

## GIS WORKING GROUP

Minute of meeting 29 January 2019

Yangon

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### I. Introduction

The GIS Working Group discuss aspects of common interest for organizations involved in the management and creation of geospatial data and tools. The following points are guiding the agenda:

- exchange on new [geospatial tools](#), techniques and methodologies
- share information on current [geospatial projects](#) and seek for possible synergies
- provide updates on data availability and promote [data standards](#)
- share information on [capacity building and events](#) related to GIS and Remote Sensing technologies

This meeting covered existing datasets and initiatives around **road networks**.

### II. Presentations

#### 1. **Ministry of Construction, Department of Highway**

The Department of Highways has recorded 4878km of roads. It has several definitions of roads, depending on the following classification:

- by Pavement Surface Type
- by Administration
- by Function
- by Living Style
- by Connectivity

The Department of Highways agreed to share the definitions for all the above classifications. There was a consensus that these definitions should be used by all users.

The department is still at the planning stage of shifting to digitize data using a GIS Enterprise Database. They started basic GIS training with a private company and will tender for the advanced training.

### DISCUSSION

- Does it include rural roads?
  - The first plan is to finish the highway network and then will include rural roads
  - It will include bridges. Dept of bridges is measuring their own data
  - DRD is also gathering its own data
- Is there any initiative to streamline the efforts of Survey Dept, DRD along with Dept of Highways?
  - if necessary we will combine

- Timeframe to have the digitised data all in one database?
  - o cannot say anything yet – will work further based on the lessons learned from the pilot project in Ayeyarwady
- Data sharing – still to be defined depending on which data

OneMap Myanmar is working with Survey Department to convert data from CAD format into a GIS database. They are undertaking a pilot in Taungoo. Update of topo maps is made from aerial images. However the dataset is very large and they are sometimes working on images up to 5 years old. This data is not publicly accessible.

OMM to check if Survey Dept has definitions of the different road classifications.

MIMU gathers data from govt as well as open sources. It is struggling with data completeness and data definition - for example in the absence of a clear definition for the road type it is difficult to classify information from the attributes.

## 2. Pandeeyar – Open Street Map

OpenStreetMap (OSM) is a collaborative project to create a free editable map of the world. This crowdsourced data is then made available from osm in shp, geoJSON, prj, dbf format. OSM has definitions for road classifications based on the British system. Challenges include quality control, topology, tag consistency (Burmese and English, no abbreviations, road category consistency). Digitization events have included a 2018 Mapathon in Yangon Region, a mapping event in Mawlamyine and in Taungoo.

## 3. Lessons learnt from the previous Mapathon

A Mapathon is a coordinated mapping event. The volunteers are invited to digitize valuable information such as education, disability, health, humanitarian, infrastructure, etc. The aim is to generate easily accessible databases for wider use where official map data is not available. It may include 2 approaches:

- Outdoor mapathon involved field survey of the areas to be mapped to gather GPS information, and entering this information on an open-source platform
- Remote mapathon digitizes map objects such as roads and hydrographic networks, building footprints etc from satellite/aerial imagery – again results are entered in open source platform

The first event was the 2018 Map Challenge – Help Map Yangon. This was undertaken by OSM and Pandeeyar with additional support from companies. Overall it included 130 participants working together over the space of one week to gather public information on identified 700,000 + new buildings, 3500 road names added, more than 4000 locations with public information.

The second event was a GIS based microplanning online mapathon with Ministry of Health and Sports, to digitize the livable structures located within 5 priority Townships. It gathered 70 volunteers over 2 weeks and identified 157,400 livable structures in the 5 Townships.

Then followed up by another event to improve the road and hydrology info for these 5 Townships with 60 volunteers for 5 days to complete the whole Yangon region.

## Lessons learned from the 3 mapathons

- FOCUS - wider scale area with lower quality, or smaller area with better quality information
- CAPACITY – mapping capacity vs skilled volunteers - while there was a lot of interest and around 300 volunteers, only 50 had skills in mapping (ie only 1 in 6 or 17%). Also volunteers don't necessarily use the guidelines provided so some road areas are not well connected to each other and not appropriately classified. Better if volunteers are from the area being mapped.
- INCENTIVES - pros and cons of incentive – an issue where it is a longer timeframe – quantity is decreased over time due to lack of incentive. On the other way, quality is better without incentives.
- PROCESSING – requires a lot of cleaning time after these events – eg 5 days for Yangon region requires a year of processing to make the data fully usable.
- STANDARD GUIDELINE - for the community. OSM UK has a clear guideline however difficult to apply to Myanmar as requires different standards and road categories. This leads to many unclassified roads - 25% of road network is unclassified – especially an issue in urban areas. It requires clearer community approved standard to be shared with users to ensure a common standard and improved data in Myanmar.

