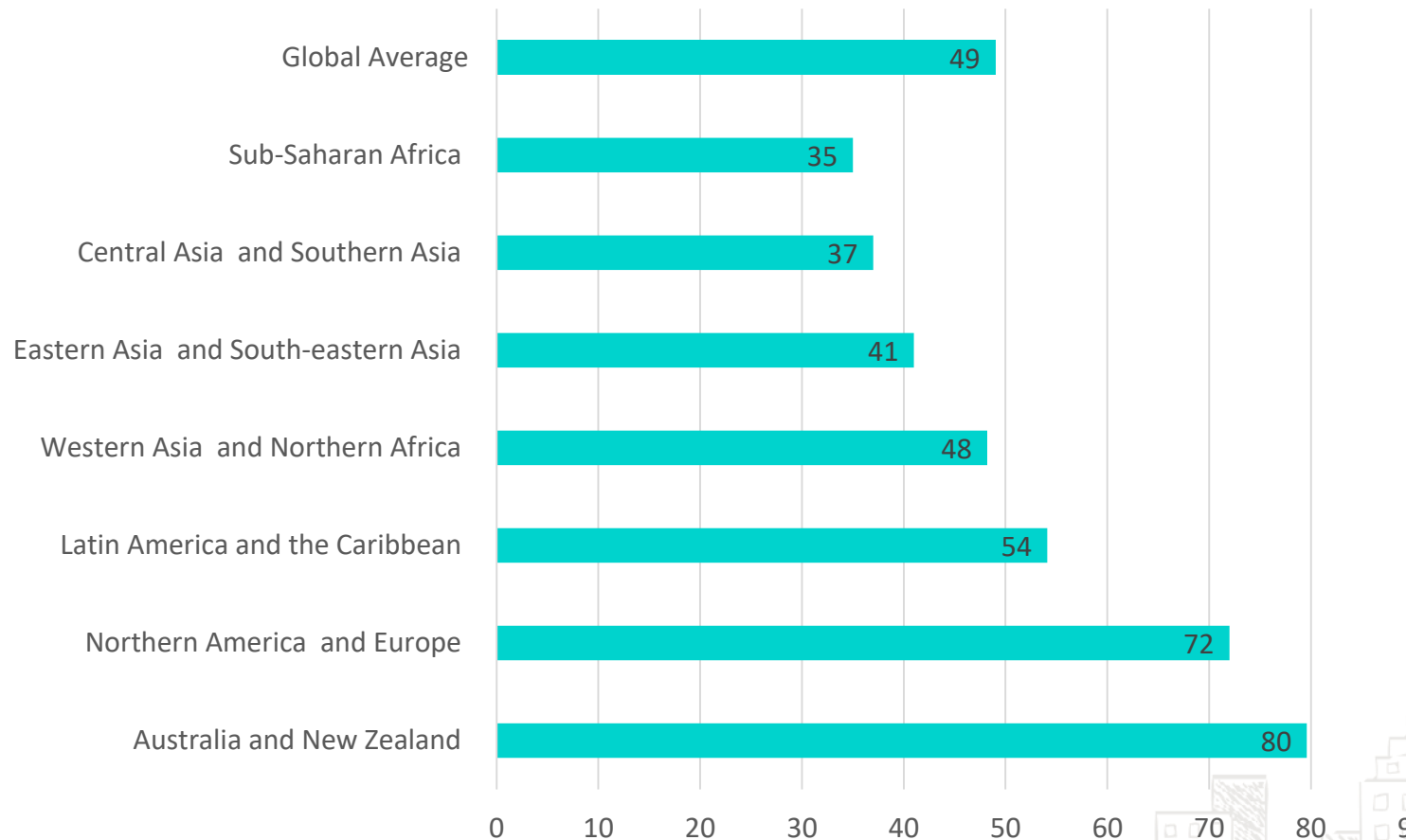
- **Demand for public transport *has been on a rise worldwide*, but access to public transport is enjoyed by few urban residents.**
- **Investing in smart, green and integrated transport systems that are inclusive, safe, accessible and affordable contributes to inclusive development where no one is left behind, and isolation and marginalization is reduced.**

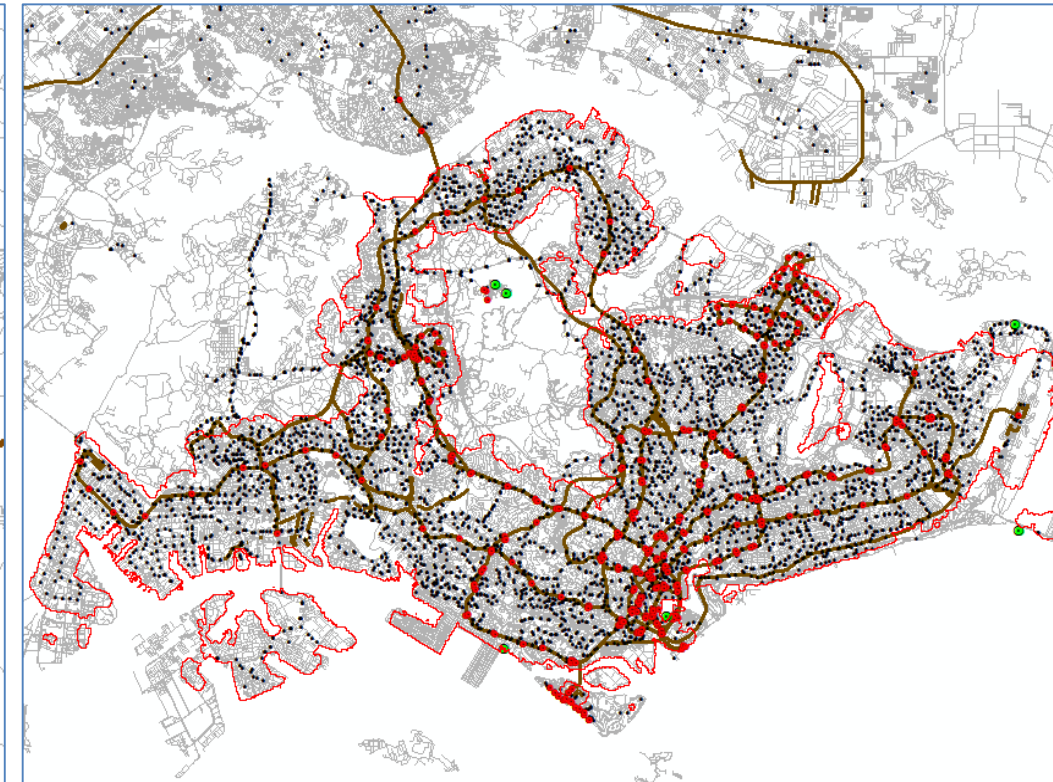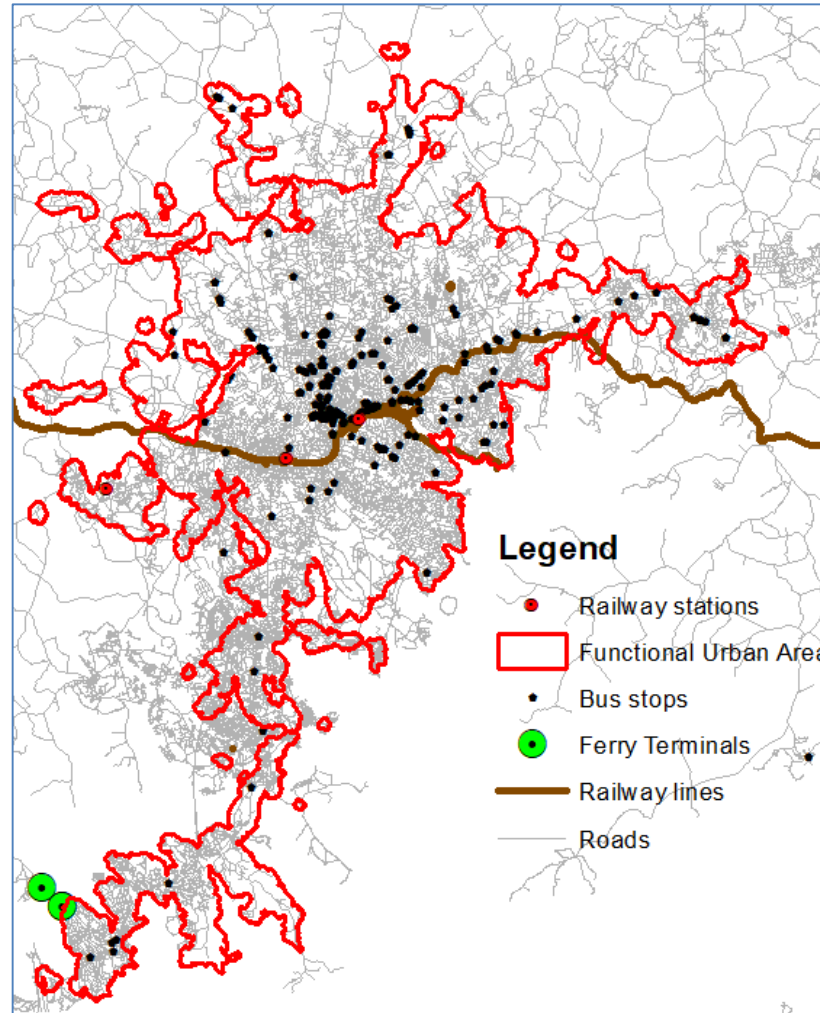# European Commission submitting data for almost 700 cities

