MIMU SuZeeYar conference @ Nay Pyi Taw, Myanmar

Introduction on Map related Situation in Japan and Activities of Geospatial Information Authority of Japan (GSI)

16 May, 2016

Senior Manager, Nobuhiro Ishimaru

CICC

Center of the International Cooperation for Computerization

Overview of the CICC

- **Establishment:**
  Established in June 1983 , and has reorganized to general incorporated foundation in April 2013.

- **Missions:**
  Through global computerization programs, supporting the promotion of computerization in developing countries and other regions of the world to aid the development of economies and societies and thereby promote global understanding

- **Collaborating organizations:**
  1. Government: Ministry of Economy, Trade and Industry (METI), Cabinet Secretary, Ministry of Land, Infrastructure, Transport and Tourism (MLIT), etc.
  2. Public organizations: JICA, HIDA, IPA, JETRO, etc.
  3. International organizations: ERIA (Economic Research Institute for ASEAN and East Asia), ASEAN Japan Center, etc.
  4. Japanese IT companies, IT associations (JEITA, JISA, etc.)

- **Outline of activities**
  Through its long term activities, the CICC has been supporting and contributing to the computerization of countries in Asia and other regions of the world. In particular, our IT training programs have educated more than 5,500 trainees. Most of the graduates of these programs are playing important roles in governmental organizations universities, enterprises and the community. The CICC will aggressively cooperate to promote the utilization of IT, which supports the social infrastructure of countries in Asia and other regions of the world.

GSI and CICC

- Japanese National Geospatial Information Authority “Geospatial Information Authority of Japan (GSI)” is unable to attend this conference due to the response to earthquake disaster in Kumamoto.
- CICC would like to introduce the Map related situation in Japan on behalf of GSI.

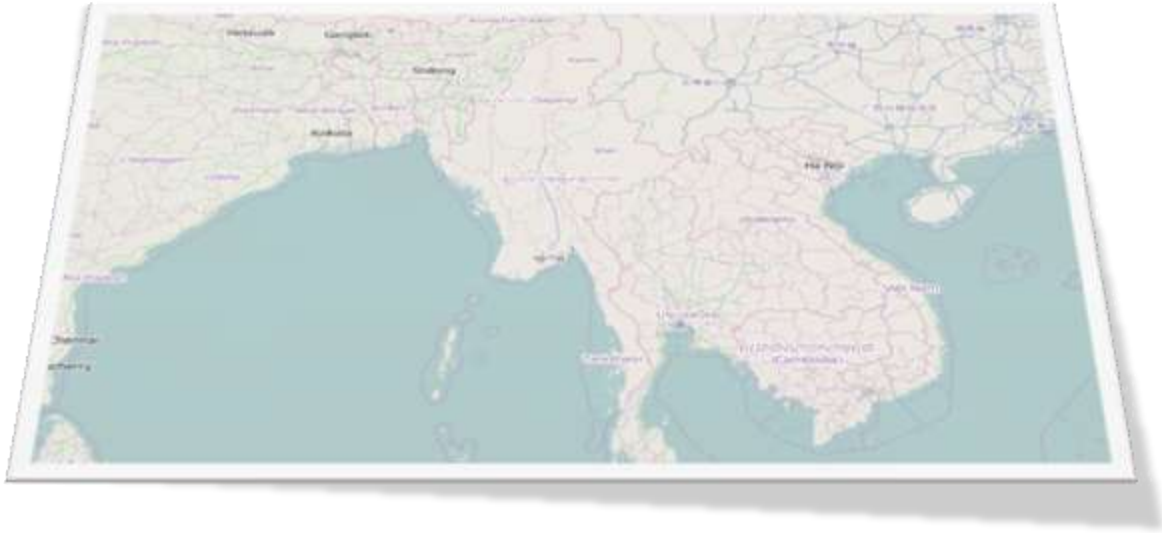
2016 Kumamoto earthquakes:
https://en.wikipedia.org/wiki/2016_Kumamoto_earthquakes (by Wikipedia)
http://www.gsi.go.jp/BOUSAI/H27-kumamoto-earthquake-index.html (by GSI in Japanese)

http://www.gsi.go.jp/common/000140103.jpg

Agenda

- **1. Discussion: Maps as National Assets**
- **2. Introduction of GSI:**
  Geospatial Information Authority of Japan (GSI)
- **3. Conclusion**

1. Discussion: Maps as National Assets



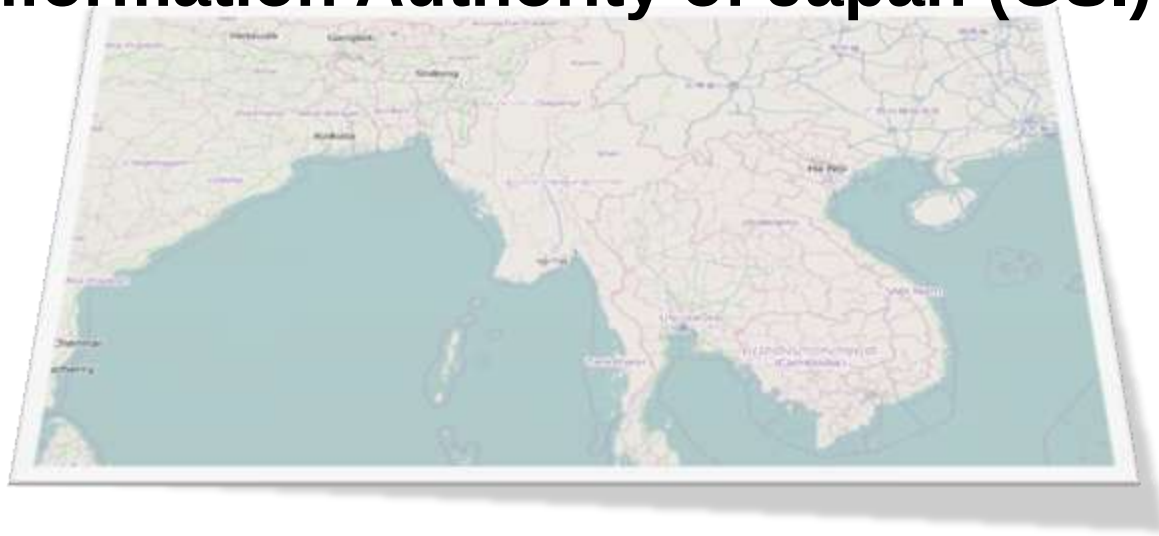
1.1 Maps as National Assets

Can Maps be help people's daily life?
Can Maps protect people's lives and property from disaster damage?

