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DEVELOPMENT AND USE OF GEO-INFORMATION IN INDONESIA

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Development and Use of Geo-information in Indonesia

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KEY WORDS:

SUMMARY

Geo-information in Indonesia is developed and used mostly by government institutions. There are still a lot of works for Indonesia in order to complete national geo-information coverage and to utilize geo-information by the Indonesian community. The government of Indonesia led by the National Coordinating Agency for Surveys and Mapping or BAKOSURTANAL, a government agency, is now struggling to reach this goal. The development of the geo-information is started from the very basic phase that is the making of a government regulation and institutional cooperation. This effort aims at the availability of integrated geo-information of Indonesia. For utilization of geo-information, an effort of developing a national clearinghouse , as a tool to distribute geo-information to Indonesian, is implemented. Besides, in relation to empowering Indonesian people several international conference and exhibition is also implemented. The available geo-information has been utilized by many government agencies for many purposes like multi-hazard mitigation, poverty reduction, national development planning, and environment protection.

1. INTRODUCTION

Geo-information is very important in planning the national development. Besides, there are some hazards happened in Indonesia that need actions by the government to mitigate and for this the role of geospatial data is central. However, there some preliminary action has to be taken, that is the management of geo-information in Indonesia in order to make geo-information is easily integrated, accessed and utilized. Below, there will be brief explanation of how geo-information is developed and used by the Indonesian.

2. THE DEVELOPMENT AND USE OF GEOINFORMATION IN INDONESIA

This section explains the development and use of geo-information in Indonesia. Geo-information of Indonesia is produced by many government agencies, both central and regional. Geo-information consisting of geodetic control networks and topographic data is produced by BAKOSURTANAL while thematic data is produced by other government

institutions.

All thematic data is compiled using topographic data as a spatial framework. Almost all government institutions, central and regional, under their authority manage this geospatial data. There are about 50 central, 40 provincial and 350 district government institutions who manage the thematic dataset in different variety.

There are some problems encountered with this data management. Geospatial data produced by each institution can not be integrated because each institution develops its dataset applying its own system and standard. The integrated dataset into one national standard is necessary for data exchange purposes.

Data utilization in Indonesia is also limited to government institution that produces the data. Especially thematic datasets, most of these datasets are produced specifically for supporting the institution tasks. The standard, classification, management, and distribution are so specific. So, they are not ready for sharing with others or for use by community.

It is difficult to find these thematic datasets because they are stored in many different institutions. If user wants to use a thematic dataset, the user has to find where the dataset is stored, then get the dataset either going to the sale office or purchasing by mail delivery.

Few of these datasets can be obtained from the internet because only few of the institutions provide map services using internet and besides, the number of Indonesia people penetrating internet is low, less then 5% of the population. This causes the level of geo-information communication through internet between data producers and data users is considered low.

3. INDONESIAN SPATIAL DATA INFRASTRUCTURE

The development and use of geo-information in Indonesia needs national efforts to make Indonesian geo-information available, sharable and accessible by the whole Indonesian community.

Such efforts have been accommodated in the development of the so called Indonesian

Spatial Data Infrastructure or ISDI. ISDI is considered as a participating system consisting of geospatial data stakeholders aiming at acquisition, management, and distributing of Indonesian geospatial data for supporting national socio-economic development, and protecting of the environment.

The implementation of the ISDI development is now focused on the development of Presidential regulation, National Geospatial Standard, and National Clearinghouse.

The draft of the Presidential Regulation regulates elements of custodian, fundamental dataset, national clearinghouse, data standard, and funding. This draft is now being processed by the Minister of Laws and Human Rights.

The Indonesia geospatial data stakeholder in corporation with the Indonesian National Standard Agency is now developing the National Geospatial Data Standard. At present, the Feature Codification Framework has already been finalized. To complete the National Geospatial Data Standard, each data producer institution will add its feature code to the framework.

