



Discussion on the Exploration and Practice of Quality Supervision Mode of Surveying and Mapping Geographic Information in Hunan Province Under the Background of Big Data Information Technology

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Abstract:

In order to improve the quality of surveying and mapping geographic information products, this paper aims to study and explore the working mode and method of surveying and mapping geographic information quality supervision under the background of big data information technology. In this paper, hunan Province is taken as an example. Under the background of the big data of the credit platform for surveying and mapping information in Hunan Province, information analysis of the big data of surveying and mapping units and surveying and mapping results is carried out to carry out the sampling supervision of the quality of surveying and mapping geographic information in hunan Province in 2021. Before carrying out quality supervision and sampling inspection, effectively carry out big data information technology analysis of surveying and mapping units and surveying and mapping results, and conform to the key points of provincial surveying and mapping work every year, so as to carry out sampling inspection of surveying and mapping geographic information quality in a better and more efficient way.

Keywords: Supervise sampling inspection; Quality sampling inspection; Surveying and mapping geographic information big data; Information technology processing

1 INTRODUCTION

Quality is the way to rejuvenate the country, the policy to strengthen the country, and the life of enterprises, undertakings and industries [6]. As a basic work of economic and social development and national defense construction, the quality of surveying and mapping results is closely related to national sovereignty, security and interests, and the quality of major project construction [5]. The 12th plenary session of the 11th provincial Party committee put forward the implementation of the strategy of "three high and four new", and described it as the general traction of striving to build a modernized new Hunan. The annual survey of surveying and mapping qualification and sampling supervision of surveying and mapping geographic information quality effectively maintain the quality and

safety of surveying and mapping geographic information in our province, provide real and reliable professional data for economic and social development and ecological civilization construction, and ensure the establishment of comprehensive and unified spatial data background pattern in the province. It has provided strong support for the delineation of ecological red lines, land use approval, integration of multiple regulations, real estate registration, protection of cultivated land, confirmation and registration of natural resources rights, and construction of major projects.

With the rapid development of Internet + and big data, and the construction of credit platform for surveying and mapping geographic information, it is very worth discussing how to follow the trend of The Times and apply some thinking and ideas in the era of big data and information science and technology to the sampling

inspection of surveying and mapping geographic information quality [2]. Through scientific information analysis of big data, surveying and mapping information can be mastered at a macro level, providing a basis for relevant departments to make decisions [1]. The number and distribution of surveying and mapping units in our province differ greatly, and the technical force and scale of surveying and mapping units are uneven. In some cities and states with fewer surveying and mapping units, the frequency of sampling inspection is too high, and the surveying and mapping units are negative. Through information scientific analysis of surveying and mapping units and big data of surveying and mapping geographic information projects, this paper specifically included in this quality sampling inspection units with poor sampling inspection results in previous years, problems in surveying and mapping credit system and no sampling inspection in the past two years. To explore and practice the working mode of surveying and mapping geographic information quality supervision in our province.

2 DISTRIBUTION STATUS OF SURVEYING AND MAPPING QUALIFICATION UNITS IN OUR PROVINCE

China's geographic information industry was formed in the late 1990s. After a short period of more than 10 years of rapid development, China's geographic information industry has begun to take shape, geographic information resources are increasingly abundant, technological innovation has made significant achievements, products continue to prosper, applications continue to expand, services show a variety of formats, enterprise competitiveness continues to increase, and market environment continues to improve. By 2021, there are 820 surveying and mapping qualification units in our province, including 56 Class A, 220 Class B, 278 Class C and 261 Class D; it has increased compared with last year. As shown in Figure 1, the distribution of Class A and Class B units in each city and state is shown in Figure 1.

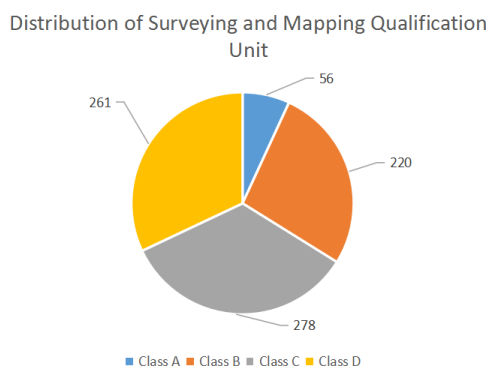


Figure 1: Distribution of Surveying and Mapping Qualification Unit

From the distribution of Class A and Class B units in various cities and states, Changsha, as the capital of Hunan Province and the location of the provincial geographic information industrial park, has gathered 148 Class A surveying and mapping units, including 25 units in Zhuzhou, followed by Hengyang, Xiangtan, Changde and other places, while relatively few Class A surveying and mapping units are distributed in Zhangjiajie and Xiangxi. It shows that the development of geographic information industry is closely related to the process of regional economic and social development. At the same time, it also shows that the geographical information enterprises in our province are still uneven in geographical distribution. Zhangjiajie and Xiangxi are far away from the province and cities, and lack of economic and transportation capacity compared with other cities and states, leading to their geographical information industry capacity lagging behind.

