

Study on the Industrialization Strategy of China's International Seabed Area Resources Development

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Abstract: *With the deepening of economic globalization and the rapid development of science and technology, human society has entered a new stage led by knowledge innovation and supported by technological progress. In this new stage, the competition between countries is no longer the traditional sense of politics, military and other aspects of the competition, but more manifested as a contest of scientific and technological strength. As an important part of national comprehensive national power, the maritime industry is no exception. The core issue is how to improve China's independent innovation capability in the maritime field as well as the level of decision-making and execution of participation in international affairs. Therefore, this paper selects the industrialization of China's international seabed area resources development as the main research object, aiming to explore a road of international seabed resources development industrialization suitable for China's national conditions through a comprehensive and detailed study, so as to drive the rapid and healthy development of China's related industries and even the national economy.*

Keywords: *Industrialization of international seabed area resource development; Industrialization system; Development strategy*

1. Introduction

With the deepening of economic globalization and the rapid improvement of science and technology, the political, economic and cultural ties among countries in the world are getting closer and closer. Since the 21st century, along with the arrival of a new wave of scientific and technological revolution and industrial change, the deep sea and oceans are gradually becoming a new field of human activities, and the deep sea is rich in natural resources and has great potential value. As one of the emerging frontier technology, "deep sea technology" has attracted the high attention of developed countries and will be included in the future high-tech research focus direction. At present, the United States, Japan, Europe and other countries have formulated a series of policies and measures to support the research and development and industrialization of deep sea technology, and actively seize the deep sea market share; And China has seriously restricted the rapid and healthy development of China's deep-sea business due to the insufficient investment in deep-sea business and the related core technology being restricted by others. Therefore, how to seize the historical opportunity, make full use of two kinds of resources and two markets at home and abroad, accelerate the leapfrog development of China's deep-sea business, realize the transformation from scientific research to commercial utilization, and make China truly become a deep-sea powerhouse has become a major problem that needs to be solved [1].

2. Theoretical basis of the Industrialization Strategy of Resource Development in the International Seabed Area

2.1. Connotation of Industrialization of Resource Development

Industrialization of resource development refers to the market-oriented approach to maximize social, economic and ecological benefits through effective allocation and rational utilization of natural resources under the conditions of market economy. Its essential feature is to change the traditional linear production mode of "resource-product" into a circular development mode of

"resource-commodity-renewed resource", so that the resources can be used efficiently and create a new business environment. Thus, resources can be used efficiently and create greater value. The international seabed area, as the common heritage of all mankind, has a high commercial exploitation value. However, due to the harsh environment, high technical threshold and imperfect laws and regulations in this area, a mature commercial development model has not yet been formed. Therefore, how to explore the road of industrialization of international seabed area resource development suitable for national conditions has become an urgent problem to be solved at present.

2.2. Characteristics of Industrialization of Resource Development

(1) Market economy. Resource development is a kind of commodity production behavior, the purpose of which is to obtain profits. Therefore, resource development must operate according to the law of value and market rules. In the process of resource development, enterprises should aim at pursuing the maximum profit and realize the optimization of resource allocation by means of price mechanism and competition mechanism [2]. (2) Risk-sharing. Since resource development is characterized by high input, high risk and long cycle, it is impossible for an enterprise to bear all the risks alone. On the contrary, it needs to share the risks with other relevant interest subjects to form a cooperative relationship of interdependence and mutual support. This requires the establishment of long-term and stable collaborative relationships between enterprises, clarifying their respective rights and obligations, and formulating corresponding laws and regulations as safeguards. (3) Technology-intensive. Resource development involves exploration, extraction, processing, transportation and sales, etc. Problems in any one of them will affect the smooth implementation of the whole project. Therefore, enterprises must have advanced technology level and management capabilities in order to effectively reduce costs, improve efficiency and ensure successful project operations. (4) Comprehensive benefit. Resource development is not only to meet the current needs of human society, but more importantly, to focus on the future and promote sustainable development. For this reason, when carrying out resource development activities, enterprises must focus on environmental protection, energy conservation and emission reduction, scientific and technological innovation, so as to achieve the organic unity of economic benefits, environmental benefits and social benefits [3].

