

# Research on China's Deep Sea Legal System

Zhengyan Zuo<sup>1</sup>

<sup>1</sup> China Institute of Boundary and Ocean Studies, Wuhan University, China

Correspondence: Zhengyan Zuo, China Institute of Boundary and Ocean Studies, Wuhan University, China.

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## Abstract

A perfect legal system of the deep sea is a prerequisite for ensuring the steady progress of exploration and development in the international seabed area, and it is also a guarantee for the States Parties to fulfill the responsibility of the sponsoring State and enhance the capacity of ocean governance. In this paper, from the perspective of both international law and domestic law, we have systematically sorted out the laws, regulations and policies related to China's domestic deep seabed area, clarified China's initially established domestic deep sea legal system with the *Law of the People's Republic of China on Resources Exploration and Development in Deep Seabed Areas* as the core, and explained China's deep sea system consisting of four major systems: qualification examination, environmental protection, scientific and technological research and resource investigation, supervision and inspection. The system of China's deep sea consists of four major systems: qualification examination, environmental protection, scientific and technological research and resource investigation, supervision and inspection. Meanwhile, it further summarizes the institutional defects of the current deep sea legal system and tries to put forward preliminary suggestions for further improving China's domestic deep sea legal system.

**Keywords:** China's deep sea legal system, international seabed area, United Nations Convention on the Law of the Sea, deep sea legal system

## 1. Introduction

With the increasing demand of human beings for resources and the gradual depletion of land resources, the development and utilization of deep-sea resources have increasingly attracted people's attention. The development of deep-sea resources is crucial to solving the shortage of resources, promoting economic development and upgrading the level of science and technology. The deep sea is rich in mineral, energy and biological resources, and has great potential for development. Through scientific development and utilization of deep-sea resources, it can provide China with more resource security, promote industrial upgrading and technological innovation, and facilitate sustainable economic development. As a country with a vast sea area, China has great potential for the development of deep-sea resources, but at the same time faces many challenges and risks. In order to regulate the development activities of deep-sea resources, protect the deep-sea ecological environment and promote the healthy and sustainable development of the deep-sea economy, the Chinese government has formulated the *Law on Resources Exploration and Development in Deep Seabed Areas* (hereinafter referred to as the Deep Sea Law), on the basis of which the deep-sea legal system is being continuously improved.

In a situation where countries are becoming increasingly nervous about the development of new frontiers, it is urgent to strive for a competitive advantage in the deep sea. On May 30, 2016, General Secretary Xi Jinping pointed out at the National Conference on Science and Technology Innovation that the deep sea contains unknown treasures, but key technologies must be mastered in order to access these resources. With regard to the requirements of technology, on the one hand, it refers to excellent science and technology, and on the other hand, a standardized system is needed, which can effectively regulate deep-sea development activities, prevent over-exploitation and

environmental damage, and protect China's deep-sea ecosystem. Specifically, China's deep-sea system mainly refers to a series of laws and norms centered on the Deep Sea Law. These include the *Law on Resources Exploration and Development in Deep Seabed Areas*, which is the basic law on the exploitation of deep-sea resources; the *Marine Environment Protection Law of the Peoples Republic of China*, which stipulates the basic principles and measures for the protection of the marine environment; the *Law on the Protection and Restoration of Marine Ecology*, which focuses on regulating the protection and restoration measures for the marine ecosystem; and the relevant administrative rules, regulations and standards, such as the Measures for the Administration of Marine Environmental Protection, the Measures for the Administration of Marine Ecological Protection and Restoration Management Measures, etc., as well as international conventions and agreements, such as the United Nations Convention on the Law of the Sea. Together, these laws and norms constitute China's deep-sea legal system, which aims to regulate and safeguard deep-sea resource development activities and promote the healthy and sustainable development of the deep-sea economy.

The enactment of the Deep Sea Law marks an important step forward for China in the field of deep-sea resource development, a move that demonstrates the importance and determination of the Chinese Government in the development of deep-sea resources. However, despite the progress made, there are still some deficiencies that make China's deep-sea legal system inadequate. These deficiencies cover a wide range of aspects, including deep-sea ecological environment protection, protection of rights and interests and regulatory mechanisms, public participation and information disclosure, international cooperation and scientific and technological innovation. Therefore, further improving the legal system of the deep sea, strengthening supervision, enhancing public participation and strengthening international cooperation are the keys to promoting the healthy and sustainable development of China's deep sea economy.

In this context, the study of China's legal system of deep sea exploration and development is in line with China's development needs to protect the deep sea environment, promote resource development, regulate behavior, ensure sustainable development, and safeguard national sovereignty and security.

