INTERNATIONAL TRAINING ON TOPONYMY

MODULES

DAY 3

19 - 23 JUNE 2023

BALI, INDONESIA
Sistem Informasi Nama Rupabumi
Geographical Name Information System

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WHAT is SINAR?

*Sistem Informasi Nama Rupabumi*
Geographical Name Information System

Developed by BIG

One-stop tool for Geographical Name Standardization

- Data Collection
- Data Verification
- Gazetteer Publication

2023: top 99 of Gov’t application (out of 1,407)
WHY? ⇒ history

HOW? ⇒ solution
WHY?

history and intents
Geographical Name Data Collection: a history

- a geographical names data collection was mainly a sub-activity of map-making.

- Performed along with (geometry) data verification and map-accuracy assessment.
Conventional Geographical Name Data Collection

- Printed forms are the basic method for geographical name data collection.
- There are several forms to fill by a surveyor.
- Additional tools also required to provide certain items.
“Form A” is a simple list of objects/places that have a name.

There are ten items/columns to fill:
- number/seq.
- feature class
- geographical name
- coordinate (X & Y) [2]
- administrative level [4]
- remarks
Form B

“Form B” is a detailed information of objects/places that listed in the Form A

Administrative Level Information: Province, Regency, District, Village

Field Data:
- Name
  - Writing
  - Spelling
  - Language
  - Meaning
- Alt. name (entry similar to “Name”)
- Recommended name
- History
- Name meaning explanation
- Former name
- Remarks
- Informant(s)

Supporting Data:
- Map number
- Map name
- Feature classification
- Feature code
- Generic Name

Position & Dimension:
- Lat/lon
- Length, area, height

Surveyor(s) name

Number (ref. to Form A)
Date

DATA LAYANG
1. a. Nama yang digunakan
   Penulisan
   Pencatatan
   b. Asal bahasa
   c. Arti
2. a. Nama lain yang digunakan
   Penulisan
   Pencatatan
   b. Asal bahasa
   c. Arti

DATA LAPANGAN
1. Koordinat Titik Pusat/Areal Titik Acuan
2. Panjang
   Lebar
   Tinggi

DATA DACAR PENUNJANG
1. No. lembar peta
2. Nama lembar peta
3. Lebar unsur
4. Kode unsur
5. Nama generik
6. No. data jangkauan
7. Hinjauan

DATA AKTAR
1. No. data jangkauan
2. Nama data jangkauan
3. Jumlah unsur
4. Nama generik
to provide additional information and support in the manuscript map, a sketch of the object is recommended in Form B.
**Form C**

- Form C is a media to transfer collected geographical name into a digital data.
- It is basically a spreadsheet that contains 39 columns to fill.
- Surveyor (re-)input/type the data from the field (Form A + Form B) to Form C.
- Form C become a basis for another format (CSV, SQL, XML, JSON, SHP)

<table>
<thead>
<tr>
<th>Column Format</th>
<th>Number</th>
<th>Text</th>
<th>Date</th>
</tr>
</thead>
</table>

39 columns, #??? Rows

Column format: number, text, date
Form C = Form A(Form B)
Preparation on Form(s) Filling (in the Field)

- Simple (observe-write-save).
- Require multiple tools.
- Physically prone.
Processing the Forms (in the Office)

- Cluttered
  - Linking raw data
  - Different format (sound, GPX, picture, forms)

- Data format conversion (DB, Carto, etc.).
- Data compatibility.
- Human error.

<table>
<thead>
<tr>
<th>Form A</th>
<th>Form B</th>
<th>Form C</th>
</tr>
</thead>
<tbody>
<tr>
<td>copy</td>
<td>copy</td>
<td>copy</td>
</tr>
</tbody>
</table>

#id1 = 12.jpg & 93.mp3
#id7 = 83.jpg & 452.mp3

Linking object number/id to photo & sound file

Data processing

Coordinate sync/check
Dare to try?

https://toponim.id/2023/forms-english
Data Collection: Exploring Possibilities

Available alternatives

● Commercial data collection tool
  ○ Survey 123
  ○ Avenza
  ○ ...
● Open source / freeware / shareware
  ○ ODK
  ○ GPS Essential
  ○ ...
● Develop from the scratch
2012 to 2014

- Toponym/Geographical Name kit for data acquisition embedded in hardware (RTK-GNSS device?)
- Run partly in smartphone (early version of android)

Data Acquisition

GPS Essential
Data Acquisition

Quantum GIS
Data Processing
Re-thinking the tool(s) for Standardization

- Dependent to a specific hardware
- Inconvenient
- Tech. environment not ready

Open-source “problems”
- Cannot (fully) control the development
- Too many “unused” tools
- Multiple tools ⇒ too much to learn