2.3. The Significance of Industrialization of Resource Development

(1) It is conducive to promoting economic development. Through the development of resources in the international seabed area, it can drive the development of related industries, increase employment opportunities and tax revenue, thus promoting the national economy to grow rapidly and healthily. (2) It is conducive to maintaining national maritime rights and interests. As a sea area with an important strategic position, the international seabed area is not only related to national territorial sovereignty, maritime security and other core interests, but also involves international trade, scientific and technological cooperation and other international affairs. Therefore, in the process of promoting the development of resources in the international seabed area, full consideration must be given to its impact on the overall interests of the country as well as regional peace and stability [4]. (3) It is conducive to improving the competitiveness of enterprises. With the acceleration of global market integration and rapid changes in science and technology, enterprises are facing increasingly fierce domestic and foreign market competition pressure. The implementation of international submarine area resources development industrialization strategy can enable enterprises to make better use of domestic and foreign two markets and two resources, enhance the ability of enterprises to participate in the international division of labor and collaboration, and improve the comprehensive strength and core competitiveness of enterprises.

3. Feasibility Analysis of Industrialization Strategy for Resource Development in the International Seabed Area

Economically speaking, the international seabed area has huge potential value. It is estimated that by 2050, the total global marine economy will reach 1.8 trillion U.S. dollars, of which more than 97% will come from the deep sea area and mid-ocean ridge and other areas. And with the continuous improvement of science and technology and the deepening of human understanding of the deep-sea area, the oil and gas, mineral, biomedical and other resources contained in the deep-sea area will be more fully exploited in the future. Therefore, whether from the perspective of national development or

enterprise profitability, the international submarine area has a broad market prospect. From the legal system, countries around the world have signed the United Nations Convention on the Law of the Sea and other international legal documents, clearly stipulating that the international seabed area and its resources are the common heritage of all mankind. This means that no country can exploit or encroach on the resources in the area without the consent or permission of other countries. In addition, many developed countries also formulate special legislation on the development of resources in the international seabed area, such as the "seabed concession" policy of the United States and the "blue enclosure" campaign of the European Union, which not only protect the interests of their own countries, but also uphold the principle of international equity and justice. In terms of technical conditions, after decades of efforts, China has made great progress in deep-sea exploration, resource investigation and evaluation, engineering technology research and development. Especially in recent years, along with the "Jiaolong" manned submersible, "Deep Sea Warrior" manned deep submersible and other high-tech equipment have been introduced and successfully applied, China has gradually become a force to be reckoned with in deep-sea scientific research and resource development. At the same time, relevant domestic universities and scientific research institutions also actively carry out research work on topics related to deep-sea science and technology, and cultivate a batch of talents with the ability of deep-sea technology development. To sum up, although there are some uncertainties in the international seabed area, it has a wide demand and good opportunities in China as a valuable treasure shared by all mankind. As long as we can seize the opportunity, strengthen our own strength and promote the coordinated development of various undertakings, we will definitely be able to realize the sustainable development and effective management of resources in the international seabed area and make greater contributions to the building of the community of human destiny.

4. The Implementation Path of Industrialization Strategy of International Seabed Area Resource Development

4.1. Establish a Sound Organizational Structure

In order to achieve the goal of industrialization of international seabed area resources development, a special management department must be established to be responsible for the relevant work. This department should be composed of various subjects such as government, enterprises and social organizations, and form a cooperative mechanism of mutual coordination and joint promotion among members. At the same time, it is also necessary to strengthen exchanges and cooperation with relevant parties in other countries or regions in order to better carry out international seabed area resource development activities. In addition, it is necessary to give full play to the role of intermediary organizations such as industry associations to promote cooperation in information sharing, technological innovation and experience learning. In addition to the above measures, the industrialization of international seabed area resource development can be further promoted by formulating corresponding policy documents, improving the legal and regulatory system, and increasing the investment in science and technology. For example, a series of supportive policy documents can be issued to encourage domestic and foreign enterprises to participate in the development of international seabed area resources; speed up the revision and improvement of the existing Law of the People's Republic of China on Exploration and Development of Deep Seabed Area Resources and its supporting rules and regulations to adapt them to the development needs of the industrialization of international seabed area resources development; increase the financial investment in deep-sea science and technology research and development, and improve the independent innovation capability, so as to continuously improve the core competitiveness of China in the field of international seabed area resource development.