## **2. The Formation and Construction of China's Deep Sea Legal System**

### *2.1 Background of Formulation*

Since the 1970s, with the development of marine technology and the increased demand for deep-sea resource development, the international community's attention to deep-sea legal issues has gradually increased. 1973, the United Nations adopted the Convention on the Law of the Sea, which includes provisions on deep seabed resources, providing an international model for the development of deep-sea law. China's deep sea legal system is mainly composed of international law, domestic law and local regulations. In terms of international law, the United Nations Convention on the Law of the Sea, to which China acceded in 1996, is the cornerstone of China's deep sea legal system. The Convention sets out the basic principles relating to the deep sea area, including the territorial sea, the exclusive economic zone, the continental shelf and the high seas. As a State party, my country must comply with the provisions of the Convention. China also participates in other international conventions and agreements, such as the Paris Agreement and the Basel Convention, which also deal with the development and protection of some deep-sea resources. China has vast territorial waters and maritime areas, as well as abundant marine resources, with great potential for deep seabed resources. In order to regulate China's activities in the exploration and exploitation of deep-sea resources and to protect the country's maritime rights and interests, it has become necessary to formulate the Deep Sea Law.

In the process of formulating the Deep Sea Law, the Chinese Government took full account of the provisions of international law, and at the same time carried out legislative work in the light of the actual domestic situation. It was finally promulgated and implemented on July 1, 2016, after many revisions and improvements. The Deep Sea Law mainly includes provisions on the detection and exploitation of deep seabed resources, license management, environmental protection, supervision and management. The law aims to protect deep sea resources, safeguard national maritime rights and interests, and promote the rational development and utilization of deep sea resources.

China has issued a series of departmental regulations to refine the Deep Sea Law and build a complete legal system for the deep sea, including the Measures for Permit Management, Interim Measures for Sample Management and Interim Measures for Data Management. Meanwhile, other relevant laws, such as the Fisheries Law, the Marine Environmental Protection Law and local regulations, also provide for the development of deep-sea resources and marine environmental protection. The government has also issued some administrative regulations, such as the Provisions on the Administration of Deep Sea Exploration and Development, which are used to specifically manage matters related to the deep sea field. These legal provisions provide a strong legal basis for China's deep sea development, while protecting the marine ecological environment and promoting sustainable development. The establishment of the deep sea legal system for the management of China's deep sea affairs provides a guarantee of the rule of law, and helps to promote the development and utilization of deep sea resources and marine environmental protection in an orderly manner.

## *2.2 Scope of Application of China's Deep Sea Law*

Article 2 of the Deep Sea Law, article 2 of the Administrative Licensing Law, article 2 of the Interim Measures for Sample Management and Interim Measures for Data Management all make it clear that the scope of application of the law includes “Chinese citizens, legal persons or other organizations engaging in the activities of exploration and exploitation of the resources of the deep seabed area and the related environmental protection, scientific and technological research, and resource investigation”. Firstly, the scope of application is limited to “Chinese citizens, legal persons or other organizations”, which adopts the principle of personal jurisdiction, i.e., it is limited to relevant subjects with Chinese nationality.

However, in accordance with article 153, paragraph 2, of the Convention, activities in the Area may be carried out by two main categories of subjects: first, the Enterprise of the Authority, and second, States Parties or State enterprises.

The second is collaboration with the Authority by contracting parties or state-owned enterprises, or by natural or legal persons of the nationality of contracting parties or effectively controlled by such states or their nationals, or any combination of the aforementioned parties that meets the conditions stipulated in this section and Annex III. The second category of subjects may include, for example, legal persons controlled by a sovereign State but not of that sovereign State's nationality, and it appears that for the time being our deep-sea law does not contemplate the inclusion of such subjects in the objects to which the law applies. Secondly, the scope of activities to which the law applies is “exploration and exploitation of resources in the deep seabed area and related environmental protection, scientific and technological research, and resource investigation activities”, and the two provisional measures also add “the remittance and registration of various types of deep-sea information or samples”. The two provisional measures also add activities such as “the remittance, registration, custody, use and international exchange of various types of deep-sea information or samples”.

