Schools performance mapping in Zanzibar, Tanzania. The validation and uploading to OSM by SUZA Youth Mappers

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Background

In past years, school performance in Zanzibar and Tanzania as a whole is believed to be affected by various factors including inadequate facilities and teachers at schools, as well as un-proportional geographical locations of schools.

In urban areas especially, this problem is worse due to urban increased populations. Since there are no relationship maps that show the location of available schools and other education facilities, it is difficult to know if the needs of students will be solved. It is due to the same reasons that the provisions of school solutions do not consider what is already available hence the plan has poor results.

OSM is one of the prominent projects that can be utilised to solve existing problems as it provides a freely available map database of the entire world. Since OSM is open to anyone and local contributors can take part in mapping the globe, it plays a major role in making sure the data is available and it is useful to the community.

Youth mappers are mapping around the world to help provide fundamental spatial data that supports responders and aid organisations. Since now, there is an active Youth mappers chapter at SUZA, there is a great potential of using the mappers to identify and map the school buildings and other educational facilities across Zanzibar

Problem Statement

OpenStreetMap is one of the sources of data that could be used to provide information in the education sectors for Zanzibar. However, the review of the current datasets shows that most education data in the OSM have been lastly modified since four years ago(4). As a result, the outdated data that are currently in the OSM can not give updated information such as missing schools. Also, the available schools currently in OSM miss important information like names, address and other education facilities. They also lack consistency due to the reason that different persons enter data in the OSM using different tools and features.

Currently, the data available in the OSM is very small as compared to the current statistics and available data set. In addition to this, even though individual contribution in OSM is allowed, schools data and data for other educational facilities need to be collected and validated by authorised users before

putting it to the OSM to ensure quality and relevance of the data set.

Proposed Solution

The purpose of this paper is to contribute to the updating of outdated data from the OSM in Urban, Zanzibar. The school dataset available with the additional information on the facilities is to be uploaded into the OSM to add up the usefulness of the school data to the community. The data needs to be validated to ensure quality of data by SUZA Youth Mappers. With the community working together, it is easy to ensure data quality as well as having uniform Map Features within the OSM for all the schools in Zanzibar (Both Unguja and Pemba). Based on the available data, the schools can easily be visualised and used by research institutions for better visualisation and appropriate decision making.

Methodology

Following up from the above problem statement and the purpose for this paper, we would like to present the methodology we used for collecting data in order to answer the problem statement.

As a first step, a thorough study on how the schools are mapped in the OSM is made. OpenStreetMap schools data is then downloaded to QGIS using QuickOSM plugin. With this, it is possible to identify all the mapped schools in Zanzibar within the OSM. This made it possible to obtain all the schools locations and using the XYZ Tiles available in the QGIS it was possible to add the OpenStreetMap layer and visualise the schools locations on the map with QGIS software.

The initial current school data set collected from the Ministry Of Education and Vocational Training was added as a vector layer in the QGIS software and using the same XYZ Tiles, these school locations were visualised.

The data obtained using QuickOSM from OSM and the data set from MoEVT was all added on top of the OSM basemap to compare these two data sets and see the gap that exists. With the two layers for the data sets on the QGIS software, it is possible to visualise the existing gap easily.

The proposed method is to validate the data set from MoEVT before uploading it to the OSM, to ensure the quality of the data.
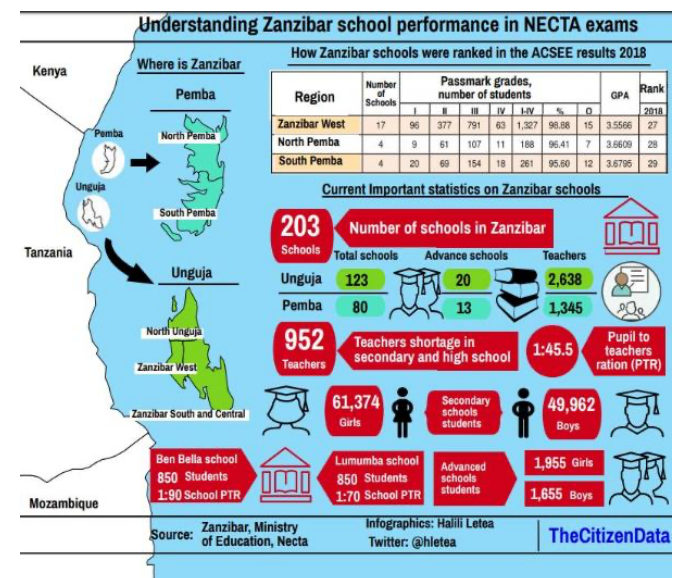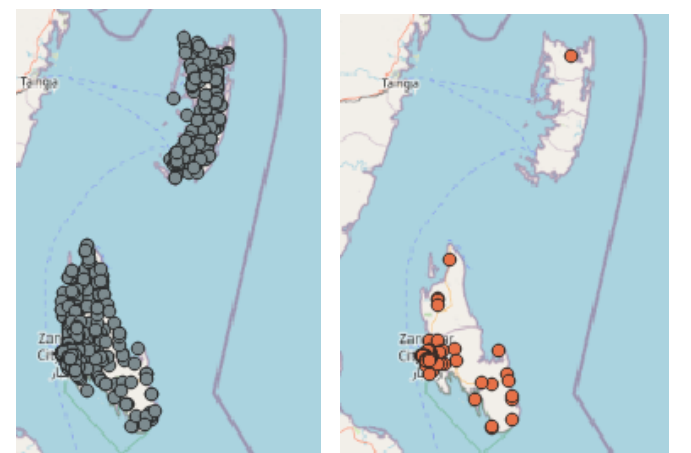

Figure 1: Some of the reasons behind poor performance in Zanzibar's schools (Source: Zanzibar Ministry of Education)
Figure 2: Comparison of the available data set from the Ministry of Education (a) and that is currently available in the OSM (b)

Recommendation

The students who have participated in the Resilience Academy and currently are the SUZA Youth mappers members should offer training to other Universities across Zanzibar, and make it easy to have local mappers mapping the schools in the OSM and ensure the quality and usefulness of the uploaded schools data.

Figure 3: SUZA RA participants, currently SUZA Youth mappers members conducting training at Drone Lab, SUZA Tunguu Campus.