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Research on the Construction of Motion Cooperative System Based on B/S Mode and its Test Analysis

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Abstract: In the CPC eighteenth conference, Xi Jinping, the general secretary of the Central Committee has proposed a series of important hing water control thought as the instruction, to implement the spirit of the Central Document No. 1, the central work conference on water resources and the State Council document No. 3, according to the national water resources monitoring capacity building projects in the central platform of business application system trial operation management, this present paper by using large data theory and the system theory has conducted research on water resource management method, making comprehensive analysis in view of the present situation and problems of the construction of the national water resources monitoring ability, and promote the central platform to better support the most strict water resources management system of "three red lines" in the supervision, management and assessment.

Keywords: Data mining, system thinking, water resources management.

1. INTRODUCTION

China being the most complex and the most arduous task of water controlling in the world, in the present stage, China embodies a concentrated reflection of the problem which is the resource and environment problems two hundred years of industrialization process appeared in the developed countries. The developed countries has paid for resources destruction, spending several decades to solve the problem of water security, while in China this problems must be resolved in a short period of time. Chinese government has always been highly concerned about the construction of water conservancy and water resources management, taking it beneficial to the people's livelihood event and placing it in an important position. General Secretary Xi Jinping has repeatedly emphasized on the water controlling, systematically expounded the "new period water conservancy Hing Water Strategy: water conservation priority, the spatial equilibrium, system management, and two hands with" [1-3]. How to implement the General Secretary Xi Jinping instructions, a powerful force for cohesion of the whole Party and society water Hing Water, enhance the ability and level of water resources management, provide a more solid water security for the construction of a beautiful China, that is all we must think about it seriously.

2. USING SYSTEMS THINKING TO BOOST WATER RESOURCES MANAGEMENT CAPABILITY IMPROVEMENT

Water resources management is a system problem in many aspects related to geographical, political, economic and social, and in order to solve the complex problem of water resource management, it seems to be very difficult by using the methods of natural science; at the same time, the complexity of these problems is no longer single a science by reductionism traditionally to deal with, the urgent need for systematic prospective reform theory guidance [4-6]. Based on this present situation, we had better break the traditional model thinking of water change and treat water from the national security and global vision height, from the social coordinated development of the natural and economic point of layout of water governance of water use, simultaneously modern management means and political research Jin synergy, so as to realize the “water country” top-level design, overall planning, the overall layout, to promote orderly.

Systems thinking take the object of study as an organic whole (system), and to study and handle things from the perspective of overall analysis. The process of water resources management itself is a system process, consciously or unconsciously, the use of systematic mode of thinking. Apply in water resources management in this way, opening the way for the quantification of water resources, integrated research.

CPC Eighteenth conference the third session plenary meeting clearly puts forward to establish ecological civilization system, using the system to protect the ecological environment, and combining the management of water resources, water environment protection, water ecological restoration, reform of water price, water right transaction into ecological civilization system construction, pushing the comprehensive water conservancy work in the right direction. In October 2014, the closing of the eighteen session of the fourth plenary session, the deployment of special study comprehensively promote the rule of law, the content involves maintaining the authority of the constitution, safeguarding constitution implementation, perfecting the legislation system, improve the quality of legislation, adhering to administration according to law, standardizing law enforcement behavior, to

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deepen the reform of the judiciary, safeguard social fairness and justice, strengthen the supervision by law and a series of requirements, which fully reflects the Chinese reform has entered a crucial period by comprehensive improvement of rule by law to achieve the goal of reform [7, 8]. This puts forward new and higher requirements for the management of water resources and water law work into a new period. Interconnected system of water resources management should be within the system and outside environment on the effort, focus on the analysis of factors associated with the impact between the whole and the external environment, the whole and the part, so as to seek the optimal processing mode.

Based on the analysis of the system, and give full play to the role of data mining, analysis on water resources management system between the state and the relationship of variables and the overall development trend of quantitative. It is based on system theory, data mining tools, by means of computer management system of water resources research embodies the characteristic system of engineering, structured, global model, space-time, and optimization.

