

The Long-Term Plan for Basic Survey

30 June, 2004

Geographical Survey Institute
Ministry of Land, Infrastructure and Transport

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The Long-Term Plan for Basic Survey has been formulated in accordance with the provision of Article 12 of the Survey Act of Japan (Law No. 188, 1949). The documents related to this are to be in the custody of the Geographical Survey Institute (1-Kitasato, Tsukuba, Ibaraki), Ministry of Land, Infrastructure and Transport, where they shall be made available for reference and perusal.

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Minister of Land, Infrastructure and Transport
ISHIHARA Nobuteru

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1. Overview

This Plan specifies the scope, goals, and activities with regard to the Basic Survey for the decade from the Japanese Fiscal Year (JFY) 2004 to 2013.

Article 4 of the Survey Act stipulates that the Basic Survey serves as a basis for all surveys in Japan to be conducted by the Geographical Survey Institute (GSI). It is important to avoid redundancy and assure accuracy of public surveys carried out based on the results of the Basic Survey or public surveys (Article 1, Survey Act). In order to systematically conduct public surveys within the framework of the Basic Survey, Long-Term Plans of Basic Survey must be devised (Article 12, Survey Act) and the scope and goals of the Basic Survey announced, contributing to smooth implementation of public and other surveys.

The Long-Term Plans for Basic Survey, first developed in 1953 as the First Long-Term Plan for Basic Survey, have been formulated and implemented every ten years over the past fifty years, incorporating particular needs of the times. The 5th Long-Term Plan for Basic Survey, starting in 1994, have been successfully realized as 1) establishment of Japanese Geodetic Datum 2000 (JGD2000); 2) development of GPS-based control stations network; 3) development of GIS framework data; and 4) provision of survey results information through the Internet. The results of the Basic Survey are released to the general public. They play a vital role in delineating the national territory of Japan to the world, while also constituting the very basis of development and management of the national land as information infrastructure for social and economic activities.

It is expected that science and technology will advance rapidly throughout the 21st century and gain greater influence over every aspect of daily life. At the same time, people will seek to live more relaxing lives that are in harmony with nature. Japan is currently undergoing a transition caused by decreasing population, lower birth-rate, and aging of society. This transition may arouse concerns over the issues of a dwindling labor force and overall stagnation of economic activities due to a slow-down of consumption and investment. As such, our limited resources – human and economic – should be wisely and effectively used based on selection and concentration of policy development.

To meet the challenge of the times, our way of living and working must undergo a qualitative change, towards which progress of information and communication technology will be a key factor. At the national government level, various initiatives have been launched and are underway to build an advanced society equipped with a dense network of information and communication. Among these initiatives are the concepts of realizing e-government, e-Japan Strategy II, e-Japan Priority Policy Program, and intellectual foundation development plan. Positional and geographic information, which is produced by surveys, is the key ingredient in this highly networked society of information and communication.

Surveys have long played a vital role in the development of national land and infrastructure. The government survey administration must focus on the following goals within the sweeping changes currently taking place in society: to secure a joyful life for people, to restore beautiful and benign environment, to enhance regional diversity, to secure national land safety, and to contribute to promotion of vigorous economic activities. Presently, the survey's mission is to create a society where positional data and geographic information are provided and available in various forms to anyone, anytime, and anywhere, and that this information has sufficient accuracy, all of which ultimately supports people in their paths towards a brighter future. To bring the vision into reality, a nationwide infrastructure must be built to facilitate provision of accurate positional information, as well as an environment for easily sharing such geographic and other related and relevant information possessed by the government and the private sector from the past to the future, to anyone, anytime, and anywhere.

To this end, three major targets have been formulated, as follows:

- 1) Develop GRID-Japan (Geo-Referencing Infrastructure for Dynamic Japan), and promote its utilization;

- 2) Develop Digital Japan core data and promote its utilization;
- 3) Develop geographic information for disaster prevention and mitigation, and promote its utilization.

2. Period of the Plan

This Plan states the goals and scope of the activities with regard to the Basic Survey by GSI for the next ten years, from JFY 2004 until 2013.

The Basic Survey is the basis of all surveys conducted in Japan. As such, it takes some time for the effects of the Basic Survey to be felt in society and for related projects to be promoted. Therefore, the Plan lays down the goals and scope of activities to be pursued in a time frame of ten years.

