

CONTRACTING THE SUSTAINABLE MARINE ENVIRONMENTAL CAPACITY REGULATORY MECHANISM

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Abstract:

The marine environmental capacity is a special marine resource produced on the basis of seawater's ability to self-purify. It is possible for the marine environmental capacity to become the object of property because it is perceptible, determinable, and relatively disposable. In this context, China should institute a marine pollutant discharge right, taking marine environmental capacity as an object of property. Such a right would take the form of a quasi-property, which the obligee will be entitled to use and thus seek profits. The marine pollutant discharge right will form the legal basis for allocating marine environmental capacity through the method of marketization. This would be a feasible channel through which to solve the problem of marine environmental pollution through private law, and a major opportunity to deepen the reform of the marine environmental pollution governance system for China.

Marine environmental pollution and ecological degradation are some of the most serious problems facing society. With industrial development accelerating greatly since the 20th century, the human population has been utilizing marine resources at a rate far beyond the capacity of the marine environment itself. As marine resources are closely linked to human health, the world is now facing an impending ecological crisis. Nonetheless, the exploitation, utilization, and management of marine resources continue to be based on traditional thinking, i.e. focusing on economic value but disregarding ecological value.¹ At the same time, the applicable legislation on marine environmental protection, in which compulsory provisions are dominant, has had limited effect in developing full recognition of the importance of marine ecological value. Therefore, increasingly serious marine environmental problem have been caused. In light of this issue and to solve the marine environment problem, the marine ecological value must be confirmed and identified. The civil property system serves as a good tool for such a feat. This paper seeks to discuss the right to discharge pollutants into the marine environment, while also addressing functions, uses, and earnings pertaining to marine resources. In particular, marine environmental capacity will be analyzed as an object, by reference to the theory of quasi-property and new-type object.

I. MARINE ENVIRONMENTAL CAPACITY AND ITS RESOURCES

A. *The Interpretation of The Concept of Marine Environmental Capacity*

The marine environmental capacity refers to the required national standard for seawater quality. The aim of such a standard is to maintain ecological functionality in certain areas of the sea while restricting the discharge of pollutants. It is related to the ability of

¹ See Gretchen, C. Daily et al., *The value of nature and the nature of value*, 289 SCI. MAG. 395 (2000).

seawater to self-purify and the quantitative description of this self-purification capability.²

The marine environmental capacity encompasses two basic concepts: the natural objectivity and the man-made subjectivity. The former refers to the nature or conditions of the special marine environment, including the geographical conditions of sea area environment such as space, position and formation (e.g. gulf or river mouth), the hydrological conditions such as tidal current and temperature, the physical, chemical and biological transfer process, and the physical and chemical nature of pollution etc. The man-made subjective nature generally refers to the environmental quality standard which humans should meet in order to maintain the special environmental function of the target seawater.³

The natural objective nature determines the self-purification capacity of various marine environments to some degree. For instance, in general, the marine environmental capacity of an open sea area is greater than that of an enclosed or semi-enclosed sea area. Meanwhile, the man-made subjective nature is more concerned with the demand of humans on marine environmental quality and takes this into consideration in the measurement and determination of marine environmental capacity.

Generally people divide sea areas into different functional areas in the light of different uses, aims, and protective targets. The marine environmental capacity differs due to discrepancies in the function played by seawater. For instance, the marine environmental capacity in marine oil and gas exploration area is greater than that in seawater culture zone. Thus, it is biased to some degree to define the marine environmental capacity as the maximum quantity or the best capacity that marine environment may accommodate pollutants based only on the scientific aspects. Subjective conditions, such as specific requirements of the state on the administration of marine environment and the actual public demand for marine environment, are also indispensable factors in understanding marine environmental capacity.

B. The Resource Characteristics of Marine Environmental Capacity

The marine environmental capacity is an important natural resource with a dual nature encompassing both natural and social aspects. On one hand, as the marine resource granted by nature in the seawater, it represents the intangible characteristic of environmental

² Jing Zhu et al., *Overview of Research Progress and Calculation Methods for Marine Environment Capacity*, 4 WATER SCIENCE AND ENGINEERING TECHNOLOGY 8, 8-10 (2009).

