

International Workshop on Spatial Enablement of Government and NSDI Policy  
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# **Further Advancement of Utilizing Geospatial Information in Japan**



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# Survey Act

Survey Act realized partly NSDI concept in 1949, and Survey Act is one of the most important measures for establishing NSDI in Japan. Geographical Survey Institute (GSI) as a government organization has been responsible for enforcement of Survey Act.

## **Purpose of the Act**

*Article 1. The purpose of this Act is to effect coordination and standardization of surveying, where public funds or the use of public surveying data are in anyway involved, to avoid duplication, maintain accuracy, define necessary authority for execution and generally to effect improvement in surveying.*

# Survey Act

Scope of Survey Act covers not only surveying and mapping conducted by GSI but also most of public surveying and mapping conducted by central and local government and public agencies.

## Scope of the surveys

*Article 4. "Basic survey" within the meaning of this Act shall be basic fundamental surveys conducted by GSI.*

*Article 5. "Surveys for public projects" within the meaning of this Act shall be surveys for projects which will utilize public funds for all or part of their costs except minor surveys or surveys not requiring high accuracy.*

# Survey Act

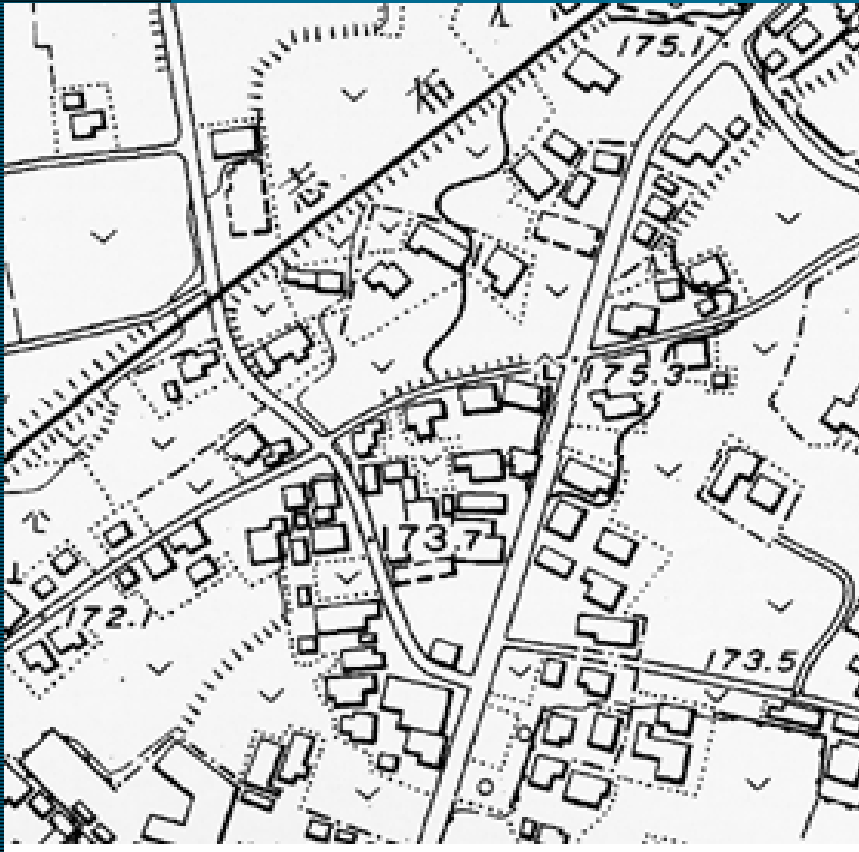
- Survey Act provides
    - avoidance of duplicated works (coordination by GSI; submitting survey plans of public surveys to GSI )
    - submitting public survey data to GSI, and providing the reports on them by GSI (collection of all survey data and publication of meta-information (metadata))
    - standard specifications (geodetic datum, geographic features and symbols)
    - use of survey data (approval of reproduction without charges)
- etc.