Improvement and shared use of the digital map is the foundation of the nation's development

From Maps as Data Integration
To Maps as Solution Platform

2. Introduction of GSI:
Geospatial Information Authority of Japan (GSI)



Introduction of GSI:
Geospatial Information Authority of Japan (GSI)

Hidenori FUJIMURA,
International Affairs Division,
Geospatial Information Authority of Japan

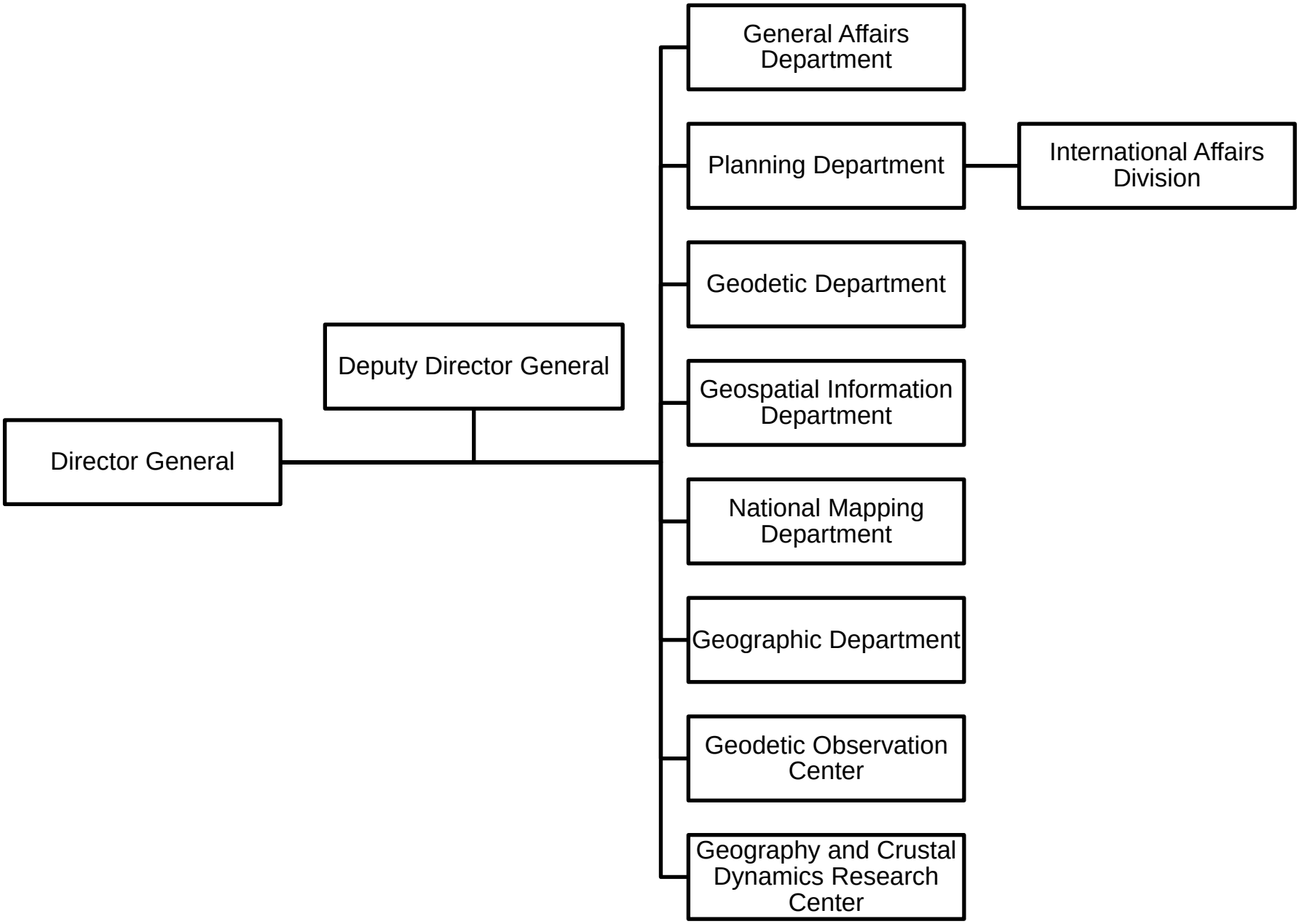
Geospatial Information Authority of Japan

We’re Japan’s National Geospatial Information Authority

Profile of GSI

- Subordinate agency of the Ministry of Land, Infrastructure, Transport and Tourism
- About 650 officers.
- About 80 million US$ as annual budget.

