

# Update on Progress of Monitoring SDG 11.2.1 "Access to Public Transport"

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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:**





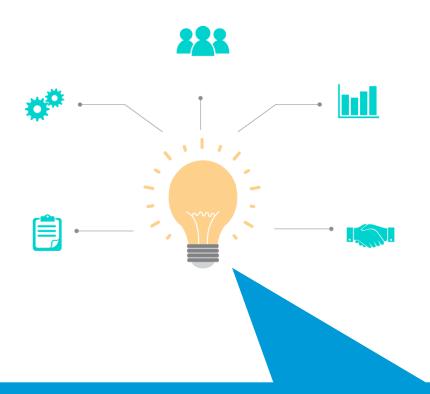




Monitoring Not For the Sake of Monitoring and Reporting...but for informed policy-

making

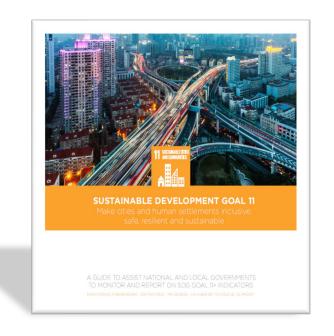




- Monitoring Frameworks and Data Systems need to be developed to build capacity, direct action and track progress, compare and forecast
- UN is tasked to develop simple, but meaningful indicators and methodologies, that are universal in their application



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



**Sustainable Development** Goal 11



Category: Tier II

Contributor: UNCHABITAT

### 1. TARGET AND INDICATOR

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

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

#### DEFINITION AND METHOD OF COMPUTATIONS

This indicator aims to successfully monitor the use and access of public transportation system and move towards easing the reliance on the private means of transportation, improving the access to areas with a night proportion or transport unparatingers groups such as tractify cultrens, physically challenged individuals, and low income earners or motorcycle taxis, three-wheelers, etc. a high proportion of transport disadvantaged groups such as elderly areas with specific dwelling types such as high occupancy buildings or public housing and reducing the need for mobility by decreasing the number of trips and the distances travelled. The accessibility based urban mobility paradigm also critically needs good, high-capacity public transport systems that are well integrated in a multimodal arrangement with public transport access points located within comfortable walking or cycling distances from homes and jobs for all.

The proportion of the population that has convenient access to public transport will monitor this indicator. Because most public transport users walk from their trip origins to public transport stops and from public transport stops to their trip destination, local spatial availability and accessibility is sometimes evaluated in terms of pedestrian (walk) access, as opposed to park and ride or transfers.

Hence, the access to public transport is considered convenient when an officially recognized stop is accessible within a distance of 0.5 km from a reference point such as a home, school, work place, market, etc. Additional

a. Public transport accessible to all special-needs customers, including those who are physically, visually, and/or hearing impaired, as well as those with temporary disabilities, the elderly, children and other people in vulnerable situations.

b. Public transport with frequent service during peak travel times

c. Stops present a safe and comfortable station environment

The following definitions are required to ably define what convenient access is: which refers to a distance of 0.5 km from an officially/formally recognized transport stop.

Public transport is defined as a shared passenger transport service that is available to the public. It includes cars, buses, trolleys, trams, trains, subways, and ferries that are shared by strangers without prior arrangement. However, it excludes taxis, car pools, and hired buses, which are not shared by strangers without prior arrangement. It also excludes informal, unregulated modes of transport (para-transit),

Public transport refers to a public service that is considered as a public good that has well designed 'stops' for passengers to embark and disembark in a safe manner and demarcated 'routes' that are both officially and/or formally recognized.

#### Method of Computation

This indicator is computed based on the following criteria.

