

JAPANESE LEGISLATE TO ADVANCE GEO-INFORMATION

National Spatial Data Infrastructure Act

In May 2007 a new bill on National Spatial Data Infrastructure was enacted by the Japanese government, aiming to provide a legal framework for the development and distribution of geo-information based on GIS and Space-Based Positioning, Navigation and Timing (PNT).<P>

The Government of Japan began discussions on the promotion of GIS in 1995, soon after the Kobe earthquake that claimed the lives of over six thousand people. Having learned the potential of GIS for prompt emergency response and recovery, the government took measures to develop a new GIS infrastructure; policies on both GIS and PNT have since been developed. In 2002 a geocentric coordinate system was adopted based on the International Terrestrial Reference System.

Detail and Update

Much progress has been made since 1995 on the development of digital base geo-datasets (topographic maps, 1:25,000 for the whole country and 1:2,500 for urban areas). In addition, the Japan Profile for Geographic Information Standards (JPGIS) was introduced, based on the ISO19100 series. Some of these have been translated and registered as the X7100 series of Japanese Industrial Standards (JIS). The Geographical Survey Institute (GSI), the national mapping organisation, has played a fundamental role in these initiatives. The private-sector is showing a growing need for more detailed (i.e. individual buildings) and more frequently updated geo-data. Such data may be produced from large-scale maps prepared by local government for urban planning and facilities management, and some private mapping companies have digitised these and provide the data for applications including car navigation, web-mapping and residence maps. However, the data is incoherently updated, sometimes without accurate survey and mapping, and is therefore spatially unaligned. This all called for the development of a nationwide Fundamental Geospatial Data (FGD), to be commonly used by both public and private sectors. Another vital driving force for the new legislation originates in the widespread use of GPS. Today's applications range from precision surveying to personal navigation with GPS-enabled cell phones, some now essential to daily life and business. However, these are completely dependent upon the US GPS, and Japan has little control over the stability and sustainability of this system. In addition, signal blockage by tall buildings and mountains limit availability. Consequently, a recognised need arose for enhancement of the capability and availability of PNT services in Japan.

Principles and Duties

The resultant bill came into effect on 29th August 2007 and requires that the government adopt basic principles, including:

- synergy between GIS and PNT shall be enhanced to enable sophisticated use of geo-information
- stable and reliable PNT services shall be ensured
- geo-information shall be used to improve efficiency and enhance functionality of government administration
- consideration shall be given to the distribution of geo-information lest national security or individual people's rights be compromised.

Based on these principles the NSDI Act specifies that state and local government offices develop and update FGD in a timely manner and make efforts to use FGD in preparing maps mandated to them. Further, government shall provide its FGD in principle free of charge to the public via the internet, and liaise and co-operate with organisations operating global PNT systems.

Contents and Quality

The NSDI Act requires the government to define FDG items of information and quality requirements in an ordinance of the Ministry of Land, Infrastructure and Transport (MLIT), and to develop technical standards to enhance interoperability. GSI developed drafts for these MLIT orders, finalised them after consultation with the public, and circulated them when the law came into effect. MLIT Ordinance defines that FGD shall comprise information including geodetic control points, coastline, boundaries of public facilities, administrative boundaries, road edges, riverside edges of levee crown, railway-track centrelines, elevation, shoreline, building outlines, community boundaries and street block boundaries. With respect to quality requirements, data must be prepared either by GSI, by public survey and mapping, or by maritime survey; positional accuracy must exceed or equal 2.5m (horizontal) and 1.0m (vertical) in areas designated for urban planning, or otherwise 25m (horizontal) and 5.0m (vertical). Technical standards dictate that existing datasets be used where appropriate, and seamlessly connected to databases of surrounding areas. FGD should make full use of existing digital maps prepared by local government in their mandated work. GSI has accepted the challenge of leading development of FGD in co-operation with local government.

Continuity

About 1.8 billion yen was made available to GSI for 2007 and used to collect data from local government for designated urban areas and

make this freely available to the public via the internet. The fund will also allow GSI to take aerial photographs and develop digital orthoimages and digital elevation models of 5m resolution. GSI plans to collaborate with local government by providing these aerial photographs and other information, hence meeting their mapping needs. However, FGD development should not be concluded without ensuring that this information be updated within the mandate of local government this in particular to avoid duplication by private companies. Strong leadership will be required of GSI through close co-operation with local government.

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<https://www.gim-international.com/content/article/national-spatial-data-infrastructure-act>