Article 5 of the Deep Sea Law, Article 2 of the Licensing Management Measures, and Article 4 of the two interim measures all stipulate that the “State Oceanic Administration” is responsible for the supervision and management of deep-sea resource exploration and development activities. However, the actual working organization for deep-sea resource development in China is the China Ocean Mineral Resources Research and Development Association (COMRA). The State Oceanic Administration has established the “COMRA Office” to strengthen its guidance over COMRA. In 2012, the “12th Five-Year Plan for International Seabed Areas,” jointly issued by the Ministry of Foreign Affairs, the National Development and Reform Commission, the Ministry of Finance, the Ministry of Science and Technology, the Ministry of Land and Resources, and the State Oceanic Administration, clearly designated COMRA as the functional department coordinating China's deep-sea-related work. The delineation of functions between COMRA and the State Oceanic Administration remains to be determined. Furthermore, the first session of the 13th National People's Congress in 2018 approved the State Council's institutional reform plan, which established the Ministry of Natural Resources and dissolved the Ministry of Land and Resources and the State Oceanic Administration. The Ministry of Natural Resources retains the external designation of the State Oceanic Administration. Therefore, the official confirmation of the management authority for deep-sea seabed resource exploration and development activities has not yet been formally established. However, it is noteworthy that the draft for comments on the Licensing Management Measures has revised the competent authority for China's deep-sea activities to the “Ministry of Natural Resources.” In terms of the competent authority, China's deep-sea legislation is already undergoing amendments.

## **3. Specific Components of China's Deep Sea Legal System**

### *3.1 Qualification System*

#### **3.1.1 Establishment and Modification of the Qualification System Centered on Administrative Licenses**

The qualification review system is a crucial component of China's deep-sea legal framework. It is primarily stipulated in Articles 7, 8, and 23 of the Deep Sea Law, and further detailed by the Administrative Licensing Management Measures to enhance the operability of the licensing system established by the Deep Sea Law. The licensing system is used to review Chinese citizens, legal persons, or other organizations intending to engage in deep-sea seabed resource exploration and development activities. This not only demonstrates China's effective control and supervision but also serves as a preliminary review procedure for issuing guarantee documents. Only entities that meet the requirements of the Deep Sea Law can obtain a license from China and thereby receive China's guarantee. This approach is common internationally, with countries like the United Kingdom, Germany, and Singapore also adopting such licensing systems. Therefore, the adoption of a licensing system aligns with China's actual conditions, reflects the national will, and effectively fulfills the guarantor's responsibilities, thereby better safeguarding China's national interests and the common heritage of mankind.

However, there are some deficiencies in the licensing system under the deep-sea legal framework. In the legal relationships governing deep-sea resource exploration and development, contracting parties are not only obliged

to regulate and control the activities of contractors through domestic legislation and related administrative measures but also bear some direct obligations. These include assisting the Authority in controlling activities within the “Area,” taking measures to assist the Authority in fulfilling its duties when contractors fail to provide guarantees, and ensuring that losses caused by pollution due to international obligations are compensated. Since administrative licensing is the state’s management and regulation of applicants’ exploration and development activities as a sovereign entity, it focuses on the state’s pre-examination of applicants and mid-supervision of contractors as a sovereign and manager. However, it reflects less on the direct obligations the state should assume concerning guarantee responsibilities. This issue is also not addressed in the draft for comments on the Administrative Licensing Management Measures.

At present, the revised version of the Administrative Measures for the Administration of Administrative Licenses is in the process of soliciting opinions from the society, compared with which the revised version is mainly reflected in the following aspects.

In comparison, the changes made to the original measures in the draft are mainly reflected in the following aspects: First, adapting to the institutional setup of the State Council at the current stage, the competent department was changed from the State Oceanic Administration to the Ministry of Natural Resources (MNR), making it clear that the MNR is the supervisory and management department of deep sea activities in China, it also clearly stipulates that “the specific work shall be undertaken by the China Ocean Affairs Administration of the Ministry of Natural Resources”.

Secondly, a series of new important provisions have been added to provide details on the rights and obligations of licensees, and the working procedures and requirements of the competent authorities for license examination, inspection and supervision have been further clarified.

Thirdly, with reference to the latest requirements and expressions of the exploration regulations and exploitation regulations (draft) being formulated by the Authority, the relevant provisions have been amended accordingly.

Fourthly, some of the provisions have been described in detail or modified in terms of language, so as to keep the content in line with the Deep Sea Law and the Administrative Licensing Law.

### *3.2 Deep Sea Environmental Protection System*

In accordance with the principle of sustainable utilization of deep seabed resources, the Deep Sea Law provides for a system of administrative licensing, environmental protection, supervision and inspection of contractors engaging in exploration and exploitation of deep seabed resources, and contains a number of provisions requiring contractors to take environmental protection measures in the exploration and exploitation of deep seabed resources.

