UTILIZING OPENSTREETMAP TAGS FOR ROAD TOPONYMS IN POST TSUNAMI RECONSTRUCTION AREA: THE LESSON FROM ACEH, INDONESIA

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INTRODUCTION

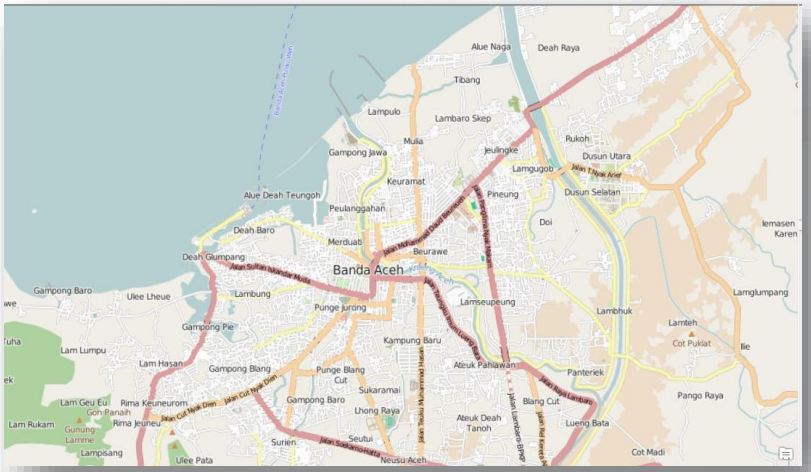
Banda Aceh on January 2005

Banda Aceh on 25 December 2014

Source:The Guardian 25 December 2014

OBJECTIVES

1. To improve the quality and coverage of toponyms of NLA Map,
2. To determine the benefits and limitation of OSM data in Aceh Province related to Rehabilitation Action for Post Tsunami Disaster in Urban and Rural Area



OSM in Banda Aceh (Urban Area).
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OSM in Aceh Besar (Rural Area)
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TOPONYMS AND OSM TAGS

1. **Toponym** means the place name or geographical name.

   Naming roads in Indonesia

   - Jalan Ir. H. Juanda", "Jalan Jendral Gatot Subroto".
   - Jalan Blora", "Jalan Ciputat Raya", "Jalan Sumatera", "Jalan Mangga",
   - Jalan Bukitsentul

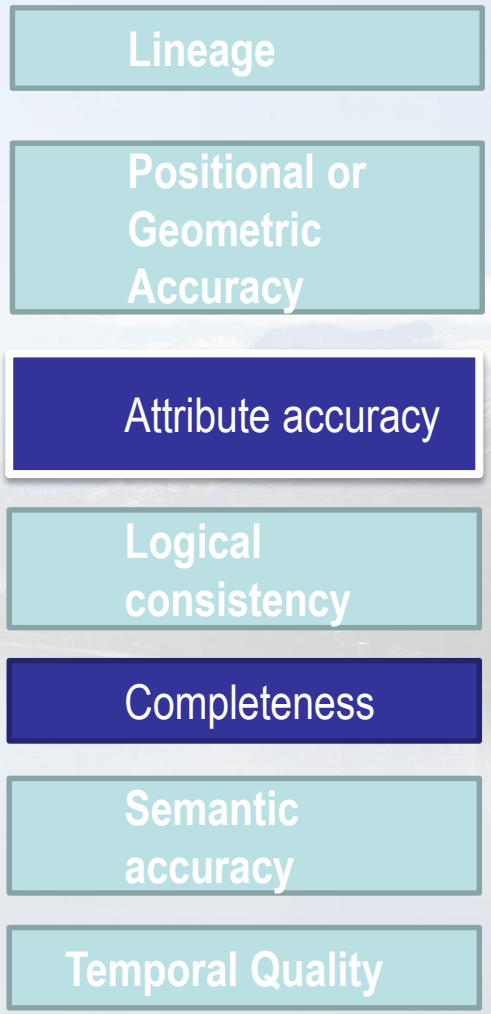
2. **Tags** tells map users what all the data primitives of real-world features are represented in OSM

   - A contributor describes a "way" as name:City Road, the tagging expresses a meaning of features (semantic) which is derived from contributor's knowledge