# Basic surveys and surveys for public projects

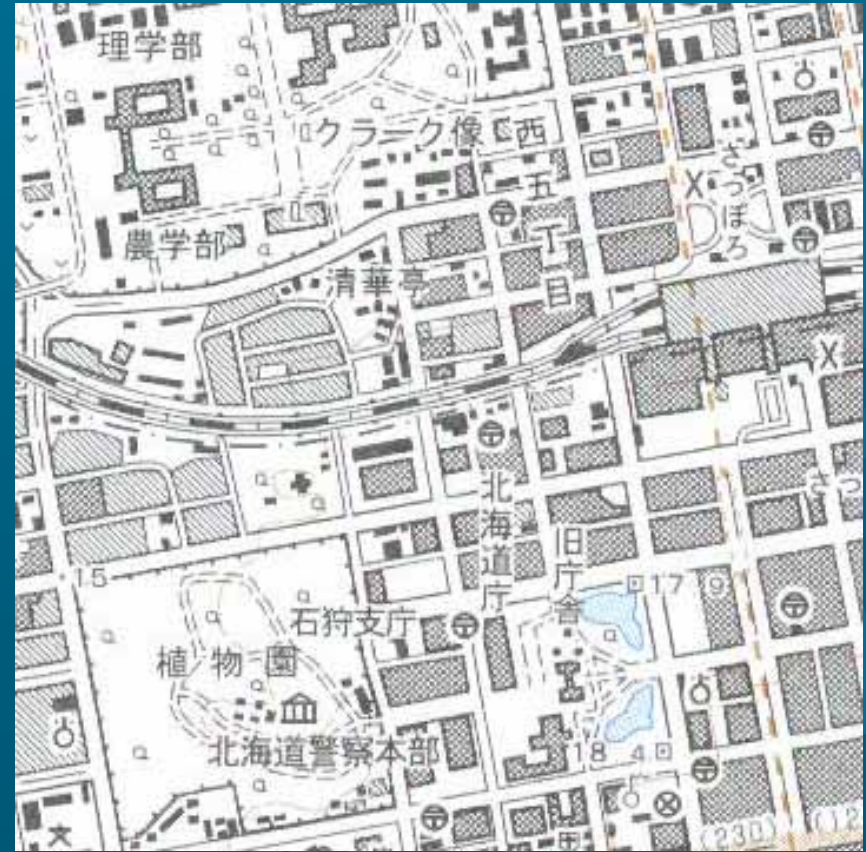
- Basic Survey (GSI)
  - GSI has prepared 1:25000 scale topographic maps and mainly maps less than 1:25000 scale for the whole country.
- Public Survey
  - Public surveys are done by public sectors. Surveys are executed in relation to specific projects.
    - Urban Planning (1:2500 scale topographic maps).
      - Municipalities use the specification of "National Large Scale Map (NLSM)" prepared by GSI as the base map.
      - NLSM covers urban and suburb area for about 1/4 of the whole country.
    - Road Administration (1:500 scale topographic maps)
  - Large scale topographic maps for specific projects have been standardized in accordance with Survey Act. Digital forms for the maps have been also standardized since 1988.

# Major Reference Maps

The followings are major reference maps which covers wide area in Japan. Government organizations and private companies complies these maps for their purposes.



1:2500 National Large Scale Map  
by municipalities



1:25000 Topographic Map  
by GSI

# National SDI



Kobe Earthquake



- History
  - Establishment of GIS Liaison Committee of Ministries and Agencies in 1995
  - Adoption of the "Long-term Plan for Building a National Geospatial Data Framework and Promoting the Use of GIS" in 1996
  - Adoption of "Standards and Development Plan for National Geospatial Data Framework " in 1999
  - Adoption of "GIS Action Program 2002-2005 "
- Framework (core data/reference data)
  - In the Plan in 1999, various source maps for framework development were listed up.
  - Topographical maps by GSI and NLSM by municipalities: these are good sources as major reference maps.

