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Toponymic data files: Automated data-processing systems

The development of toponymic geo-database for preparing National Gazetteer

Submitted by Indonesia**

* E/CONF.98/1

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Background

Indonesia as an archipelagic State with many tribes has challenged relating to geographical names standardization. In an effort governance administration order, National Coordination Agency for Surveys and Mapping (BAKOSURTANAL) has cleared a path for making a *stand-alone* Toponymic Geo-database a part of establishing national gazetteer. In relation to the efforts of orderly governance administration, the relationship between central and local governments should be increased; hence, link system between both the governments should be developed in standardizing geographical names. To achieve those relationships run well easily, the establishing such a toponymic geo-database web based is needed. A model of gazetteer web based ever been done in 2001, at the Office of Research for Geomatics, BAKOSURTANAL.

Providing data

The data acquisition of geographical names obtained from topographic map series of Indonesia at various scales such as 1:25,000 - 1:50,000. Those data are compiled on toponymic database form which spatially linked. At previous, geographical names are collected as a completion of mapping survey, thereby toponymic geo-database have been done not truthfully as national toponymic database yet.
In the near future, it is expected that the toponymic geo-database will be separated from the existing topographic database, and it is can be linked through ID, so geographical names will be showed on base map seamlessly.

Stages of Work

Basic data on CAD format (DWG / DXF) and ArcInfo/ArcView (SHP).
Datum ID 95, UTM and Geographic coordinates system

Software used: AutoCAD, ArcInfo and ArcView, MS Access are to be the first stage. Geographical names seamless form using ArcGIS, then stored at database centrally on ORACLE.

Previously geographical names are collected from field based on surveying for topographic map making, the results such as names of feature and its location (coordinates), local usage (sometimes), meaning of names, original local languages, name of locally administered, history of names, and other relevan information.

The existing of digital topographic map in CAD format, then all those names are extracted into particular administrative area.

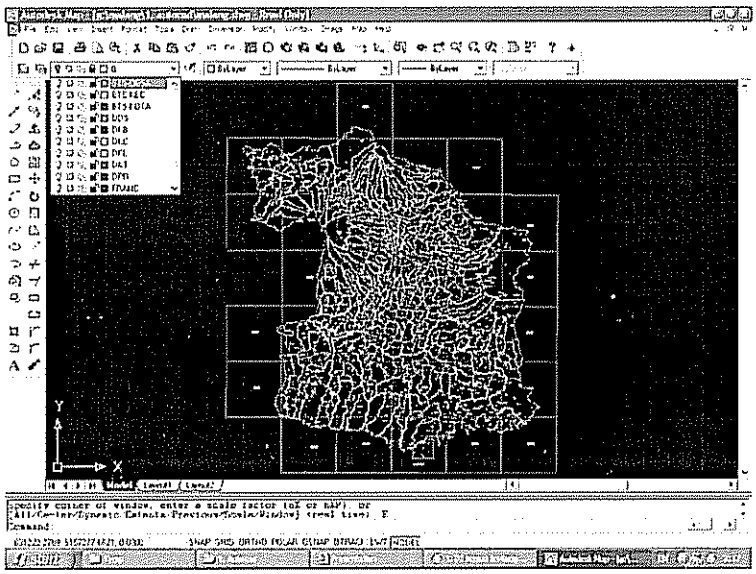


Figure 1 Geographical names position at particular administrative area

After passing reposition and editing stages, it is continued with topology and database made on ArcInfo, at this stage each geographical name should have ID and 3D coordinates (latitude, longitude and elevation). The locations of geographical names are in their own geographic position in fact, and in connecting to topographic database both are feature code and map sheet number.