The identification of service areas is typically achieved using the buffering operation (using GIS) around each public transport stop or each public transport route. The buffering operation clearly involves at least two decisions. The first decision is whether routes or stops should be used as the reference of measurement. The two approaches may lead to very different values of spatial availability. Nevertheless, public transport stops offer a more appropriate basis than routes for estimating service area coverage because stops



### The Transport Community is discussing SDG 11.2.1 and monitoring methodology





























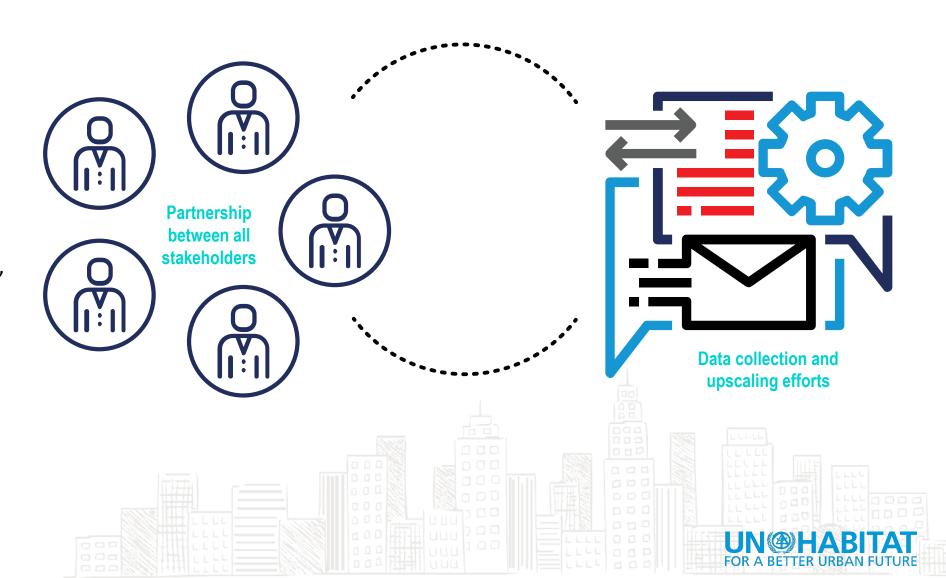


- EGM held on 19-20 Oct 2017 in Berlin
- Virtual EGM held on 1 April 2019



## 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



### **UPDATES TO METADATA**

### 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)



### Updates To Metadata: 1

### 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** 

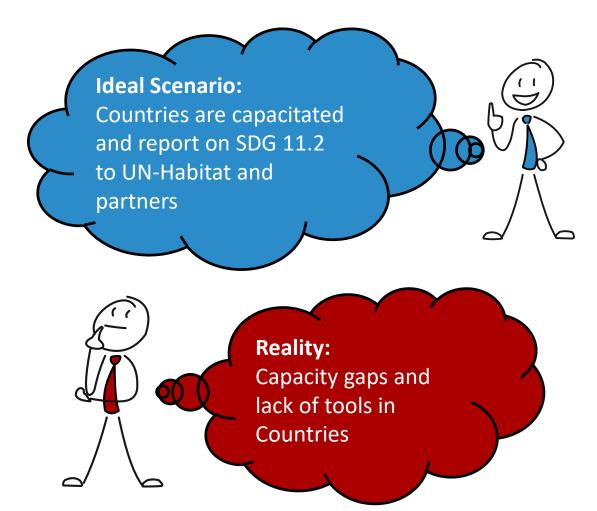
### **Access to opportunities:**

Achieving a higher level of "convenient access"



