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GIS AND SDI IN DEVELOPMENT PERSPECTIVE

Keyword: GIS, SDI, LBS, Development, Technology

INTRODUCTION

Geographic Information - We need geographic information to identify features, people or any natural phenomenon on the surface of the earth. At a basic level geographic data comprises location and descriptive or attribute information. This approach has become a powerful tool in understanding, analyzing and managing the world we live in and opened the stage for Geographic information systems (GIS) technology. A GIS, is system that capture, store, analyze, manage and data that concern with location.

Spatial Data Infrastructure (SDI) is a framework of user, metadata, spatial data and apparatus that are linked to use spatial data in a well-organized and flexible way. SDI extends a GIS by ensuring that geospatial data and standards are used to create authoritative datasets and policies that support it. GIS system, it has boundaries that may be application oriented, purpose based or for which a specific GIS is developed is necessary. What goes further than GIS is called a SDI, means that has no such restrictions.

SDI is the technological era, policy, principles, people and related actions essential to

Acquire ⇨ process ⇨ allocate ⇨ use ⇨ sustain ⇨ conserve spatial data.

SDI is used to represent the collected works of technology, policy and institutional arrangements for the access to spatial data. SDI provide a origin for spatial data discovery, assessment and function for users and provider within government, business sector, NGO sector, academic circles and citizens for development purpose.

TECHNOLOGY

Attribute information such as demographic data must be geo-referenced before it can be used in a GIS. That almost all information can be geo-referenced was one of the key drivers towards the development of the GIS technology.

GIS technology use digital information for which a range of digitized data foundation method are used. Universal method of data foundation is digitization, where a photo copy of map or plan is transfer into a digital media through CAD program and geo-referencing capability. With the accessibility of satellite sources, heads-up digitizing is fetching the main possibility through which geographic data is extract. Heads-up digitizing involve the tracing of geographic data in a straight line on top of the in-flight descriptions as a substitute of by the conventional method of tracing the geographic shape on a heads-down digitizing.

Data image

GIS data focus real objects such as roads, land occupied, altitude with digital data.

- Real objects divided into two abstraction: Distinct objects and constant fields.
- Mainly two method used for storing data for abstraction: Raster and Vector.

- Mixture method of storing data is spot exhaust which merge three-dimensional points with RGB data and each point is called as a "3D color image".

BENEFITS

The provision of timely access to reliable, consistent geospatial data to support sound decision making by local, regional and national governments as well as all. The benefits from GIS and SDI are

- **Human Services** : Health organizations influence incomplete wealth and positively force individual, family and civilization.
- **Transportation** : Help in organization, development, evaluate and maintain transport system.
- **Mapping** : GIS allows aeronautical, cartographic and marine organizations to implement a workflow.
- **Public Safety** : Public safety human resources the skill to imagine relationships and disclose trends and forecast.

DEVELOPMENT

Today, GIS is being used in virtually all sectors of development and is helping thousands of organizations and individuals answer the "what", "where", or "what if" questions. GIS promote has resulted in lower costs and repeated improvement in the hardware and software mechanism of GIS. Such developments turns result in a lot wider use of the technology the whole time science, government, business with applications including health, crime, real estate, defense, development, natural resources, architecture, archaeology, regional and community planning.

GIS is moreover diverge into location-based services (LBS). LBS allow GPS enable mobile devices to show position in relation to assets (nearest store, filling station, cinema..etc), mobile property (associates, family, police) or to spread their situation back to a server for exhibit or processing. These services maintain to extend with the increased addition of GPS functionality with powerful mobile (cell, Tablets, laptops,).

For example, GIS capacity agree to urgent situation planners to calculate emergency reaction times in the event of a disaster. The unique development of the Internet has multiply the value of SDIs by attractive the broadcasting of information goods.

INDIA'S NATIONAL GIS

Exhibit-1*

Information will be the fourth pillar of democracy, and GIS will be that important element of the fourth pillar—helping in the concept of unified information infrastructures. National GIS is envisaged not just to provide GIS data and GIS applications but serve as a platform for a host of e-services to every citizen—be they in urban or rural areas—and thereby leading India into inclusive growth and prosperity, expediting development, reducing disparity, and bringing rich demographic dividends.

* Source : Sam Pitroda, "A National GIS for India's Development," Keynote Address, Esri International User Conference, San Diego (July 8–12, 2013)

Exhibit-2#

Key elements of India's National GIS vision include the following:

- **A National GIS platform with GIS-centric computing and networking infrastructure.**
- **Seamless, nationwide National GIS asset at 1:10,000 scale, as well as city-level data at larger scales.**
- **Targeted National GIS applications to support government ministries and departments, private enterprises, and citizens and delivered through a National GIS portal; planned GIS dashboards for use by the Prime Minister's Office, Planning Commission, Cabinet Secretariat and key dignitaries.**
- **Focused GIS capacity-building initiatives.**
- **Pragmatic geographic information (GI) policy positioning and best practices for National GIS.**

#Source : <http://www.esri.com/esri-news/arcnews/fall13articles/india-a-vision-for-national-gis>

The Indian government's vision is to create a new standard for governance and development with importance on inclusive growth and development to reduce disparity, further development and carry

demographic dividends that will be exclusive. The visualization of National GIS is associated to enable a systematic mapping of resources, disparities and needs to meet the targets of beneficiaries and society ; support sustainable and planning; support quick and reliable observing of plan execution and status of development; enable transparent systems for inclusivity of society and support real-time mapping of feedback and reimbursement systems.

CONCLUSION

The Indian government visualization is to build a new archetype for governance and development with importance on inclusive growth—particularly to reduce gap, further development and carry demographic dividend that will be distinctive. The vision of National GIS is united to enable a scientific map of resources, disparity and needs to meet the aspiration of society, support sustainable planning, reliable monitoring and status of development, enable crystal clear systems for inclusivity and support mapping of feedback systems.

The process of beginning and implementing the state and national vision will also provide significant openings for the private sector to contribute to and be part of this national striving. The national and state GIS will also boost education and research in GIS with school, university and research programs focused on training the privileged of tomorrow in spatial intelligent concepts and the fundamental principles of GIS.

Geographic Information System (GIS) technology is a hybrid product of computer science, engineering, cartography, and digital data acquisition, image processing and graphic sciences. GIS is the inclusion of cartography and database management system (DBMS) technology. GIS used in remote sensing, cartography, surveying, geography, planning, emergency management, navigation and search engines. GIS technology also used in investigations, resource and asset management, archaeology site, environmental impact assessment, criminology, history, marketing, logistics, mapping and additional purposes for the holistic development of India.

The development of SDIs represents the next consistent step in the extension of GIS use for data management and decision support system. SDIs use usual data and metadata standards in the construction of well-documented establishment datasets. Used with continuously modernized equipped data, SDIs make data more reachable and useful responsibilities and analysis and save time while distribution costs. SDIs, collectively with GIS software, undo the information restricted in the terabytes of capacity, images, connections and other data store in digital form by insertion it in a context. A GIS is frequently the stand for deploy a being node inside an SDI. To realize these objectives, good synchronization between all the actors is essential and the description of principles is very significant for the sustainable development.

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