The Optimization of Hydraulic and Electric Power System Considering the Multi-Particle Swarm Optimization Algorithm

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Abstract. Water conservancy and electric power planning is an important part of urban planning and construction. In order to realize the ecological development of the multi-particle swarm optimization algorithm and improve the quality of people's living environment, it is necessary to carry out ecological planning for the multi-particle swarm optimization. Based on the problems existing in the current development of water conservancy and electric power planning in China, this paper explores the planning and design of river courses based on the collaborative optimization of ecological multi-particle swarm optimization, so as to promote the sustainable development of urban construction in China.

Keywords: Ecological, Water Conservancy, Measures and Applications

1. Introduction

From the investigation data analysis of the current water conservancy and electric power planning and construction in China, there are still many problems in the construction of multi-particle swarm optimization [1-3]. First of all, many particle swarm collaborative optimization idea lack of innovation: on the one hand, many particle swarm collaborative optimization of the construction of the composition elements still is given priority to with large water conservancy construction, construction every river city consumes a lot of manpower and material resources, caused many particle swarm collaborative optimization construction of a vicious cycle of treatment after pollution, the lack of comprehensive application of the river channel, lack of innovation on design application [4-6].
2. Overview of ecological multi-particle swarm optimization

2.1. Concept of ecological multi-particle swarm optimization
Ecological construction of many particle swarm collaborative optimization is based on the traditional particle swarm collaborative optimization construction, the city many particle swarm collaborative optimization in the construction and planning in the construction of ecological development idea, make the ecological construction become a particle swarm collaborative optimization in a comprehensive, integrity, and the concept of sustainable development of many particle swarm collaborative optimization. Ecological multi-particle swarm optimization is an important branch of the construction of multi-particle swarm optimization. In the construction of ecological multi-particle swarm optimization, green development concepts such as ecological development concept, ecological culture concept and human-oriented concept of ecological development are integrated, which provides a new theoretical guidance for the construction of multi-particle swarm optimization in China.

2.2. Principles to be adhered to in the construction of ecological multi-particle swarm optimization
Ecological multi-particle swarm optimization is not only an important part of modern water conservancy construction, but also an important theoretical concept for realizing green development in urban construction in China. The principles of ecological multi-particle swarm optimization are as follows: protection first, development second; Insist on human-oriented construction; Adjust measures to local conditions, diversified development. The principle of integrating ecological multi-particle swarm optimization into the construction and improvement of modern multi-particle swarm optimization provides the guiding theory for the construction of ecological river course and promotes the gradual realization of green development in urban construction.

3. Current development status of Water conservancy and electric power planning in China
River course construction is an important part of ecological multi-particle swarm optimization and urban construction. The table below is a questionnaire for cooperative optimization of a certain multi-particle swarm optimization in China from 2011 to 2015. China's cities have gradually realized the comprehensive application of resources and green development of urban construction, so that the application of multi-particle swarm optimization has achieved certain results, and the overall urban environmental problems have been significantly improved.

Table 1. Survey data of cooperative optimization of a certain multi-particle swarm optimization in China from 2011 to 2015.

| year | The proportion of river course construction in urban construction /% | Comprehensive river utilization rate /% | Innovation rate of river course construction form /% |
|------|-------------------------------------------------|-------------------------------------|---------------------------------|
| 2011 | 39                                              | 33                                   | 20                              |
| 2012 | 40                                              | 37                                   | 23                              |
| 2013 | 44                                              | 45                                   | 23                              |
| 2014 | 46                                              | 47                                   | 26                              |
| 2015 | 48                                              | 50                                   | 29                              |

From the analysis of the data in the above table, in the past 5 years, the proportion of river course construction in the overall urban construction and the ratio of optimization rate of overall urban construction in this city have changed greatly. The variation range of the comprehensive application rate of the river course, the innovation rate of the river course construction form and the residents' satisfaction degree to the multi-particle swarm optimization construction is small. It can be seen that great achievements have been made in river course construction in China's current urban construction, but there are still some problems that need in-depth exploration by builders.
4. Problems existing in water conservancy and electric power planning and design

4.1. Water conservancy and electric power planning and design concept lack of innovation
In some cities in our country, on the other hand, the construction of ecological river course construction in the construction of the implementation of the degree is low, in the process of municipal construction still adhere to the construction for the construction of the "one-sided" concept, channel construction and application of the lack of public participation, leads to the residents of the city construction planning satisfaction degree is low, the decisive construction thought, can't find many particle swarm collaborative optimization problems existing in the construction, the urban ecological development.

4.2. The overall planning of water conservancy and electric power is relatively low
From the perspective of urban development, the overall planning degree of urban construction is low, and most river courses are built at will, lacking of science, which results in the impact of river course construction on the comprehensive management of ecological environment in this region. For example, a certain city in China carried out river channel construction, but due to the lack of scientific planning, the river was divided into channels, resulting in a significant reduction of water volume in the main channel, fish and a large number of aquatic life died, seriously damaged the ecological balance. In addition, due to the lack of scientific investigation in some river course construction, the amount of water increased after drainage, the original riverbed was damaged, both sides of the channel were seriously impacted, and soil erosion around the channel was serious, which affected the overall construction of the area.

4.3. The form of water conservancy and electric power planning and construction is relatively simple
At present, the main form of river course construction in Our country is to set the location of the river course in the urban layout, then excavate the river course, and then complete the modern river course construction according to the road design of river course excavation and set up. In the process of artificial implementation of river course construction, late-stage development is the main method, and the utilization rate of natural river course construction is low. As a result, the construction of multi-particle swarm optimization lacks innovation, and the urban construction in China tends to develop in the mode of "integration", which leads to the serious disconnection between urban construction and ecological multi-particle swarm optimization. The single form of river course construction makes the comprehensive utilization rate of river course construction low. On the one hand, the construction of river course is too much integrated with the concept of human transformation, and the application level of natural river course is low, and the comprehensive application of natural resources is not realized. On the other hand, the river bank application of river course construction is relatively low, so that the river course construction only plays the function of regulating water amount and reducing flood, and the function of river course construction is not fully utilized.
Figure 1. A multi-particle swarm optimization construction planning diagram in China.

For example, for our country to design many particle swarm collaborative optimization of the construction of the city planning, the local municipal construction administration department of public opinion, and the city construction, the original channel of secondary use, on the basis of the original channel application space many particle swarm collaborative optimization design method of construction, realize the construction and application of ecological river course.

5. Conclusion
River course construction is an important part of urban construction. Based on the preliminary exploration of water conservancy and electric power planning and design based on ecological multi-particle swarm optimization, this paper analyzes the development status of river course construction in China, puts forward measures to solve problems, and introduces examples for analysis. To realize the ecological development of modern city construction also provides an innovative way for the application of natural resources in China and promotes the ecological development of socialist construction.

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