- **Alignment of Methodology ongoing**
- **Updates ongoing to include frequency of departures for more than 450 cities in Europe**
- **→ Linking spatial access with quality indicators**

SDG 11.2.1
Share of population having access to a public transport stop within 500 m walking distance
% of total urban centre population*

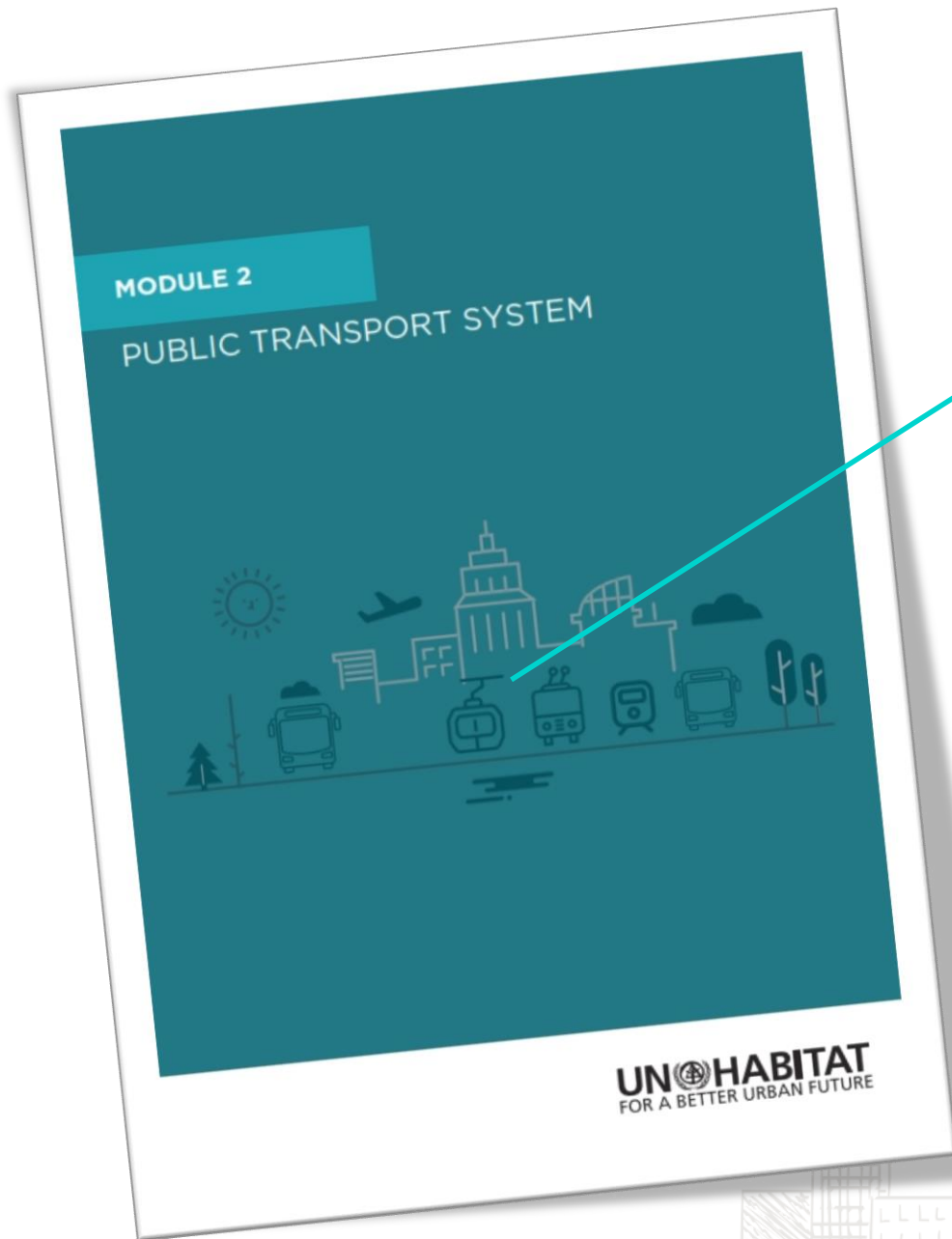| CNTR_ID	HDENS_ID	HDENS_NAME	i_11_2_1	source_11_2_1
			93.8	Timetables
			97.5	Timetables
T	GEOSTAT11_479	Linz	93.5	Timetables
T	GEOSTAT11_481	Wien	95.0	Timetables
T	GEOSTAT11_495	Salzburg	98.4	Timetables
T	GEOSTAT11_512	Bregenz	95.8	Timetables
T	GEOSTAT11_520	Innsbruck	96.2	Timetables
T	GEOSTAT11_522	Graz	64.3	OSM
T	GEOSTAT11_539	Klagenfurt	61.9	OSM
A	GEOSTAT11_609	Banja Luka	94.1	Timetables
A	GEOSTAT11_643	Sarajevo	77.4	Timetables
E	GEOSTAT11_298	Oostende	96.0	Timetables
E	GEOSTAT11_300	Kapellen / Ekeren	95.3	Timetables
E	GEOSTAT11_304	Brugge	96.4	Timetables
E	GEOSTAT11_317	Antwerpen	93.2	Timetables
E	GEOSTAT11_332	Gent	96.2	Timetables
E	GEOSTAT11_336	Mechelen	97.4	Timetables
E	GEOSTAT11_344	Leuven	93.9	Timetables
E	GEOSTAT11_349	Bruxelles / Brussel	95.6	Timetables
E	GEOSTAT11_364	Liège	93.6	Timetables
E	GEOSTAT11_365	Verviers / Dison		
E	GEOSTAT11_368	La Louvière		

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)**

Legend

- Railway stations
- Functional Urban Area
- Bus stops
- Ferry Terminals
- Railway lines
- Roads

Available data for Kampala (left) and Milan (right) on public transport from online sources.

