

Analysis on Key Problems of Operation Management of Navigation Buildings in China

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Abstract. The Waterway Law clearly stipulates that the navigable building is an important part of the navigation channel. It plays an important role in the operation of the channel. In this paper, the status quo of operational management of navigation buildings in China is analyzed. Its development characteristics have been studied. The key issues that exist are identified. Ideas and suggestions for solving problems from a legislative perspective were proposed. Policy references are provided in regulating the management of navigable buildings and promoting the construction of waterways.

Keywords: Building; navigation; operation; management; key issues.

1. Introduction

The construction of China's navigable buildings has a long history. As early as the Eastern Han Dynasty (AD 69), it began to use the "Doumen" to achieve ship dam navigation. After the founding of New China, the construction of navigation buildings has achieved a lot of achievements, creating a lot of "the world's best." In recent years, with the completion and use of the Three Gorges Ship Lock, the Three Gorges Ship Lift, and the Changzhou Third- and Fourth-Line Ship Locks, the domestic river transport capacity and level have been greatly improved, and the requirements for the ship lock operation management level are getting higher and higher. Some key issues need to be resolved [1][2].

According to the statistics of the China Navigation Society Shiplock Branch, as of March 2013, 32 provinces and cities across the country (including the Yangtze River Estuary and Xinjiang Construction Corps) have a total of 1,089 navigation buildings, including 1,041 ship locks and 48 ship lifts [3][4].

The total number of navigable buildings on the Class I channel is six, accounting for 0.55% of the total. There are 5 ship locks and 1 ship lift. The total number of navigable buildings on the II-IV channel is 165, accounting for 15.15% of the total. Among them, there are 162 ship locks and 3 ship lifts. The total number of navigable buildings on the V-VII level channel is 498, accounting for 45.64% of the total. Among them, there are 479 ship locks and 18 ship lifts. The total number of navigable buildings on other waterways is 421, accounting for 38.66% of the total. Among them, there are 395 ship locks and 26 ship lifts [5][6].

Among the 1,089 ship locks and ship lifts, there are 902 normal ship locks, accounting for 82.83% of the total number of ship locks. There are 28 ship lifts in normal operation, accounting for 74.63% of the total number of ship lifts. The specific statistics by management body are as follows: a total of 217, accounting for 19.93% of the total. Among them, there are 212 ship locks and 5 ship lifts [7][8]. Among them, there are 165 normal operations, accounting for 15.15%. A total of 666, accounting for 61.94% of the total. Among them, there are 644 ship locks and 22 ship lifts. Among them, there were 582 normal operations, accounting for 53.44%. A total of 172, accounting for 15.79% of the total. Among them, there are 159 ship locks and 13 ship lifts. Among them, there are 131 in normal operation, accounting for 12.09%. A total of 34 seats, accounting for 3.12% of the total. There are 26 ship locks and 8 ship lifts. Among them, there are 24 in normal operation, accounting for 2.20% [9][10].

In the total of 1,089 ship locks and ship lifts, there are 220 unfunded buildings, accounting for 20.20% of the total. Among the navigable buildings managed by the transportation department, 120 are charged, accounting for 11.02% of the total possession, accounting for 54.55% of the total charges, accounting for 55.29% of the total management; and 90% of the navigable buildings managed by the water conservancy department. Block, accounting for 8.26% of the total ownership, accounting for

40.91% of the total charges, accounting for 13.51% of the total management; 10 of the navigable buildings managed by hydropower enterprises, accounting for 0.92% of the total, accounting for the total number of charges 4.55%, accounting for 5.81% of the total management; among the navigation buildings managed by other departments, 0 is charged, accounting for 0%[11][12].

2. Operation Management Problem of Navigation Buildings in China

2.1 The Problem of Dissatisfaction Still Exists

From the perspective of the operation and management of navigable buildings, different subjects have different characteristics. In the water conservancy and hydropower project constructed by the water conservancy and hydropower departments, the navigational buildings are used as supporting projects. The water conservancy and hydropower projects can generate income through power generation, which can guarantee the operation and maintenance funds of the navigable buildings, but there is a phenomenon of “heavy electricity and light navigation”. It is easy to see that the construction standard does not match the channel grade. For example, the navigation level of the Wuzhou River in Anhui Province is Grade IV, and the ship locks should be built according to the 500-ton standard, but the ship locks built by the water conservancy department are only 100 tons. The water project constructed by the transportation department has the main purpose of “guaranteeing navigation conditions and ensuring the passage of ships”, and can better handle the relationship between navigation buildings and shipping.

