

The Status of On-line Mapping Development in Indonesia

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ABSTRACT

Within the framework of the development of Indonesian Spatial Data Infrastructure and the efforts to improve services to the geospatial data community in particular, the National Coordinating Agency for Surveys and Mapping of Indonesia (NCASM) in cooperation with other government institutions agreed to disseminate freely the Indonesian digital topographic data of 1:1,000,000 resolutions to public.

In accordance to this agreement, BAKOSURTANAL set up an activity called On-line Mapping Project. The Project dealt with displaying, printing and downloading of this dataset through internet. Several activities were carried out in the project implementation namely:

- Development of IT facilities.
- Preparation of geospatial data.
- Development of BAKOSURTANAL website.
- Development of on-line mapping application.

Although these activities have been completed, the project continued to involve other themes than just topography and other resolutions. In addition to that, as a member of a bigger community like global mapping, Indonesia has to integrate its mapping activities to the global mapping. For this purpose, the project is now redesigned in such a way that all global mapping requirements could be complied with.

This paper will describe the status of the on-line mapping in Indonesia as well as problems facing to this.

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1. BACKGROUND INFORMATION

Globalization has pushed all governments in the world to implement good governance in each country for a better service to the citizens. As experienced by many countries, the implementation of the good governance will be more efficient and effective with the involvement of the Information And Communication Technology (ICT).

In compliance to this global situation, the government of Indonesia issues a Presidential Instruction concerning the involvement of the ICT in the implementation of good governance in Indonesia. The Presidential Instruction requires that all government agencies in Indonesia implement the e-government.

As a government agency, the National Coordinating Agency for Surveys and Mapping (NCASM) follows this instruction by developing the online mapping system. NCASM, in cooperation with other government agencies, has been developing the online mapping system in order to improve the agency services in delivering geospatial data and information to the Indonesian community.

2. ONLINE MAPPING SYSTEM IN INDONESIA

The idea behind the development of the online mapping system is to allow users from all parts of Indonesia to browse easily geospatial data that is stored in many producer organizations that are located in different locations in Indonesia. The development of the online mapping system involves communication technology, web application, and geospatial data.

Online mapping system connects all geospatial data producers in Indonesia in a distributed geospatial database network. In this network all servers belonging to geospatial data producers are interconnected and integrated in one data standard and communication protocol. In this system, the data is developed and maintained by each data producer.

This geospatial database network is operated based on TCP/IP protocol and is designed to be a closed intranet forming a virtual private network. With this networking design, data communication between data producer can be kept secure. In order to provide service to global community, a gateway server is activated in the network and from this gateway server; a connection to the internet is established.

To make geospatial data from all geospatial data servers being delivered to the users, the online mapping system needs to develop a web based application. This application forms as an interface between users and geospatial data. This allows users not to just display the graphical information but also to query textual information stored in the data.

In addition to that, this application will allow users to select a certain data theme or several themes depending on their request. This application briefly consists of several steps process: receive a request from an internet user, find the location of data, get data from a data producer, symbolize data, and send this data to the internet user.

The online mapping system involves all of geospatial data that are available in Indonesia. This system is designed in such a way that users may obtain certain geospatial data and information in order to fulfill their needs in making general planning.

Data that is suitable to this requirement will be the 1:1,000,000 data resolution and this data will be prepared in compliance to the global mapping data specification.

3. CURRENT DEVELOPMENT

The online mapping system development in Indonesia is now in progress. The current development consists of communication infrastructure, geospatial database, geospatial database network and web server application. The system is developed and maintenance by the National Coordinating Agency for Surveys and Mapping (NCASM) of Indonesia.

There are two network systems developed for the online mapping system and both are interconnected by an internet connection of 256 KBps bandwidth. The first system is called the digital hub and is developed in Jakarta. This system forms a network gateway of the online mapping system and is defined as the host of the web server application.

The second system that is located in the suburb of Jakarta, called Cibinong, forms as one of the geospatial databases in the online mapping system. In this second system all geospatial data that is produced by the NCASM are prepared according to standard adopted by the online mapping system.

The web map server application has been developed according to a technical specification required by the online mapping system. The functionality of this application has been running as expected.

This application allows users to browse from the internet the geospatial data that stored in servers that are located in different geographical location. This application can be accessed in www.bakosurtanal.go.id under online mapping. The development of this application is established using ArcIMS software from ESRI.

The geospatial data that is prepared for this online mapping system is the topographical data and several thematic data of Indonesia at 1:1,000,000 resolutions and consists of themes as follows:

- administrative boundaries
- coastlines
- transportations

- hydrology
- settlements
- contour lines
- land system
- geomorphology
- land use

4. CONSTRAINS

For Indonesia, the development of online mapping system is a long time process because of the financial matters and the little awareness in data standardization. This certainly limits the development of the online mapping system.

When accessing the system users may find that, the performance is low so that it takes some times to browse the data. This is so happened because the connection to the internet is established in 256 KBps bandwidth. In addition to that, the connecting to database servers is also established by the similar bandwidth. It is expected that in the near future the online mapping system will be operated in 2 MBps bandwidth connection.

The other constrains that limits the development of the online mapping system is the existence of geospatial data. Most of geospatial data in Indonesia is already available in each data producer; however, this data does not yet refer to one geospatial framework so that the overlaying of different data themes in the online mapping system is impossible.

5. DEVELOPMENT PROGRAM FOR 2005

The development of the online mapping system is still in progress. In year 2005, the development program has already been set up as follows:

- Build database servers in other government agencies: Department of Forestry and Department of Public Works.
- Standardize the existing data to comply with the Global Mapping Data specifications.
- Improve the internet connection.
- Update the web map server software to the higher version
- Socialization of online mapping system to other government agency and private company as well.

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