DATA INPUTS AND PROCESSING

Data Compilation Work Flow

Where city level data is not available

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

Gather Data

Validation by countries / cities

OSM

GTFS

Google Streets (tile server)

Other Sources
-WhereIsMyTransport
-ITDP
-WB

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Establish the functional urban area

(EXAMPLE CASE: ULAANBAATAR, MONGOLIA)

Urban Extents Approach	Population (2015)	1,327,498
DEGURBA Approach	Population (2015)	1,325,067

Pop. Data source: GHSL Population Grids, 250M
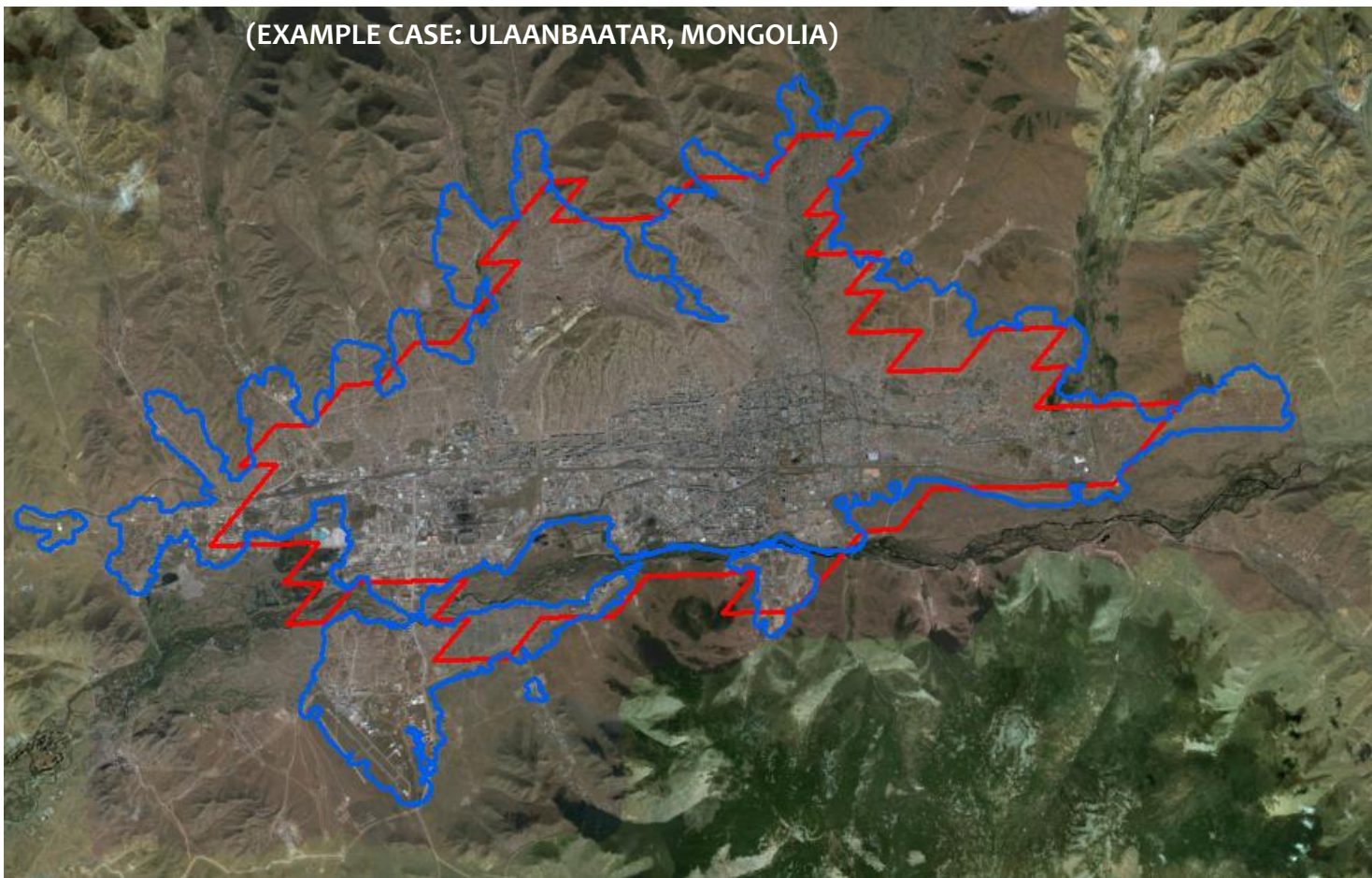
Legend

FUA - Urban Extents approach*

FUA - DEGURBA Approach**
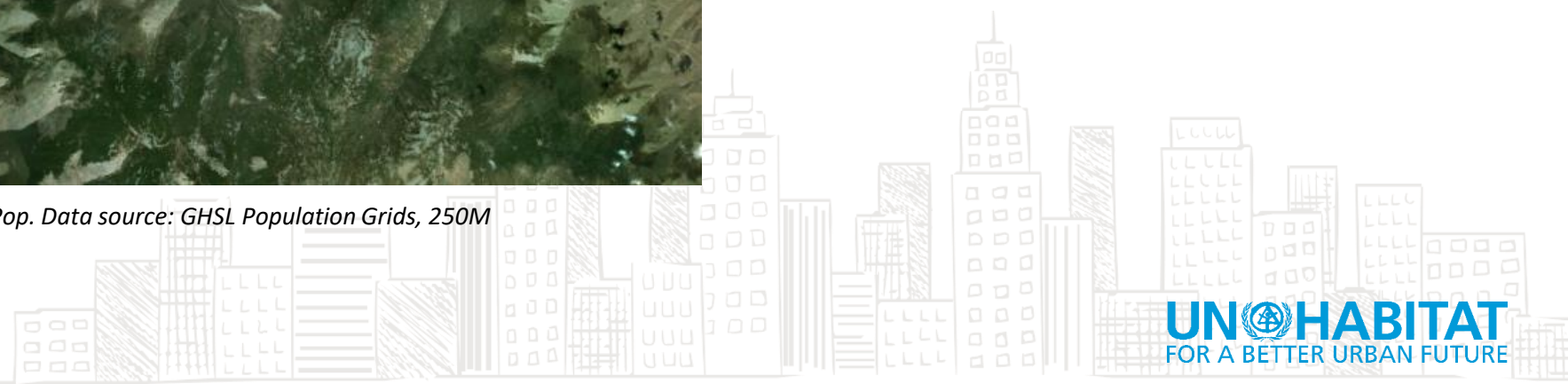
Collect data on location of public transport stops