Article 1 of the “General Provisions” section of the Deep Sea Law makes it clear that one of the important purposes of the Law is to protect the marine environment and promote the sustainable utilization of the resources of the deep seabed area; article 3 positions environmental protection as a principle that must be adhered to in exploration and exploitation of the resources of the international seabed area; and article 4 stipulates that when formulating a plan for the exploration and exploitation of the resources of the deep-seabed area, the State shall adopt economic, environmental and environmental protection measures. Article 4 stipulates that the State shall, when formulating plans for the exploration and exploitation of resources in the deep-sea area, adopt economic and technical policies and measures to enhance the capacity for marine environmental protection; and article 6 proposes that the State shall encourage and support international cooperation in environmental protection of the deep-sea. Chapter 3 of the Deep Sea Act contains special provisions on the environmental protection system, establishing such systems as environmental baselines, environmental impact assessments and environmental monitoring, and requiring contractors to take the necessary measures to protect and preserve rare or fragile ecosystems, as well as the living environment of species in danger of depletion, threatened or endangered, and other marine organisms. Provisions relating to the protection of the marine environment are also contained in other chapters of the Deep Sea Act. For example, article 7 of Chapter 2 of the Law provides that the applicant shall submit to the competent marine department under the State Council relevant information on the impact that its exploration and exploitation activities may have on the marine environment, as well as an emergency response plan in the event of serious harm to the marine environment; articles 9 and 11 provide that the obligations of the contractor include protecting the marine environment, immediately activating the emergency response plan in the event of an accident that occurs or is likely to occur that may cause serious harm to the marine environment, and taking all practicable and reasonable measures to prevent the marine environment from being seriously harmed. Chapter 5 of the Law requires the competent marine department under the State Council to inspect the implementation of marine environmental protection, and the inspected person shall cooperate; Chapter 6 specifies the administrative, civil, criminal and other legal liabilities to be borne by the contractor in case of violation of the relevant provisions on environmental protection.

The promulgation of the Deep Sea Law has filled a gap in China’s legislation on the deep seabed area, and the

Law attaches great importance to environmental protection, which has important practical significance and far-reaching historical impact; however, due to space constraints, the Law does not contain any detailed provisions on what specific environmental protection measures should be taken by contractors. Moreover, at the time when the Deep Sea Law was being drafted, the International Seabed Authority was in the process of formulating regulations relating to the protection of the marine environment, and since China, as a State party to the Convention, was required to implement the regulations formulated by the International Seabed Authority, it was not appropriate for the Deep Sea Law to set out in detail the contractor's obligation to protect the marine environment. Under such circumstances, the formulation of complementary implementing measures or by-laws, in which a systematic environmental protection regime for resource exploration and exploitation activities in the deep seabed area is to be established, is an effective way to implement the principle provisions on environmental protection in the Deep Sea Law. There are a number of authorizing provisions in the Deep Sea Law, granting the competent ocean affairs department of the State Council to make further provisions on the protection of the marine environment in the exploration and development of deep seabed resources, which leaves room for the construction of a relevant supporting system in the next step.

According to the provisions of Chapter III "Environmental Protection" of the Deep Sea Law, the contents of China's deep sea environmental protection system are mainly divided into the following aspects:

Firstly, the main body of obligation and supervision of environmental protection is clarified. The competent department of ocean affairs under the State Council bears the supervisory responsibility for environmental protection and supervises the contractors in protecting the marine environment, while the contractors are directly responsible for the protection of the marine environment.

Secondly, it is clear that the contractor has several specific legal obligations for environmental protection. i. The obligation to report accidents, that is, the contractor is required to immediately report to the competent marine department of the State Council when serious damage to the marine environment occurs or is likely to occur; ii. The obligation to prevent, reduce and control environmental pollution, i.e., to "utilize available advanced technology" within "a reasonable and feasible range"; iii. The obligation to assess and monitor environmental impacts, i.e., to determine environmental baselines, assess possible impacts on the marine environment in accordance with the provisions of the competent department of marine affairs under the State Council, and to report regularly to the competent department of marine affairs under the State Council on the monitoring of the environment; iv. The obligation to protect marine biodiversity, i.e., "take necessary measures to protect and preserve rare or fragile ecosystems, as well as the living environment of depleted, threatened or in danger of extinction species and other marine organisms".

Thirdly, for contractors who cause damage by pollution of the marine environment, corresponding administrative penalties are stipulated, i.e., the competent marine department under the State Council shall order the cessation of the offending act, impose a fine or investigate criminal liability in accordance with the law. The environmental impact assessment system and the monitoring system provided for above have relevant provisions in the regulations issued by the International Seabed Authority. Therefore, the implementation of these environmental protection measures is not only a fulfillment of the Contractor's environmental obligations to the International Seabed Authority as a contracting party, but also an obligation of the Contractor as a licensee under domestic law. However, the above specific environmental protection provisions of the Deep Sea Law are too general, lacking in practicality and operability, and it is also more difficult to ensure that contractors comply with the relevant obligations, and therefore still need to be implemented into the supporting legislation.

