Current Standardization and Inspiration of Economical and Intensive Utilization of Land Resources in China

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Abstract: Economical and intensive utilization of land resources is an important solution for the shortage of construction land in China. It is important to summarize the mode and experience of standardizing the economical and intensive utilization of land resources to generate experience that can be replicated and promoted in different locations. This paper analyzes the construction of standardization technology organizations for utilization of land resources, the basis for economical and intensive utilization of land resources, and the current standardization of technology and real-time supervision, and puts forward suggestions on development.

1. Introduction

Land is the material basis for survival and development of human society. It is where human economic and social activities occur. The effective management and utilization of land involves many industries and is closely related to the survival and development of a country [1]. With the continuous advancement of the new urbanization strategy in China, the growing shortages of construction land in different regions have become increasingly noticeable [2], seriously restricting the rational and orderly development of the new urbanization process in the country.

Economical and intensive utilization of land refers to various actions and activities of saving land, reducing land utilization, increasing the intensity of land utilization, promoting the reutilization of inefficient and waste land, optimizing the structure and layout of land utilization, and improving the efficiency of land utilization through means such as scale guidance, layout optimization, standard control, market allocation, and vitalized utilization [3]. Economical and intensive utilization of land resources is an important solution for the shortage of construction land in China. It plays an important role in further promoting the process of new urbanization construction and in effectively implementing the new urbanization strategy in China. Standardization is a basic work for the land management technology, standard system of land resources is the important basis of quality evaluation of the administrative examination and approval, supervision, law enforcement, and work deployment [4]. It is practically important to summarize the mode and experience of standardizing the economical and intensive utilization of land resources to generate experience that can be replicated and promoted in different locations.

2. Current Standardization of Economical and Intensive Utilization of Land Resources

Before 1986, land resources in China were managed by different departments such as agriculture, forestry, water conservancy, and urban and rural planning. Each department developed and revised
relevant standards based on their actual work. As urban and rural land affairs were put under unified management after 1986, China successively formulated a series of standards about land resources. Especially after 2009, with the promulgation of the Administrative Measures on Standardization of Natural Land Resources, the standardization construction of land resources in China officially ushered in a new stage[5]. This paper summarizes and concludes the current standardization of economical and intensive utilization of land resources from the aspects of the construction of standardization technology organizations for utilization of land resources, the basis for economical and intensive utilization of land resources, the technologies for economical and intensive utilization of land resources, and real-time supervision over land resources.

2.1 Construction of Standardization Technology Organizations
In May 2003, the Standardization Administration of the People’s Republic of China formally approved the founding of the National Technical Committee for Standardization of Land Resources (TC93), which is specifically responsible for standardizing geological, mineral and land resources in the country. In the same year, the Sub-Technical Committee for Information of National Land Resources (SC5), the Sub-Technical Committee for Planning, Investigation and Evaluation of Land Resources (SC6), and the Sub-Technical Committee for Land Remediation and Protection (SC7) were established to be responsible for centralized management of relevant standards in this field. In addition, the Sub-Technical Committee for Monitoring of Land Utilization (SC10) was officially established in 2010 to further strengthen management over the technical requirements for monitoring and economical and intensive utilization of land resources, the technical requirements for evaluating the potential, degree, and status survey of land utilization, and the technical requirements for land ownership management and land market management.

2.2 Current Basic Standardization of Economical and Intensive Utilization of Land Resources
Basic standards are the foundation and basis for using and promoting technical standards and management standards. They are universally instructive. Establishing a complete system of basic standards for economical and intensive utilization of land resources lends a strong support for normalization and standardization in this field. So far, 9 basic standards about terminology, classification, soil environmental quality, and gradation of land have been developed to support economical and intensive utilization of land resources in China, including 2 mandatory standards, 6 recommended standards, and 1 industry standard.