³ XIULIN WANG KEQIANG LI & XIAOXIONG SHI, MARINE ENVIRONMENT CAPACITY FOR MAIN CHEMICAL POLLUTANTS IN JIAOZHOU GULF 101 (1st ed., 2006).

capacity, showing the ecological function of seawater on purification and dilution of pollutants. On the other hand, it is an environmental factor in the survival and development of human society, and can be brought into the process of social production for the purpose of human utilization, creating enormous social wealth through resource allocation and transaction. The marine environmental capacity has the following characteristics as a resource:

Firstly, it is intangible. As the marine environmental capacity exists in intangible form, it cannot be directly perceived. Due to this characteristic, when the property system takes on marine environmental capacity as an object, it is necessary to grant it a “tangible” form through legal fiction to refine the concept and define the right boundary.

Secondly, it is entire. Generally speaking, all natural resources have this characteristic as they consist of mutual intrinsic organic linkages, thus forming an entire and uniform natural environment with correlative dependence and restrictions.⁴ Due to the liquidity of seawater, the marine environmental capacity in one sea area is always closely linked to the environmental capacity in other sea areas. Therefore, the construction of a marine environmental capacity system must be based on the whole sea area. In addition, the marine environmental capacity and other marine resources exist on the basis of the whole body of seawater, so as to commonly constitute the marine ecological and the entire environmental body; thus, it is necessary to mutually coordinate the conflicts at the time of resources exploitation and utilization.⁵

Thirdly, it is exhaustible. This characteristic results in the difficulty in rapidly restoring and renewing the marine environmental capacity within the natural recycle period of seawater purification if it is utilized. Thus, the utilization of marine environmental capacity needs to be controlled to some extent. Improper utilization will not only cause the excessive impairment of marine environmental capacity, but will also cause the seawater to lose all or part of its functions for a long period of time.

Fourthly, it is unstable. As it is prone to the influence of external natural factors such as temperature and precipitation, the marine environmental capacity resource is unstable. Moreover, the liquidity of seawater further enlarges its unstable state. As a result, the right of a usufructuary right holder to develop and utilize the marine environmental capacity is prone to being undermined by natural and

⁴ ZITAI ZHANG, *NATURAL RESOURCE LAW* 4 (1st ed. 2007).

⁵ See Alexandra Teitz, *Assessing Point Source Discharge Permit Trading: Case Study in Controlling Selenium Discharge to the San Francisco Bay Estuary*, 21 *ECOLOGY L.Q.* 79, 96 (1994).

man-made factors. Such a right thus needs a special system on rights protection and remedies.

II. USUFRUCTUARY SITUATION AND PROBLEM OF MARINE ENVIRONMENTAL CAPACITY IN CHINA

The allocation of marine environmental capacity resource is the basis of its use in the market and the earnings derived from the resources directly determines the extent of realizing its value. At present, the resources are mainly allocated on the basis of administrative legal relations using the marine pollutant discharge permit in China. The permit is a type of specific administrative act based on public law. In the key sea areas where control on the total quantity of pollutant discharge is carried out,⁶ the competent marine authorities will determine the total quantity control index for major pollutants discharge to the sea upon the application of the administrative counterpart. The authorities will grant the actors responsible for the discharge the entitlement to utilize the marine environmental capacity by issuing a permit that is within the scope of the total quantity control index.

The Marine Environmental Protection Law of China specifically states that, for any land-sourced pollution, marine engineering construction, and any act of marine pollutant discharge such as dumping waste, the prior application for an administrative permit on the establishment of drain outlet for pollutant discharged to sea shall be lodged, and pollutant discharge without administrative permit is illegal.