Requirements for standardization
- Collect the data
- Verify the collected information
- Publish the standardized names
HOW?
solution & vision
Geographical Information System In Indonesia

- **2012**: Exploration Open Source mobile app: GPS essential
- **2014**: The GNSS RTK receiver embedded application for data collection
  - Inconvenient to carry around
- **2016**: SAKTI-Android application for data collection (point only)
  - SAKTI-Web based for data viewer
- **2018**: SAKTI-Android application for data collection (point, line, area)
  - SAKTI-Web based for verification (review and edit)
  - SINAR-Web based for publication
- **2020**: Integration of SAKTI and SINAR features, resulted:
  - SINAR-Android application for data collection
  - SINAR-Web based for verification and publication
- **2021 - PRESENT**: Implementation of the standardization process based on GR 2/2021
The Development of SAKTI
*Sistem Akuisisi Toponim Indonesia*
Toponymy Acquisition System

Requirements for standardization
- Collect the data ✅
- Verify the collected information ❓
- Publish the standardized names ❌

SAKTI facts
- Utilize the smartphone sensors ⇒ GNSS, sound recorder, photo/video
- Android-based ⇒ majority mobile OS
- Desktop view: web-based
2017: What’s next?

Collect

View verify(?)

Publish?
2018: SINAR conception

Collect → View → Verify → Publish

Still… two apps!!
2018-2020: SAKTI-SINAR Integration

View

Verify

Collect

Publish

seamless application
free, easy to use
2021 : Enactment of Regulation on Geographical Name Standardization

● SINAR appointed as the main application for geographical data standardization.
● The standardization must be inclusive: recognizing personal/group/community contribution
  ○ Crowdsourcing
  ○ Participatory Mapping
<table>
<thead>
<tr>
<th>User/Role</th>
<th>Eligibility</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect</td>
<td>Everyone: Individuals, Experts, NGO, Academics and Government (Ministries &amp; Local gov’t).</td>
<td>User need to <a href="#">register</a> using e-mail or google credential to enable <a href="#">data collection</a>.</td>
</tr>
<tr>
<td>Verify</td>
<td>BIG</td>
<td>Format: Printed and digital Gazetteer.</td>
</tr>
</tbody>
</table>

*Inclusion: Everyone can contribute!*
Indicators:
- Visible Satellites
- Elevation
- Velocity
- Accuracy

Object’s Geometry (Point, Line, Area)

Menu

Compass

Current Position

GPS Signal Indicator

Neighbouring Geographical Name

Basemap Options

Sketch

Sound Recorder

SINAR Mobile for Data Collection

SINAR Mobile for Data Collection
Web-app SINAR for Data Verification and Publication

https://sinar.big.go.id/

view & search
Web-app SINAR for Data Verification and Publication

Attribute verification/editing

Spatial Editing/verification
Data Verification + Publication

- Field data
- Regency Level Verification
- Provincial Level Verification
- Final Verification
- Announcement
- Gazetteer
- Legislation
- online/digital
  - printed
  - yes
  - no
  - correction ?
SINAR: Publication
Publication: Data Sharing

Currently SINAR publish it’s API (Application Programming Interface) to initiate data sharing towards “linked geographical data”

Early users:

● West Java Province
● Ministry of Public Work*
● Ministry of Education*

API cuts unnecessary obstacles (bureaucracy, data transfer, time) in utilizing geographical name
**Vision: Future of SINAR**

**SiNAR** 

SiNAR gegas

SiNAR gerak gesit akuisisi

**SiNAR**

SiNAR @lit

SiNAR akuisisi lincah teliti

**SiNAR**

- Utilize 360° camera to perform data acquisition
- Side looking
- Forward looking

**SiNAR**

- Simplify SINAR
- Easy to use, Light
- Shoot-Tag-Share Concept
- Utilizing Device’s Gyro

**SiNAR**

- Taman Bunga
- \((Xo, Yo)\)
- \((Xp, Yp)\)
Summary

● **Legal supports help** ⇒ regulation & policy
● **Adapt to changes** ⇒ technology & standard
  
  **GML** (Geography Markup Language) VS **geoJSON** (Javascript Object Notation)

● **Invest in human resources** ⇒ SINAR vs Hail riding apps
● **Aim high (not too high), start low** ⇒ TOPKIT case
● **Try everything** ⇒ Learn-Adopt-Modify/customize
● **Listen to your users**
  ○ User experience
  ○ User need/request
Terimong Gaseh beh kurrusumanga'
Matur Nuhun makase Amanai
Suksema Hatur Nuhun
Terima Kasih
Mauliata

شُكْرًا