GIS present situation in Japan

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History of GIS in Japan

In Japan, maintenance of digital maps started in 1974, but systematic maintenance of digital maps started in 1995. Based on the lessons from the Great Hanshin-Awaji Earthquake of January 1995, GIS Association proposed the government to establish NSDI. Therefore, the national government established the GIS Liaison Committee of Ministries and Agencies in September 1995, and the strong activities for GIS development started systematically in Japan. Geographical Survey Institute (GSI) is the secretariat of the Liaison Committee with the National and Regional Planning Bureau, Ministry of Land, Infrastructure and Transport (MLIT).

At first, "the Long-term Plan for Building a National Geospatial Data Framework and Promoting the Use of GIS" was formulated by the GIS Liaison Committee. This Long-term plan has 2 phases, such as Infrastructure formation period and Spread period. After that, "the e-Japan Priority Policy Program" was formulated by the IT Strategy Headquarter in March 2001, and "GIS Action Program 2002-2005 (GIS-AP)" was developed by the GIS Liaison Committee in February 2002, to harmonize "the e-Japan Priority Policy Program."

In GIS-AP, big pillars of aim are these 3 fields.

(1) Increasing the efficiency, speed and quality of administrative services.

(2) Creating new business models and new jobs in private sectors.

(3) Provide low-cost, high-quality services for residents.

Current activity on GIS in Japan (from follow-up on GIS-AP)

GIS -AP has five Maine purpose as follows:

1. Standardization related to NSDI and pioneering uses by government
2. Establishment of systems and guidelines to help promote the digitization and flow of geographic information
3. Promoting the digitization and provision of geographic information
4. Full-scale use and support of GIS
5. Improve efficiency of government and enhance quality of government services using GIS

About "standardization," "Japanese Standards for Geographic Information (JSGI)" is established as a standard of the national government. Globally, formulation of standardization of geographic information is carried out in the ISO/TC211 about items more than 40. In Japan, as a results of joint research with private sectors, GSI made JSGI as standards in Japan based on ISO about basic standard 13 items such as application schema, spatial reference, encoding, data quality and meta data (specifications of data), to be necessary for smooth exchange of data. Each items of JSGI become Japanese Industrial Standards (JIS), as soon as an international standard is settled in ISO. Geographic information complying with JSGI includes the following, among others: Digital Map 25000, Digital Map 2500, Spatial Digital Information, and Residential block level Location Reference Information. In addition, to promote use of standards, GSI developed the Japan Profile for Geographic Information Standards (JPGIS) in March 2005, as a practical profile of JSGI.

About "establishment of System and Guidelines," "Guidelines for the Provision of Government

Geographic Information" was published by the GIS Liaison Committee in April 2003, and "Collection of Q&A regarding the above-mentioned guidelines" was published in June 2004. Various problems to must be solved were shown in this guideline, such as protection of personal information, infringement of copyright, secondary utilization and so on.

About "promoting the digitization and provision of geographic information," 36 data sets have been digitized (all geospatial data frameworks consist of 49 data sets). Periodic updating of core geographic information (Digital Map 2500, Digital Map 25000 and Residential block level Location Reference Information) had been done. For promotion of Internet provision of geographic information, 21 sets of spatial data framework have been provided. Provision is implemented by using a web mapping system (Digital Map 2500, Digital Map 25000, and Spatial Digital Information). The contents of Digital Map 2500 and 25000 (Geospatial Data Framework) are transportation network, drainage network, coastal line, administrative boundary, geodetic control point and geographic name. Digital Map 2500 also includes footprints of public buildings, parks, boundaries between road and residential area and so on. Digital Map 25000 has been developed for whole country with revision of paper topographic maps and distributed since 2000 by GSI. Digital Map 2500 has been developed for urban area by compiling National Large Scale Maps since 1995 by GSI. GSI also publishes 50m grid DEM from 1:25000 scale maps for whole country, 10m grid DEM from large scale maps for active volcanoes and 5m grid DEM from LIDAR data for flatland.

About "full-scale use and support of GIS," cooperation with local public bodies and assistance to local areas has done for the development of integrated GIS. All prefectures and 39% municipalities have installed individual GIS, and only 14 prefectures and 12% municipalities have installed integrated GIS for multi-purposes.