Giving due consideration to the rapid development of science and technology – notably information and communication technology – and to growing demands for positional information and geographic information, the goals and scope of the next five years are presented as issues that need to be addressed promptly.

3. Vision of society after ten years

Promotion of the Plan is expected to lead to development of an environment where geographic information of higher quality can be accessible faster, more easily, and more cheaply. This in turn should constitute an infrastructure that supports lives full of vitality, a beautiful and healthy environment, regional diversity, safety and security within the whole of the nation, and energetic economic activities. The Plan envisions a society as described below at the time of its completion ten years from now.

Living: Society that supports the joyful life of the individual

- Create a society where people live in contentment

Thanks to the newest high-quality geographic information being made available, greater satisfaction from recreational activities and from a widening horizon of self-enhancing activities can be achieved, leading in general to deeper contentment in life for each citizen.

- Create a people-friendly society with greater mobility and amenity

Through greater accessibility to and utilization of various geographic information offering positional data of where one stands, greater mobility can be ensured for all generations, from children to senior citizens; boundaries of life can be stretched farther and the welfare system improved.

- Safety and security in life

Through easier access to and management of the geographic information related to the movement of people, production and transportation of goods, and various aspects of living space, security in people's everyday living and control of crimes can be improved, leading to a safer place to live.

Environment and regional diversity: Society that preserves and restores a benign environment and enhances regional diversity

- Preserve and restore a favorable environment and pursue sustainable development

Geographic information that has continually developed over a long period of time, from the past to present, enables better understanding of the environmental changes that have taken place and its present status, leading to preservation and maintenance of a favorable environment, and bringing people's life closer to nature and each other through sustainable and well-balanced national land management.

- Regional development with diversity based on the natural and historical conditions of each region

Visual geographic information that illuminates the distinct features of the natural and historical conditions of the Japanese archipelago – stretching from north to south and boasting four seasons full of

natural beauty – and enables regional development and diversity based on each region's characteristics.

Safety: Society that secures national safety

- Reinforcement of measures of disaster prevention and mitigation with regard to earthquakes, volcanic eruptions, and so on

A variety of geographic information, including data on crustal deformation and detailed topography, can improve the quality of hazard mapping and accuracy of simulation for natural disaster prevention and mitigation measures. Easier access to real-time disaster information leads to better preparedness against such disasters as earthquakes, tsunamis, volcanic eruptions, and floods, to better protect human lives and property.

- Strengthened post-disaster measures

Thanks to the positional and geographic information that provides data on boundaries of land property and on land conditions, prompt and efficient restoration works are possible immediately after an earthquake, volcanic eruption, or a sediment-related disaster.

Vitality: Society that maintains competitive economic developments

- Higher efficiency in industrial activities and vitalization of industry by exploring new business opportunities

New business and creation of new business models in the areas of survey, information industry, distribution of goods, and welfare, etc., are promoted by the wide dissemination of geographic information, thus boosting industrial activity.

- Promotion of urban development and revitalization by effective land use

Higher efficiency in cadastral surveys and confirmation of land tenure, simpler procedures for land utilization, and promotion of urban development and revitalization are possible through the development and provision of high quality geographic information depicting current status and changes of the land, as well as through the improved survey technology and geographic information specifically designed for confirmation of land boundaries.

4. Role of government survey administration

Surveys have long played a vitally important role in developing and promoting infrastructure and overall national land development by way of such fundamental activities as map-making and establishing control points, through which positions on the globe are measured.

The 21st century has begun with increasingly diverse values and remarkable technological advancement that is reshaping the whole of society. Amid these changes, geographic information and positional information are gaining ground and importance as fundamental and crucial information for creating a brighter future.

It is expected that demands for geographic information will grow at an accelerating pace and that its applications will be increasingly varied, as has been discussed in Section 3 “Vision of the society in ten years”.

In response to social needs, the government survey administration should recognize its newly allocated role in the national effort towards realizing a desirable society. Its contribution can start from the development and provision of geographic information, through which positional information of required accuracy and various geographic data of the past and present can be made readily accessible anytime, anywhere to anyone, and offering options and opportunities for a better future to the nation. Further geographic information can be an efficient tool for prevention and mitigation of disasters, promising a life with greater security and safety.