3. THE PRESENT SITUATION OF NATIONAL WATER RESOURCES MONITORING ABILITY CONSTRUCTION AND EXISTING PROBLEMS

3.1. Current Situation of Construction

We decided to basically complete it in three years, as well as improve and perfect it after five years, which are the overall deployment requirements. The work will be implemented in two phases. The first phase, which will be completed in three years from 2012 to 2014 including important water consumer connected with the total amount control of water, water usage efficiency control, Water function areas limitation. The important water function zone and The three main provincial section monitoring system; The framework of national water resources management system will be basically constructed, Water resources monitoring ability, aiming to meet the requirement of water resource management system will be formed preliminarily; “Three systems” of the supervision and assessment ability and water resource of scientific management will be enhanced. The second phase: in order to support the strictest water resources management system, the national water resources monitoring and management system will be perfected and constructed under the basis of the first phase from 2015 to 2017. We will build the basin and the provincial platform conditions one after another, which is the condition to carry out the system management aiming to the main problems of the central platform of trial operation stage.

3.2. Existing Problems

Effective monitoring of water resources is the necessary means to realize the science, quantification and carefulness of water source. The current water resource monitoring ability has made great progress; however, there is a significant gap between water resources management requirements, especially with the strictest water resources management requirements [9]. From the national water resources monitoring ability construction, the main existing problems contains much objects, many - layered hierarchies, complicated relationships, disorganized main threads, single application and the low application of data rate. The application of the data belongs to the water resources monitoring and management information system mainly examines its task achievement of four assessment index, which is lack of effective data aggregation and analyzing measures, the data cannot be directly translated into effective supporting on the basis of decision and quantitative assessment around the implementation of water resources management is difficult. Therefore, it is absolutely necessary to research method of the combination of systematic thinking and big data theory to support the supervision, management and examining on the strictest water resources system.

4. THE SIGNIFICANCE OF DATA MINING TO THE MANAGEMENT OF WATER RESOURCE

With the pressing problems of scant supply of water, deterioration of water quality and the aggravation of water disaster, traditional database just can realize data storage, data inquiry and data statistics, which just processes the data roughly instead of recognizing and dealing with the vast amount of invisible information in the data and predicting the developing trend by the present data. This current situation cannot meet the need of the decision making of water resource management [10-12]. With the rapid permeating of Modern communication technology, computer technology, GPS, GIS, RS, micro electric technology and automatics, the modernization and informatization of water resource has become the irreversible trend of modern development of water resource. The increasingly accelerating process of modernization of water resource management discovered the hidden information of more complicated water resource data, which requires us to analyze and dealing with the data with a higher level and more advanced and diversified technology so that the data can be used more effectively.

In order to accommodate the construction of national water informatization, realize the water resource informatization more deeply and widely and promote the modernization of water resource, the application of modern information technology timely to the processing of vast amount of data seems to be conspicuously important. Data mining technology can predict the trend in the near future to some extent by the linkage of historical data to the present one. The rational choice of effective mining methods and models according to the feature of water resource and the need of information can provide analytical approaches and scientifically decision in solving the problem of water resource management, which is the core of data mining of water resource.

However, the present data application of water resource remains purely on the level of statistics and analysis of basic data of water resource. The data mining and the analysis of the relevance among data are vulnerable. With the completion of three monitoring system including water withdrawal, water functional area and the boundary line section and the three-level information platform of national water resource management system framework, the requirement of the integrated planning of national water resource is becoming higher and higher and the need of the data mining of water resource management is becoming more and more urgent.

Water resource has the characteristics of wide orientation, large amount, isomerism and distributed system, so

the traditional way of analyzing it is confined. Data mining is just an effective approach to the problem of plentiful data and scant information in water resource management currently. This method can provide effective methods for the better use of water resource data and discover, recognize and extract the hidden and useful information from enormous data to guarantee the support in terms of information and technology for water resource management and decision making, among which the key of data mining of water resource is the quality and quantity, analyzing methods, the choices of mining approaches and the explanation and evaluation of the mining results of water resource data.

The mining data of water resource in China doesn't have a long history and the research on it not only requires the approaches and theories of relevant water resource but also the advanced computer technology. The research on the data mining of water resource not only supports the decision making in water resource but also helps to make the integrated planning. Meanwhile, the application field of data mining has been developed, which has much significance.