From the analysis of the operational management mechanism of navigable buildings, there are problems of coordinated management: (1) There is a mismatch in the navigation capacity of different navigable buildings on the same river. For example, in the Anhui section of the Shaying River Channel, which was re-routed in April 2012, the size of the lock chamber of one of the three locks was small, which affected the matching of the navigational capacity of each cascade. (2) The schedules for suspension and maintenance of various departments are inconsistent, and it is difficult to achieve joint dispatching and effective supervision of the same river.

2.2 Some Units have Low Service Levels

Due to the different operational management system, operation and maintenance funds and operational management nature of navigation buildings, some operating units often stop at random in order to pursue efficiency, and the opening hours are short, resulting in the navigation of ships being blocked. At the same time, the statistical information of some operating units is not disclosed, which affects the operation of the ship and the supervision of the navigation building management department.

2.3 The Operational Plan System Needs Urgent Improvement

The operation plan is the key to the operation of the navigable building and the operation management. Article 25 of the Waterway Law establishes the approval system for the operation plan of the navigable building. In 2016, the State Council’s Office of Reform and Reform clearly defines the administrative licensing items for the designated place in the central government. Four provinces including Guangdong and Zhejiang have already carried out the operation plan approval work. According to the “Ministry of Transportation and Responsibilities List (Trial)” (Ministry of the Ministry of Transportation), the operation plan of the navigation building on the navigation channel directly managed by the Ministry of Transport is approved. It is an administrative confirmation. However, in the course of the investigation, it is generally reflected that the system for the preparation, submission, approval and publication of the navigational building operation plan is imperfect, resulting in insufficient implementation basis and insufficient standardization of the operating unit. It is necessary to establish a navigational building operation plan system and a corresponding system to ensure the relevant provisions of the Waterway Law are in place.

2.4 Unstable Source of Operation and Maintenance Funding

The source of operation and maintenance funding for navigable buildings shows obvious characteristics of operational management. For the navigable buildings managed by the government departments, most of the maintenance funds come from the government's financial payment, accounting for 93.63%, accounting for only 6.37% of the cost of power generation; while the 76 navigation buildings managed by hydropower enterprises are included in the maintenance funds. Power generation costs. From an economic point of view, government departments need to bear certain maintenance expenses when managing navigational buildings. When the fiscal revenue is not sufficient, how to ensure that maintenance funds are in place becomes a difficult problem that cannot be overcome in reality. Therefore, the government department focuses on the supervision and management of the operation of the navigable buildings, and it is reasonable and feasible to transfer the operational management rights to the operating units.

2.5 Cross-gate Charging Mechanism is Different

Statistics show that the proportion of toll-funded buildings in China is close to 20%, of which the proportion of navigable buildings managed by the transportation department has reached 55.29%. From the survey situation, the attitudes of the provinces on whether or not to charge are different. The navigation buildings in Hunan are all free of charge. In Zhejiang, the navigation buildings in specific river sections are allowed to charge, and Guangxi is never charged to recover.

The advantage of charging is that it can make up for the shortage of operation and maintenance funds of navigation buildings, and encourage operation managers to improve service quality. The shortage is to increase the operating cost of users and is unfavorable for the development of comparative advantages in water transportation. The advantage of no charge is to reduce the operating cost of the user, which is beneficial to the development of the comparative advantage of water transport. The lack of operation is due to the lack of maintenance and maintenance funds in the navigation building, which may result in the deterioration of the maintenance quality of the navigable building, and the use and service efficiency are reduced.

3. Solution to the Key Problems in the Operation and Management of Navigation Buildings

In the "Shipkeeper Management Measures", there is no clear definition of the scope of application. In the second statement, there is no direct provision for "the ship lock administration to implement unified management of the ship locks", but the "administration of the ship locks" Within the limits of the scope.

Since the "Shipkeeper Management Measures " was formulated earlier, the aforementioned legal expressions cannot of course be considered as negligence of the law makers, and may be more objective and compromised based on the current economic system, management status and institutional needs. However, with the establishment of China's market economic system, the reform of the management system, and the pursuit of management efficiency, especially after the enactment of the Waterway Law, the legal environment has undergone great changes, and the original regulations need to be improved.

The Waterway Law has no specific provisions for the scope of application, but its content clarifies that the scope of application is "waterway planning, waterway construction, waterway maintenance and waterway protection" activities, and adopts an integrated management system based on the concept of industry management. In the definition of "waterway", the "Waterway Law" clearly defines the navigational building as an integral part of the navigation channel. Therefore, the upper-level law for implementing the industry management of the navigational building is fully based.