The allocation of marine environmental capacity based on the governmental permit shows strong administrative regulation and control, and the counterpart may be entitled to a similar license through the authorization of administrative authorities. The marine pollutant discharge permit is evidence of one's entitlement to discharge pollutants into the sea but does not actually confirm an individual's right to resources. The fundamental cause of the problem is that the right to exploit and utilize the marine environmental capacity, which is based on private law, has not yet been instituted in the form of law in China. There are some obvious defects in the resource allocation mechanism, which relies on public law and administrative compulsory force. This is manifested in the fact that administrative license trade between private legal bodies under the administrative legal framework is prohibited strictly, such that the proprietary attribute of the marine environmental capacity

⁶ According to the practice of administration of marine environmental protection, the so-called "key sea areas" in the Law on Marine.

resource has been disregarded for a long time. It is also difficult for the proprietary attribute of the marine environmental capacity resource to effectively result in social material wealth through market trading.

At the same time, the model of “command and control,” epitomized by the government’s absolute authority and the unconditional obedience of the administrative counterpart, gives market bodies a passive and controlled status in the course of resources allocation. Thus, it is difficult to inspire proactivity and self-awareness in improving production technology as well as renewing production equipment to improve economic and environmental benefits through pollutants discharge reduction. The economic root of marine environmental pollution, the negative externality problem, cannot be eliminated really. This shows that the current situation of allocating the marine environmental capacity, which simply depends on public law methods, impedes the realization of its maximum value, and cannot jettison the numerous difficulties of marine environmental pollution governance.

In light of the above problems, it is necessary to create the right carrier for marine environmental capacity. A system which treats environmental capacity as property would facilitate the allocation of marine environmental capacity based on private law, thus substituting the rigid provisions on resources allocation in the former administrative law. In this way the marine pollutant discharge permit would be affirmed as a private right and the obligee would be able to trade the right to use marine environmental capacity through the transferal of the permit under legal conditions. This would constitute a market-orientated allocation of marine environmental capacity. In order to realize the concept of resources allocation based on the private law, the proprietary carrier of marine environmental capacity must first be determined, i.e. the marine pollutant discharge right must be legally recognized and affirmed.

III. THE PROPERTY CARRIER OF MARINE ENVIRONMENTAL CAPACITY—MARINE POLLUTANT DISCHARGE RIGHT

A. The Proprietary Characteristics of Marine Environmental Capacity

In accordance with civil law, an object under property law refers to a material thing existing independent of any persons, which can be disposed of and utilized by the holder of rights so as to satisfy the need of right holder’s interests.⁷ Traditionally it is thought that the

⁷ JUNJU MA & YANMAN YU, *ELEMENTARY THEORY ON CIVIL LAW* 66 (2nd ed. 2005).

most elementary expression of satisfying the need of the right holder's interests is to bring about economic interests for the civil right holder. Thus, only the things which a "rational economic man" may occupy, use, and get earnings from to create the actual wealth are proprietary objects. As it is impossible to actually control and dispose of resources such as water and air, no economic interest can be directly produced; it is naturally beyond the scope of civil law and cannot become the property object.⁸ However, with increasingly severe environmental problem and society's growing awareness of environmental protection, the traditional theory of property object, which takes economic value as the standard has also started to change.

The introduction of sustainable development concept has made the public aware of the significance of natural resources' ecological value and the fact that economic interests must be predicated on the respect for natural resources' ecological nature. With the idea of ecological rationing becoming increasingly prominent in legal theory, there have been some breakthroughs in the previously rigorous and conservative standard for limiting the category proprietary objects. More scholars are beginning to bring environmental capacity into the scope of property law. This paper's author agrees with this approach and, on the basis of interpretation theory, believes that marine environmental capacity is able to satisfy the relevant characteristics of proprietary object to some degree.

Firstly, marine environmental capacity is perceivable. Although it is not easy for marine environmental capacity to be directly perceived through visual senses due to its intangible form, its marine ecological function is closely linked to the survival of all kinds of marine lives. When a body of seawater plays the purification role of pollutants solution and dilution, the ecological process can be felt, albeit not seen. Therefore, marine environmental capacity is undoubtedly perceivable.