5. THE SUGGESTIONS ON THE CONSTRUCTION OF THE MONITORING CAPACITY OF THE NATIONAL WATER RESOURCE

5.1. The Application of Integrated Methods from the Qualitative to the Quantitative Aspect

The core of system engineering is the method from the qualitative to the quantitative aspect. The research mainly on qualitative analysis cannot describe a system exactly. Only by using the quantitative analysis can the human beings know about the matter or system from a vague perspective to a clear one and from an abstract perspective to a concrete one. The projects carried out in the construction of the monitoring capacity of national water resource are the foundation of the realization of the most rigid regulation rules on water resource. The implementation of the project helps to promote the scientific and quantitative level of water resource management by enhancing the quantitative monitoring strength of water resource, controlling the use of water resource in different places in time and at macro level.

5.2. The Perfection of Laws and Regulation System of Water Resource

Many relevant laws on water resource have been enacted such as Law of Waters, Law of Water and Soil Conservation, Law of Water Pollution Prevention and Flood Control Act. This proves that a complete framework of laws and regulations of water resource management has been established. But the new trend makes higher requirements for the water resource management and legal administration of waters. However, there exist many problems in the legislation of water resource. For example, legislative blank in some section, untimely enactment of supporting regulations, lack of legislative evidences in some management methods, discordance in some relevant laws lead to the malfunction of the security effect of the laws and regulations of water resource protection. It is suggested that the legislation on water resource be taken as an important part of the implementation of China's strategy of ruling the country by law so that the water can be controlled and managed by law. In the meanwhile, the significant problem that affects the reform of water conservancy [13, 14], difficult problems for a long time and social hot issues should be investigated on and applicable counter measures should be come up with for the decision making of the reform and development of water conservancy.

5.3. The Construction of the Supervision System of National Water Resource

The supervision of water resource and water administration and enforcement are the effective measures to implement the most rigid water resource management. Ministry of Land and Resources has established the national land supervision system to guarantee the implementation of the most rigid land management regulation and adhere to the land red line of 1800 million mu in 2006. Following the example of Ministry of Land and Resources, Ministry of Environmental Protection established the chief supervision of national environment and the inspector system of national environment in 2012. In view of the construction of the land supervision system and environment supervision system, it is urgent to set up the inspection system of national water resource, establish chief inspection and inspector systems, implement the most rigid management regulation in local people's governments, coordinate the inter-provincial problems of water resource, instruct the supervision of national water resource so that the "three red line" of water resource will be implemented and the requirements of management responsibility and evaluating systems will be met, on the purpose that the most rigid water resource management is strengthened.

5.4. The Construction of the National Water Resources Management System

To effectively monitor water resources is a necessary means to realize the scientific, quantitative and well management of water resources. According to survey to carry out the national water resources monitoring ability construction of provincial project in the province, autonomous region, municipality directly under the central government construction management research, though the existing water resources monitoring ability has made considerable progress, but there are still water resources monitoring ability and lack of means, data processing and analysis ability is insufficient, the lower rate of data application. The application of satellite can be integrally full range of monitoring system. The establishment of a ground station of satellite monitoring data, accepting all, especially for key water conservancy project of water, water users, monitoring, is very useful and meaningful. Therefore, It is suggested that to rely on satellite remote sensing, data acquisition, analysis and complex system integration, construction of national water resources monitoring and management system based on the advanced technology and cloud platform.

5.5. The Establishment of a Water Resources Management Technical Support System

To solve and understand the problem in the system engineering, it is required to transcend professional limitation, effectively integrated all the related elements, in order to achieve the overall goal of the system. Water resources man-

agement, need to be quantified technology, information technology, risk management technology, cloud technology, Internet of things technology for integrated water resources management, build fine security system and technical system of water resources management, promote the transformation from static to dynamic. Water resource management requires comprehensive meteorological, hydrological, ecological, environmental, economic, system engineering, information science and natural science and social science the cross domain knowledge, also need to reference the relevant government departments and social, economic, legal, and technical and stakeholders.

5.6. Give Full Play to the Application of Data Mining Technology in the Field of Water Resources

Water resources system development has formed a series of monitoring and management system so far, but it still lacks a fast, efficient access and knowledge expression method and mechanism of water resources, the contradiction between the rapid increase of the lag of data and data analysis method is more and more outstanding. It is urgent for us to timely capture and process large data information by using modern information technology. Scientific decision-making for water resources allocation use and protection to provide timely and accurate support. Therefore, it is important to study the data mining technology and its application in the field of water resources, and we should give full play to the important role of data mining technology on the effective management of water resources and comprehensive planning.

CONFLICT OF INTEREST

The author confirms that this article content has no conflict of interest.

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