2.3 Current Technical Standardization for Economical and Intensive Utilization of Land Resources
Technical standards are the core to the economical and intensive utilization of land resources. The application and promotion of standards is of practical significance for standardizing and increasing the increase of the economical and intensive utilization of land resources. So far, 25 technical standards about preparation of procedures, land price monitoring, farmland construction, land reclamation, land remediation, access approval, investigation and evaluation for economical and intensive utilization of land resources have been developed in China, including 2 mandatory standards, 3 recommended standards and 20 industry standards.

2.4 Current Standardization of Real-time Supervision of Land Resources
Real-time supervision of land resources utilization is an important guarantee for economical and intensive utilization of land resources. Establishing a unified real-time supervision standard for land resources is an important tool to monitor the utilization of land resources on a large scale and remedy illegal land utilizations across regions. So far, 11 standards about acquisition of real-time supervision data, database construction, and dynamic remote sensing monitoring for real-time supervision of land resources have been developed in China, including 1 mandatory standard, 1 recommended standard, and 9 industry standards.
In summary, the analysis on the current standardization of economical and intensive utilization of land resources in China shows that (Figure 1): Firstly, the State attaches great importance to the standardization management of land resources utilization, as suggested by the establishment of the National Technical Committee for Standardization of Land Resources and its four sub-technical committees for management of standards; secondly, the State attaches great importance to the development of standards for land resources utilization, as suggested by the promulgation of 5 mandatory national standards and 10 recommended national standards; next, remarkable results have been made in the development of industry standards for land resources utilization, and 30 industry standards have been issued so far; finally, the coverage of standards for economical and intensive utilization of land resources is increasingly complete to form a standardized work management model through the whole process of land utilization from the basis, technology and real-time supervision of land utilization.

3. Inspiration

3.1 Continue to Strengthen the Development of Key Technical Standards
With the continuous development of economy and society in China, more and more mechanisms and models for land utilization have emerged. Progress should be made in the development of standards for land utilization according to the actual land utilization in China. It is necessary to further identify the target of standardization, complete the construction of standard system for economical and intensive utilization of land resources through standardization means, and standardize and normalize all links, steps and stages of key technical work for land resources utilization. For example, no effective national or industry standards have been developed for the management of indicator utilization, remediation of idle and inefficient land utilization, evaluation of the benefits of industrial land utilization, and construction of intelligent management platforms for land utilization. Further progress in development of standards mentioned above is needed.

3.2 Gradually Develop Group Standards
In recent years, China has actively boosted the development of group standards. Developing and promulgating group standards for land utilization are an important means to enhance the self-discipline and standardized development of the land utilization industry through standardization means. The government mainly plays a guiding, managing and regulating role in land utilization. Plenty of land remediation, land reclamation and farmland construction efforts call for the joint participation of enterprises and institutions. Developing and enforcing relevant group standards and regulating key links, steps and elements in the economical and intensive utilization of land resources
through standardization means are important tools for enterprises and institutions, as important member units of social groups, to increase the quality and efficiency of the efforts made in this field.

3.3 Promote the Effective Implementation of the Standard System
The implementation of standards is the foothold of standardization efforts and the original intention to develop standards. To standardize the economical and intensive utilization of land resources, importance should be attached to the implementation of standards and the evaluation of the implementation effects. Firstly, each implementing entity should set up special organizations to implement, promote, supervise and inspect the standardization work and strengthen top-level design, supervision and inspection; Secondly, each implements entity should develop a complete standardization work system that regulate and standardize orderly standardization work; thirdly, each implementing entity should strengthen the publicity and promotion of relevant standards, expand their implementation scope, and facilitate the creation of a favorable atmosphere for understanding and applying standards for economical and intensive utilization of land resources.

4. Conclusions
Resource conservation and intensive use of the relevant standards are not perfect, by sorting out the current situation of standardization for the economical and intensive use of land resources in China. Standardization objects need to be further defined, with the continuous advancement of land resource utilization. At the same time, we should strengthen the development, implementation and popularization of important standards, and constantly improve the standard system of economical and intensive use of land resources.

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