From the reality, the operation and management of navigation buildings involves transportation departments, water conservancy and hydropower departments, hydropower enterprises and other departments. There are problems such as difficulties in coordination and failure to implement

management systems, which affects the smooth operation of navigable buildings. The scope of application of the Measures for the Administration of Navigational Buildings is very important.

The navigable building operation plan refers to the working schedule of the running time of the navigable building, equipment operation, maintenance, and navigation of the ship. Article 25 of the Waterway Law stipulates that the operation of navigable buildings shall be adapted to the needs of ship traffic, and the operation plan shall be approved and announced by the department in charge of waterway management. The Waterway Law establishes the operating plan system for navigable buildings, but only clarifies: (1) The main body of the operation plan permit and announcement is the waterway management department; (2) The operation plan should be adapted to the ship traffic needs. Through system analysis, the main contents that need to be clarified in the navigation system operation scheme licensing system are: (1) related entities; (2) program content; (3) licensing standards; (4) validity period; (5) liability regulations.

Associated entities include applicants and licensors. The applicant is a navigable building construction unit or management unit that has no objection, but should be unique; if the application rights of both are granted at the same time, it is necessary to clarify the relationship or the first responsible person. The licensor is the waterway management agency, but the specific approval level should be clarified.

The content of the program should be the most important part of the operating plan approval system. The format and requirements should be clearly defined. It is best to provide a sample format. The licensing criteria should be clear and specific, so that the applicant has clear expectations for the adoption of the program. The validity period should not be too short. The first-instance trial has an excessive burden on the applicant and the licensor. The five-year validity period imposed by Guangdong can be adopted and supplemented by the re-application request.

Coordination linkage between upstream and downstream navigation buildings is a coordinated scheduling method for the exponential navigation building. The premise of coordination linkage is the correlation between several navigable buildings. The suspension of a navigable building may cause the navigation of the entire river or basin to be suspended or seriously affect the efficiency of the ship; if there is only one navigable building on a river Or, although there are several navigable buildings but have no influence on each other, there is no need to coordinate the linkage.

There is no provision for the coordination and coordination of navigational buildings in the law. The operation of the main body of the navigational building operation management can be based on the principle of "management is not prohibited", based on mutual management and management relationship, or agreement reached. Coordination linkage. The question now is whether the coordination of linkages should be regulated through operational management methods.

Coordination linkage only requires the synchronization of the maintenance and maintenance time of the navigable building, avoiding and reducing the misalignment of the running time and causing the negative impact of the ship to be navigable, and does not damage the interests of the main body of the different navigable buildings. It is the realistic basis for the implementation of coordination linkage. Under the premise of implementing industry management, the administrative management body can fully realize the coordinated linkage of the navigation building operation through the operation scheme licensing system, and realize the improvement of service level under the premise of improving the overall efficiency. Therefore, adopting the mandatory provisions of the law to promote coordination linkage is one. Kind of good choice.

The issue of safe production has always been the focus of social attention. With the development of society, the state has stricter requirements for safe production management. The "Shipkeeper Management Measures" has a special chapter on safety production, but it is limited by the understanding at the time. The relevant regulations are relatively rough. It is only a general preventive requirement for related equipment, facilities and key parts, and cannot meet the actual needs. Therefore, it is necessary to improve the original safety production regulations with the new safety concept based on the new requirements of the state and the new legislation.

The main system of safety production responsibility and the emergency plan system have not been reflected in the operation and management system of navigable buildings. Therefore, the legislation

should be based on the "Safe Production Law", "Anti-Terrorism Law" and "Emergency Response Law". Relevant laws and regulations such as the Regulations on Reservoir Dam Safety Management, combined with the characteristics of navigation building management, refine the relevant systems to ensure their operability.

The sources of funds for the operation of navigable buildings include financial allocations, power generation revenues and the collection of ship clearance fees. The most concerned and most controversial is the ship's gates. In the statistics of China's navigable buildings, the overall charge ratio is 19.28%, but the proportion of charges in the navigable buildings managed by different operational management entities is very large, and the proportion of the navigable buildings managed by the transportation department is the highest, reaching 55.29. %, while the proportion of the navigational buildings managed by the water conservancy department and hydropower enterprises is only 13.51% and 5.81%. The important reason for this difference in proportion is that the navigational buildings managed by the water conservancy department and hydropower enterprises are generally part of the hydropower hub, and the operating expenses of all or part of the navigable buildings can be solved through the power generation revenue. For the navigable buildings with insufficient local financial resources and lack of power generation revenue, the charging is an effective method to solve operating expenses, improve service facilities and improve service quality.

Therefore, the departmental regulations formulated by the Ministry of Transport cannot be used as a direct basis for fees, and the issue of ship locks should also be determined by the local people's government according to the actual situation.

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