

OSM enabled urban mobility services for the city of Yangon



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Who are we

5T (www.5t.torino.it)

5T is a local PA-owned company that provides services, consultancy and develops projects for mobility. 5T business sectors are:



Traffic



Public transport



Infomobility



Ticketing

ITHACA (www.ithacaweb.org)

ITHACA (Information Technology for Humanitarian Assistance, Cooperation and Action) is a non-profit association. Based in Torino, Italy, it is a center of applied research devoted to support humanitarian activities in response to natural disasters by means of remote sensing techniques.



Yangon, Myanmar

Main Myanmar city, capital until 2005, inhabitants > 5.000.000

Private car

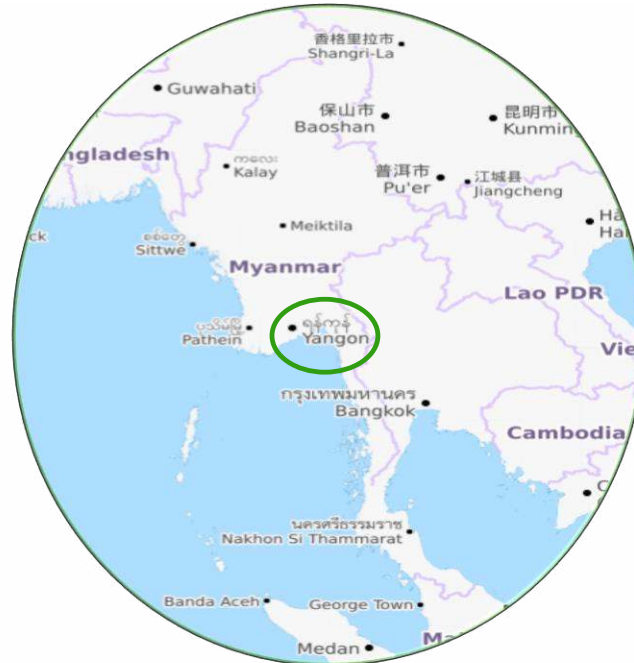
Quantity doubled
in years 2011-2015

Mean speed dropped
from 30 km/h to 10-15 km/h



Target

Traffic engineering
and limitation
Public Transport renewal



Public Transport

-10% PT user per year
(halved in 2007-2015)



Business opportunity

Advertisement for new bus stop
New traffic control room
New city masterplan



Public Transport in Yangon

Main issues

- Low service quality:
 - irregular timetable,
 - long waiting time
- Low safety level
- Low incoming
- Limitations on new players entry

Key actions → Public Transport reform

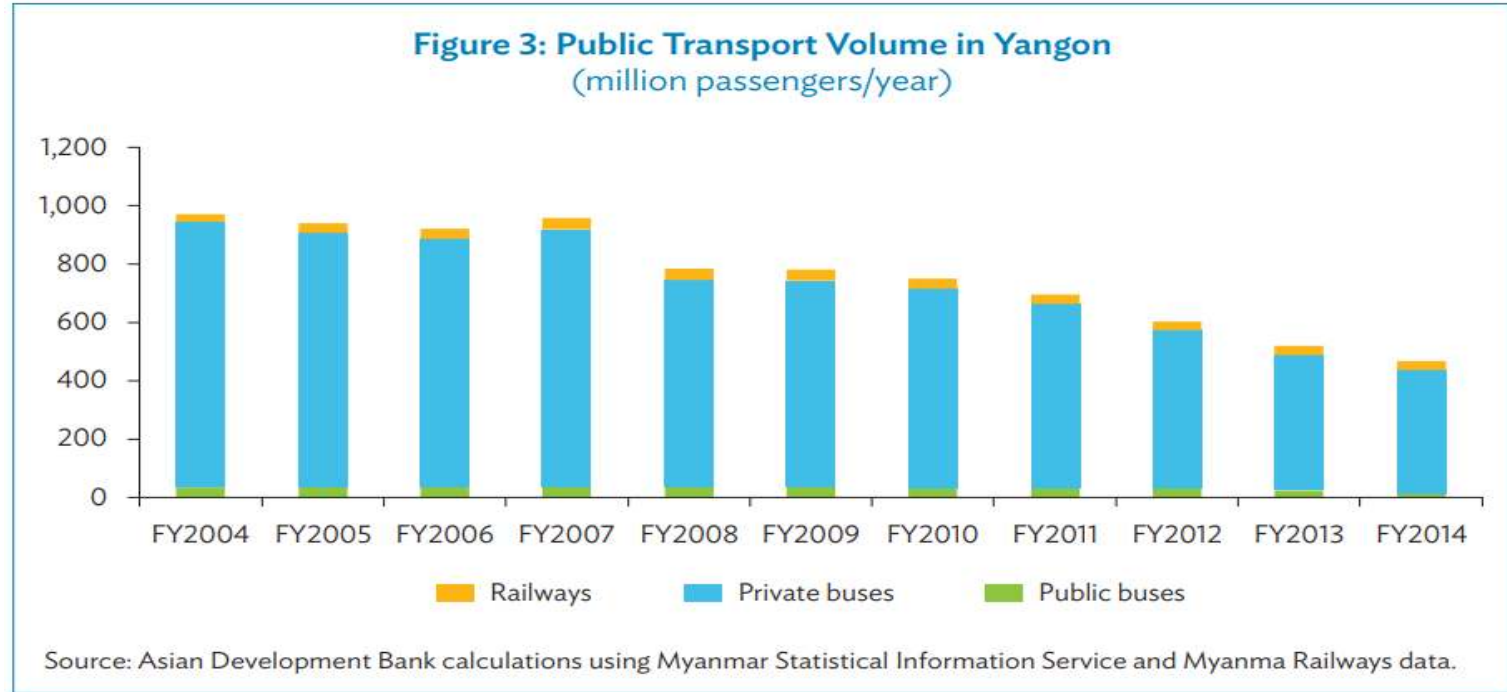
- Route rationalization
- «Regular» stops establishment
- Operator management