A prototype of a National Clearinghouse is now in progress. BAKOSURTANAL, Department of Public Works and Department Energy and Mineral Resources are so far the nodes of the Clearinghouse.

Although the development of ISDI is not completed yet, the development of geospatial datasets within the government institutions are keep moving forward.

3. UTILIZATION OF GEOINFORMATION

In relation to the need of geo-information for solving problems related to the central government priority programs such as reduction of poverty, mitigation of multi-hazards and increase of investment, BAKOSURTANAL in cooperation with other institutions develops the system. Institution involved in this activity consists of the Secretariat of Vice President, Department of Communication and Information, State Ministry of People Welfare, National Development Planning Agency, Department of Energy and Mineral Resources and Geophysics and Meteorological Agency.

There is some GIS based applications already developed by government institutions

both central and regional, however between the GIS applications there is no integration in terms of data and spatial analysis procedure. This needs more cooperative effort amongst the institutions in order to produced consistent geo-information products.

a. Tsunami Early Warning System

The Intergovernmental Oceanographic Commission meeting in Paris, in March 2005, decided to develop the regional tsunami warning system for the Indian Ocean. As a member of this organization, Indonesia commits to establish the Indonesian Tsunami Early Warning System (Indonesian TEWS). The Indonesian TEWS establishment covers components follows:

(a) Earthquake monitoring system,
(b) Sea level (ocean) monitoring system, tide gauge network, tsunami buoy system
(c) Database of tsunami modeling,
(d) Dissemination of information, and
(e) Community preparedness.

b. The Development of Poverty Information System

The Poverty Information System allows to creating poverty information needed by the government in order to reduce poverty. The system is developed in web GIS environment so that the spatial analysis can be performed. The system allows users to access poverty information by years and both in textual and spatial mode. Data updating can be performed on line by the central and district government. This system has been installed in the Vice President Office, State Secretary and in BAKOSURTANAL.

The system is supported by several datasets comprising of:
- coastline
- hydrology
- transportation
- settlement
- hypsography
- regional boundary
- toponimy

- poverty
- human development
- education
- labor
- facilities
- health
- village potency

c. The Development of Integrated Database for Natural Disaster

The integrated Database for Natural Disaster is a cooperative effort of BAKOSURTANAL, Department of Energy and Mineral Resources, and Geophysics and Meteorological Agency in producing of multi hazard maps of land slide, flood and volcano of areas prone to these hazards. Several geospatial datasets are included in the database comprising of contour lines, rivers, etc. To produce these multi hazard maps, GIS applications is developed. At present, the database has included geospatial data of the whole island of Java.

d. National Cooperation

There are several activities implemented to maintain cooperation among geospatial data producer. They are the ISDI Coordination Meeting, GIS Technical Meeting, Bilateral Cooperation etc. Just few days ago, on September 12, 2006, ISDI Coordination Meeting has been successfully organized in Semarang. Participant from central and regional government met to decide the next plan of ISDI development. The cooperation of government institutions is also implemented bilaterally in form of Memorandum of Understanding.

f. Empowering People

Geo-information utilization includes the development of human resources. People who uses geo-information should have some knowledge of how to use geo-information. People should also awareness of the important of geo-information for its life. BAKOSURTANAL in cooperation with other Ministries and an Indonesian event organizer just organized a successful geospatial exhibition in last August 2006, in Jakarta Indonesia. This exhibition was pinpointed at the introduction of geospatial technology to Indonesian people leading the people to understand how geo-information is produced and how it is utilized, using geospatial technology.

4. CONCLUSION

The understanding of the important of geo-information in Indonesia is growing especially in the region. Then, the number of institution producing geo-information is increasing. However, it needs a fundamental action in order to make geo-information available, accessible and usable. The development of ISDI is understood to be important because it form as a base for making Indonesia geo-information available, accessible and usable The President Regulation should be issued as soon as possible because it will be a legal aspect for developing of the ISDI. The development of geo-information standard should be developed because it facilitates data sharing and use.