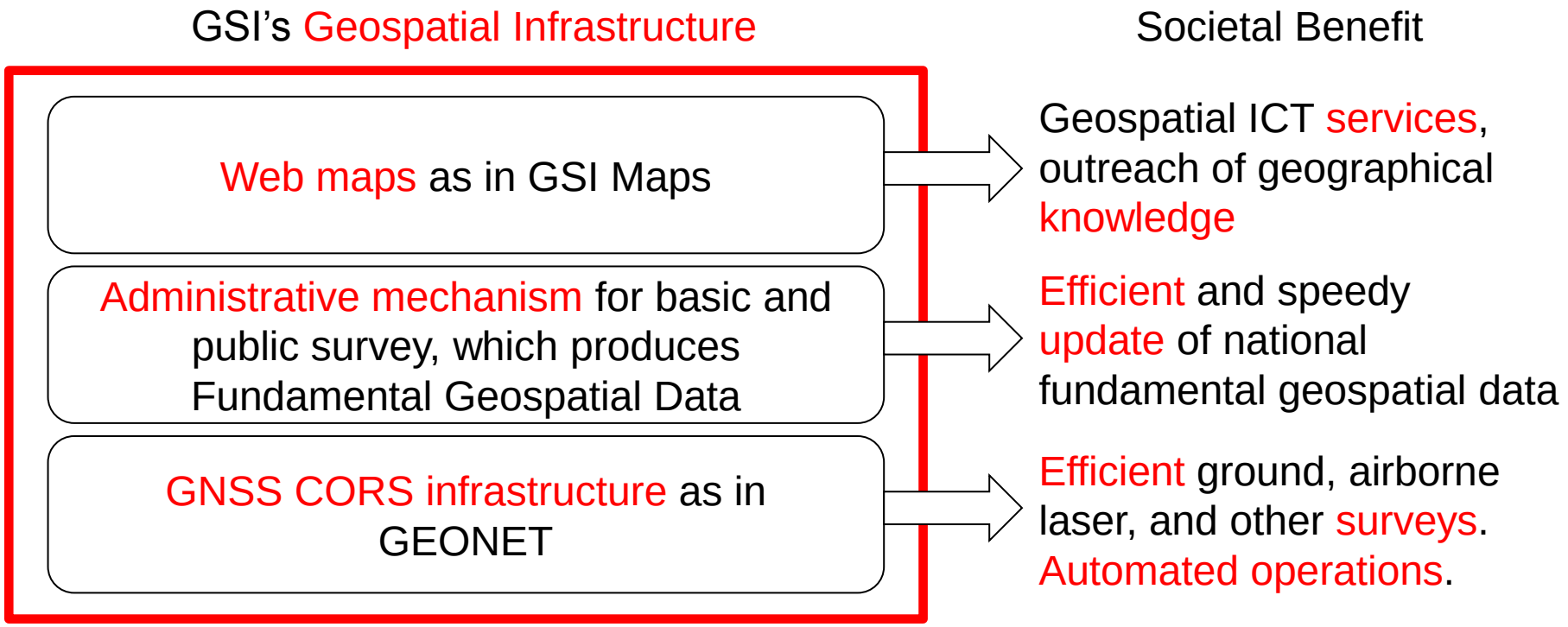
Organization of GSI – headquarter –



Geospatial Infrastructure

NSDI = National Spatial Data Infrastructure

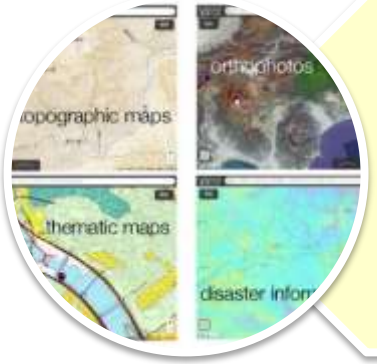
We provide Geospatial Infrastructure, a set of policies and operations to implement “maps of the nation” which are essential for various economic and social activities.



Missions of GSI

Maintenance of geospatial infrastructure

Survey Act



Advancement of geospatial infrastructure

NSDI Act

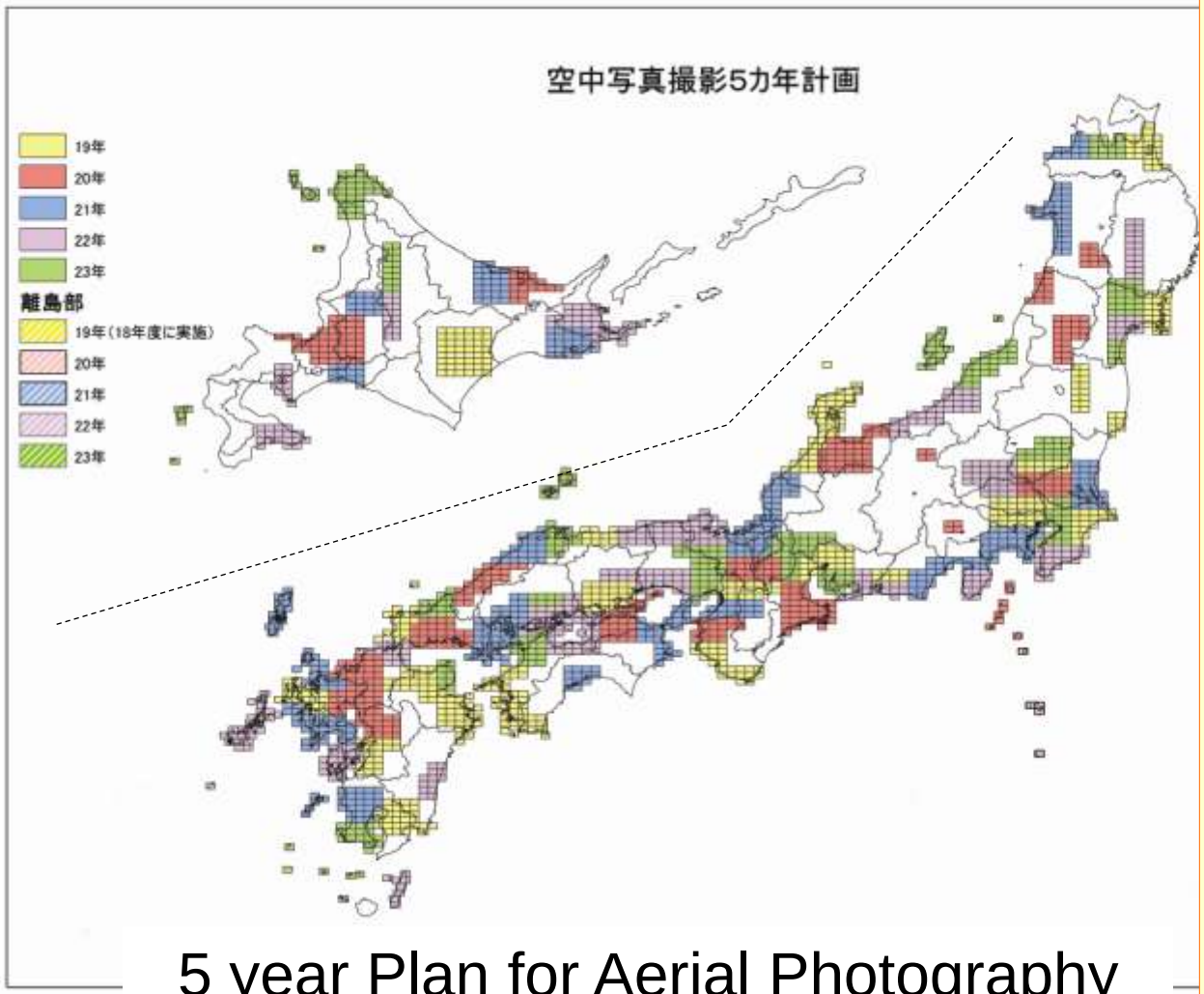
Disaster response by geospatial information