About "improve efficiency of government and enhance quality of government services using GIS," realization of high-quality services using GIS and Web GIS is promoted in all administrative fields including disaster prevention, urban planning, transportation, environment, and education, such as earthquake disaster prevention information system (DIS) and Web GIS applications("Statistics GIS Plaza," "Disaster Prevention Information Providing Center," "Cyber Japan Web System," etc.) By "Cyber Japan Web System," people can use the latest map information of GSI as a background map to their own geographic information and provide it at their web sites.

New activity on GIS in Japan

In September 2005, "the Committee on the Advancement of Satellite-Based Positioning (Quasi-Zenith Satellites for Positioning Services) and GIS" was established to maintain close contact and cooperation among organizations involved with positioning and GIS, and to promote comprehensive and effective use of these systems. In conjunction with this, the GIS Liaison Committee was abolished, but its work has been continued by the new committee. Next GIS program from 2006 will be planed by the Committee. Now, new act for NSDI is under discussion in the Diet.

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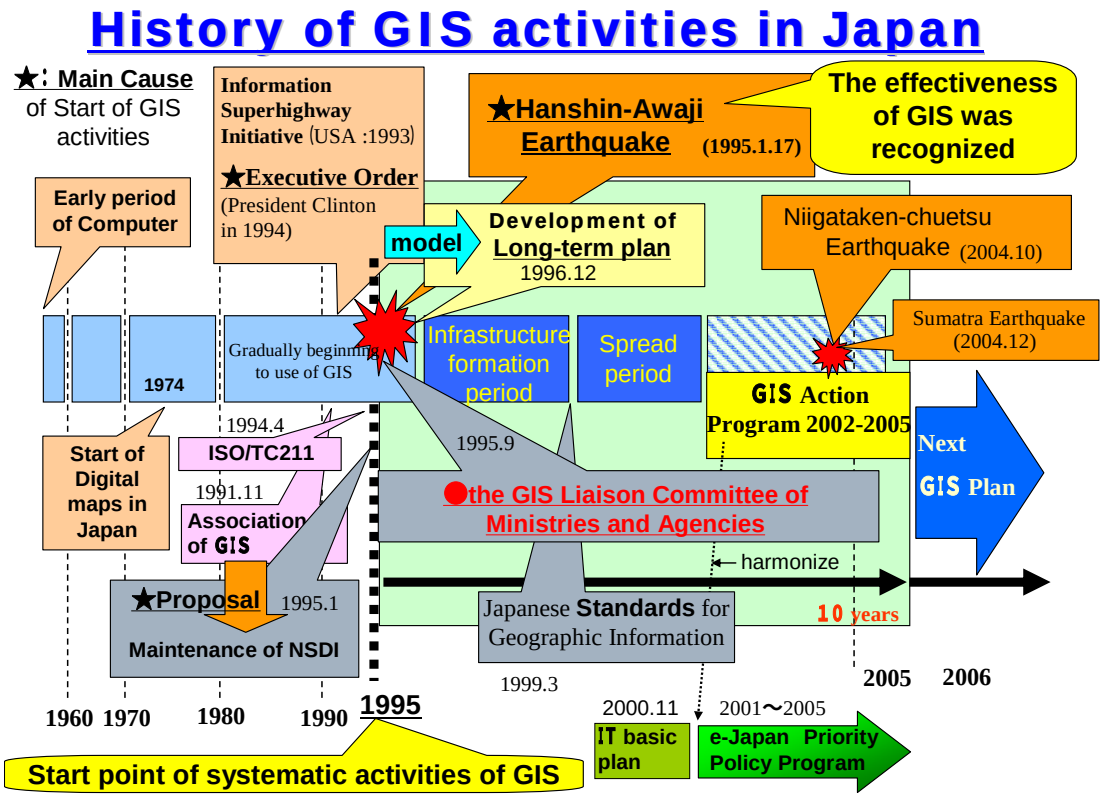