Source: https://commons.wikimedia.org/wiki/File:Old_Myanmar_green_Bus.JPG
by Maung Maung San



Public Transport: state of the art



Transport by bus suffered the major reduction over the years.

SUMP project - Sustainable Urban Mobility Planning

Partners: Città di Torino and 5T, Municipality of Yangon, ITHACA, CESVI

Target: reinforce Yangon public administration's skills related to urban mobility planning in order to allow a sustainable urban environment

Actions on 3 levels:

- Institutional (awareness raising)
- Technological, focusing on a new Public Transport planning
- Educational (transfer knowledge)



CITTA' DI TORINO



CESVI



SUMP project & OSM

- Yangon area was rapidly growing and changing
- Lacking information on commercial maps



OpenStreetMap can be used to upload and keep updated Public Transport data

Survey activity for stops and routes



Technical training

Step One

PT tagging schema
analysis



Step Three

Upload data using
JOSM



Step Two

Transfer knowledge to
local technician in order
to use OSM

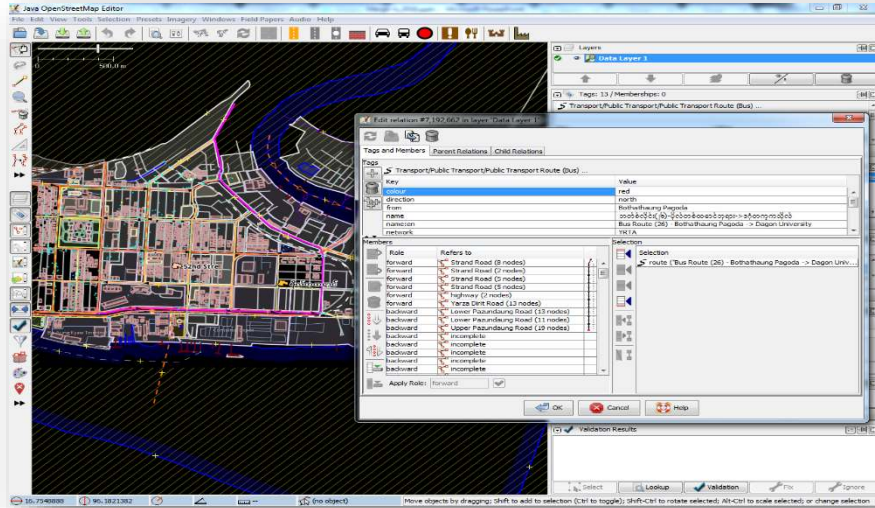


Step Four

Editing check and
validation



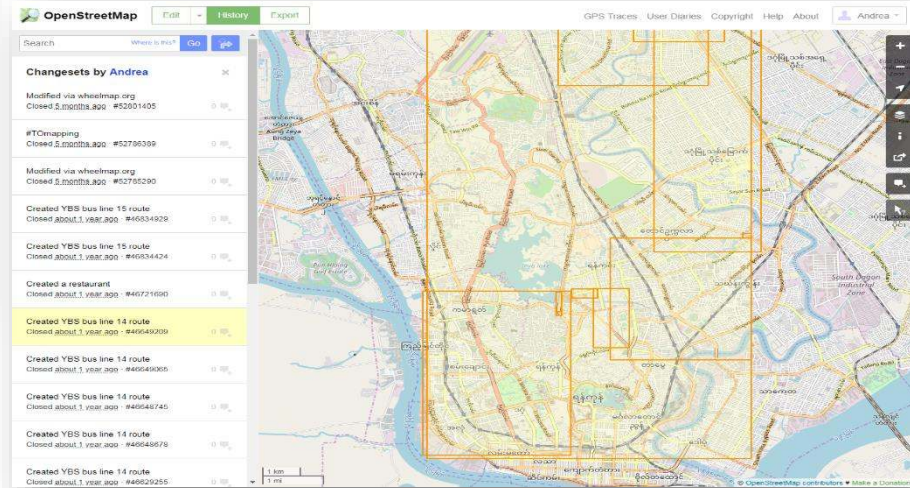
Edit and upload verification tools (1/2)



JOSM editor



OSM user history



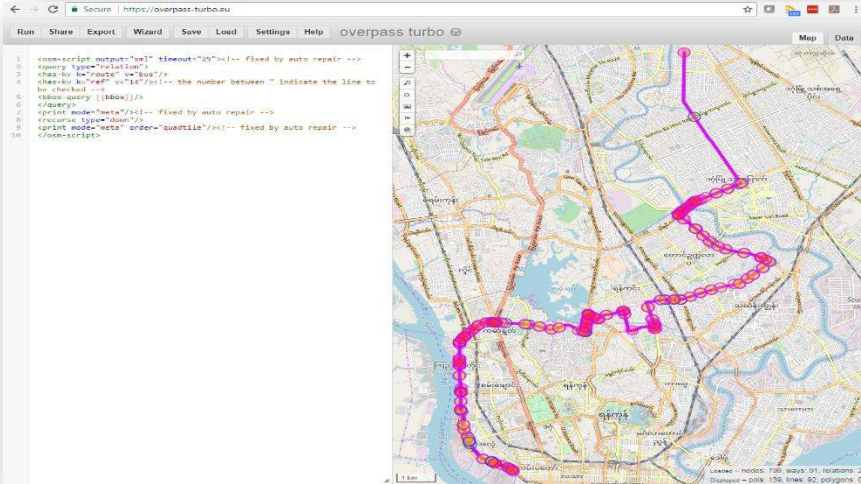
Source: <https://www.openstreetmap.org/user/Andrea/history>



Edit and upload verification tools (2/2)



Overpass Turbo



Source: <http://overpass-turbo.eu/>



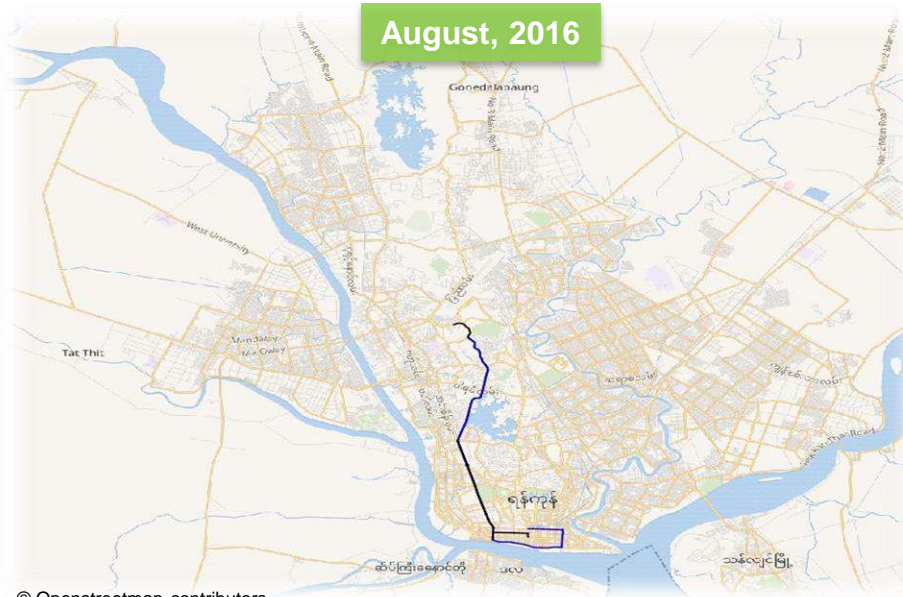
Source: http://ra.osmsurround.org/analyzeRelation?relationId=7043968&_noCache=on