### **GLOBAL OVERVIEW**

### **UN Habitat Interventions**



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

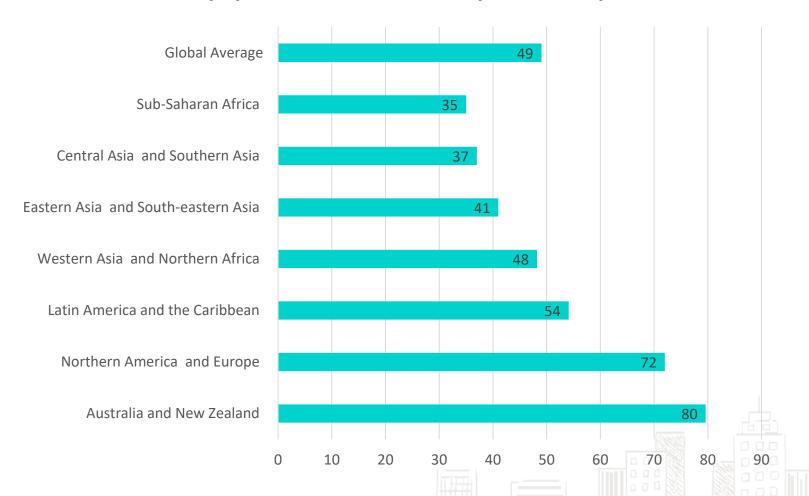


### **Regional Overview**



### Data on SDG 11.2.1 is available for more than 500 cities

#### Share of population with access to public transport

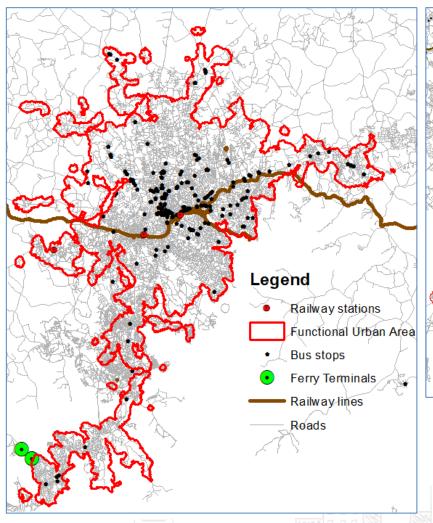


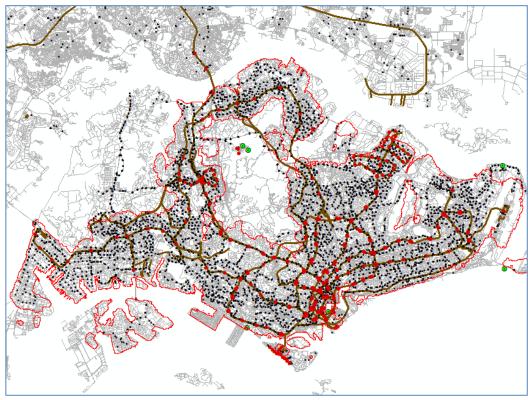
- Demand for public transport has been on a rise worldwide, but access to public transport is enjoyed by few urban residents.
- Investing in smart, green and integrated transport systems that are inclusive, safe, accessible and affordable contributes to inclusive development where no one is left behind,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



### **Data Situation**

- Different actors generating transport data
- 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
- Data sharing challenges in countries e.g. between ministries in charge of transport and the SDG monitoring units
- Resolution of population data (spatial and temporal)
- Challenges gathering qualitative data (frequency of modes, comfort/accessibility/ safety, convenience)