# Geospatial Data Framework

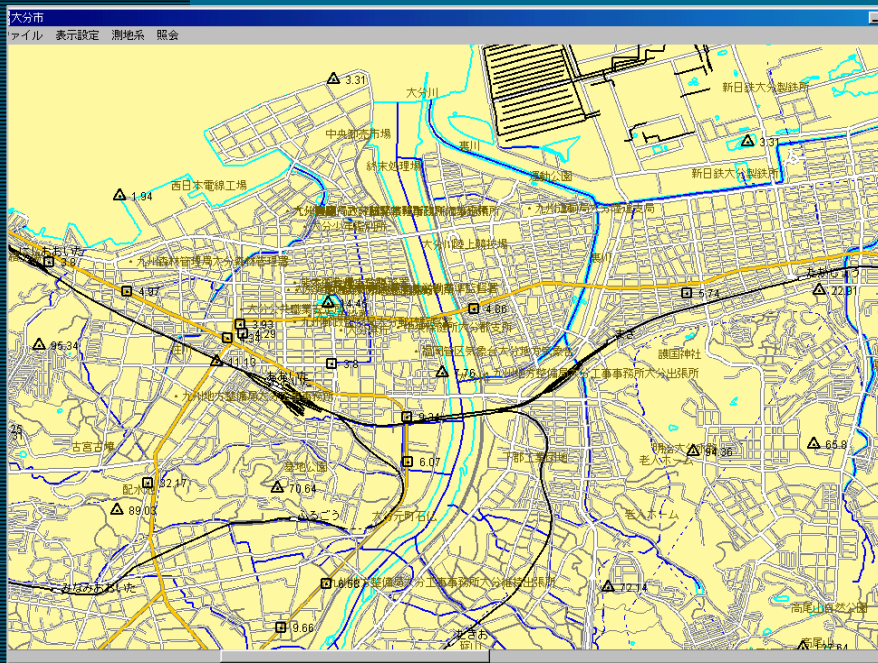
## Digital Map 2500

- Source
  - NLRM (digital form or paper form) prepared by municipalities
- Contents
  - transportation network, drainage network, coastal line, administrative boundary, footprints of public buildings, parks, boundaries between road and residential area (address) etc.
- Development and maintenance
  - Developed in 1995-2001 and maintained by GSI under the approval of Survey Act.
- Coverage
  - the same area of districts designated by Urban Planning Act (about 1/4 of the whole country)
- Design and encoding
  - ISO19109(UML)/ISO19118(XML)
- Distribution
  - CD

## Digital Map 25000

- Source
  - Topographical map database prepared by GSI
- Contents
  - transportation network, drainage network, coastal line, administrative boundary, DEM, points of public facilities, geographic name etc.
- Develop and maintenance
  - Developed 2001-2003 and maintained by GSI
- Coverage
  - Basically whole Japan
- Design and encoding
  - ISO19109(UML)/ISO19118(XML)
- Distribution
  - CD

# Samples of Digital Map



DM25000



DM2500

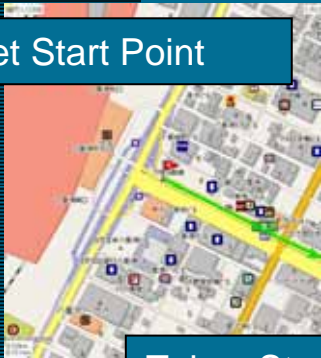
# Geo service applications by private sectors

- Traditional GIS has used for facility management in utility companies such as gas, electric power and so on. These are used inside the closed community.
- In Japan, the most well-known application of GIS is vehicle navigation system.
  - Now a vehicle navigation system, which has detailed map and information of point of interest, is installed in 20 % of the operating automobiles and 40 % of the new automobiles.
  - 80 % of the systems are installed Vehicle Information and Communication System (VICS) which provide information of traffic jams and repairing roads
- In 2003, a service of human navigation system using GPS mobile phone started. Tracking services of child and aged person for the family using GPS mobile phone are also becoming popular.

# Vehicle Navigation System with VICS

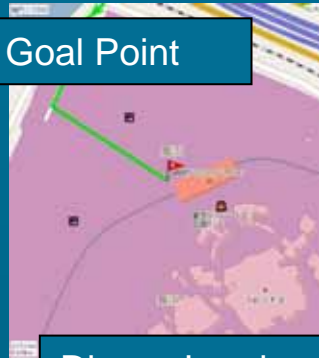
- Collaboration between Public and Private -

Set Start Point



Tokyo Sta.