### *3.3 Scientific and Technological Research and Resource Survey System*

Article 1 of the Deep Sea Act stipulates that "in order to regulate the exploration and exploitation of resources in the deep seabed area, promote scientific and technological research and resource investigation in the deep sea, protect the marine environment, promote the sustainable utilization of the resources in the deep seabed area, and safeguard the common interests of mankind, the Deep Sea Act has been enacted". This indicates that one of the significant legislative purposes of this law is to advance deep-sea scientific and technological research and resource surveys. As Lu Hao, the head of the legislative drafting leadership group for the Deep Sea Law, stated, one of the important objectives of the Deep Sea Law is to enhance deep-sea scientific research levels and exploration and development capabilities, thereby promoting the healthy development of China's deep-sea endeavors. Therefore, the Deep Sea Law explicitly provides for the encouragement of deep-sea scientific and technological research and resource surveys in a dedicated chapter, Chapter IV.

The specific measures for encouragement outlined in the Deep Sea Law include the following: the state supports deep-sea scientific and technological research and the cultivation of specialized talent, prioritizes deep-sea science and technology in the development of science and technology, and encourages cooperative research with related industries; the state supports enterprises in conducting deep-sea scientific research and the development of technical equipment; the state supports the construction and operation of deep-sea public platforms, establishes a

sharing and cooperation mechanism for these platforms to provide professional services for deep-sea scientific and technological research and resource survey activities, and promotes the exchange, cooperation, and sharing of deep-sea scientific and technological achievements; the state encourages organizations and individuals to conduct deep-sea science popularization activities in various ways, such as by opening scientific research vessels, laboratories, exhibition rooms, and other facilities, hosting lectures, or providing consultations.

#### **4. Legislative Deficiencies and Problems in China's Deep Sea Legal System**

##### *4.1 Insufficient Systematicity Within the Deep Sea Law and Related Regulations*

At a time when the development of deep sea areas is becoming increasingly important, it is important that the Deep Sea Act and its accompanying regulations be systematized to enhance their enforceability and openness. However, the Deep Sea Law itself has few provisions and its supporting regulations lack systematization. Firstly, the Deep Sea Law does not clearly define the specific scope and limits of the deep sea. The definition of the deep sea involves marine geology, marine biology and other fields, and the Deep Sea Law does not define the specific scope and depth of the deep sea, which may lead to uncertainty in actual operation. In addition, the specific provisions of the Deep Sea Law on the protection of the deep sea environment and ecology are relatively vague. The deep-sea ecosystem is fragile and complex, and its protection is of paramount importance, but the specific provisions of the Deep Sea Law on environmental protection measures and ecological restoration mechanisms are not sufficiently clear, which may lead to unsatisfactory results in environmental protection efforts.

At the same time, the specific definition and categorization of deep-sea resources in the Deep Sea Law is not clear enough and lacks clear guiding principles. There are many types of deep-sea resources, and their development and utilization involves many fields, but the law has not made specific provisions on the attribution of rights and responsibilities and the rules of development and utilization of various types of resources, which leads to inconsistent interpretations in the actual operation of the law.

The development of deep-sea resources is complex and high-risk, requiring precise supervision and management. However, the complexity of the deep-sea environment, the high technical requirements, and the relatively weak regulatory capacity and means have made it difficult to implement the regulatory provisions of the relevant rules and regulations of the deep-sea law, and have made it easy for irregularities and environmental damage to occur. The Deep Sea Law contains no detailed provisions on the technical standards to be met by applicants in exploration and exploitation, and lacks specific operational guidance. This makes it difficult to specify requirements in actual operation, as applicants have understanding bias and uncertainty in technical standards.

In terms of deep-sea environmental protection, the specific provisions on environmental protection measures in the relevant rules and regulations of deep-sea laws are ambiguous, and there is a lack of effective protection mechanisms. This makes it difficult to effectively implement environmental protection during the development of deep-sea resources, and may result in the destruction of the deep-sea ecological environment. In the development of deep-sea resources, multiple stakeholders are involved, including the state, enterprises and individuals. However, the relevant provisions of the deep sea law are ambiguous in defining rights and responsibilities, failing to clarify the rights and responsibilities of all parties in the development of deep sea resources, which may easily lead to disputes over rights and interests and confusion in management.

