Discussion on Zhejiang Provincial Water Conservancy Local Standard System in the New Period

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\textbf{Abstract.} At present, there is no relatively perfect provincial water conservancy local standard system in China, and no water conservancy local standard system has been established in Zhejiang Province. In order to improve the technical support of water conservancy local standards, we will play a guiding and restrictive role in water conservancy standardization. This paper expounds the current status of water conservancy local standards in Zhejiang Province, summarizes and refines the long-term practice and innovation achievements of Zhejiang Water Conservancy in various fields, and constructs the framework of Zhejiang water conservancy local standard system. According to the six professional categories, the construction content is analyzed systematically, which provides a reference for the related research on the construction of local standard system in Zhejiang Province.

1. \textbf{Introduction}

Standards are documents through standardization activities that are developed by consensus, in accordance with established procedures, to provide rules, guidelines or characteristics for various activities or their results for shared use and reuse\cite{1}. The water conservancy standard system is an important part of the modernization of the national governance system and governance capacity. At present, there is no relatively perfect provincial water conservancy local standard system in China and no water conservancy local standard system has been established in Zhejiang Province. In order to solve the problem of "valuing construction but underestimating management", the central government's water conservancy work policy in the new era is actively implemented in Zhejiang and the "standard for strengthening the country" and "standard for strengthening the province" strategies are fully carried out. It is necessary to continuously improve and optimize local standards and gradually build water conservancy with the state and industry. The standard is matched with the water conservancy local standard system in line with the reform and development of Zhejiang Province, which comprehensively improves the level of water conservancy standardization.

2. \textbf{Current status of water conservancy local standards in Zhejiang Province}

According to the requirements of accelerating water conservancy reform and development and perfecting water conservancy standards, based on national standards and industry standards and combining the actual needs of local water conservancy development, the water conservancy standard revision work has been actively carried out in Zhejiang Province. In 2003, the first provincial-level
3. Problems with the standard system

The standard system refers to the scientific organic whole formed by a certain range of standards according to their internal relations[3]. Constrained by various factors such as development level, concept understanding, system policy, talent technology, etc., the Zhejiang water conservancy local standard system is not perfect. There are fewer water conservancy local standards and they are mainly in the field of engineering construction and management. The standards are relatively scattered. There are still "blank" and "blind zones" in key work areas with modern water conservancy features such as water ecosystem construction and river and lake management.

Problems such as repetition, intersection, aging and lag exist in some standards[4]. Affected by the management system of the state administrative organs, Zhejiang Province's water conservancy and construction, transportation, environmental protection, agriculture and other departments have many cross-repetitions and contradictions phenomenon in the standard formulation of water resources management, farmland water conservancy, water ecological environment, disaster prevention and mitigation. The water conservancy standard itself has insufficient rigid binding force, and the standards are cross-cutting and complicated[4]. For example, "the Rural Hydropower Station Management Code" DB33/T 2008-2016 and "the Rural Hydropower Station Operation Management Technical Regulations" DB33/T 809-2010, there are many repetitions in the content of these two local standards.

The advanced nature of water conservancy standards is insufficient. Some advanced water management experiences accumulated in water conservancy work have not been systematically sorted out and summarized in Zhejiang Province, and there is a lack of synergy between water conservancy scientific research results and standardization research.

4. Standard system framework design

The standard system is a complex system engineering, the system architecture is theoretically strong, and the connections within the system are complex. Zhejiang Water Conservancy Local Standard System is an important supplement and component of the national and industry water conservancy standard system.

In-depth comparison of one-dimensional, two-dimensional, three-dimensional, multi-dimensional structures and classification schemes, considering the consistency of China's water conservancy administrative management system and the common characteristics of water conservancy work areas, the water conservancy local standard system structure of Zhejiang Province is designed according to the framework principle of the 2014 edition of the Ministry of Water Resources, using a two-dimensional structure[5]. That is to say, the vertical professional categories are divided into six categories: basic information, hydrology, disaster prevention and mitigation, water resources and soil and water conservation, water conservancy projects and others, combined with the demand for water conditions and water conservancy modernization in Zhejiang Province; horizontal functional sequences are divided into three categories: synthesis, construction and management.
5. Main content of the standard system

5.1 Basic information
The basic information standard is the premise and basis for carrying out various water conservancy work. It encodes and defines basic information about water resources and water conservancy projects, regulates water conservancy information and provides basic guarantee for water conservancy digital management.

Firstly, actively carry out revision work. The local standards for 9 information codes, such as reservoirs, rivers, dikes, flood storage and detention areas, which have been reviewed for more than 3 years and have a long service life, shall be revised in accordance with the basic information code industry standards formulated by the Ministry of Water Resources in conjunction with the actual situation in Zhejiang Province.

The second is to timely supplement relevant information code standards. Focus on the development of mountain pond information code standards and actively study the preparation of basic information codes such as small watersheds, hydrological stations, soil and water conservation monitoring stations, dams, rural water supply projects, pump stations.

The third is to actively carry out research on technical standards related to water conservancy information. Actively adapt to the "Internet +" and big data development trends, focusing on government services, information security, scientific and technological innovation, etc. Research and formulate technology standards of corresponding water conservancy information.

5.2 Hydrology
The hydrologic standards are mainly for the construction of station network layout, hydrological monitoring, information forecasting, data reorganization and hydrological equipment.

Firstly, actively carry out the revision of the "General Technical Conditions for Special Components for Hydrological Telemetry Communication" DB33/T816-2010.

The second is to carry out research on the standardization of documents. It is suggested that the "Measures for the Administration of Hydrological Information Forecasting in Zhejiang Province" should be raised to local standards.