Set Goal Point



Disney Land

Start Navigation



Guide the information on traffic jams and repairing roads

Markets (per year)

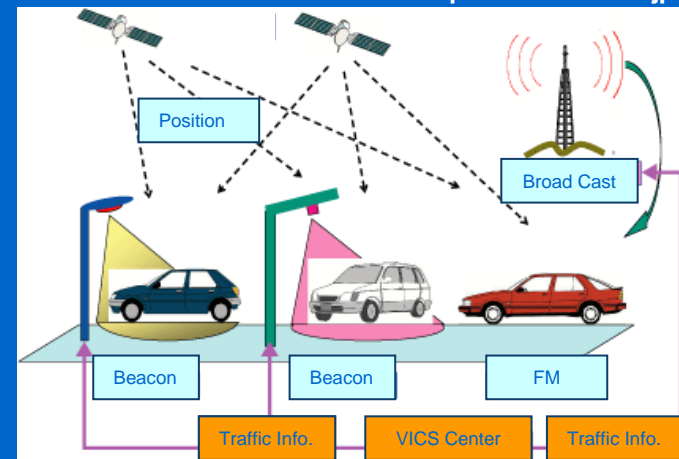
Japan 3,000,000

Europe 2,400,000

U.S. 700,000



<http://www.vics.or.jp/english/>



- Policy Agencies and Road Administrators are tracking traffic jams for their works.
- They provide the information to VICS Center.
- VICS center compiles the information and provides them to Navigation Systems.

# Tracking and Navigation services by mobile phone

- Walk navigation
- Tracking services of children and aged persons
- Tracking services of sale persons

Operating Mobile Phone: 90,000,000

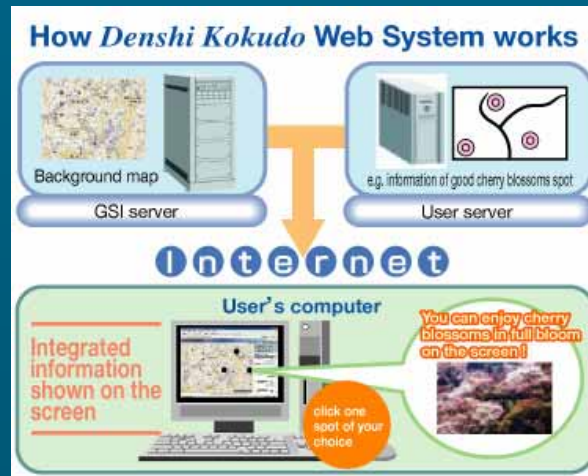
Internet connection within the mobile Phone: 78,000,000

70 models in present 142 models provide application services using GPS in 2006.



# Geo service applications by government

- Cabinet Office has promoted establishment of e-Government for several years, GIS Action Program for 2002-2005 focused on the support of e-Gov. The Program also focused on applications of environment and disaster management. Various GIS, especially Web GIS, are implemented by central government organizations for these application fields.
- In case of local governments as of 2004, about 100% of the prefectures and about 40% of the municipalities are introduced GIS for their inside works. Recently introduction of map web site for communication with residents is rapidly becoming popular.



Web GIS services by GSI and an example (disaster management)

# Recent Movement: Promotion Committee on GIS and Positioning

- GIS Liaison Committee of Ministries and Agencies was reorganized as Promotion Committee on GIS and Positioning in 2005

Promotion of GIS

Promotion of advanced positioning service such as Quasi-Zenith Satellites System (QZSS)

- Adoption of "GIS Action Program 2010"



QZSS

# Recent Movement: Basic Law for the Advancement of Utilizing Geospatial Information

- Basic Law for the Advancement of Utilizing Geospatial Information was newly enacted on May 30, 2007.

## **Purpose of the Law**

*Article 1. The purpose of this Law is to advance policies concerning the Advancement of Utilizing Geospatial Information (hereinafter, "AUGI") in a comprehensive and well-planned manner by establishing basic principles and clarifying the responsibilities of national and local governments as well as specifying basic elements for measures on AUGI, in view of the fact that AUGI is essential in establishing the economy and society in which the citizens can lead a safe and quality life at present and in the future.*

# Recent Movement: Basic Law for the Advancement of Utilizing Geospatial Information

- The Law provides
  - Responsibility of national and local government
  - Enhancement of utilization of geospatial information in government administration
  - Taking necessary measures for reliable positioning service
  - Distribution of geospatial framework information through the Internet without any charge (free!)
- The Law will further support and promote the realization of spatially enabled government.

Thank you for your attention !

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