Basic Act on Disaster Control Measures

Maintenance of geospatial infrastructure

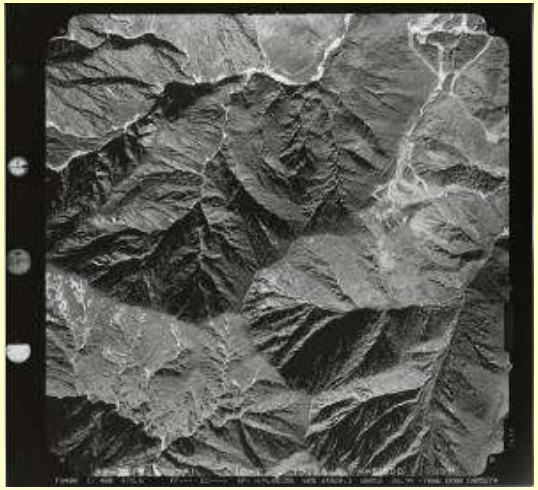
- Determine the position of Japan on Earth
  - Participation in International VLBI Service (IVS)
  - Participation in International GNSS Service (IGS)
  - Tide and gravity observation, geoid model development
- Maintain national geodetic control network
  - Triangular control points and benchmarks
  - CORS (continuously observing reference station) infrastrucure
  - Gravity stations and geoid model
- Maintain map products, paper, digital and web
  - Also maintain Orthophotos and DEM

Aerial Photography



5 year Plan for Aerial Photography

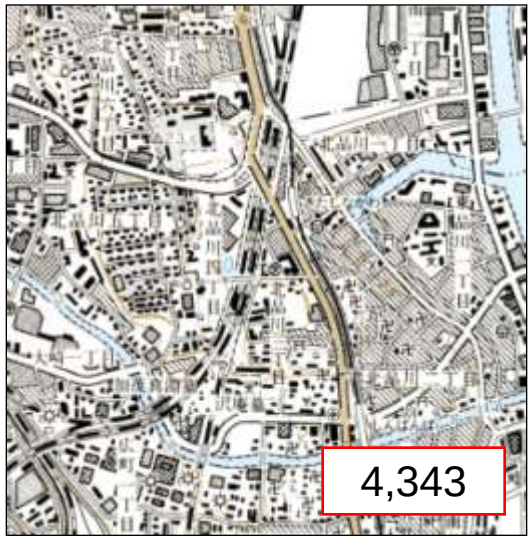
GSI 1:20,000



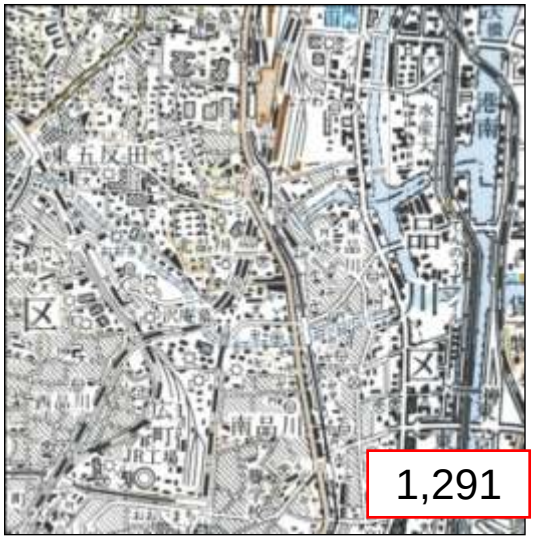
Forestry Agency 1:16,000

Paper Map products

1:25,000



1:50,000



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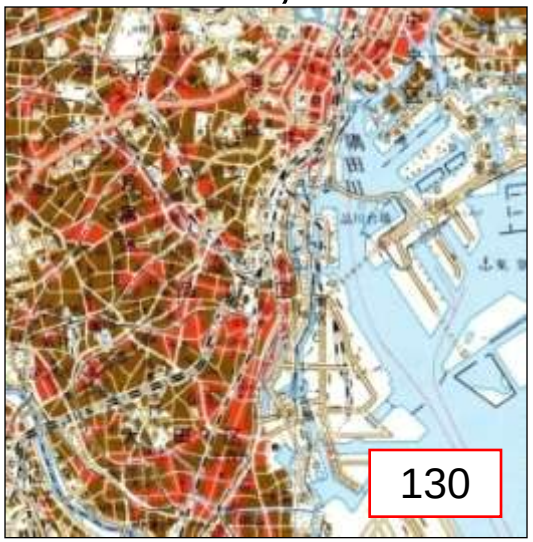