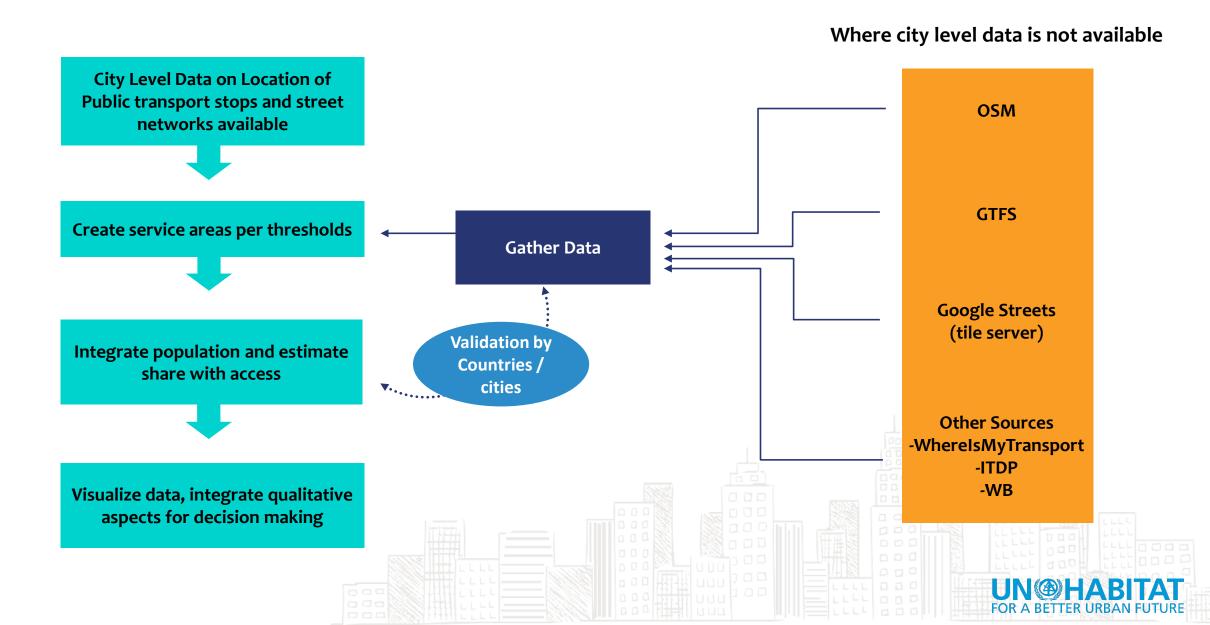
### Implementation Methodology

**Training Manual** 



### DATA INPUTS AND PROCESSING

### **Data Compilation Work Flow**





### Establish the functional urban area



Urban Extents Approach Population (2015) 1,327,498

DEGURBA Approach Population (2015) 1,325,067

Pop. Data source: GHSL Population Grids, 250M

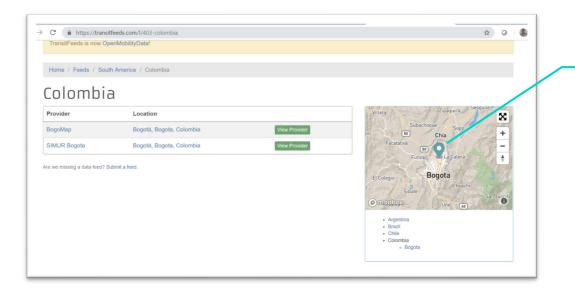


Step: 2

### **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

Detail of data available from open sources varies greatly across cities



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



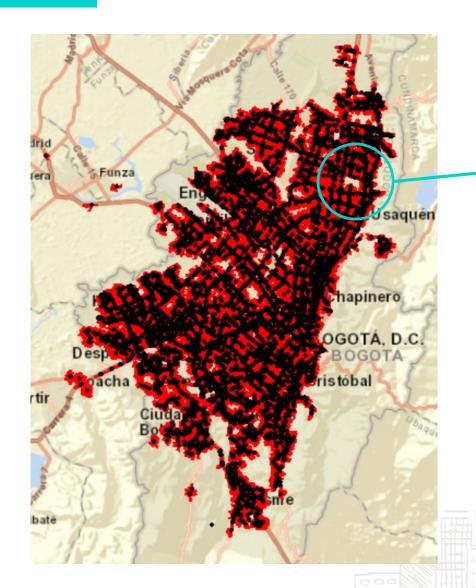
Google streets can be used as source of data

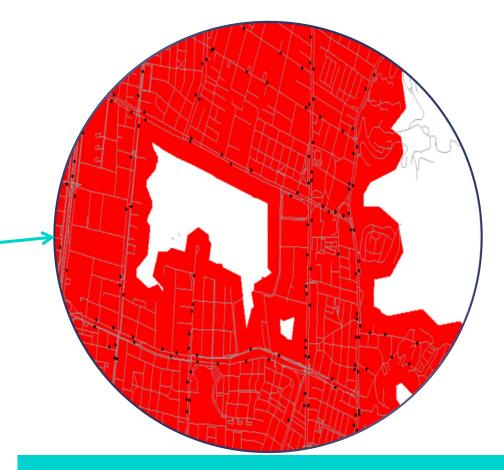
Visual interpretation from high resolution imagery offer a good data source where general public transport structure is known