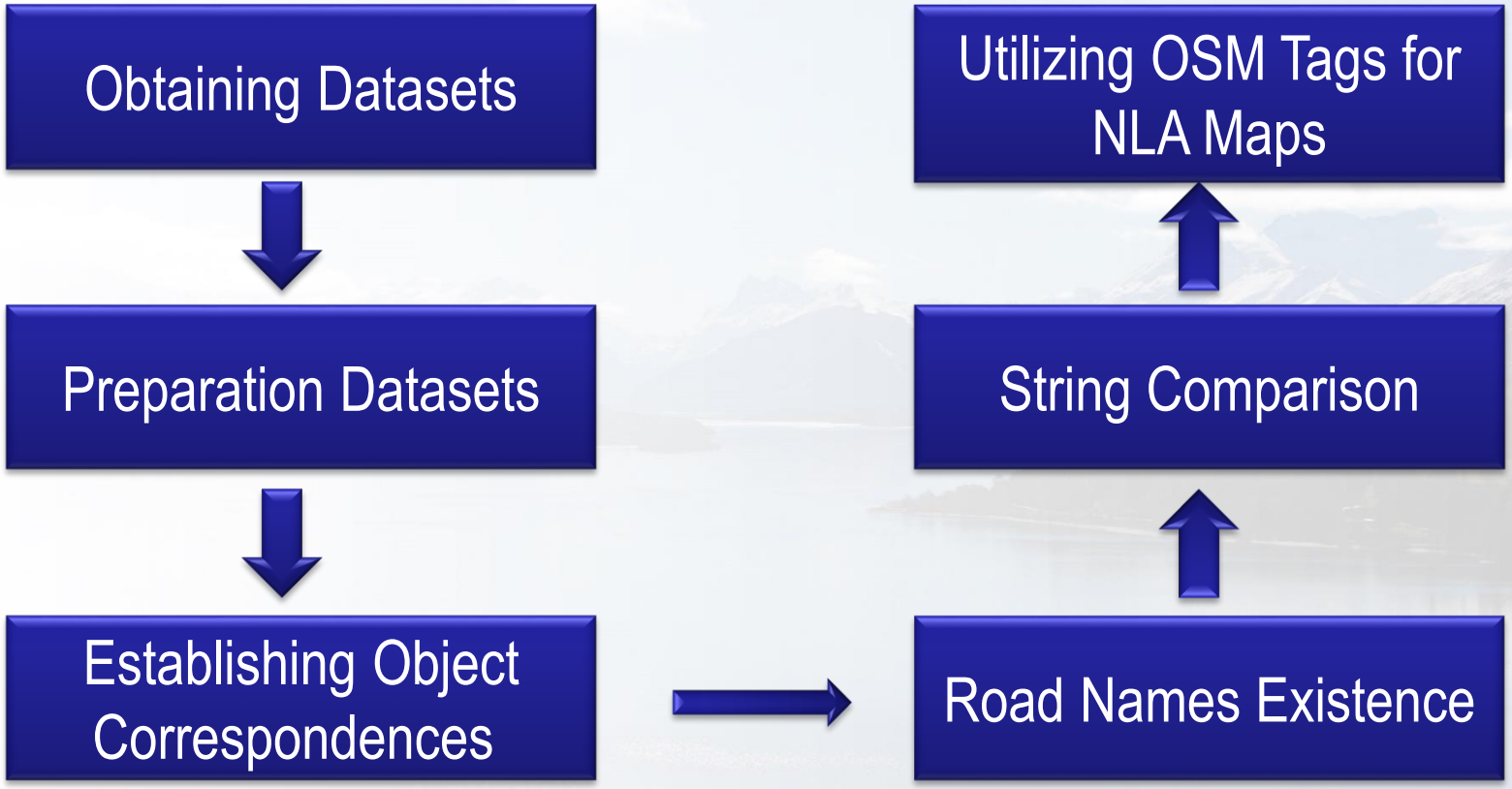
"How qualified those tags can be utilized for toponyms in authoritative map which has standardization in naming geographical objects?"

Spatial Data Quality for Geographical Data

- OSM is created by volunteers and the general public.
- The data can be variable in quality and therefore the quality assurance is necessary but also bring local knowledge.



METHODOLOGY



Utilizing OSM Tags for NLA Maps

1. *NLA Yes-OSM Yes :* string comparison.
   a) If LD = 0 : No Actions (Road's Polyline taken from NLA Map, including the road names)
   b) If LD > 0 : Semantic Analysis (Road's Polyline taken from NLA Map, while road names taken from semantic analysis result)
      i) SM : Categorizing Misspelling, Categorizing Name Completeness, Categorizing Abbreviation, Categorizing Title
      ii) DM : Categorizing Local name (Road's Polyline taken from NLA Map, but one segment road has two names from NLA and OSM)
2. *NLA Yes-OSM No,* **no action** (Road's Polyline taken from NLA Map, including the road names)
3. *NLA No-OSM Yes* : taking road name from OSM to fulfil attribute on NLA roads. (Road's Polyline taken from NLA Map, while road names taken from OSM.)
4. *NLA No-OSM No :* **no action** (Displaying roads geometry from NLA Map)

RESULTS

Existence Condition	Banda Aceh		Aceh Besar	
	Numbers	Ratio	Numbers	Ratio
NLA Yes-OSM Yes	38	27.14%	20	21.98%
NLA Yes-OSM No	13	9.29%	11	12.09%
NLA No-OSM Yes	31	22.14%	6	6.59%
NLA No-OSM No	58	41.43%	54	59.34%
Total Road Segments	140	100.00%	91	100.00%

NLA Yes-OSM Yes :

- ∑ LD values in Banda Aceh 10.24;
- ∑ LD values Aceh Besar :12.15.