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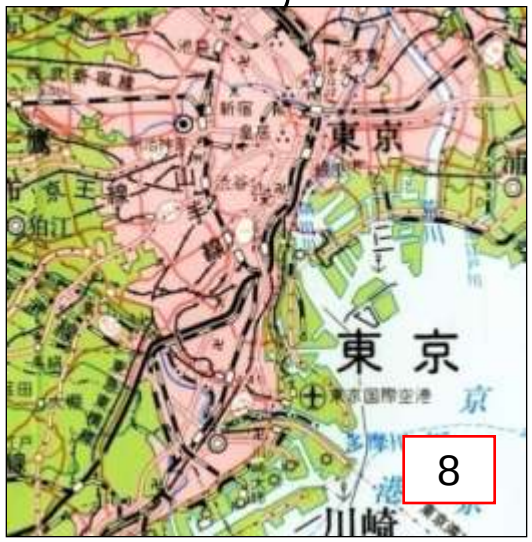
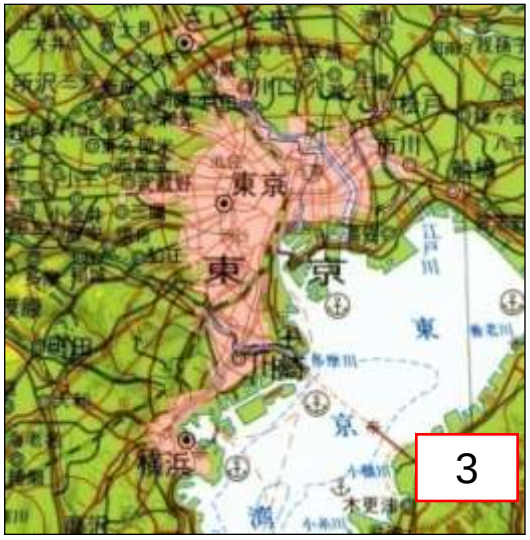
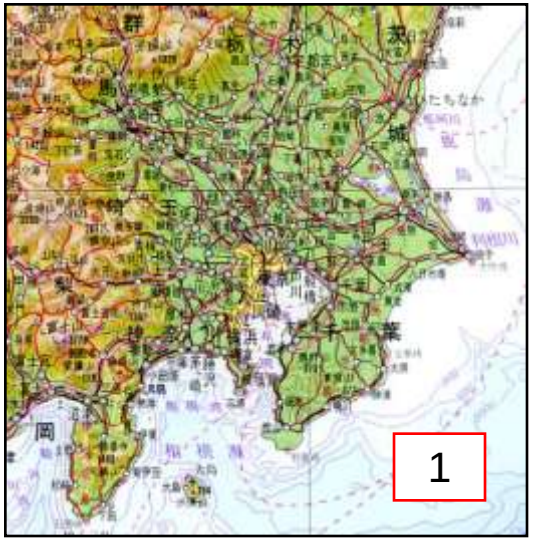


1:1milion

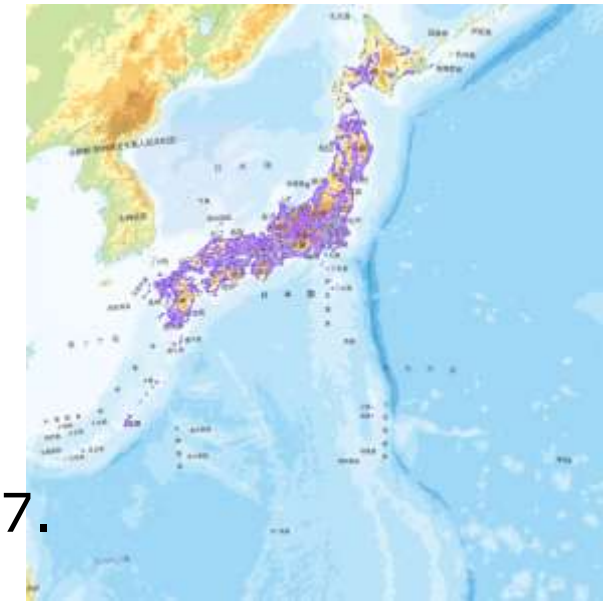


1:5milion



What is Fundamental Geospatial Data?

➢ FGD(2500)



1. FGD(2500) covers about 100,000km2.
   (city planning area)

2. FGD(2500) is developed by GSI using various survey results (by other institutes).

3. Development of FGD(2500) starts from 2007.

➢ FGD(25000)

1. FGD(25000) covers all over Japan.
   (about 370,000km2)

2. Actual base map data in Japan.

3. FGD(25000) is developed from
   - FGD(2500) in city planning area
   - other survey results
     (mainly aerial photos and road constructing maps)

What is FGD(2500)?