3 SURVEY AND MAPPING PRODUCT QUALITY SAMPLING ANALYSIS

In 2021 mapping qualification unit quality supervision sampling inspection results showed a good situation. Sampling items mainly include real estate surveying and mapping, engineering surveying, geographic information system and map compilation. A total of 72 projects of provincial surveying and mapping qualification were randomly inspected, covering 14 cities and prefectures, of which 69 were qualified and 3 were unqualified. The qualified rate of the projects was 95.8%, and the excellent and good rate of the samples was 88.9%, 8.1% higher than last year.

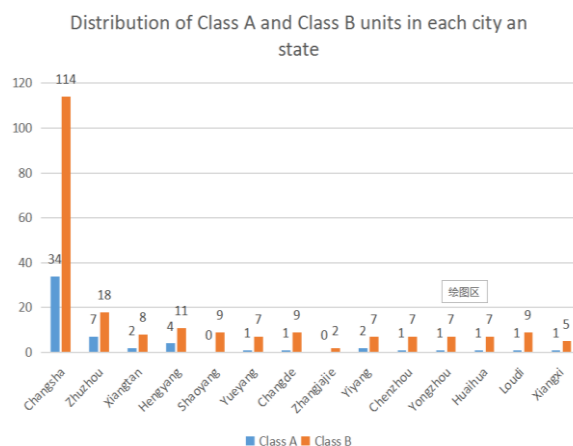


Figure 2: Distribution of Class A and Class B units in each city and state

In this sampling inspection, unqualified project units are all concentrated in grade B qualification units. Some grade B surveying and mapping qualification units have problems such as small scale of development, weak quality awareness, limited technical level of personnel and imperfect quality management system, which lead to

their surveying and mapping results do not meet the requirements.

3.1 Project geographical distribution

The sampling inspection projects included 71 projects within the province and 1 project outside the province, and the sampling inspection projects within the province covered 14 cities and prefectures. The distribution of selected projects in cities and states is shown in Figure 3.

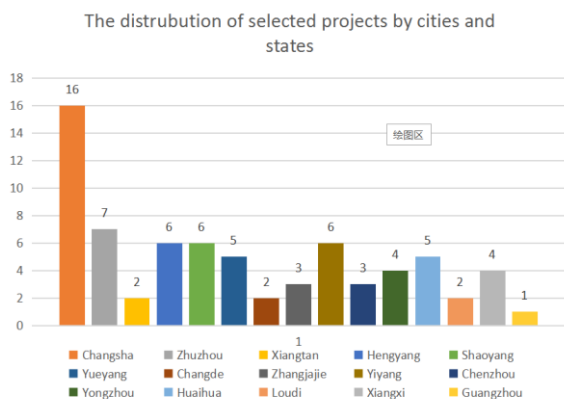


Figure 3: The distribution of selected projects by cities and states

3.2 Distribution of unqualified items

Two of the three unqualified projects are located in Changsha and one in Chenzhou. In this sampling inspection, unqualified project units are all concentrated in grade B qualification units. Some grade B surveying and mapping qualification units have problems such as small scale of development, weak quality awareness, limited technical level of personnel and imperfect quality management system, which lead to their surveying and mapping results do not meet the requirements.

3.3 Project types situation

Sampling inspection projects cover engineering surveying, cadastral surveying, real estate surveying and mapping, GEOGRAPHIC information system and "multi-surveying integrated", etc. The proportion of each type of project is shown in Figure 4. According to the analysis of the proportion of sampling items, the engineering survey results are one of the main results produced by qualified surveying and mapping units, and the geographic information system and digital line drawing (DLG) results are few. Traditional surveying and mapping mainly adopts CAD to form graph data, and most units have not produced GIS data results for the time being. See Fig.3 for sample inspection items.

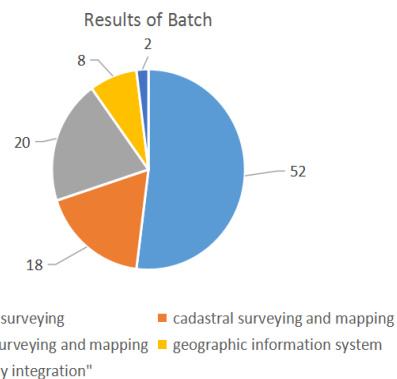


Figure 4: Results of Batch

4 ANALYSIS OF THE CAUSES OF PRODUCT QUALITY PROBLEMS

According to the methods and requirements of quality inspection and acceptance and quality evaluation of surveying and mapping geographic information achievements, and according to the characteristics of each project, the corresponding quality elements are selected to inspect and evaluate the achievements. This paper analyzes the quality of different types of surveying and mapping achievements of various surveying and mapping units, and the causes of its quality problems.

