

A STUDY ON GEOGRAPHIC NATIONAL CONDITION MONITORING OF BEIJING

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ABSTRACT:

This article investigated and surveyed the current situation of the policy of Geographic National (Urban) Conditions Monitoring in Beijing based on the experimental unit over China carried out by National Administration of Surveying, Mapping and Geo-information. Then analysed the guarantee of the implement considering the characteristics of programming and construction, policy and regulation in Beijing. Finally presented the frame system of Geographic National(Urban) Conditions Monitoring which is appropriate for Beijing.

1. INTRODUCTION

Geographic National (Urban) Conditions Monitoring is to analyze, research and describes the National Conditions, which means to survey, analyze and describe the conditional factors macroscopically, integrally and comprehensively basic on the space variation of the natural, biological and cultural phenomenon on earth and the relationship of them. And it is spatial and visual national condition information.

Geographic National(Urban) Conditions Monitoring is to monitor the terrain, river system, wet land, glacier, desert, surface configuration, land cover, roads, cities and towns dynamically and quantitatively, spatially, then figure out and analyze the variation quantity, change frequency, distribution characteristics, regional differences and variation trend of it. Form the monitoring data, maps and graphs, also research reports which reflect the spatial distribution and transformation laws of resources, environment, ecology and economic factors, and show our National power objectively and comprehensively based on the perspective of geographical space.

2. RESEARCH BACKGROUND

In December,2010, the important instructions of Premier of the State Council ,Li Keqiang who is also the KAKT on Surveying and mapping geographic information work pointed that, “we should reinforce basic surveying and mapping and Geographical national (city) condition monitoring.” May the 23rd, 2011,Li Keqiang emphasized again that “ Geographical national (city) condition must be reinforced. Geographical national (city) condition is an important basic national (city) condition, which is also an decision basis on macroscopic readjustment and control and sustainable development, and the support and service of constructing a responsible government. Our country is on the period of rapid development in industrialization and urbanization, also a period that The surface nature and human geography information changing rapidly. Geographic National(Urban) Conditions Monitoring is crucial on overall planning, utilizing development space of country land reasonable.” On December,2011, Premier Li Keqiang made important instructions that reinforced the construction of Digital China, TianDiTu and Geographic National(Urban) Conditions Monitoring, and promoted

vigorously the industry of geomatics ,then made full efforts to promote Surveying and mapping geographic information industry.

"Surveying and mapping geographic information development plan on Beijing's 'twelfth five-year' period" confirmed the development target of Surveying and mapping geographic information work: To form Stable geographic national (city) condition monitoring mechanism and make solid progress in monitoring work. Established mechanism of emergency safeguard overall coordination and improved the ability of emergency guarantee. And take Geographic national (city) condition monitoring as one of the primary missions. That means how to establish and perfect the cooperation mechanism and policy environment among various government departments, then carry out the important geographic national (city) emotion information dynamic monitoring and provide accurate, timely geographic national (city) information became a problem needed to be answered urgently.

3. GUARANTEE FOR THE IMPLEMENTATION OF BEIJING GEOGRAPHIC NATIONAL CONDITION MONITORING

3.1 Policy Support

Relevant government departments of Beijing instituted regulations and regulatory documents matching with local statutes and perfected our surveying and mapping laws and regulations system; Revised the corresponding local standards and Perfect the standard system of surveying and mapping in our city. Brought Management method for surveying and mapping results, Management method for basic surveying and mapping, Management method for Spatial geographic information sharing in the plan for city government legislation; Enact normative documents involving the map management, Surveying and mapping results quality management, marketing management of surveying and mapping; Introduced related opinions to promote surveying and mapping geographic information industry development in our city. Organized relevant departments to carry Development plan of Beijing surveying and mapping and geographic information standard (2010-2015) out.

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At the same time Beijing has strengthen surveying and mapping public administration, and perfected surveying and mapping management system, deepened revolution , strengthened construction of the management of surveying and mapping administration institution in City and district; Set up Public welfare institutions to assist in surveying and mapping of public services, emergency security, and market inspection and management. Strengthened the construction of surveying and mapping law enforcement teams, and improved the ability of law enforcement and established information notification between departments, investigated all kinds of illegal behaviours in surveying and mapping strictly.

3.2 Footnotes

The departments in charge of finance of central and Beijing government paid much attention to the development of surveying and mapping geographic information, and have instructed specifically that long-term two levels of basic surveying and mapping update investment growth mechanism should be set up and improve stability to make effective connection between basic surveying and mapping programs, plans and budgets. Focus on increasing the government investment in the construction of infrastructure in surveying and mapping, information construction, geographic national(urban) conditions monitoring and emergency safeguard in surveying and mapping. Provide fund guarantee for improving the capability of basic geographic information support service.

Meanwhile, set up guidance funds to promote the development of geographic information industry which provide financial support for the research and development in key technology, Industrialization project, promoting enterprises merger and reorganization, establishing investment and financing system, expanding the market application, the construction of geographic information public service platform. Made small and medium-sized enterprises play a part in investment and financing platform, establish and guarantee the cooperation channel between companies, policy banks and commercial banks, solved the problem in financing difficulty of small and medium-sized surveying and mapping and geographic information enterprises practically.