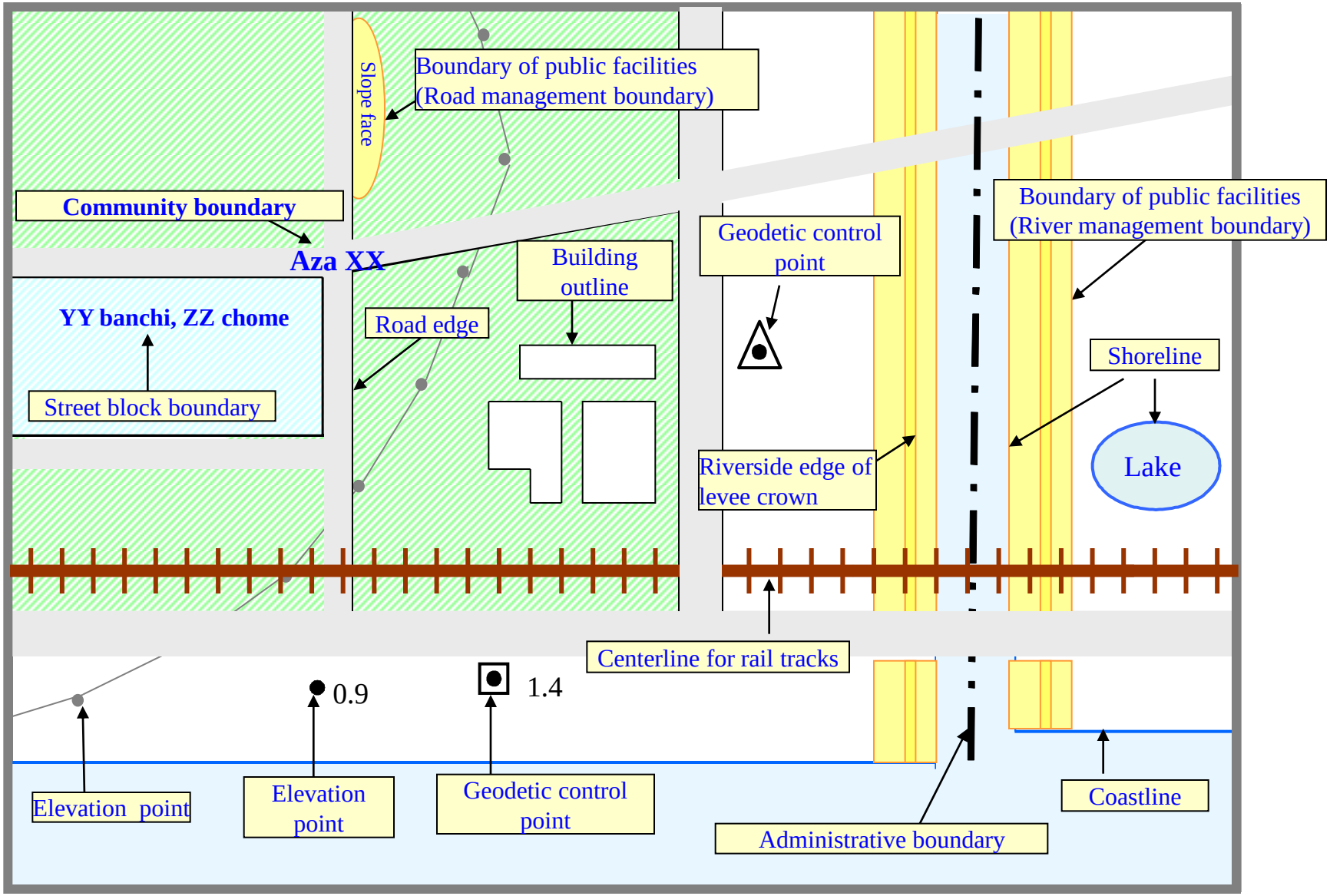
Definition of Fundamental Geospatial Data

Information that acts as standard for determining position of geospatial information

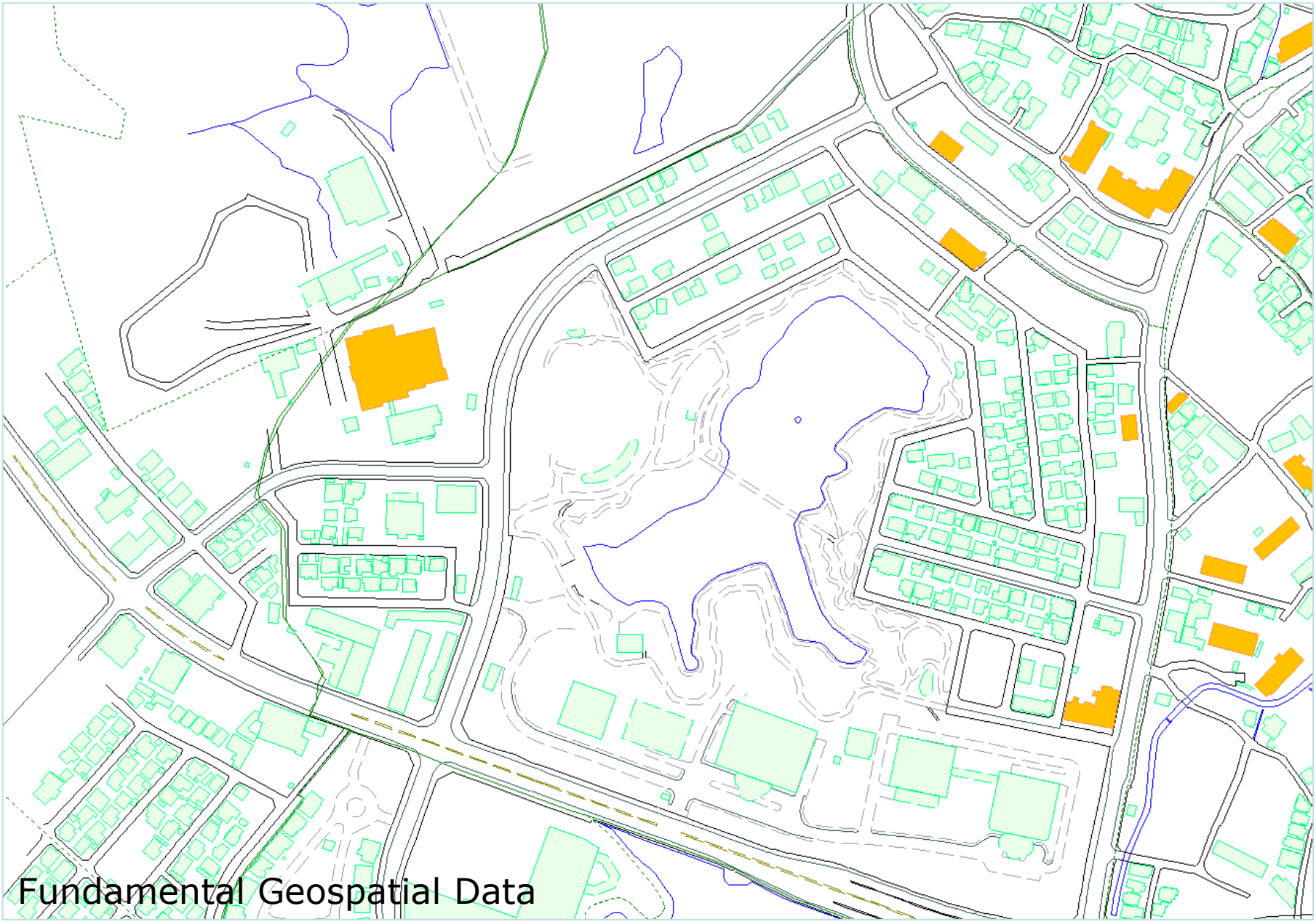
Preparing Items set forth by MLIT ordinance (13 items)