4.2. Develop a Scientific and Reasonable Planning Layout

When developing the resources in the international submarine area, it is necessary to have a scientific and reasonable planning layout. First of all, it is necessary to conduct a comprehensive and in-depth understanding and analysis of the geology and geography of the area, and then determine the specific development plan and objectives by taking into account the actual situation. It should also focus on environmental protection and minimize the impact on the marine ecological environment. In addition, it is necessary to strengthen the cooperation and exchange with related countries or organizations to jointly promote the development of international seabed area resources development. To achieve the above goals, the following measures can be taken: first, establish a sound system of

laws and regulations; second, increase scientific and technological innovation and improve the level of deep-sea technology; third, actively carry out international cooperation and promote information sharing; fourth, train professional talents and improve management capabilities. These initiatives will help promote the industrialization of China's international seabed area resources development process and achieve more remarkable results [5].

4.3. Strengthen Infrastructure Construction

In order to realize the industrialization of international submarine area resource development, it is necessary to establish a modern comprehensive transportation system that is perfect, efficient, safe and reliable. Specific aspects include the following: First, we should accelerate the construction of deep-sea ports and other important nodes; second, we should build a satellite navigation and positioning service network led by the "Beidou" system; third, we should actively carry out the construction of oceanic research fleets and improve the capacity and level of independent survey; fourth, we should promote the normal operation of the Maritime Silk Road route and enhance China's discourse and influence in global maritime affairs. In addition, it is also necessary to further improve the relevant laws and regulations, clarify the responsibilities and obligations of all parties, regulate the market order, and protect the rights and interests of the country.

4.4. Improve the Investment and Financing Mechanism

In the process of developing resources in the international submarine area, capital is an important factor restricting the development of projects and enterprises. Therefore, it is necessary to establish a diversified and multi-channel investment system to attract more social capital to participate in the investment activities in this field. Specifically: firstly, we should strengthen the guiding role of the government and encourage domestic and foreign financial institutions to increase credit support for the development and utilization of deep-sea mineral resources through financial subsidies and other means; secondly, we can explore the establishment of a national marine economic innovation and entrepreneurship fund to provide long-term and stable financial guarantee for the development of deep-sea mineral resources; thirdly, we should actively introduce foreign investment to enhance China's deep-sea Mineral resources development level. In addition, we should further broaden the channels of private investment, increase its participation, and form a comprehensive and multi-level funding pattern [6].

4.5. Strengthen Scientific and Technological Support

Technological innovation in the deep-sea field is an important way to realize the sustainable utilization and effective management of resources. At present, with the increasing demand for marine resources and the rapid development of science and technology, deep-sea scientific research has become one of the focuses that all countries in the world compete for. Therefore, it is necessary to strengthen the investment in deep-sea science and technology research and development, improve the independent innovation ability of deep-sea science and technology, and provide strong technical support for China's international seabed regional resources development. Specifically: First, establish a deep-sea scientific and technological innovation system with enterprises as the main body, market-oriented and deep integration of Industry-University-Research; Second, strengthen the research of deep-sea equipment manufacturing technology to improve the performance and reliability of deep-sea exploration equipment; Third, actively promote the application of new technologies such as "internet plus" in deep-sea scientific research activities and promote deep-sea data sharing and information exchange; The fourth is to strengthen the legislation of deep-sea environmental protection and protect the deep-sea ecological environment [7].

5. Conclusion

Based on the analysis of the current situation, development trend and relevant laws and regulations of the international seabed area, this paper puts forward the opportunities and challenges faced by China in implementing the industrialization strategy in this field. At the same time, combined with advanced experience and enlightenment at home and abroad, specific suggestions and measures are put forward from the aspects of government management, enterprise operation and personnel training, with a view to providing reference for China's future development of international seabed resources. (1)

Strengthen the top-level design and improve the policy system. The state should pay more attention to the development and utilization of resources in the international seabed area and incorporate it into the overall national development plan. In addition, it is necessary to establish and improve the corresponding policies and regulations system, clarify the responsibilities and obligations of all parties, standardize the market order, protect the legitimate rights and interests of various investors, and promote international cooperation and exchanges. (2) Promote the reform of institutional mechanisms and enhance comprehensive strength. In view of the current organizational structure of the International Seabed Regional Authority, we can consider introducing private capital to participate in the operation and form a multi-subject common governance model; At the same time, it is necessary to actively promote scientific and technological innovation, constantly improve its own technological capabilities and core competitiveness, and enhance its ability of sustainable development. (3) Pay attention to talent cultivation and build a professional team. The development of resources in the international seabed area involves many disciplines, so we must attach great importance to the construction of talent team and increase the introduction and training of talents. On the one hand, we should attract more outstanding talents to join this cause, on the other hand, we should do a good job in training existing personnel and career planning, stimulate employees' creativity and build a high-quality professional team.

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