To this end, GSI, as a responsible body for the government survey administration, is to continue its efforts of establishing the standards for obtaining positional data, providing and disseminating fundamental geographic information, including that which is essential for national security. At the same time, it will commit itself to

building an optimum user environment that meets the needs of the government, academia, industry, as well as people from all walks of life. International cooperation and contribution are another task that GSI must actively engage in. With all the above in mind, GSI will strive to make the society envisioned in Section 3 a reality.

5. Role of Basic Survey and goals of the Plan

With a view to the mission the government survey administration is expected to complete, specific objectives and the period of this Plan are presented in relation to the development, maintenance, and management of the most fundamental geographic information supported by the Basic Survey.

(1) Development of Geo-Referencing Infrastructure for Dynamic Japan (GRID-Japan) and promotion of its utilization

○ Establishment of an environment where positional information is accessible anytime, anywhere, and to anyone

Role:

- Crustal deformations are constantly observed in our country, as much as several centimeters per year. Taking this into account, GSI conducts geodetic surveys, including the continuous operation of GPS-based control stations, maintains the geodetic reference system, ensures stable acquisition of the control points' data, and provides accurate positional reference for various surveys including public surveys by the central and local governments.
- Based on the geodetic reference system, GSI will help create new fields of business in industry based on positional information.

Goals and numerical targets in the ten-year period under the Plan:

- Construct Geo-Referencing Infrastructure for Dynamic Japan (GRID-Japan) as the survey reference and positioning assistance to address possible deterioration of the survey results due to continuous crustal deformation. It is an environment where coordinates consistent to JGD2000 at centimeter accuracy can be provided anytime to those engaged in various surveying tasks. (Provision of crustal deformation correction model: area to be covered at the 5th year of the Plan is 100%, presently none.)
- Collect control point data immediately after an earthquake, volcanic activity, and so on that cause large-scale crustal deformations in a very short period of time, and give advice or instructions accordingly, to those who perform survey works as part of the recovery activities. Establish a procedure for recovery surveys and for local redevelopment of geo-reference infrastructure based on a crustal deformation correction model. (By the 5th year of the Plan, procedures to be established for reconstruction of GRID-Japan to address possible deterioration of the survey results due to local crustal deformation.)
- Mobilizing potential energies of the private sector and building upon the GPS-based control stations as a backbone, develop an environment where the horizontal coordinates in JGD2000 and elevation of any point, including indoor and underground space, can be made available at decimeter accuracy in real-time to anyone, anytime, anywhere. (By the 5th year of the Plan, positioning procedures for decimeter accuracy to be established; and by the 10th year, actual data services are to begin based on positioning procedures for indoor and underground space.)
- Retrofit the nationwide GPS-based control stations to accommodate the next-generation satellite positioning system. (Presently no GPS-based control stations are updated for GPS modernization; by the 10th year of the Plan, updating will be 100% complete.)

(2) Development of Digital Japan core data and promotion of its utilization

○ Development and provision of geographic information with the latest updated data

Role:

- Develop and promptly update the basic national geographic information to make it available nationwide as Digital Japan core data that reflects the latest changes on the national land.
- Provide the latest Digital Japan core data promptly to allow ready access to geographic information to the whole nation whenever necessary.

Goals and numerical targets in the ten-year period under the Plan:

- Ensure the latest geographic information based on a 1/25,000 scale topographical map covering the whole country and that of data based on a 1/2,500 scale urban planning map of urban planning areas. (By the 5th year, ensure prompt updating of major geographic information at an interval of less than one month.)
- Develop nationwide imagery information for all the plains and their surrounding areas (every 5 years).
- Endeavor to construct an on-line system of providing geographic information in parallel to map publication, and promote dissemination of geographic information. (By the 5th year, on-line services of major geographic information are to be available.)

○ Establishment of an environment where multi-dimensional geographic information is available anytime, anywhere, and to anyone

Role:

- Develop and provide multi-dimensional geographic information by digitizing the past and present geographic information, including chronological information in the custody of GSI that is indispensable for national land management, development and conservation, improvement of national living standard, creation of beautiful national land and regions, conservation and restoration of the global environment, and revitalization of industries.
- Develop and consolidate an environment for users to access geographic information through the “Digital Japan” web system and further establish standards for wider application and utilization of geographic information collaborating with all the sectors of government, academia, industry, and citizens from all walks of life.