OSM Relation Analyzer

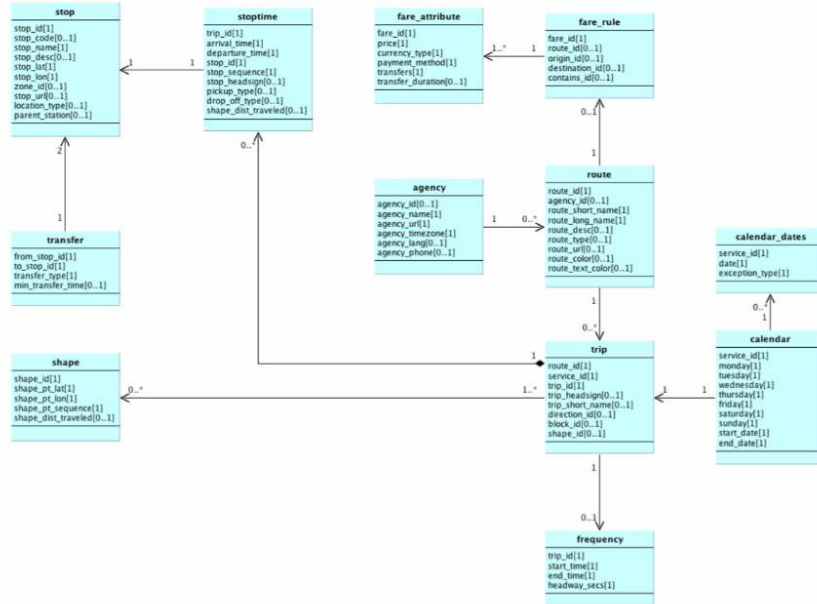


Data acquisition



GTFS

The General Transit Feed Specification (GTFS) defines a common format for public transportation schedules and associated geographic information



Information about:

- Agency
- Route
- Stops
- Calendar
- Shape
- Timetable

Source GTFS schema: <https://goo.gl/images/Psp6Y8>



GTFS production from OSM

Steps:

- Download route and stops data from OSM as json and gpx
- Pre-editing: transfer information about route relation into a simple file to create a partial GTFS with php script
- Import partial GTFS into GTFS editor
- Complete GTFS with missing data



Public Transport data management in OSM

Editing:

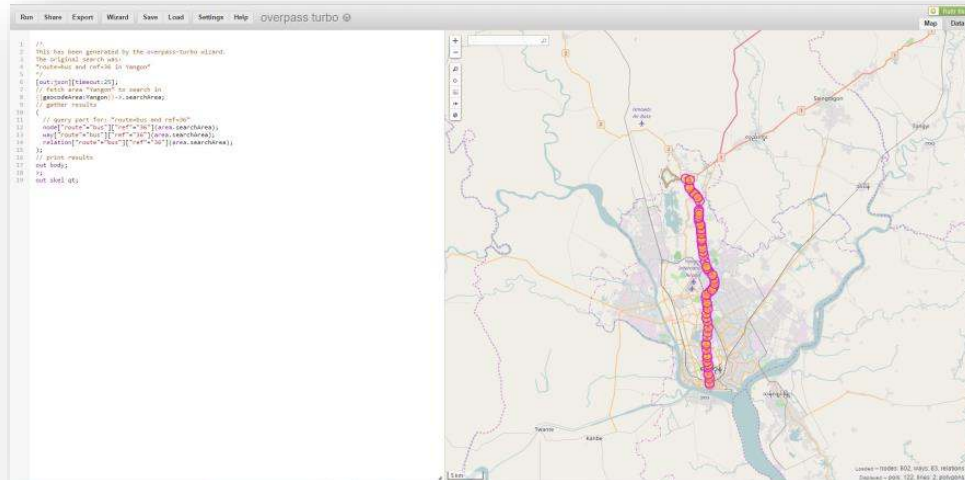
- iD editor online
- Josm desktop offline editor → support plugin for public transport