Step: 3

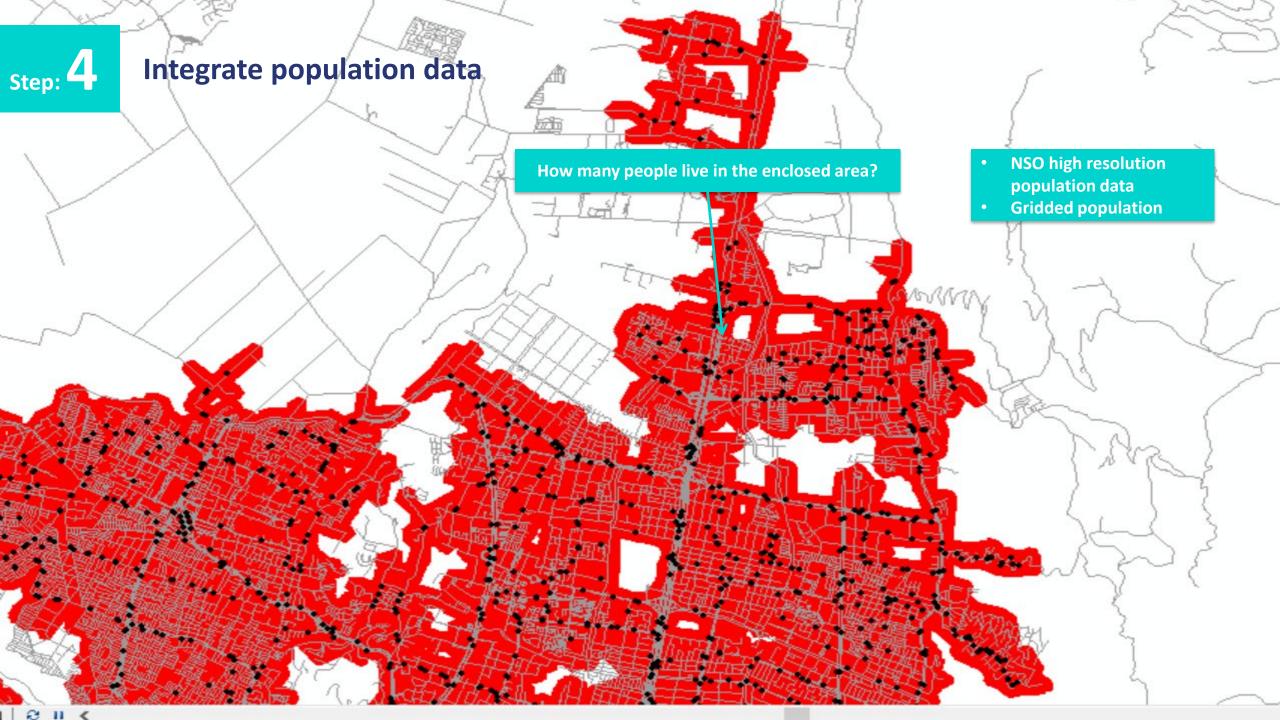
### Create service area for each bus stop





- Access to public transport is measured by 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 egs where streets are not walkable, where pedestrian crossings/ bridges are missing on major highways