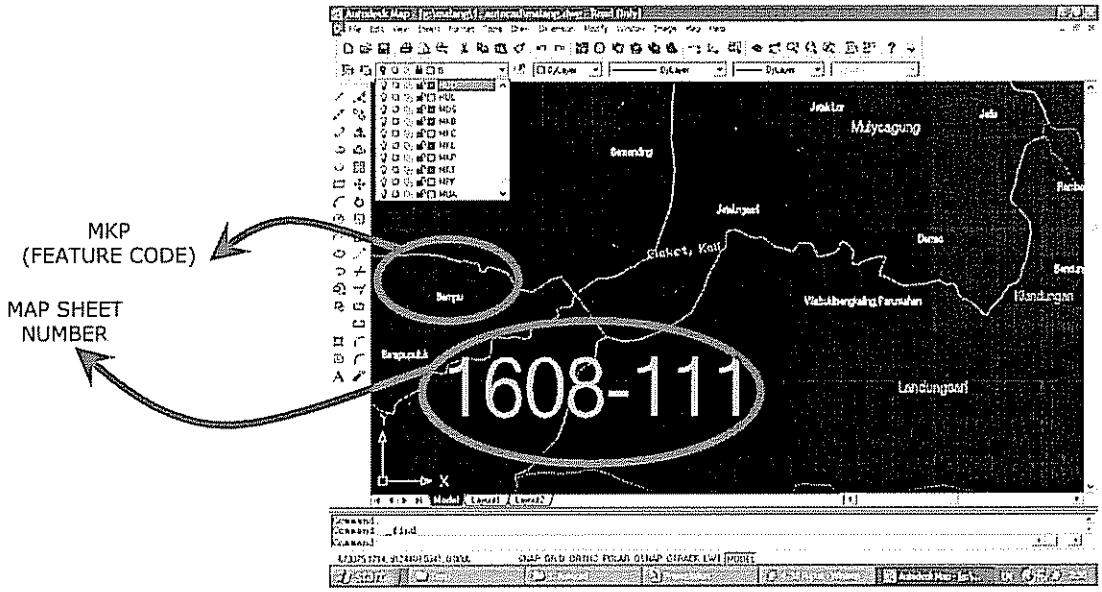


Figure 2 Feature code and map sheet number at digital map

The perfomance of geographical names database showed below are aimed to link with topographic database through their ID as well as feature code and to make shorting names on topographic map using map sheet number.

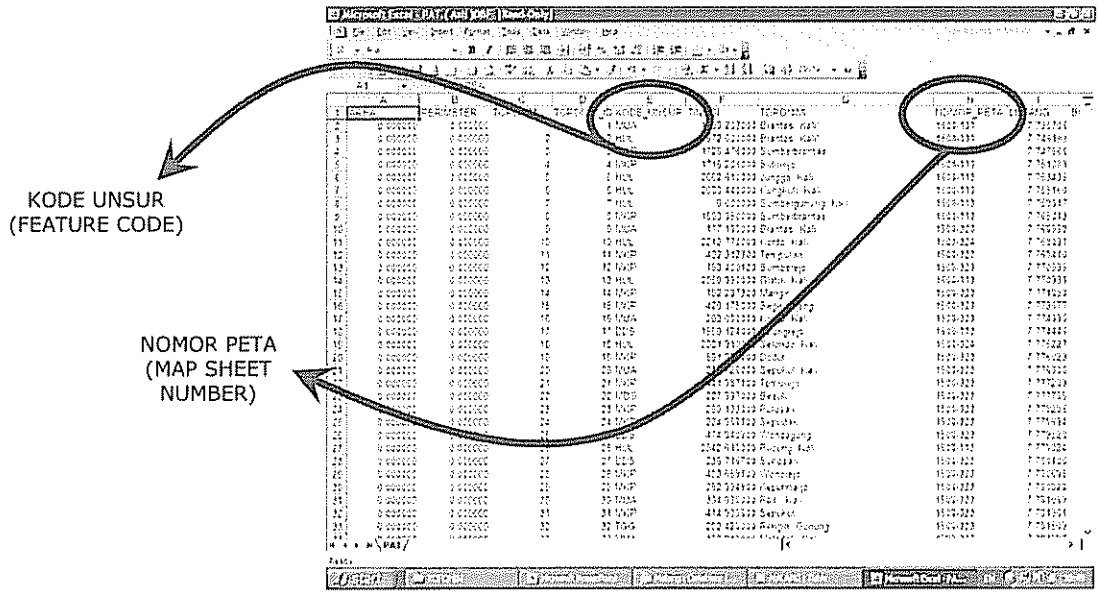
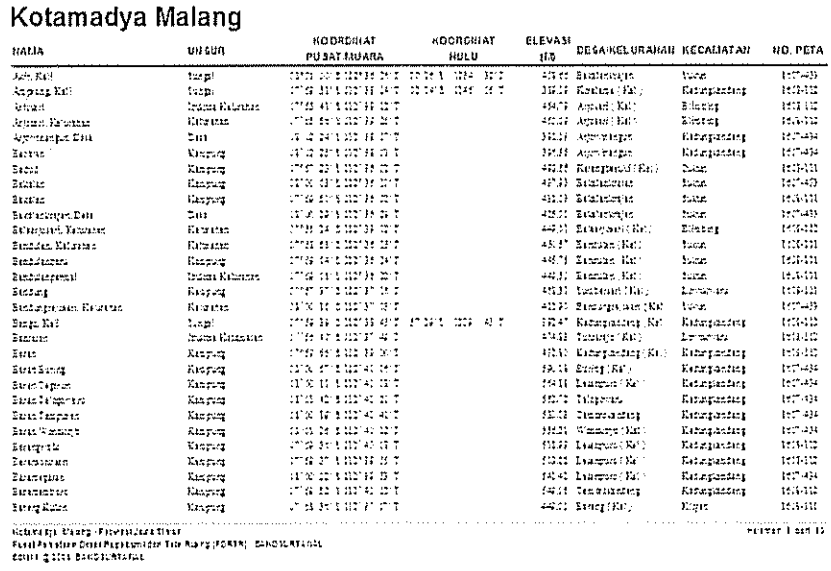


Figure 3 Link to digital map and database using feature codes and map sheet number

Hereinafter, in printing needs, this database will be made on its printing format in gazetteer.