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

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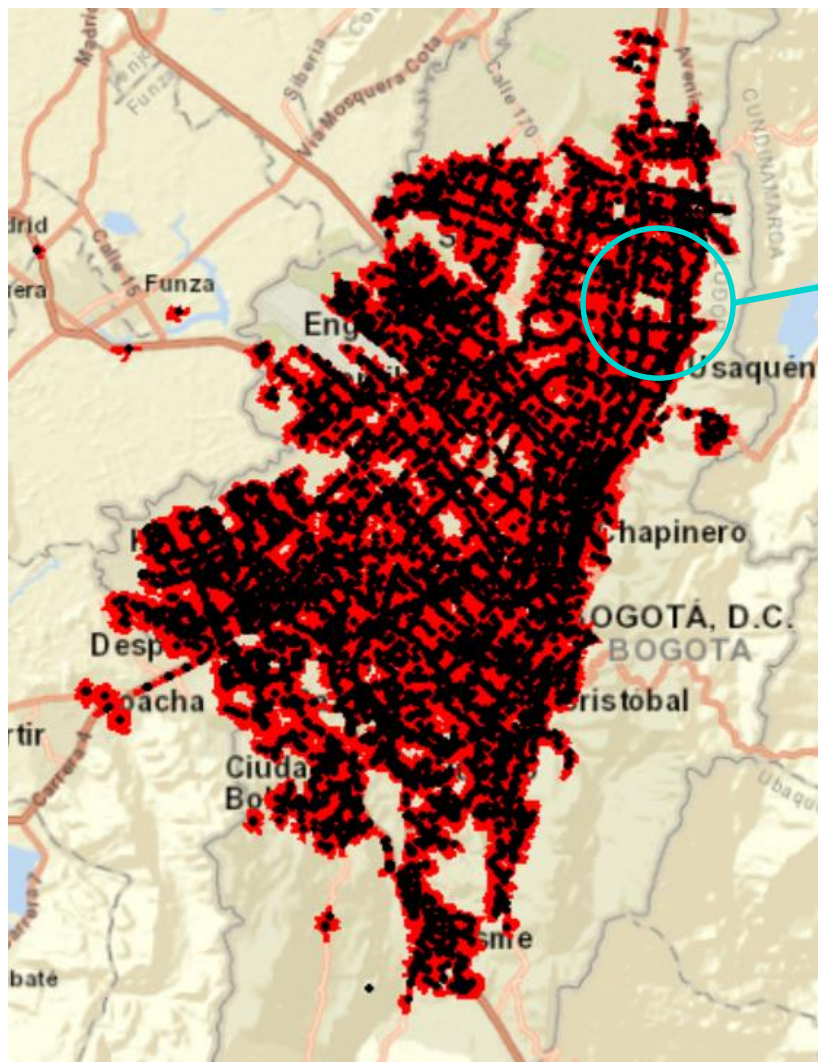- Extraction from satellite imagery, google streets tiles
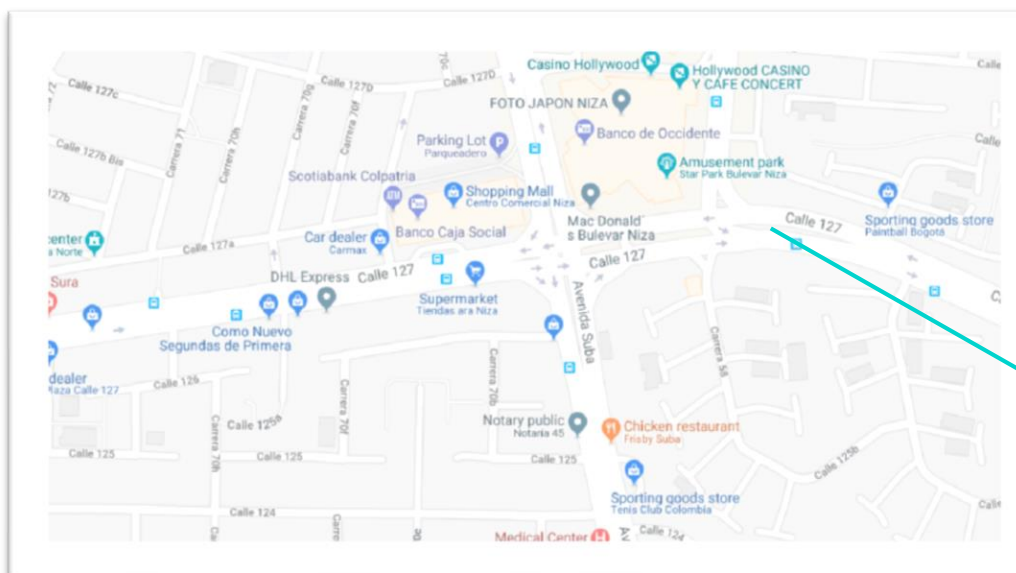
Google streets can be used as source of data

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

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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**

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Step: 4 **Integrate population data**

How many people live in the enclosed area?

- NSO high resolution population data
- Gridded population
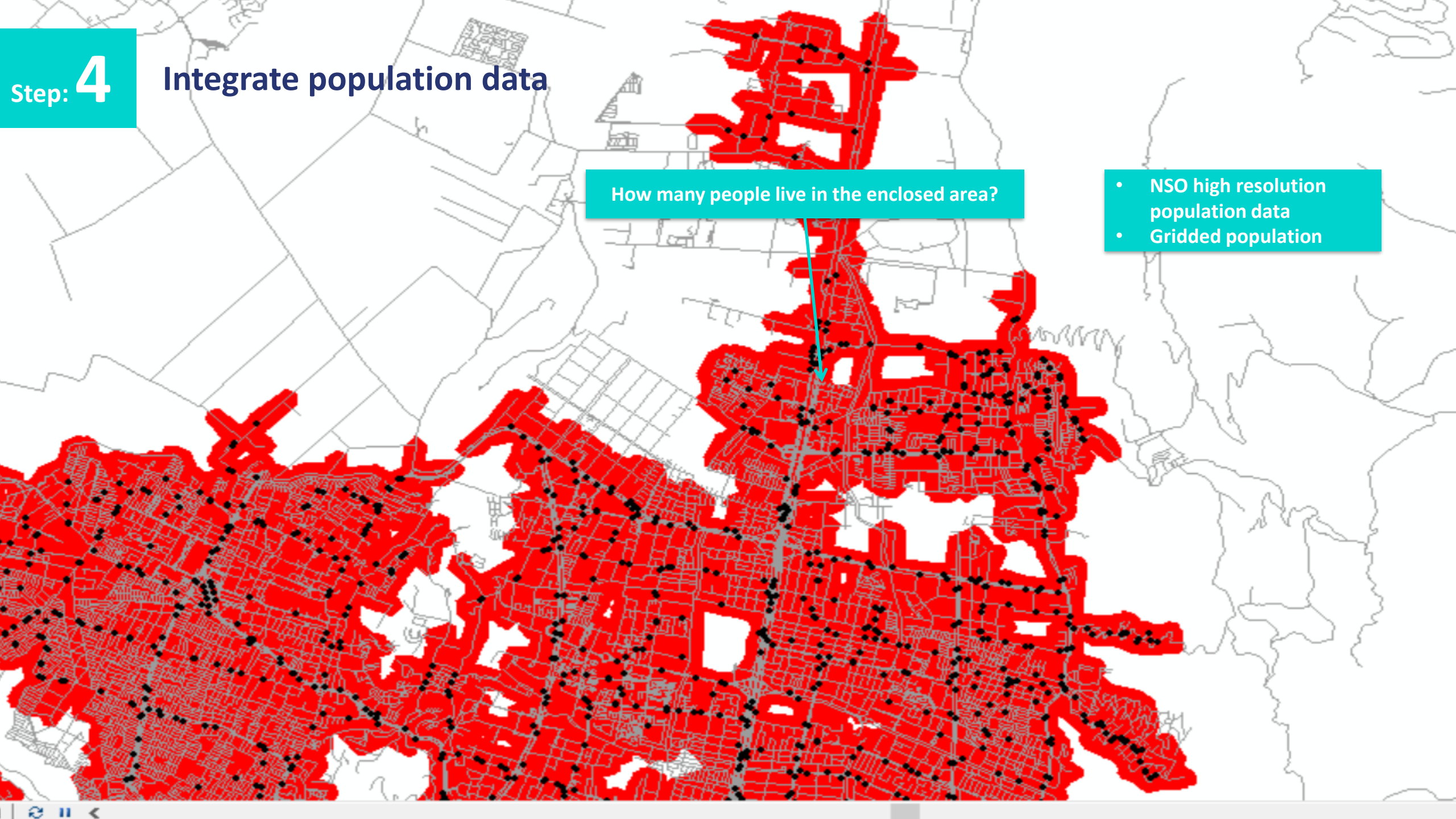
Compute indicator for total population and different interest groups