##### *4.2 Lack of Supporting Legislation for the Deep Sea Law*

Chapter III of the Deep Sea Law details the relevant requirements for environmental protection in deep sea development. It contains three articles stipulating the principles to be followed by contractors in carrying out deep sea development, i.e., to carry out sustainable development activities within a reasonable and controllable scope in order to protect the diversity of the marine ecological environment. In addition, specific responsibilities to be undertaken by contractors, including conducting marine environmental surveys, monitoring, evaluation and protection of marine life, are also stipulated. However, the Deep Sea Law does not provide details on how to conduct marine environmental surveys, the specific contents and indicators of the surveys, as well as the operational procedures for marine environmental monitoring and the involvement and supervision of the competent authorities. Currently, the Marine Administration has issued a series of documents to regulate the above activities, but the relevant supporting legal systems and policies have not yet been formulated and promulgated through formal channels. Therefore, there is an urgent need for these elements on marine environmental protection to be clearly defined and implemented in the supporting legislation.

Article 5 of the Deep Sea Law stipulates the functional departments that regulate exploration and exploitation activities. Exploration, development and resource survey activities for resources in the deep seabed area are subject to the supervision and management of the competent ocean affairs department of the State Council, while other relevant State Council departments carry out corresponding management work in accordance with their respective areas of responsibility. Contractors are required to report regularly to the supervisory authorities on the progress of the fulfillment of the exploitation contract and related matters. This part of the content of the administrative

color is strong, according to the Convention on the Law of the Sea and the relevant provisions of the Regulations on Exploration, the supervisory department can inspect the contractor's exploration and development of the relevant ships, apparatus, documents, but the specific provisions of the written law is less, supporting the required supervisory department on the contractor's main qualification examination; the exploration of specific standards of the ship provisions; the exploration and development of the object of the specific scope of the inspection of the detailed contents are still There is still a lack of such details. There is a need for more detailed provisions in the supporting legislation.

With regard to deep-sea exploration and exploitation, China has formulated three regulations on polymetallic nodules, polymetallic sulphides and complex ferromanganese crusts in the deep sea, which set out a set of systematic procedures and rules, including an emergency response mechanism, for exploration activities for related resources in deep seabed areas. However, existing domestic laws, including the Deep Sea Law, the Mineral Resources Law, the Rules for the Implementation of the Mineral Resources Law and the Work Safety Law, are all applicable to areas under national jurisdiction. China's Deep Sea Law for the exploration and development of safety-related provisions only Article 9 requires that contractors engaged in exploration, development operations should also comply with the People's Republic of China related to production safety, labor protection laws and administrative regulations. The relevant provisions of the Law on Exploration and Exploitation of Deep Sea Water are also applicable to deep sea water. The safety of deep-sea exploration and development beyond the scope of national jurisdiction should make reference to the relevant provisions of international law, and formulate special detailed supporting provisions, so as to better safeguard the conduct of deep-sea exploration and development activities in line with international law, as well as the fulfillment of international obligations.

Developed countries are vigorously developing deep-sea development activities and promoting the scientific and technological development of deep-sea development through innovative incentive mechanisms. It can be seen that the exploration and utilization of deep-sea resources cannot be separated from the progress of science and technology. And innovation is always the first productive force and creativity. Chapter 4 of the Deep Sea Law specifically stipulates the ways and contents of scientific and technological research and resource investigation in the deep sea, including the state's support for scientific and technological research in the deep sea and the cultivation of professionals; support for the construction of a platform for sharing deep-sea knowledge; and the vigorous development of various forms of dissemination and popularization of deep-sea knowledge. However, specific encouragement of the subject, object, content and specific measures, all of which require supporting legislation to put into effect the policy encouragement in the Deep Sea Law to encourage the implementation of the content to the ground. Not only does the incentive mechanism in the field of science and technology need to be improved, but also the policy research on the legal system of the Deep Sea Law needs to be vigorously promoted. In September 2021, the China Ocean Mineral Resources Research and Development Association (COMRA) issued a guideline for the application of research on the supporting system of the Deep Sea Law, with a project funding of 300,000 RMB. This is an incentive for the scientific research community to focus on the Deep Sea Law. However, the incentive mechanism still needs to be concretized in a written law. Refinement of legislation in all aspects is very important at a time when deep-sea mining activities have been going on in China for 30 years.