Geodetic control point	Coastline
Boundary of public facilities (Road management boundary)	Boundary of public facilities (River management boundary)
Administrative boundary (town level; with a point in each polygon)	Road edge
Riverside edge of levee crown	Railroad track centerline
Elevation point	Shoreline
Building outline	Community boundary (with a point in each polygon)
Street block boundary (with a point in each polygon)	

Image of Items Included in Fundamental Geospatial Data



City Planning Map (public survey result)



Fundamental Geospatial Data

What is FGD(25000)?

Legends 記号

Basically, FGD(25000) took over the preparing methodology of 1:25000 topographic maps.

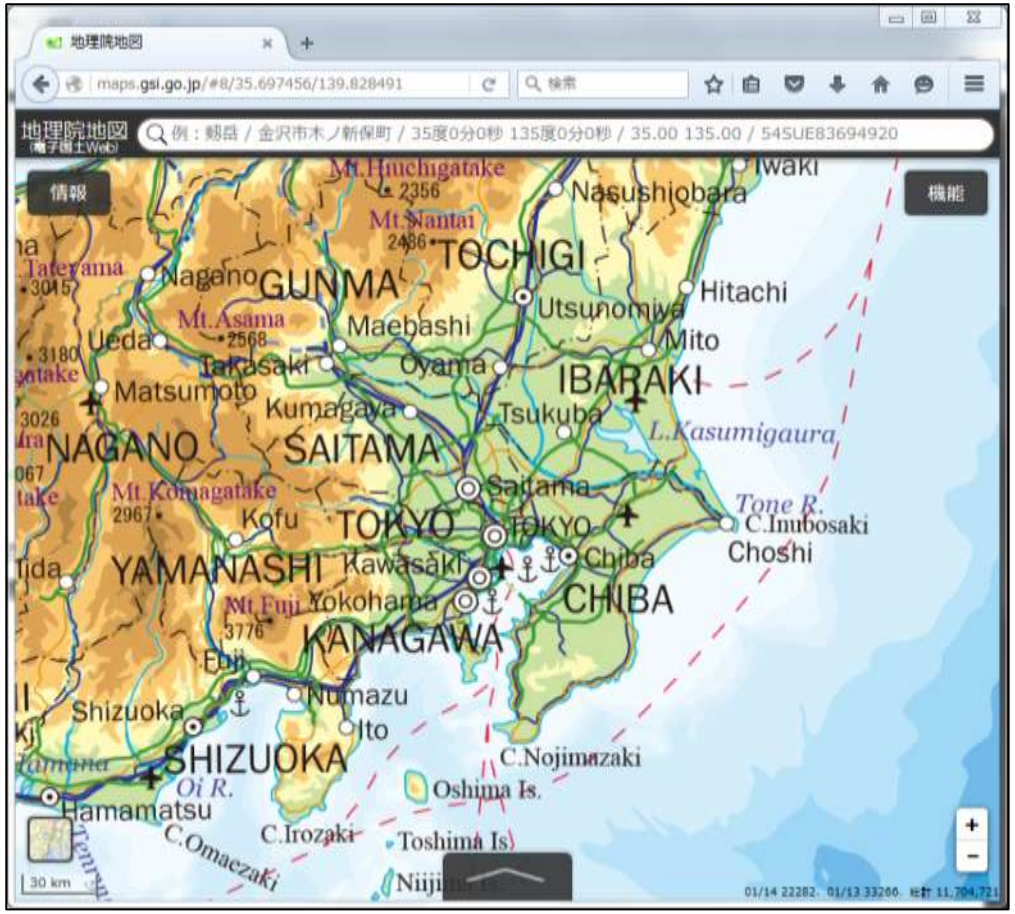
Ex) acceptable geometric accuracy,
preparing items, drawing (feature aquisition) criteria.

These are defined in the working regulation.

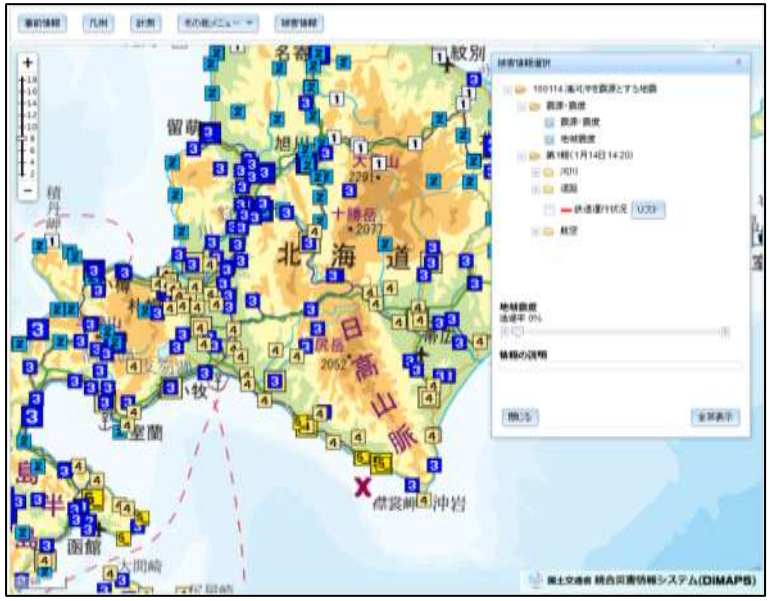
Web maps: GSI Maps

Web standard compatible provision of maps

Foster various application of maps from national geospatial information authority



DiMAPS, disaster response system for MLIT



The data are also applicable for smartphone and GIS applications, including offline use.