$$\% \textit{ with access to public transport} = \mathbf{100} \times \frac{\textit{Population with convenient access to public transport}}{\textit{City Population}}$$

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
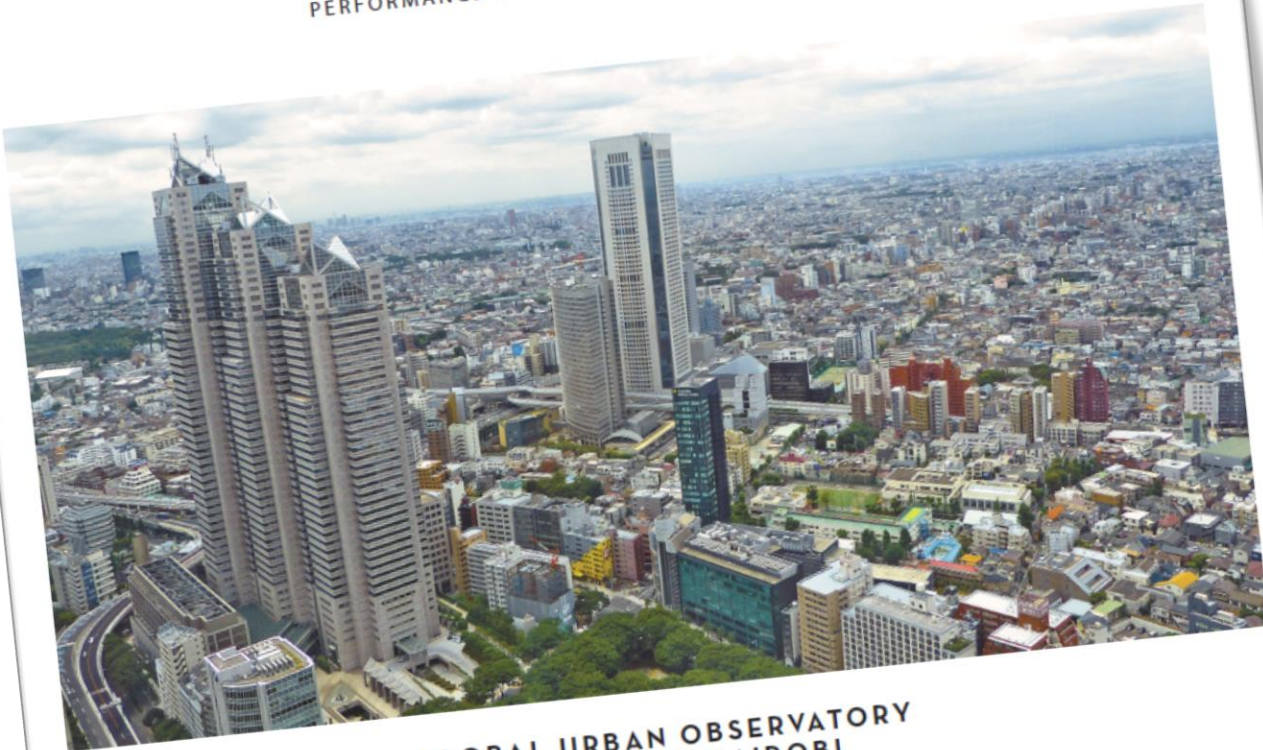
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Database creation

No.	CITIES	Country	T3 PoP_GHSL	POP_TRANS	POP_BUS	POP_RAIL	POP_FERRY	POP_TRANS%	POP_BUS%	POP_RAIL%	POP_FERRY%	LAS%
No.	City	Country		All Means	Bus_pop	Rail_pop	Fery_pop	% All Trans Access	% for Bus	%for Rail	%Ferry	
174	Tehran	Iran	9,469,118	5,156,588.26	4,371,086.88	2,092,677.32	-	54.46	46.16	22.10	-	28
175	Tel Aviv	Israel	2,547,053	2,219,987.42	2,212,776.07	108,656.51	8,057.56	87.16	86.88	4.27	0.32	22
176	Thessaloniki	Greece	844,835	780,136.21	777,442.46	60,494.73	15,762.42	92.34	92.02	7.16	1.87	21
177	Tianjin, Tianji	China	10,793,362	5,048,310.35	4,738,692.87	2,390,543.80	75.36	46.77	43.90	22.15	0.00	23
178	Tijuana	Mexico	1,791,868	93,442.34	92,600.69	3,587.57	-	5.21	5.17	0.20	-	26
179	Tokyo	Japan	35,077,465	24,036,017.54	19,808,833.31	14,228,767.98	-	68.52	56.47	40.56	-	25
180	Toledo	United States	479,016	254,726.39	254,036.12	2,620.51	-	53.18	53.03	0.55	-	18
181	Tyumen	Russia	607,198	442,646.04	434,508.54	34,414.15	-	72.90	71.56	5.67	-	19
182	Ulaanbaatar	Mongolia	1,325,418	734,703.65	730,645.96	21,657.56	-	55.43	55.13	1.63	-	12
184	Victoria	Canada	323,480	265,024.30	258,421.71	13,147.90	32,297.71	81.93	79.89	4.06	9.98	17
185	Vienna	Austria	1,988,813	1,838,330.05	1,730,328.63	1,381,045.61	26,627.11	92.43	87.00	69.44	1.34	18
186	Vijayawada	India	1,182,713	739,440.34	707,596.98	77,956.91	-	62.52	59.83	6.59	-	18
187	Vinh Long	Vietnam	281,135	26,061.47	26,061.47	-	-	9.27	9.27		-	10
188	Warsaw	Poland	2,316,180	2,013,806.43	1,921,390.18	1,191,867.65	37,672.87	86.95	82.96	51.46	1.63	15
189	Wuhan, Hube	China	8,805,969	4,755,160.70	4,392,583.87	2,429,330.13	138,721.90	54.00	49.88	27.59	1.58	23
190	Xingping, Sha	China	265,445	111,827.12	111,827.12	173.25	-	42.13	42.13	0.07	-	17
191	Xucheng, Jian	China	158,423	72,204.36	72,204.36	-	-	45.58	45.58		-	24
192	Yamaguchi	Japan	255,404	50,658.55	6,604.14	44,875.31	1,343.76	19.83	2.59	17.57	0.53	29
193	Yanggu, Shar	China	306,094	68,969.47	68,969.47	-	-	22.53	22.53		-	15
194	Yiyang, Hunal	China	620,123	327,181.72	327,181.72	4,177.74	-	52.76	52.76	0.67	-	16