Kotamadya Malang

NAMA	UNSUR	KOORDINAT PUSAT MUARA	KOORDINAT HULU	ELEVASI (M)	DESA/KELURAHAN	KECAMATAN	NO. PETA

Figure 4 Gazetteer of Municipality of Malang

Toponymic geo-database is built seamlessly at the last stage, where geographical names are collected into one region, for example Jawa Region, and presented on base map as well as on other spatial data. The database is stored into database on ORACLE centrally, so it can be accessed by various users.

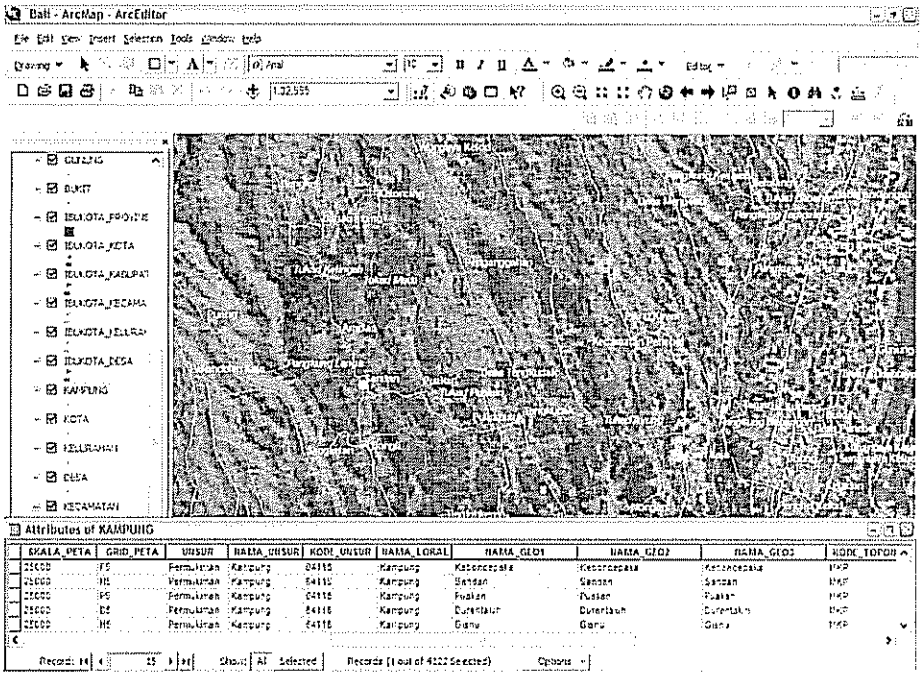


Figure 5 Seamless of Toponymic Geo-database

Until this stage a *stand-alone* database is obtained and it has no connection to other databases. For the future development, toponymic geo-database is better separately and can be linked to spatial database. Toponymic geo-database can ideally be accessed using internet.

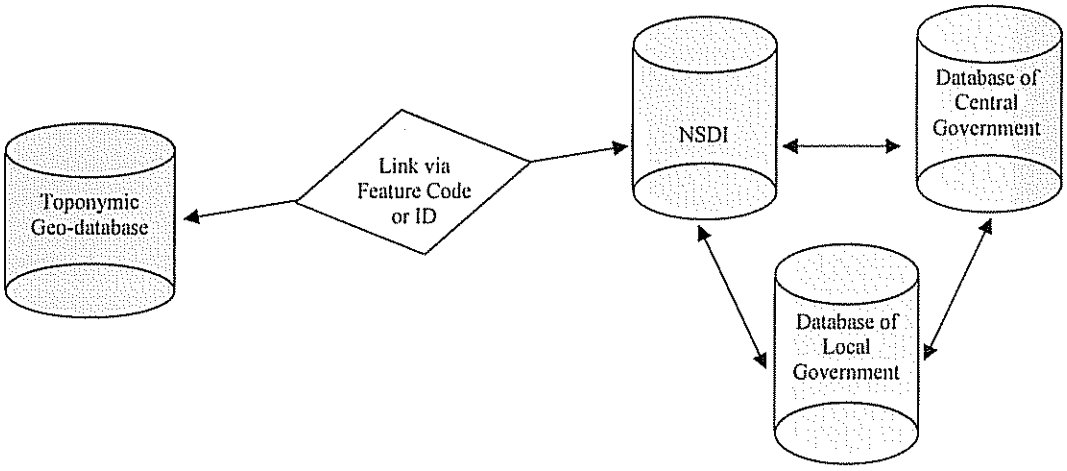


Figure 6 Toponymic Geo-database integrated via NSDI

Geographical names integrated to geographic information system (GIS) web based, and linked to NSDI, also can be accessed by various institutions, particularly for local governments.