### Compute indicator for total population and different interest groups

% with access to public transport = 100  $\times$ 

Population with convenient access to public transport

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





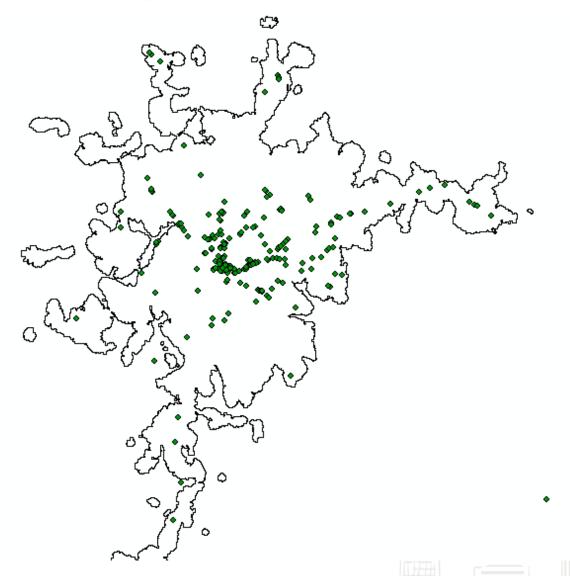
### **Database creation**

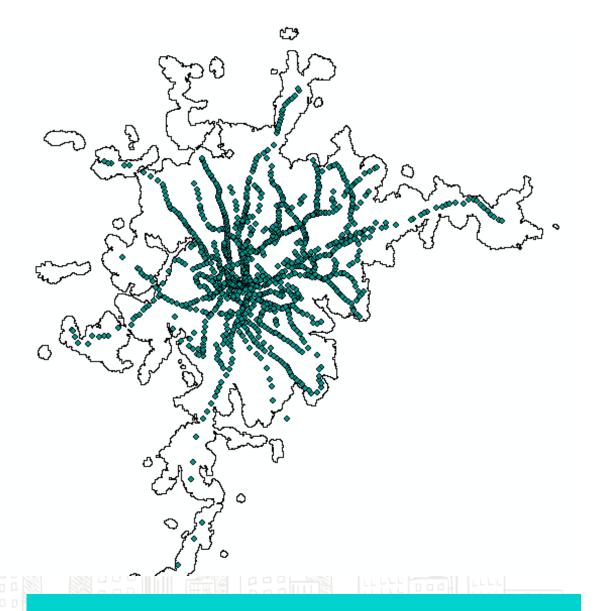
Α	В	С	Н	J	K	L	M	R	S	Т	U	V
No.	CITIES	Country	T3 PoP_GHSL	POP_TRANS	POP_BUS	POP_RAIL	POP_FERRY	POP_TRANS%	POP_BUS%	POP_RAIL%	POP_FERRY%	LAS%
No.	City	Country		All Means	Bus_pop	Rail_pop	Fery_pop	% All Trans Access	% for Bus	%for Rail	%Ferry	
174	Tehran	Iran	9,469,118	5,156,588.26	4,371,086.88	2,092,677.32	-	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, Tianj	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, Huna	China	620,123	327,181.72	327,181.72	4,177.74	-	52.76	52.76	0.67	-	16
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Global Sample of Cities (200 Cities) – Data Generated > Computations done > packaged and sharing with countries for validation ongoing National Sample of Cities (300 Cities) – Data Generated > Computations done > packaged and sharing with countries for validation ongoing



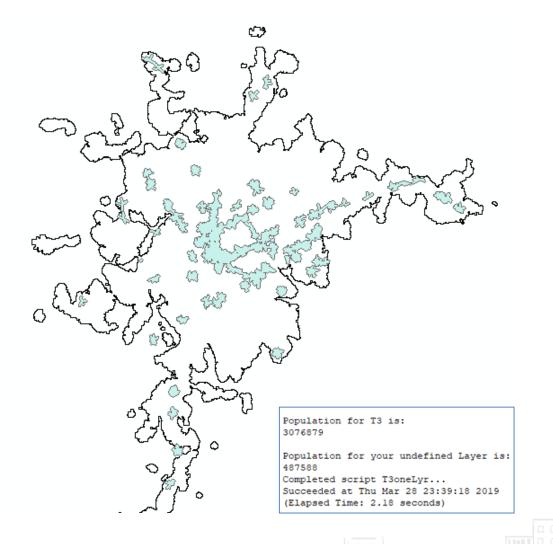
### **Challenge (formal vs. informal transport)**

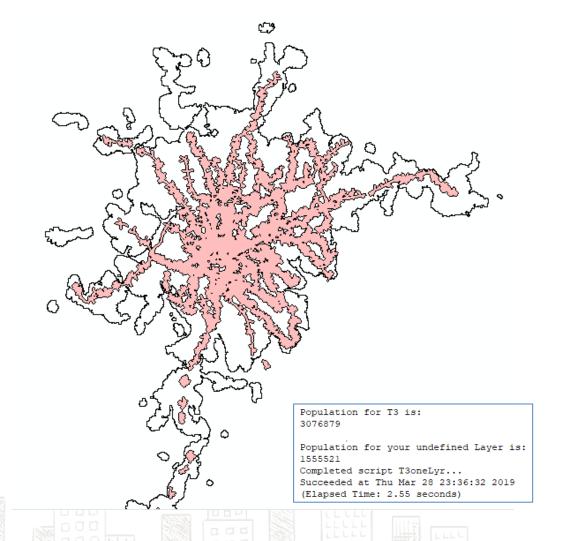




Bus stops gathered from a detailed survey by ITDP (formal and Informal)

### **Challenge (formal vs. informal transport)**





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

Population with acces to  $PT = \frac{1,555,521}{3.076,879} = 50.6\%$ 

### **NEXT STEP**

- Submission of revised metadata and data for tier reclassification to UNSD/ IAEG-SDGs
- Support to countries for data collection and reporting
- Pilots on Disaggregation
- Establishment of global urban indicators platform