Data Generated > Computations done > packaged and sharing with countries for validation ongoing

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Global and National Sample of Cities

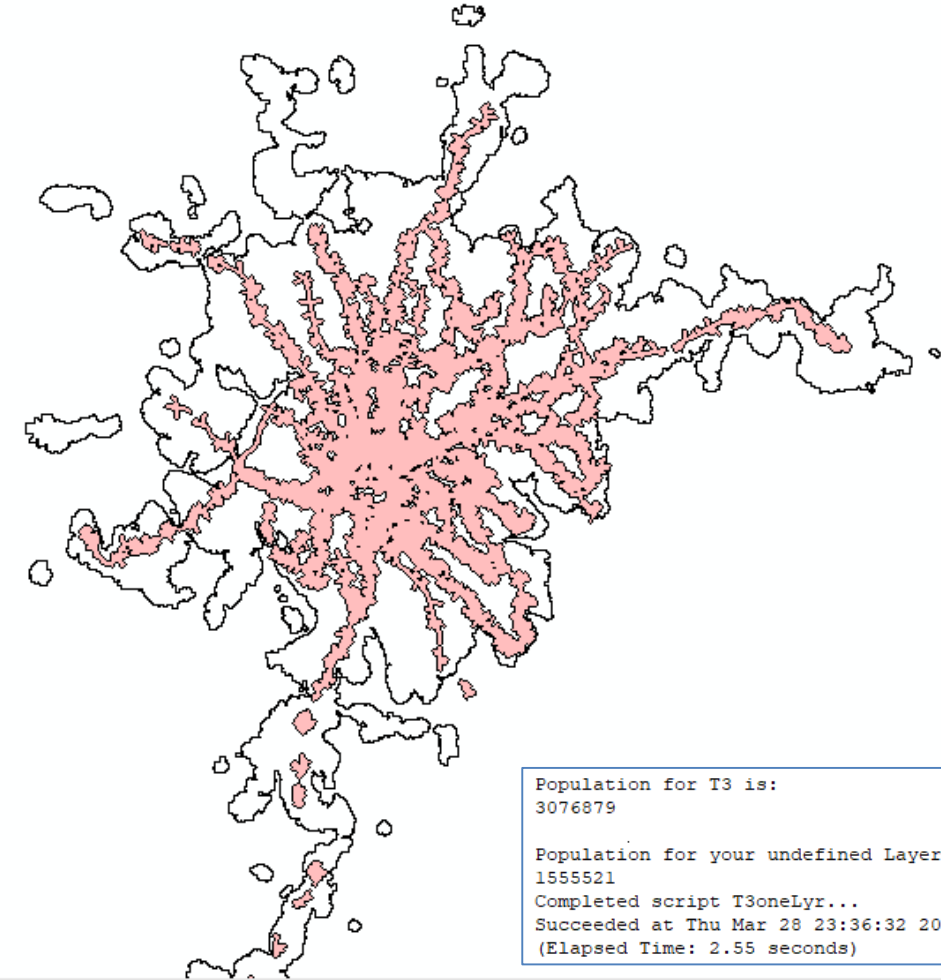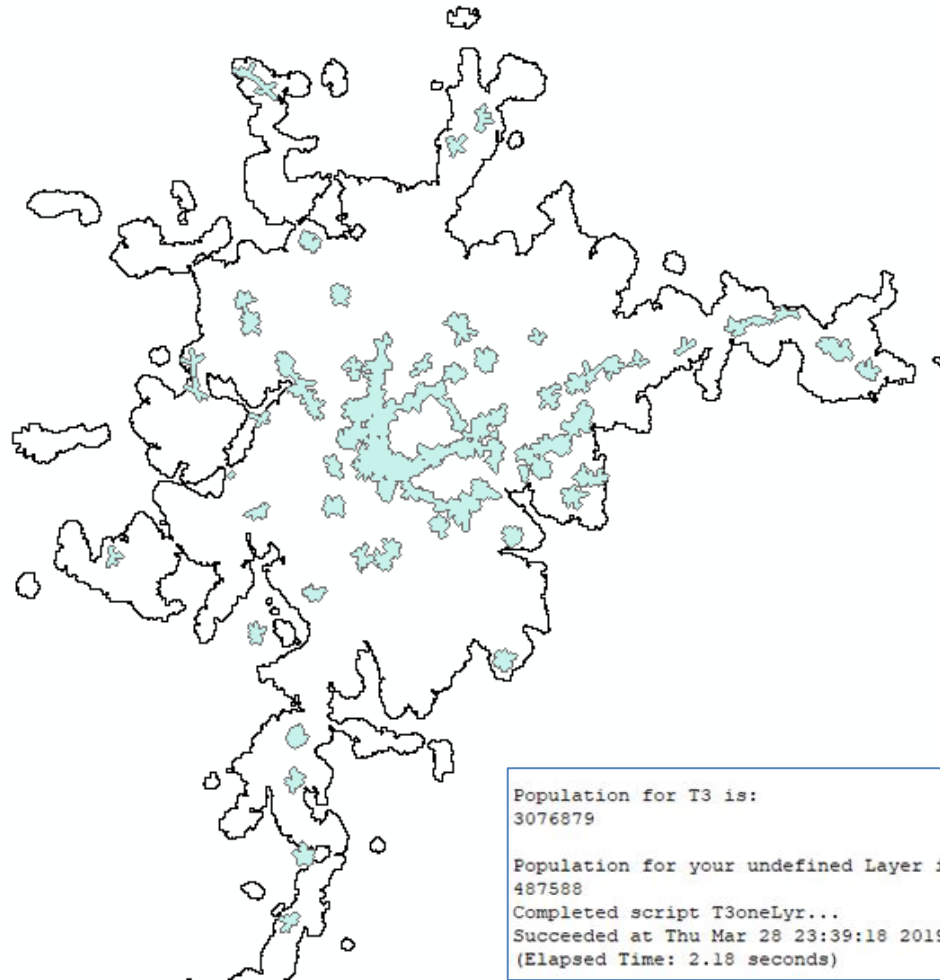# Challenge (stops known from open sources VS stops known after paratransit mapping)
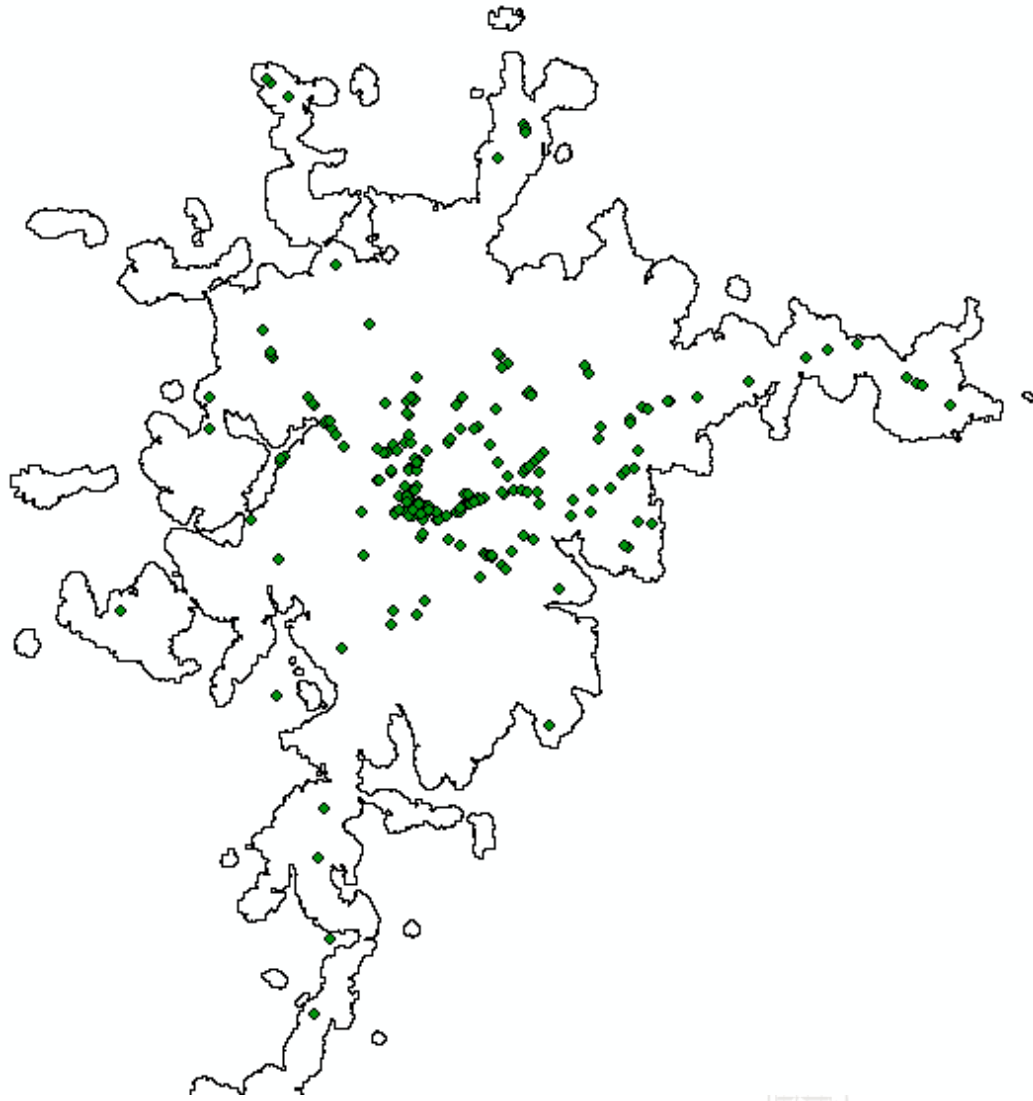
Bus stops available on OSM and Google street
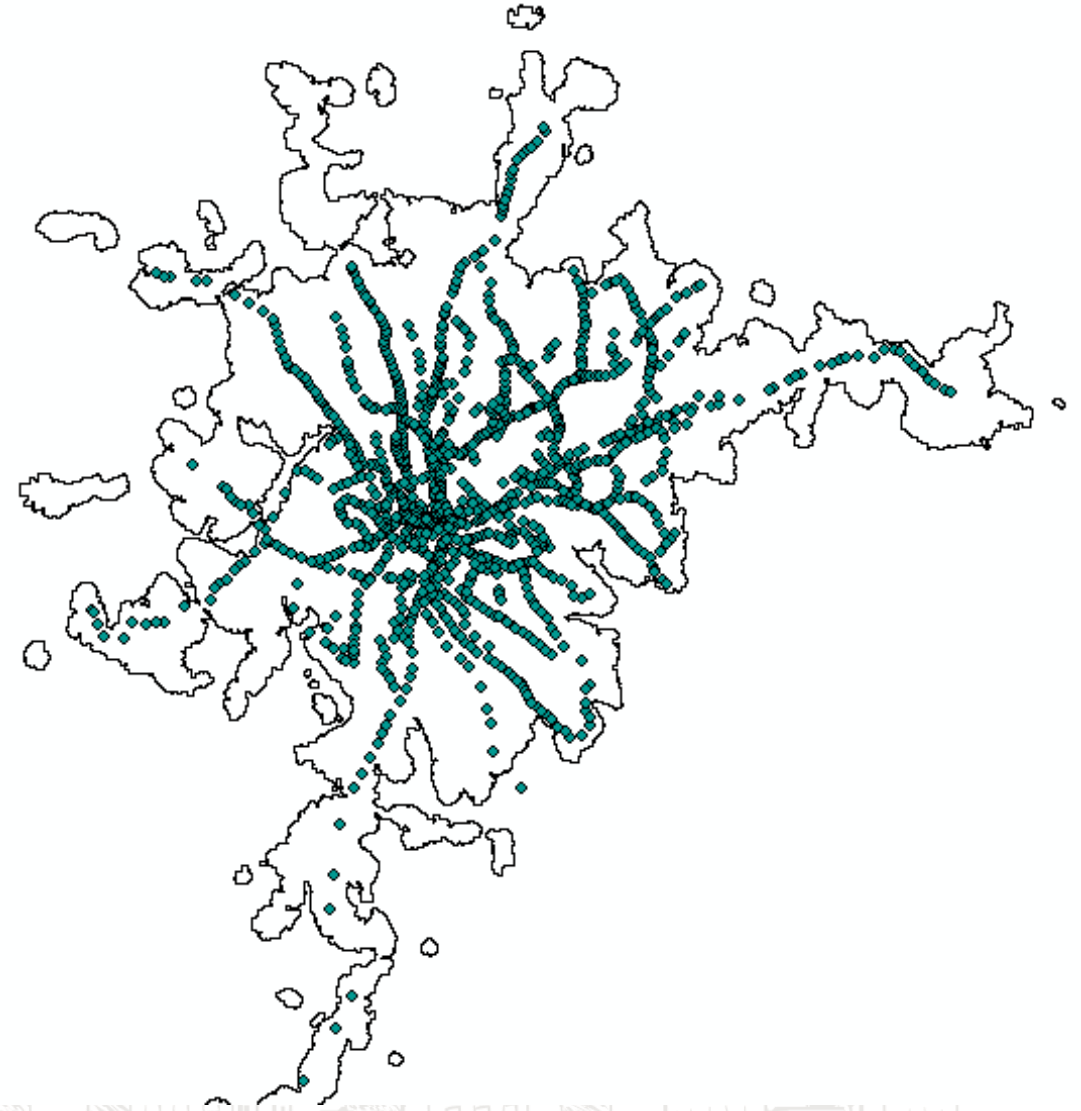
Bus stops gathered from a detailed survey by ITDP