Goals and numerical targets in the ten-year period under the Plan:

- Compile a tempo-spatial archive based on the past and present geographic information in the custody of GSI and make it available on the Internet as a source of regional information so that anyone can access data on the historical changes of the national land and the regions and learn their unique features, thus contributing to future planning based on regional diversity. (Archiving project of the map data of the Meiji Era and onward: presently one period is completed; by the 5th year, completion of the four periods and 50% of the old edition maps of urban planning areas; and by the 10th year, 100% of archiving to be completed. Archiving of the geographical names: presently 0%; by the 10th year, development and provision in digital format of the geographical names after the Meiji Era.)
- Develop and provide chronologically compiled geographic information of vegetation and land cover as a source of national environment index and determination of CO₂ absorption rate. (By the 5th year, the land-cover data of each year is to be developed within three months and provided as time series.)
- Establish an environment based on Digital Japan core data where geographic information can be made available to anyone, anytime, anywhere. (Number of group registrants of “Digital Japan” web system is to

be increased to 2,000 bodies by the 5th year.)

- Establish an on-line access system of various geographic information and survey records including control points, maps, and aerial photographs, through which requests for a transcript or abridgement can be accepted 24 hours a day and enhance overall accessibility. (Within five years, all survey records are to be provided on-line. Issuance of transcripts and abridgements through the Internet: currently 90%; by the 5th year 100%. Control point data: currently limited to survey results and description of point; by the 5th year, change data, current status, and public control points to be added.)

(3) Development of geographic information for disaster prevention and mitigation, and promotion of its utilization

○ Continuous monitoring of crustal deformation

Role:

- Monitor crustal deformations extensively to prepare against earthquakes and to support prevention and mitigation measures, and specifically monitor three-dimensional crustal deformations at centimeter level in real-time in high-risk areas.
- Monitor volcanic activities in real-time and estimate their future progress to consolidate volcanic disaster mitigation measures.

Goals and numerical targets in the ten-year period under the Plan:

- Study the crustal deformation data at centimeter level and present a precise model of crustal structure and behavior pattern for areas where a large-scale earthquake is anticipated, thus contributing to overall earthquake disaster prevention. (By the 5th year, present a model for areas where an earthquake of greater than Magnitude 8 could occur including the Tokai Earthquake, Tonankai Earthquake, and Nankai Earthquake.)
- Monitor crustal deformations at short intervals of time in case significant volcanic activities are observed, and thus contribute to prediction of volcanic eruption. (By the 5th year, monitor every five minutes and predict volcanic activities hourly.)
- Provide without delay, with the help of the GRID-Japan, control point data necessary for recovery and reconstruction works for the areas where significant crustal deformations have been recorded in a short period of time due to an earthquake or a volcanic eruption, and thus contribute to quick recovery efforts. (By the 5th year, based on the scale of crustal deformation observed, public survey strategies and guidelines are to be compiled and announced within ten days after a disaster.)

○ Establishment of an environment for implementing strengthened disaster prevention and mitigation measures

Role:

- Promote investigation and research works to clarify topographic characteristics and detailed elevations, and develop basic geographic information essential for hazard map preparation and mitigation of damages by earthquakes, tsunamis, volcanic activities, floods, and sediment-related disasters.
- Propose ideas of possible application and utilization of basic information indispensable to hazard mapping in an effort to prevent or mitigate disasters in high-risk areas.

Goals and numerical targets in the ten-year period under the Plan:

- Develop base information for hazard mapping for areas where serious damages could be caused by

earthquakes, tsunamis, volcanic activities, and floods. (Progress of the development for the area of 100,000 km² covering the major plains and coastal areas: presently 50% completed; by the 5th year, 70% to be completed; and by the 10th year, 100%.)

- Present possible ways of application and utilization of the basic geographic information designed for hazard mapping that must be shared by the administration and the general public, and endeavor to establish advanced hazard mapping. (By the second year, the application and utilization manuals are to be prepared to assist hazard mapping efforts of the local government.)

6. Priority measures and projects to be pursued

To achieve the goals, the following measures and projects are to be highlighted.