#### *4.3 Domestic Legislation Needs to Be Further Enhanced to Improve Compliance Levels*

As a guarantor of resource exploration and exploitation activities, China should, on the one hand, ensure the sustainable exploitation and utilization of marine resources and protect the integrity and stability of the marine environment and ecosystem. On the other hand, it is necessary to formulate and implement relevant laws and regulations to standardize and regulate resource exploration and development activities to ensure that they comply with environmental standards and international rules. At the same time, it is necessary to promote technological innovation and cooperation and exchanges to improve the scientific and technological level and management level of resource exploration and exploitation. In addition, it is necessary to strengthen cooperation and communication with relevant international organizations and countries to jointly promote the rational development and utilization of deep-sea resources. It is also necessary to strengthen the supervision and management of relevant enterprises and organizations, and to prevent and respond to possible environmental risks and safety issues. In general, as a guarantor state, China should assume the responsibility of maintaining the marine ecological environment, guaranteeing resource security and promoting sustainable development, so as to open up a sustainable and harmonious path for the future development of deep-sea resources.<sup>1</sup>

The Deep Sea Law fills the legal gaps in the relevant fields in China, provides a legal basis for regulating resource exploration and development activities in the Area, and plays an important role in promoting the construction of

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<sup>1</sup> Notes on the Law of the People's Republic of China on Exploration and Exploitation of Resources in the Deep Seabed Area (Draft), [http://www.npc.gov.cn/npc/lfzt/rlyw/2015-11/09/content\\_1950725](http://www.npc.gov.cn/npc/lfzt/rlyw/2015-11/09/content_1950725), accessed on: December 19, 2023.

China's deep sea legal system.<sup>1</sup> The Deep Sea Law should clearly stipulate the responsibilities and obligations of our country as a sponsoring state in the exploration and exploitation activities of deep sea resources. The law should detail the specific measures that need to be taken to ensure that contractors comply with the provisions of the Convention and other international agreements to protect the marine environment of the Area. First, supervision and management should be strengthened, and an effective supervisory and management mechanism should be established in the Deep Sea Law to supervise the implementation of exploration and exploitation activities for deep-sea resources and to ensure that contractors comply with laws, regulations and environmental protection standards. At the same time, the supervisory body should strengthen the investigation and handling of contractors' violations to safeguard the safety of the marine environment. Secondly, law enforcement should be strengthened by clearly stipulating the penalties imposed by the relevant departments for violations, and strengthening law enforcement to ensure that deep-sea resource exploration and development activities comply with laws and regulations and do not cause damage to the marine environment. At the same time, a sound enforcement mechanism should be established to ensure the effectiveness and impartiality of law enforcement. Thirdly, public participation should be strengthened to encourage the public to participate in the supervision and evaluation of deep-sea resources exploration and development activities, to enhance public concern and participation in environmental protection, and to realize information sharing and communication between the public, the government and enterprises.

## 5. Future Improvement of China's Deep Sea Legal System and Suggestions

### 5.1 Encouragement of Deep-Sea Development and Environmental Protection in Parallel

The deep sea resources development system is divided into two aspects: encouraging development and protecting the environment. On the one hand, the resource management and development planning of the deep sea should be improved, and the Deep Sea Law should clearly stipulate the management organization of the deep sea resources, the access conditions and management methods of resource development, and establish the planning and objectives of resource development, so as to ensure the rational development and utilization of the resources. It also specifies the mechanism for safeguarding the rights and interests of deep-sea resource development, stipulates the rights and obligations of developers, and establishes a sound regulatory mechanism to supervise and manage deep-sea resource development activities, so as to prevent violations of the law and the over-exploitation of resources. The law encourages and supports deep-sea scientific and technological innovation, provides technical support and financial support, and promotes the continuous upgrading and application of deep-sea resource development technology, so as to improve the efficiency and environmental friendliness of resource development.

On the other hand, it is crucial to improve the environmental protection system for deep-sea exploration and exploitation in the Exploration and Exploitation Law and the License Management Measures. Principles and standards for environmental protection should be established in the law, requiring developers to take necessary measures to protect the deep-sea ecosystem in the course of resource development and to carry out ecological restoration when necessary, so as to ensure that resource development activities do not cause permanent damage to the deep-sea ecosystem. First, it should be clearly stipulated in the regulations that deep-sea exploration and development must comply with environmental protection requirements, including the reduction of waste discharge and the adoption of pollution prevention and control measures. Secondly, strict approval procedures and standards should be established to ensure that exploration and development activities comply with environmental protection standards. Thirdly, a supervisory and management mechanism should be established to strengthen the supervision of exploration and development behaviors and to detect and punish violations in a timely manner. At the same time, scientific research and technological innovation should be encouraged to promote the application of environmental protection technologies and improve the level of deep-sea environmental protection. In addition, public participation should be strengthened, and social organizations and citizens should be encouraged to make suggestions and supervise the environmental impacts of deep-sea exploration and development, so as to promote transparency and democratization. Combining the above measures, China can improve the environmental protection system for deep-sea exploration and exploitation in the Exploration and Exploitation Law and the License Management Measures to protect deep-sea environmental resources and promote sustainable development.