Challenge (access based on open sources VS access known after paratransit mapping)


```
Population for T3 is:
3076879

Population for your undefined Layer is:
487588
Completed script T3oneLyr...
Succeeded at Thu Mar 28 23:39:18 2019
(Elapsed Time: 2.18 seconds)
```

```
Population for T3 is:
3076879

Population for your undefined Layer is:
1555521
Completed script T3oneLyr...
Succeeded at Thu Mar 28 23:36:32 2019
(Elapsed Time: 2.55 seconds)
```

$$Popuation\ with\ acces\ to\ PT = \frac{487,588}{3,076,879} = 15.8\%$$

$$Popuation\ with\ acces\ to\ PT = \frac{1,555,521}{3,076,879} = 50.6\%$$

Job accessibility indicators of different parts of Cairo in 2019.
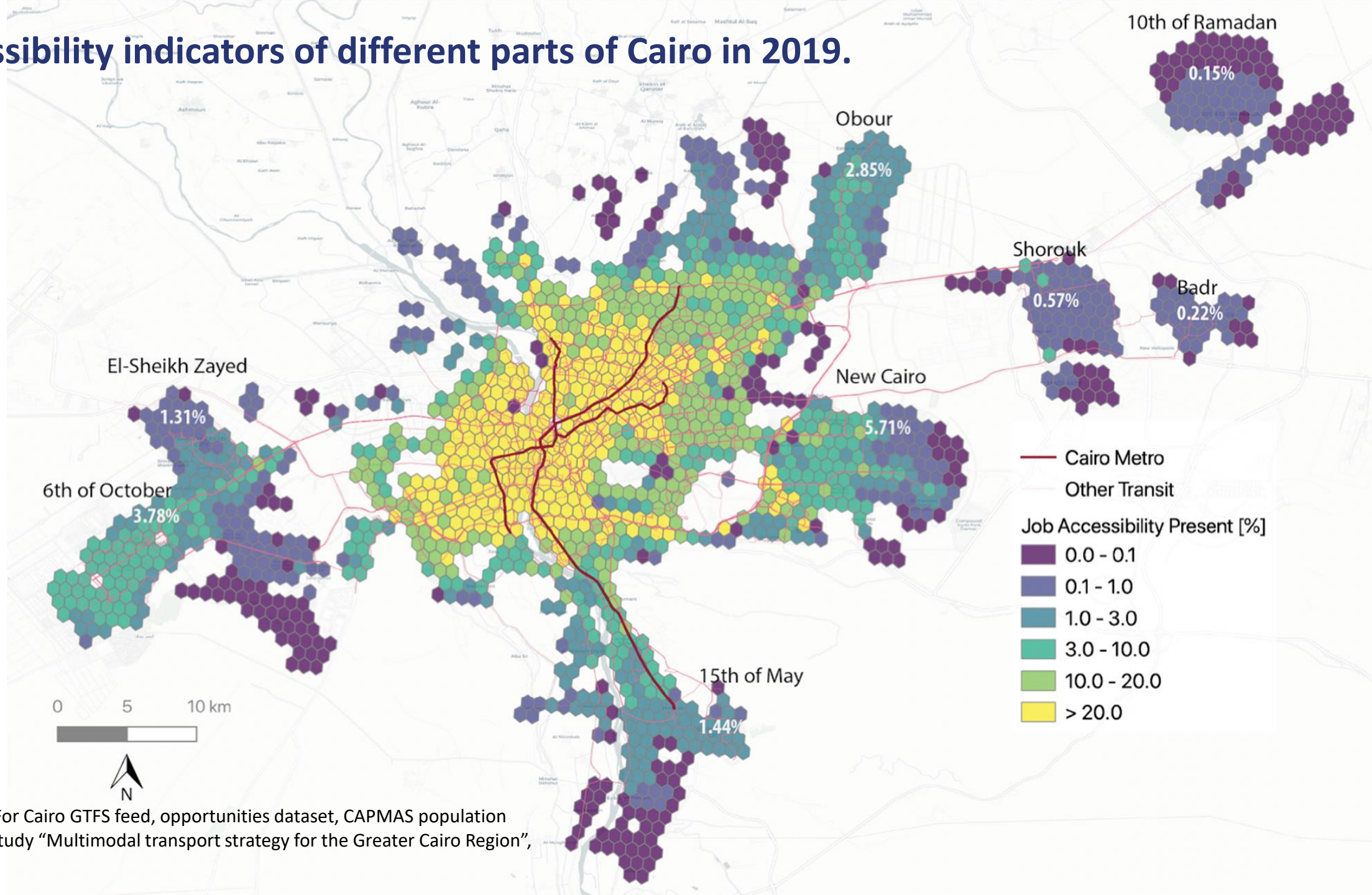
Data source: Transport For Cairo GTFS feed, opportunities dataset, CAPMAS population dataset; in WB funded study "Multimodal transport strategy for the Greater Cairo Region", draft 2019

NEXT STEP

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

- Collaborate with partners to support to countries for data collection and reporting

- Pilots on Disaggregation

- Establishment of global urban indicators platform

- Complementing existing spatial indicator with qualitative analysis

URBAN MOBILITY INDICATORS

FOR WALKING AND PUBLIC TRANSPORT

URBAN AGENDA INDICATORS RELATING TO SUSTAINABLE DEVELOPMENT GOAL 11.2 TO INVEST IN MORE ACCESSIBLE, SAFE, EFFICIENT, AFFORDABLE AND SUSTAINABLE INFRASTRUCTURE FOR WALKING AND PUBLIC TRANSPORT

URBAN

UITP ADVANCING PUBLIC TRANSPORT

Walk21

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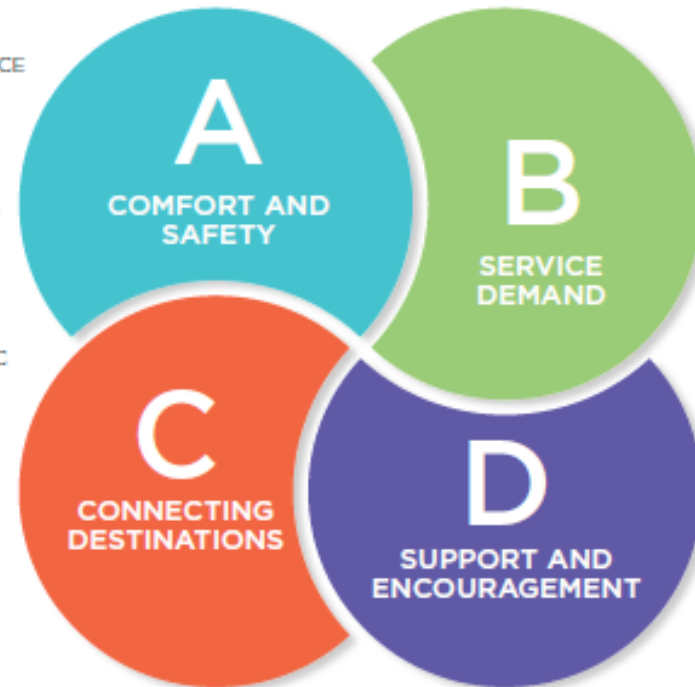# THE WALKING AND PUBLIC TRANSPORT INDICATOR FRAMEWORK

PRINCIPLE INDICATORS

A1. OVERALL EXPERIENCE
A2. SAFETY
A3. SECURITY
A4. WALKING INFRASTRUCTURE
A5. PUBLIC TRANSPORT INFRASTRUCTURE
A6. OPERATIONAL PERFORMANCE
A7. IMPACT OF MOTORISED TRAFFIC ON WALKABILITY

PRINCIPLE INDICATORS

B1. DAILY TRIPS

PRINCIPLE INDICATORS

C1. ACCESS TO PUBLIC TRANSPORT STOPS
C2. ACCESS TO JOBS AND SERVICES

PRINCIPLE INDICATORS

D1. INFORMATION
D2. AVAILABILITY OF WALKING AMENITIES
D3. AFFORDABILITY
D4. INCENTIVES

A COMFORT AND SAFETY

B SERVICE DEMAND

C CONNECTING DESTINATIONS

D SUPPORT AND ENCOURAGEMENT

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Bringing it together ...The New Urban Agenda

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