Fig.1 History of GIS activity in Japan

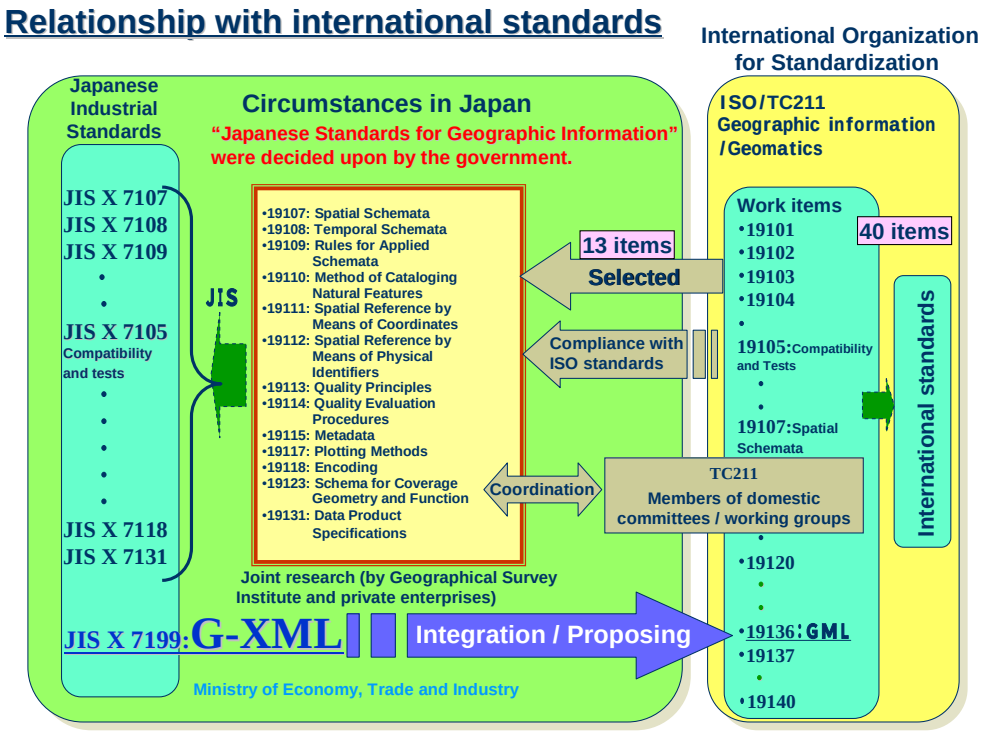

Fig.2 Relationship between JSGI and ISO/TC211

Sample of Digital Map 2500

Sample of Digital Map 25000

Fig.3 Sample of Geospatial Data Frameworks published by GSI

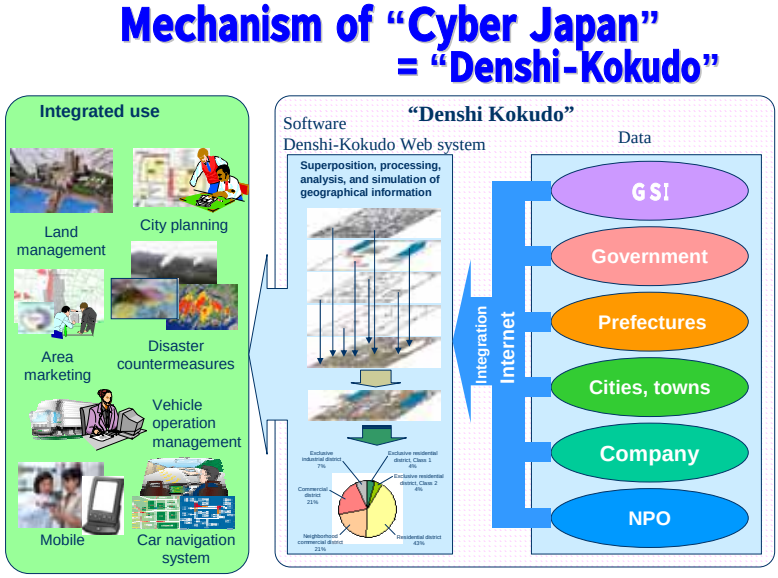

Fig.4 Concept of Cyber Japan "Denshi-Kokudo"

Fig.5 Sample of Cyber Japan Web system "Niigataken-Chuetsu Earthquake"