4.1 The implementation of the quality management system is not strong enough

Surveying and mapping qualification units have improved the quality of their surveying and mapping results by means of self-examination and self-rectification and random inspection by inspection teams. But there are still some surveying and mapping qualification units pay insufficient attention to inspection, quality awareness is not strong, technical force is insufficient, quality assurance system construction is weak, implementation is not in place. Surveying and mapping qualification units need to further improve and refine the quality management system, establish the quality consciousness of knowing responsibility in the heart, bearing responsibility in the body and fulfilling responsibility in the line, improve execution ability and ensure the implementation of the system in place [4].

4.2 Awareness of surveying and mapping standards needs to be strengthened

In recent years, the quality supervision and sampling inspection of surveying and mapping geographic information found that a common problem is that individual units still use the expired or invalid national standards and industry standards for surveying and mapping production [3], and fail to update the standards in time, resulting in the quality of surveying and mapping results not meeting the requirements. At the same time, with the rapid development of geographic information

technology of surveying and mapping, some surveying and mapping qualification units are accustomed to extending the experience production mode, failing to know and learn the new production mode and advanced technology of surveying and mapping in time, failing to independently cultivate advanced compound talents with solid theoretical foundation and excellent technical practice ability, lacking a certain sense of independent innovation, and only being satisfied with the assembly line production mode. Qualification units of surveying and mapping should be based on their own characteristics, accurately grasp the development direction of surveying and mapping, take positive actions, explore and innovate, and promote the high-quality development of surveying and mapping products.

4.3 Surveying and mapping instrument inspection awareness needs to be improved.

In the quality supervision and sampling inspection, it is found that individual surveying and mapping qualification units use instruments that have not passed the inspection or have expired in the surveying and mapping production process. Surveying and mapping instruments are instruments and equipment that collect, process, convert and output surveying and mapping data. "If a worker wants to do a good job, he must sharpen his tools first." The qualification of surveying and mapping instruments directly determines the qualification of surveying and mapping results. Surveying and mapping qualification units should establish and improve the surveying and mapping instrument inspection system, standardize the surveying and mapping instrument inspection process, and ensure the traceability of surveying and mapping results.

5 NEW EXPLORATION OF SURVEYING AND MAPPING SUPERVISION AND SAMPLING INSPECTION

5.1 Highlighting people's livelihood and security.

"Multi-measurement in one" reform is an important measure to implement the spirit of the CPC Central Committee and the State Council on deepening the "streamline administration, delegate power, strengthen regulation and improve services" reform and optimizing the business environment. The reform of "multi-measurement in one" in our province puts forward the principle that "one subject is measured only once, and one surveying and mapping result is recognized by the audit department", which breaks the monopoly of the industry, simplifies the examination and approval procedures, improves the work efficiency and reduces the production cost. The supervision and sampling inspection work in Hunan province fully considers the

reform of "multi-measurement integration", and the sampling inspection project focuses on the achievements of "multi-measurement integration" that are highly concerned by people's livelihood. Through the quality supervision and sampling inspection and analysis of some achievements of "multi-measurement integration", we can grasp the achievements of the reform of "multi-measurement integration" and some problems that still exist in our province.

5.2 Highlight problem orientation.

Through the information scientific analysis of the surveying and mapping qualification units and the big data of the surveying and mapping geographic information results of our province, sampling inspection was conducted on the surveying and mapping results of real estate with high attention and many complaints, such as real estate and cadastre. At the same time, we carried out supervision and sampling inspection on the results of data entry and digital surveying and mapping that were rarely covered by qualified surveying and mapping units in our province, found quality problems and urged the units to rectify, thus improving the quality of some weak surveying and mapping products of qualified units.

6 CONCLUSION

Surveying and mapping work is the preliminary and basic work of national economic and social development, and is an important means to accurately grasp national conditions and national strength and improve the level of management and decision-making. Surveying and mapping results are essential basic and strategic resources to ensure economic and social development and national defense construction, as well as the foundation of national informatization construction. Along with the computer and network technology, cloud computing, big data, the rapid development of high and new production technology of surveying and mapping, only by constantly strengthening the construction of power of sampling observation of quality itself, sampling mode and technical innovation, keep up, the use of information technology and information processing means, raising the overall level of sampling, can effectively guarantee the quality of surveying and mapping results.

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