3.3 Talent Cultivation

Since Geographic National(Urban) Conditions Monitoring has been raised, it has attached importance from relevant departments and industries, and educational field stands in the breach. Institute of remote sensing information engineering of Wuhan university has established major of Geographic National(Urban) Conditions Monitoring, and has been ready to convey plenty of related technical personnel for our country in the near future. Beijing put "Talents" stratagem into effect in surveying and mapping geographic information industry field, and built a surveying and mapping personnel team. And make our capital become a gathering place for qualified surveying and mapping personnel. Cohere a batch of excellent talents especially leading talents. Set up a personnel training mode which combining school education and practice, linking up domestic culture and international communication, higher education and vocational skills training. Give full play to their role as the institute, association and other social groups, continue to conduct title assess, professional skill appraisal and

registered surveyors to improve the professional ability and quality of the technical teams.

4. RESEARCH OF THE FRAMEWORK SYSTEM OF BEIJING GEOGRAPHIC NATIONAL CONDITION MONITORING

4.1 Theoretical System

Geographical National (Urban) Conditions monitoring is a breakthrough and development of traditional surveying and mapping, which needs to fully absorb and draw lessons from the theory method and research achievement of related disciplines. Surveying and mapping places emphasis on measuring the changes of location, attributes and time which is based on the 3s technology; Geography which is based on statistic and analysis emphasizes the division of geographical units, Simulation evaluation and deductive analysis; Sociology surveys the baseline and analysis the rule of social phenomenon based on sampling survey; Environmental engineering emphasis on monitoring sites and nets based on real time observation. Therefore Geographical National (Urban) Conditions monitoring requires to set up a brand new theoretical system, which not only gives full play to the advantage of all kinds of spatial, aero and terrestrial survey and mapping methods and Spatial visualization expression, but fully absorbs the theoretical methods and professional expertise of geography, sociology, environmental engineering, meteorological, hydrological, geological and earthquake as well. Then sets up a monitoring system that combines all kinds of monitoring method.

4.2 Technical System

According to the requirements in the mission of Geographical National(Urban) Conditions monitoring, the Technical system of which can be divided into three parts: Dynamic acquisition technology of Geographic elements information, statistical analysis and comprehensive evaluation technology, product production and network publishing technology.

In terms of geographical elements dynamic acquisition and processing, a kind of all-weather and multiple remote sensing image whole-country-coverage can be realized, which can basically meet the requirements of geographical national condition monitoring on data source. Therefore the next step to realize geographic elements information dynamic acquisition and processing is to solve the problem in geographical elements automatic discovery, identification and automatic extraction basic on diverse remote sensing information.

Comprehensive analysis and evaluation census the quantity like the lake area and path length based on the basic geographic information database, spatial statistical analysis and related technology; Analyze the elements situation data like the topography, surface coverage, drainage basin, the traffic state, residential area and grasp the distribution pattern of Geographical National(Urban) Conditions monitoring. Deeply analysis the process information in Geographical National(Urban) Conditions monitoring, and excavate the trends and laws of it combining with dynamic monitoring data; Coalesce the information of other departments, carry out the application of disaster emergency, major engineering distribution and auxiliary decision supporting for industrial optimization layout.

The key point of product production and distribution is to solve the key technology such as standardization, normalization and

quality control of the product in Geographical National(Urban) Conditions monitoring, and form institutionalization in the production.

4.3 Standard System

Standard system is a scientific organic entirety which is formed by a range of criteria according to its inner link. Geographical National(Urban) Conditions monitoring involves many fields such as land, hydrology, meteorology, agricultural condition, technic methods and process of implement is multifarious and complicated, which needs systematic standard system to guarantee the standardized, scientific and rational of the monitoring work. Therefore Geographical National(Urban) Conditions needs to set up a perfect standard system which including spatial reference, data classification and encoding, data acquisition and quality control, data processing and integration, database structure design, data storing and updating, monitoring period sampling and specification, evaluation standard and reference system.

4.4 Policy System

Geographical National(Urban) Conditions monitoring is strongly comprehensive work, which needs to combine top-level design on the national level, then realizes vertical coordination of national condition, province condition and urban condition; It also needs horizontal combination of all kinds of functional departments, acquiring the professional information and dynamic integration with basic geographic information, then form a dynamic monitoring and release mechanism.

Geographical National(Urban) Conditions monitoring is a huge project which needs to catch the prominent problems in the development of our city, insist on demand orientation, scientific design, reasonable organization, management by objectives, carry forward step by step, choose relative important geographic elements, organize experimental unit elaborately, incarnate its important role in critical engineering implement, ecological environmental protection, Energy resources utilization.

Geographical National(Urban) Conditions monitoring is a long term work and needs to set up a strongly leadership mechanism, fund investment mechanism, long-term effective mechanism of monitoring and coordinated release mechanism; Insist on the principle that strategic tasks and current tasks combines, and built the equipment system and technical system that match with it, then develop a multi-type talent team. Make Geographical National(Urban) Conditions monitoring normalized, long-term and institutionalized.

5. CONCLUSIONS

The policy environment, theoretical system support and personnel training strategy in Beijing can offer a favourable implement environment for Geographical National(Urban) Conditions monitoring and the monitoring results has highly accuracy, practicability and authority, which lay a solid foundation for Geographical National(Urban) Conditions monitoring.

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