(1) Development of GRID-Japan and promotion of its utilization

Outlines of the project:

- Conduct continuous observations using GPS-based control stations distributed throughout the country, and maintain the base of GRID-Japan.
- Establish a correction procedure to address the data deterioration caused by crustal deformations by using crustal deformation data to be obtained by continuous observations and repeated surveys, and provide the control point data necessary for surveys of centimeter level precision.
- Update the existing GPS-based control station facilities to prepare for a new positioning system to be introduced corresponding to the progress of such efforts as GPS modernization, the Galileo project, and the quasi-zenith satellite plan.
- Provide GPS-based control station real-time data on a regular basis and support precise positioning efforts with centimeter level accuracy, while ensuring that the data can be easily used by compiling and distributing user guidelines.
- Conduct repeated surveys for the principal control points, which constitute the backbone of the geodetic control point system, and review positional data of other control points for possible revision, or conduct recovery surveys as necessary after an earthquake or a volcanic eruption takes place.
- Construct a positional information database of the control points and user interface, and thus contribute to strengthening functions of geo-referencing infrastructure.
- Conduct VLBI observations, gravity surveys, etc., necessary for the establishment, maintenance, and management of JGD2000, and thus contribute to strengthening the functions of GRID-Japan.

Targets:

- GPS-based control station survey (one station at every 20 km, nationwide, continuous observation)
- Highly precise geodetic network survey for regions of intensified observation (one point at every 10 km, every 5 and 10 years)
- Highly precise three-dimensional survey (total of 20,000 km, every 5 years)
- Geoid survey (70 selected districts, nationwide)
- Basic gravity survey (25 selected districts, nationwide, every 5 years)
- Precise leveling (areas suffering from ground subsidence, 5,000 km)
- Very long baseline interferometry (VLBI) survey (international observation weekly, observation within the country on a monthly basis)
- Development of Geo-Referencing Infrastructure for Dynamic Japan (amount of data to be developed: 130,000)

- Tidal observation (25 stations, nationwide, continuous observation)
- Observations at Geodetic observatories on a regular basis (3 observatories in the country, routine observation)

(2) Development of Digital Japan core data and promotion of its utilization

Outlines of the project:

- Construct an integrated geographic information database of 1/2,500 and 1/25,000 scale, which will serve as the base information of national land management, and update it within one month whenever a change takes place.
- Take aerial photographs repeatedly for the plains and their surrounding areas and every five years develop imagery information in digital format based on the photos.
- Develop nationwide vegetation/land cover data and land-use data of metropolitan areas in chronological order.
- Compile in digital format all the available geographic information of the past and future including the changes in land use and important changes in geographical names recorded over the years, to be extracted from all the maps and aerial photographs in the custody of GSI since the Meiji Era.
- Develop map image from the latest maps of medium to small scale in parallel to updating of geographic information based on 1/25,000 scale topographical maps.
- Collect and update major geographic information, which is to be incorporated in Digital Japan core data without delay, through basic information surveys conducted in collaboration with the national and local governments, as well as with the private sector. Use satellite image data for an extensive data collection.
- Develop Japanese Standards for Geographic Information, indispensable to promoting data sharing.
- Release Digital Japan core data conforming to the Japanese Standards for Geographic Information on the Internet and publish it in map form as well.
- Develop an environment where geographic information can be easily accessed and shared by users.
- Develop an environment where requests for reference for various survey results and records such as control point data, maps, and aerial photographs, and for issuance of transcripts and abridgements of such geographic information are accepted any time of the day through the Internet.

Targets:

- Development of Digital Japan core data (geographical information based on 1/25,000 scale topographical map: nationwide including the data of the northern territories, to be newly developed; geographical information based on 1/2,500 scale urban planning maps: urban planning area 96,000 km²)
- Development of imagery information (plains and their surrounding areas, aerial photographs of 1/20,000 and 1/40,000, every five years)
- Development of medium- to small-scale maps (whole national land area, scales of 1/25,000, 1/50,000, 1/200,000, 1/500,000, 1/1 million, 1/3 million, 1/5 million, at an interval of 2 to 5 years)
- Development of map at a scale of 1/10,000 and digital map 10000 (city areas)
- Establishment of digital archives (old edition maps and aerial photographs: urban planning area 96,000 km²; geographical names: nationwide)
- Environment monitoring over the national land (nationwide at 1 km precision, interval of 10 days for vegetation index, one year for land cover)
- Development of Global Map (1 km resolution, whole national land, every 5 years)
- Detailed surveys on land use (10 m resolution, the three metropolitan areas of 14,000 km², every 5 years)
- Lakes and marshes surveys (21 lakes and marshes)