3 policies, 3 technologies

3 policies to promote the use of GSI Tiles

1. Open Data	follow the Government's open data policy
2. Open Source	use and provide open source software
3. Open Innovation	pursue innovation by open collaboration

3 technologies for the future of GSI Maps

1. Elevation Tiles	elevation data also available as tiles
2. Vector Tiles	browser-side visualization and processing
3. Digital Fabrication	mass customization of the products

Examples of FGD-Utilization by Various Organizations

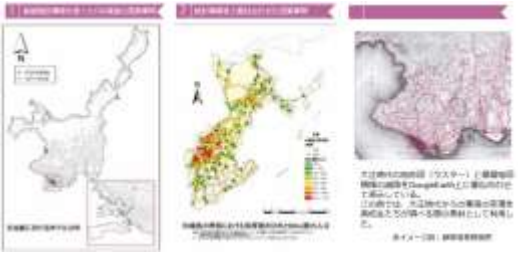
- Integrated GIS for local governments (Prefectures, Cities, towns and so on..)

- Updating city planning map using FGD

- Utilization to simulations of fire spread

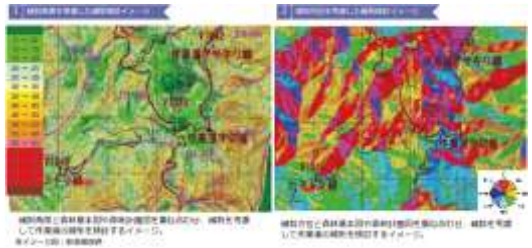
- Management system of underground buried infrastructures

Examples of FGD-Utilization by Various Organizations



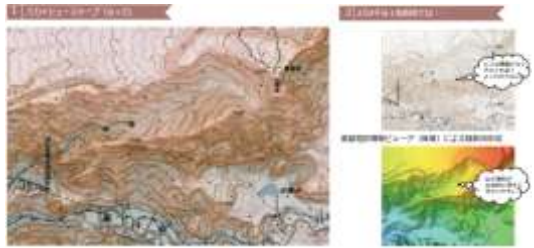
- Education of map literacy and analysis with statistical information.

- Development of environmental information.



- Forest GIS for analyzing elevation data for efficient forest managing.

- Providing time and route information of patient transport bus.



- Product of shading map for hiking.

[UAV] 2016-03-17: GSI-LB has launched

For more intelligent construction work (i-Construction) and disaster response.

Source: http://internet.watch.impress.co.jp/docs/news/20160317_748682.html

2015-09-11: Flood in Joso city

September 11, 2015: Flood from broken dyke in Joso city

We flew a drone over the flooding river
to capture the situation.

flood →

→ normal river flow →

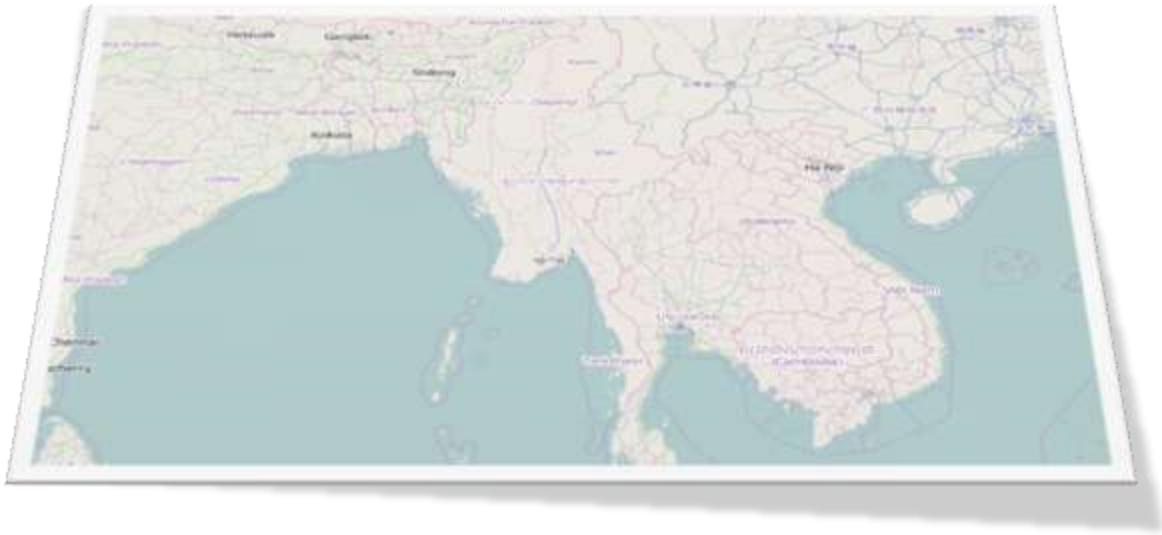
Movie available for download and at YouTube

Capture all the process including recovery

We also captured the recovery of the dyke by a drone.

Movie available for download and at YouTube

3. Conclusion



3.1 Conclusion

- **1. Discussion: Maps as National Assets**

- **2. Introduction of GSI:**
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