### 5.2 Strengthening the Level of Administrative Services and Information Disclosure

Strengthening the level of administrative services and information disclosure in the deep sea is an important measure to ensure the openness, transparency, standardization and orderliness of deep sea resource development activities. China's deep sea legal system covers provisions that provide legal support for activities within the deep sea, but there are deficiencies in administrative services. Although it is clearly stipulated in the Exploration and Development Law that the State will protect the legitimate rights and interests of citizens, legal persons or other

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<sup>1</sup> Liu Feng. (2017). Deep Sea Law Promotes Improvement of the Top-Level Design of the Deep Sea Legal System, [http://www.comra.org/2017-05/15/content\\_9481537](http://www.comra.org/2017-05/15/content_9481537). accessed: December 29, 2023.



organizations engaged in deep seabed resource exploration, development and resource survey activities, there are very few provisions stipulating that the Government should provide administrative services to contractors and the public, except for provisions on the construction of a public platform for the deep sea and the encouragement of scientific and technological exchanges. Therefore, on the basis of the legislative experience of other countries, improving the service quality of the deep sea legal system should be the goal of further improvement of China's deep sea legal system. For example, by establishing laws and regulations and formulating policies and measures, it has strengthened the protection and services for contractors in deep-sea development; provided professional technical support, financial support and tax concessions to help contractors reduce costs and improve efficiency; strengthened supervision to ensure legitimate rights and interests; and encouraged innovation and scientific research to promote technological progress. At the same time, the government also strengthens training and guidance for contractors to enhance their development capacity and level and promote the sustainable development of deep-sea resources development.

To improve the deep sea legal system, China can take a series of measures to strengthen administrative services and information disclosure. First of all, establish an administrative approval service center for the exploration and development of deep-sea resources, provide one-stop service, simplify the approval procedure and improve efficiency. China can set up a specialized deep-sea administrative service platform to provide administrative approval, licensing and management services related to the development of deep-sea resources. This platform can integrate the service functions of various departments, simplify the process, improve efficiency, and facilitate enterprises and individuals in handling procedures related to deep-sea resources development. At the same time, information related to deep-sea resource development will be widely publicized through government websites, bulletin boards, the media and other channels to increase social understanding of and support for deep-sea development activities. Secondly, establish an information disclosure system, requiring relevant departments and enterprises to disclose information in a timely manner in exploration and development activities, including project plans and environmental impact assessment reports, to enhance transparency. Utilizing the Internet and digital technology, information on policies, regulations, data and other information related to deep-sea exploration and development will be released for easy access by the public. At the same time, strengthen public education and participation to enhance public awareness of and participation in deep-sea environmental protection. In addition, a supervision mechanism for administrative services will be established to strengthen the supervision and evaluation of administrative services to ensure the quality and fairness of services. Through the above measures, China can improve the administrative service measures in the legal system of the deep sea, promote information disclosure, enhance the transparency and efficiency of the exploration and development of deep sea resources, and guarantee the sustainable development of the deep sea environment.

### *5.3 Legislation to Encourage and Support Scientific and Technological Innovation in the Deep Sea*

Scientific and technological innovation and technical support for China's deep-sea development is one of the key factors in promoting the development of deep-sea resources. Policies and measures to encourage and support deep-sea scientific and technological innovation should be clearly defined in the law. First, the government can provide financial support to deep-sea science and technology research institutes and enterprises by setting up special funds for deep-sea science and technology R&D projects. Such financial support can stimulate the innovation enthusiasm of researchers and enterprises and promote breakthroughs and progress in deep-sea technology.

Secondly, the law can also provide for the establishment of an incentive mechanism for deep-sea scientific and technological innovation, giving rewards and honors to scientific researchers and enterprises that have made outstanding achievements in the field of deep-sea development, so as to encourage more people to devote themselves to deep-sea scientific and technological research and development. Such a reward mechanism can enhance the enthusiasm and creativity of deep-sea scientific and technological talents and promote the continuous innovation and application of deep-sea technology.

In addition, the law can also provide for the establishment of a mechanism for the transformation and application and promotion of deep-sea scientific and technological achievements, support the transformation of deep-sea scientific and technological research results into actual productivity, and promote the industrialization and commercialization of deep-sea technologies. Through policy guidance and technical support, the government can promote the widespread application of deep-sea technology to all aspects of deep-sea resource exploration, development and protection, and improve the efficiency and environmental friendliness of deep-sea resource development. At the same time, mechanisms for deep-sea scientific and technological research and international cooperation should be strengthened, and technical exchanges and cooperation between domestic and foreign scientific research institutions and enterprises should be promoted. Through cooperation with other countries and international organizations, it is possible to share technology and experience, jointly overcome the difficulties in deep-sea scientific and technological research and development, and promote the leapfrog development and application of deep-sea technology.

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