- Compilation of regional geographical records (all regions)
- National Atlas for the Web
- Survey of area sizes for administrative units (by prefecture, by municipality, every year)
- Development of geographical name information (30,000 names)
- Provision of geographic information through the Internet (Digital Japan core data and imagery information)
- Publication of maps and other products

(3) Development of geographic information for disaster prevention and mitigation, and promotion of its utilization

Outlines of the project:

- Monitor crustal and ground deformations efficiently through successive analysis of GPS continuous observation data and application of SAR Interferometry.
- Establish new GPS continuous observation stations and conduct repeated geodetic surveys with higher precision at a shorter interval for areas at high risk of earthquakes and volcanic eruptions or areas requiring real-time monitoring in view of plate tectonics.
- Develop and provide data as a basis for formulating disaster prevention and mitigation measures, that is, data mainly on the plains and coastal areas, where population and assets concentrate, and on active volcanoes, specifically topographic features, precise elevations, and detailed positional data of active faults.
- Establish an integrated system for disaster prevention incorporating all the related data collected at the Ministries, local governments, and research institutes in this field, and provide support to those engaged in hazard mapping by facilitating a systematic integration of topographic and detailed elevation data.

Targets:

- GPS-based control station survey (one station at an interval of 20 km) (described previously)
- Highly precise three-dimensional survey (for areas of intensified observation 2,500 km, at an interval of 0.25 to 2 years; for areas of specified observation 4,000 km, at an interval of 2.5 years; for priority areas 1,100 km at an interval of 2 years)
- Survey of volcanic deformation (15 volcanoes, at an interval of 5 years)
- Topographic displacement survey (30 districts throughout the country)
- Geomagnetic survey (continuous geomagnetic survey at 11 stations, 20 first-order magnetic points, at an interval of 2 years)
- High precision earth deformation survey (crustal and surface deformation areas: every year; nationwide: every 5 years)
- Crustal deformation survey (Tokai, South-Kanto region, routine observation)
- Mobile observation
- Land condition survey (major plains and coastal areas throughout the country 50,000 km²)
- Volcanic topographic survey (10 volcanoes out of the 49 active volcanoes throughout the country)
- Volcanic land condition survey (10 volcanoes out of the 49 active volcanoes throughout the country)
- Active fault survey (urban areas and areas where active faults run, a total of 20,000 km² throughout the country)

7. Promoting the Plan

Strategies have been developed as described below for efficient and effective implementation of the policies and projects under this Plan.

(1) International cooperation and global contribution

An infrastructure of positional information has to be developed and then managed conforming to the globally standardized geodetic system, through which Basic Survey results are to be maintained for relevancy and made readily available. Given the temporal and spatial range of the project, efforts should be promoted in close collaboration with other nations, primarily with Asia Pacific countries and broadly on a global basis, in such areas as GPS continuous observations and VLBI observations for determination of the Earth rotational parameters, plate motion observations, absolute gravity measurements, and comprehensive data analysis.

Another issue of global importance amid the growing emphasis on information and its management around the globe is development of geographic information and data sharing at a global level. In this regard, contributions from Japan are expected to be high due to its highly developed survey technology, both in the government and private sector. Being responsible for government survey administration under the national government, GSI will join hands with global partners for establishing worldwide cooperation, promoting the standardization of geographic information and the development of a Global Map, an efficient tool for use in preserving our global environment. GSI will also participate actively in the Antarctic Research Expedition promoted by the national government.

(2) Further utilization of survey results and promotion of partnership

The Basic Survey results are the most fundamental source of information that supports social and economic activities in Japan, and are a public asset to be widely shared and made readily available. In this regard, all sectors of industry, government, academia, and municipalities, as well as every citizen, are to recognize one another as an important partner, and to promote close collaboration for successful government survey administration.

(3) Research and development

Research and development efforts are indispensable to achieve a higher efficiency in the government survey administration and its activities. Research can be effective and productive only when it is prioritized into research areas and topics and when it is conducted based on careful planning. Priority should be given to research that is closely related with the Basic Survey, which shows clear outcomes beneficial for the nation. Research must not be for the sake of research itself.

(4) Evaluation and review of the Plan

This Plan is to be implemented efficiently and effectively, while further development of science and technology, economic and financial status, and progress of each project should be taken fully into account. In the course of implementation, evaluations shall be made, and with due consideration to consistency with other plans, the Plan shall be reviewed for possible amendment as necessary.