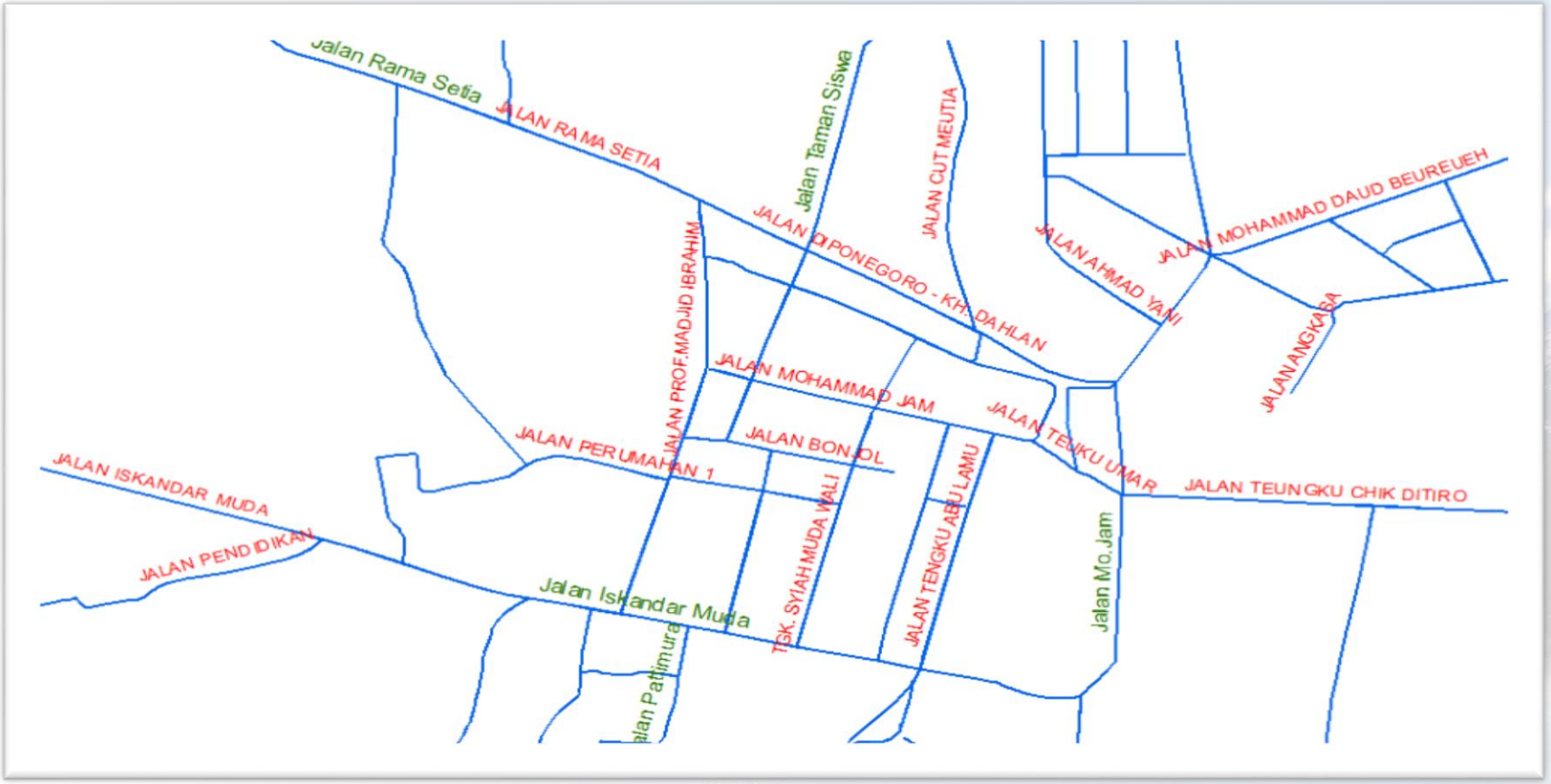
This fact show that the standardization of naming roads is complex.

- SM :

10 comparisons decided to use OSM road names due to several mistakes in naming the roads in NLA toponym

- DM :

Assumption of local road names given contributors



NLA No-OSM Yes
Conflation

CONCLUSIONS

1. OSM tags in urban area are quantitatively better than rural area
2. The same meaning (SM) sub condition which was taken from string comparisons give some advantages for complementing and correcting NLA toponym
3. The completeness of road's OSM tags is the limitation for NLA toponyms, mainly in rural area.
4. Government could involve the communities in taking spatial information and textual information

THANK YOU