## DISCUSSION

- Classifications - current OSM classification does not include cart tracks or foot tracks
  - o need mapping of the different classifications and definitions where available across the various initiatives. It would consider types of roads in terms of materials and function
- Language and transliteration
  - o no standards in place
  - o info is entered in Unicode or zawgyi depending on the contributor

### **4. Road traffic analysis using big data**

Yangon Technological University, Department of Civil Engineering used Call Detail Records (CDR) data and GPS trajectory data to analyse transportation patterns in Yangon city (33 townships).

CDR data characteristics:

- Operator: MPT
- Date: December 1-7, 2015
- Voice and Data files (Voice files are only calls records and data are SMS and internet service)
- 2.2 billion average No of records
- About 1.9 million users per day

Based on mobile phone call activities, the researchers could identify a variety of patterns such as:

- hourly variation of human mobility in weekdays and weekend
- incremental flow density, with morning and evening peaks
- trip distribution flow in Yangon
- average travel distance
- classification of land use type (residential, working, office and industrial areas)
- estimation of inter city and route choice between Yangon and the Ayeyarwady region

### Pros and cons of CDR data

- Save labor, time and cost
- Overview of human mobility for large scale (country/state/division/township...levels)
- Good for travel behavior study in transportation
- Disadvantages CDRs Data
- Less attribute information related to transportation studies (lack of travel mode, gender, income and other socio-economic information)
- Difficulties in data acquisition (privacy issues)

### Limitations in research

- Activities are based on calls
- Load balancing problem
- Routes estimation are based on shortest paths

### DISCUSSION

YTU is using JICA road dataset, not publicly accessible  
Can road category be based on traffic analysis?

### III. Tour de table of organizations projects

- MIMU

Provide core datasets such as admin boundaries, transportation, population, etc.

Current projects:

- o It just started a partnerships with Dagon university for ward digitization.
- o Mimu will organize a seminar on partnerships with universities on March 12-13.
- o Setting up of the database for a national coding system together with the government.  
Project in collaboration with OneMap.

- OSM

Wil organize trainings on data literacy for journalists, CBOs and CSOs

- WWF-Myanmar

Supporting community forest as well as the Forest Department. for Tanintharyi to draw traditional boundary, village boundary, collecting ground data collection for landuse mapping, capacity Building for related partners (GPS and GIS Training) and 3D modelling.

- Innovations for Poverty Action

Their project is about land right in the Delta region. Although the project is not heavily focusing on GIS, they do rely much on MIMU P-codes to identify the locations they are interested in. Also, they are trying to go down to village level to get more disaggregated spatial data for a better understanding of the research areas.

- IGC and GIZ

Planning to update base maps of the electrical grid together with the Ministry of Electricity and Energy. GIZ is looking for hydrology network and contour maps to identify potential sites for micro and mini hydropower schemes.

- UNOCHA

Update of IDP Assessments for Rakhine, Northern Shan and Kachin will be released next week according to CCCM data (as of December 2018). OCHA staff is collecting data for Rakhine apart from Buthidaung, Maungdaw and Rathedaung Townships.

- Asia Foundation

The Asia Foundation have been supporting technical capacity to the Ministry of Planning and Finance one year ago. Being a main sponsor of Planning Department in capacity building training, TAF support some training module such as planning and budgeting to all states and regions staff. In this training section, " How to use MIMU p-code", involve as one topic in township development indicators.

Furthermore, Asia Foundation is doing capacity training such as "data collection and proper database management system", in department of labor, MIMU p-code is the main topic in the curriculum.

- WASH cluster

Updating the 4W database

- CDN-ZOA

CDN-ZOA does not implement GIS project as such but uses geolocation for its water supply and sanitation infrastructures design.

- OMM

Work on topo maps from Survey Dept: Land use, land cover, settlement areas/ built up areas, labels, stream and river network, contours. Metadata hasn't been discussed yet.

- UNICEF/ WHO/ MoHS

Microplanning to improve immunization planning. Location of all livable areas (ePI communities) and health facilities. Data collected by midwives. Pilot project in Yangon Region done. They are considering data collection countrywide.

MIMU asked all partners to share their data of the villages they are working in (GPS location, village name, Village tract) to enrich the village database.

**Participants list:**

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