Extraction:

- QuickOSM plugin in QGIS
- Overpass Turbo website



Simple query to select and download data with different extensions



```
1 //
2 // Will be auto-generated by the overpass-turbo wizard.
3 // The original search was:
4 // "tramibus and refuso in milan"
5 //
6 // [out:json][timeout:25]
7 // fetch area "milan" to search in
8 // [geom:area:=milan];>>searcharea;
9 // gather results
10 {
11 // query part for "tramibus and refuso"
12 out["route"="bus"]>>route["trams,searcharea"];
13 way["route"="bus"]>>way["trams,searcharea"];
14 relation["route"="bus"]>>rel["trams,searcharea"];
15 }
16 // print results
17 out body;
18 //
19 out skel qt;
```

Source: <http://overpass-turbo.eu/>

GTFS production sources

Data from OpenStreetMap:

- Agency
- Stops
- Route information
- Route geometry



Missing data to complete GTFS feed:

- Timetables or frequency
- Calendar
- Calendar exceptions

TransitCafé

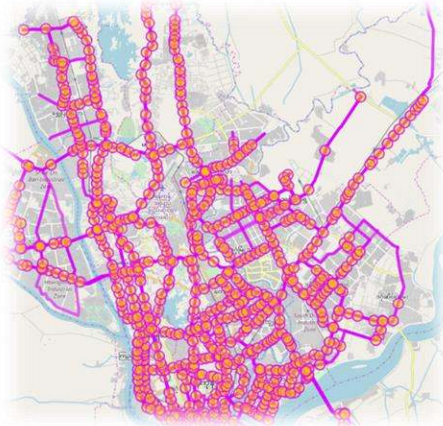


Public Transport in Yangon



Bus network:

- 2064 stops
- 83 routes



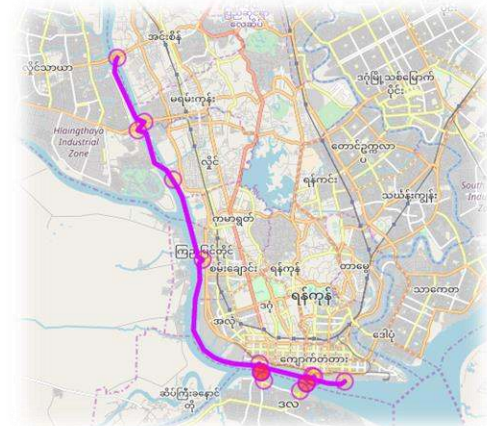
Train network:

- 58 stations
- 8 routes



Water bus network:

