Indonesia's National Spatial Data Infrastructure

Indonesia is the largest archipelagic country in the world, and with the proliferation of complex national development tasks – such as rebuilding after the 2004 Boxing Day tsunami – the need for geospatial information has proved to be a necessity.

Through the enactment of the Geospatial Information Act in April 2011, the Indonesian government prioritised nationwide access to authoritative data to provinces, local governments and the private sector through an easy-to-use online portal.

GIS technology was identified as the key platform to drive this portal.

The technology maps and analyses information to provide geographic insight across a range of functions including: construction and management of development and infrastructure projects; emergency measures against natural disasters; environmental protection policies; land use; forestry, agricultural, land and building tax; and, mineral resources management.

Indonesian NSDI

The portal – known as a National Spatial Data Infrastructure (NSDI) – will see GIS technology become a key tool to the country and will reduce the duplication of efforts among agencies – improving data quality and reducing costs.

The Japanese government's Japan International Cooperation Agency (JICA) provided a loan to the Indonesian

Geospatial Information Agency (Badan Informasi Geospasial – BIG) to deliver the project.

Esri's ArcGIS for Server and Geoportal Server are the foundation of the national system. NTT Data and its Indonesian counterpart are implementing the project with guidance from Esri Indonesia's Professional Services team.

Success of the NSDI relies on institutes and national data producers – including provinces and local governments, as well as the private sector – all working together. The goal is to increase data availability to make it easy to find, access, and use online. This in turn will make geospatial data more accessible to the public, increasing its benefits.

Creation through legislation

The road to Indonesia's NSDI began with an historic move: the establishment of the Geospatial Information Act in 2011. Passage of this act has three main advantages: increased access to reliable geospatial information, more effective delivery of geospatial information, and the ability to use that data throughout the country. The goal was to more effectively share necessary geospatial information between ministries.

Initially, the issues were related to questions of how to present the information on a map. Once government staff learned to represent their own datasets on a map, integrating the data with other ministers' datasets turned out to be just as challenging. Different scales and formats made sharing information as the legislation requested a difficult task.

Better data access through NSDI

Because of these challenges, access to authoritative data that could be easily shared between parties became very important. The

logical step forward was to implement an environment in which stakeholders – using technology, standards and shared geospatial information – could interact, to better achieve their objectives at different political or administrative levels.

The NSDI project will help achieve good governance of Indonesian geospatial data and will support more efficient administration, in various levels of government. The vision is for geospatial data to be more easily acquired and created throughout the island nation. This will support regional development planning and will help manage resources, protect the environment and mitigate natural hazards.

GIS is BIG in Indonesia

The agency charged with this vision is the National Coordinating Agency for Surveys and Mapping (Bakosurtanal), which is evolving into BIG.

Managing the NSDI project will involve many complex activities related not only to administrative matters, but also to creating the right technical environment within government institutions to be able to evaluate, select and manage geographic information.

It will be considered successful if the developed NSDI complies with the original operational concept, uses approved standards and increases the usefulness of Indonesia's geospatial assets.

Once the NSDI is established, every institution involved will be focused on maintaining the momentum of this historic project. More participants will be included, more applications designed to use the system, and a working committee created to continue defining the direction and policies of this important resource.

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