The third is to timely supplement the local standards related to hydrology. Focus on standard research on hydrological monitoring of small and medium rivers, the compilation of hydrological data. In order to strengthen the construction of talents in hydrology, normative research on hydrological monitoring workers and water forecasters is suggested.

5.3 Disaster prevention and mitigation
The standards for disaster prevention and mitigation mainly include flood control, flood dispatching, river regulation, flood and drought assessment and emergency planning for disasters such as mountain torrents, mudslides and dammed lakes.

Firstly, actively carry out research on relevant guidelines and standardization documents. Relevant technical and normative documents are suggested to be re-categorized according to their importance, service functions and main technical contents. At present, local standards such as "Zhejiang Province Flood Control Material Reserve quota" and "Zhejiang Province Flood Control Material Reserve Management Regulations" are prepared to be compiled.

The second is to timely supplement the local standards for water conservancy related to disaster prevention and mitigation. In accordance with the concept of "from flood control to flood management", it is necessary to strengthen the research on policy mechanisms for urban flood control, flood detention area and open dike setting, flood risk management, and compensation mechanism for submerged loss caused by flood control in large and medium-sized water conservancy projects.
5.4 Water resources and soil and water conservation
Standards are established in terms of water resources planning, water resources demonstration, water ecosystem protection and restoration, ecological civilization construction, soil erosion control, and soil and water conservation monitoring.

Firstly, actively carry out research on relevant guidelines and standardization documents. According to the principles corresponding to technical standards and regulations, guidelines and regulatory documents for water region surveys, water region occupation impact assessments, water region protection, water intake plans, comprehensive management of soil erosion, soil and water conservation monitoring are highly targeted and instructive. On the basis of further summarizing the existing work experience, it is recommended to be raised to local water conservancy standards.

The second is to timely supplement related local standards. In the aspect of water resources management, with the construction of water-saving society as the starting point, it is necessary to focus on the key work areas of water conservation in planning and major projects, project water saving assessment, water resources monitoring and measurement statistics, water environment carrying capacity evaluation and early warning, etc., to increase the study of relevant standards.

In terms of soil and water conservation, it is necessary to strengthen research on relevant technologies and management standards on soil and water conservation monitoring, forecasting, prevention, supervision and management. At the same time, in order to improve the management level of soil and water conservation monitoring station network, accelerate the formulation of the Technical Regulations for the Operation of the Provincial Soil and Water Conservation Monitoring Station Network.

5.5 Water conservancy engineering
Water conservancy projects are used to control and allocate water resources to achieve the purpose of harm removal and benefit promotion. In order to standardize the construction and management of water conservancy projects, the national and industrial standards systems are relatively complete in the planning and construction of water conservancy projects, and basically covers technical standards for the planning, design, construction and safety of various water conservancy projects and their supporting buildings. In response to the actual needs of water conservancy project management, the standardization management of water conservancy projects has been focused on in Zhejiang Province.

Firstly, actively carry out the revision work. "Guidelines for Safety Evaluation of Seawall Project", "Technical Specifications for River Ecological Construction" have been used for more than 3 years. According to the regulations of Zhejiang Province, they need to be revised. According to the requirements of the implementation plan of the National Standardization Comprehensive Pilot Province, the 12 operational management procedures formulated for the standardization management of water conservancy projects will be upgraded to provincial-level local standards.

At present, "Technical Regulations for Steel Submarine Water Transmission Pipeline System" is being formulated. The construction and management standards for water storage facilities in the irrigation area, the construction standards for high-efficiency water-saving projects, water quality construction engineering quality supervision and management regulations and water conservancy and hydropower construction project legal person commissioned testing standards are being drafted.

The second is to timely supplement the local standards related to water conservancy projects. In Zhejiang Province, seawall, beach reclamation, dam, ecological hydropower and other water conservancy projects have strong regional characteristics. Therefore, starting from the actual demand, it is recommended to strengthen the standard research on the design of earth dam seepage prevention wall, surrounding coating and silt-fixing, silt-filled silt land treatment, seawall blasting and siltation, hydropower station ecological dispatching, etc to fill the blank of the system.
5.6 Others

Others standards mainly include industry capacity building, water conservancy reform of "run at most once" (high work efficiency), water culture, water conservancy scenic areas, social management and other specific work standards that are difficult to classified into the above professional categories.

In strengthening the capacity building of the "Water Conservancy Iron Army" team, the team structure, ability and quality, and ideological style are directly related to the development of water conservancy in Zhejiang Province. It is necessary to make full use of standardized work ideas and means and focus on the formulation of professional standards for professional and technical personnel, the standard of administrative law enforcement team and the standardization of rural water management stations.

In the aspect of water conservancy social management, it is necessary to deepen the reform of water conservancy investment and financing system, strengthen the cultivation and management of water conservancy construction service market, strengthen supply-side structural reform and explore new water conservancy property management mode. The key research involves relevant subject access, specific service requirements and industry supervision in key areas of water conservancy. Through the implementation of standards, the relationship between government, market and society will be further rationalized.

6. Conclusions

This paper comprehensively analyzes the current status and existing problems of water conservancy local standards in Zhejiang Province. Based on the full investigation and comparative analysis, the standard system framework is constructed. Adhere to the problems, needs and effects orientation, combined with the beneficial experience and successful practices of Zhejiang Province's "five-water joint treatment", water conservancy project standardization management and beautiful rivers and lakes construction, etc., the paper has made great efforts to grasp the main direction of standardization construction of various professional categories and preliminary research on the main content of standard system. The process "development-implementation-revision" of the standard is the process "innovation-population-re-innovation" of experience and technology management[6]. Because the standard establishment is limited by the development stage, economic and technical conditions, work system, policy orientation and level of understanding, it is impossible to cover everything. Some standards can only be thought-oriented, directional, principle-oriented and are research-oriented.

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