- 9 stations
- 3 routes

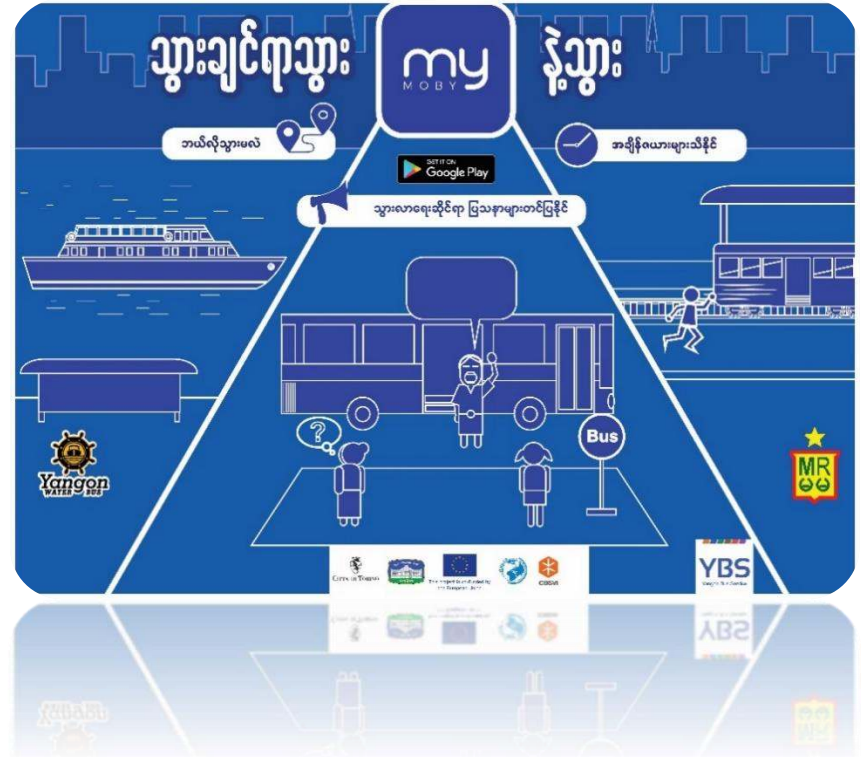


Activity results

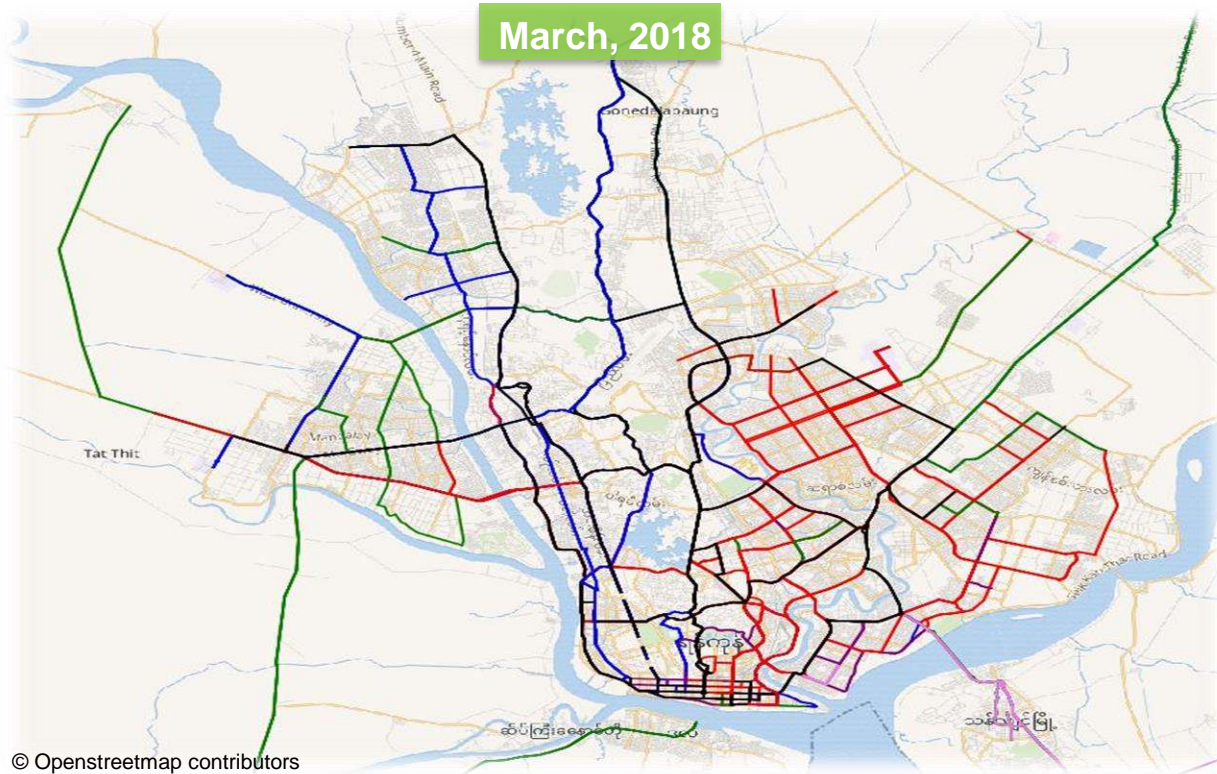
- Independence in OSM editing
- Process OSM→GTFS shared with local technicians
- 3 GTFS feed produced



MY mobi app enables infomobility services for citizens



March, 2018 (after project completion): Yangon technicians continue the OSM update activity in order to provide correct information and to follow the PT evolution



Thanks for your attention

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