Secondly, marine environmental capacity is relatively disposable. According to traditional civil law theory, physical independence is an indispensable condition of property object, i.e. a thing must be distinguished from other things, but marine environmental capacity is not completely physically independent. However, with social development, the concept of an "independent thing" is changing, and independence may be determined in accordance with the concept of trade or by the standard of legal provisions.⁹ If such standard is evaluated, the marine environmental capacity could become an

⁸ HAIFENG DENG, POLLUTANT DISCHARGE RIGHT: READING BASED ON THE CONTEXT OF PRIVATE LAW 75 (1st ed. 2008).

⁹ LIMING WANG, RESEARCH ON PROPERTY LAW 63 (2nd ed. 2007).

independent object through specialization, such that it can be disposed of by individuals to some degree.

On one hand, marine environmental capacity can be separated from seawater in the form of specific value through the method of scientific quantification. On the other hand, the liquidity of water causes marine environmental capacity to be blended with other water environmental capacity in the course of global water recycling so that it is difficult to separate the elements. However, due to the weaker influence caused by external factor such as wind force, the slow diffusion speed of pollutants and incomplete diffusion degree, it is easy for water pollution to reflect local and regional characteristics.¹⁰ Therefore, with regard to the problem of water pollution control, it is more likely to be focused on a certain special water area rather than the entire water environment on the basis of the relative partial and static idea as well as the regional research method. As a result, when we regard a certain sea area as an independent water body (taking the beach as boundary), naturally the marine environmental capacity contained in the sea area, which exists in the form of independent material, is distinguished from other kinds of water environmental capacity. For example, the pollutants discharge along the river bank eventually flows into the sea with the flow of river water, indirectly causing unfavorable effects on the marine ecological environment. However, if the seawater environment is relatively static and fixed, the pollutant discharge along the river is an act that exhausts the river environmental capacity rather than a utilization of marine environmental capacity.

Thirdly, marine environmental capacity is confirmable. Since the 1980s, the natural science workers in China have explored methods to determine the capacity of China's environmental system. The available capacity of a certain special region and environmental effects of a pollutant is calculated as "the volume of special environmental factor multiply by the difference between the limit density of per m^3 pollutant minus the average density of self-contained pollutant per m^3 environmental factor."¹¹ A comprehensive consideration of the influences of seawater's characteristic, water quality target, pollutant characteristics, method of pollutant discharge, the space-time distribution of pollution sources, and the measurement of marine environmental capacity may all be relevant. It is evident that the environmental capacity at a special time and special area can be valued through scientific

¹⁰ See Teitz, *supra* note 5, at 96.

¹¹ Haifeng Deng, *Quasi-property of Environment Capacity and its Right Constitution*, 4 CHINA L. SCI. 59, 61 (2005).

calculation. Marine environmental capacity is thus no longer too profound to be understood or too difficult to be measured.¹²

Through the above discussion on the proprietary characteristics of marine environmental capacity, we may come to the following conclusion: the changing society pushes the property law beyond the former limitations with each passing day, and brings new types of legal objects within the boundaries of property to meet the right holder's actual need. Against such a background, marine environmental capacity, if measured with appropriately flexible standards, complies with the requirements on basic attributes of a legal object and can be proprietary in nature.

B. The Marine Pollutant Discharge Right and its Legal Scope

The marine pollutant discharge right refers to the right of the right holder to use and derive earnings, in accordance with law, from the marine environmental capacity on the basis of the self-purification capability of marine environment. This right is also called "marine environmental capacity use right." One can see from its definition that the marine pollutant discharge right, which treats marine environmental capacity as an object, is quasi-proprietary in nature.

Quasi-property means not a single right with one nature, but is a generic term for a group of rights with various natures.¹³ According to the Real Right Law of the People's Republic of China, quasi-property consists of right of mineral prospecting, mining rights, the water intake rights and the right to use water areas or tidal flats for breeding or fishery etc.¹⁴ In considering whether quasi-proprietary rights conform to the basic attributes of property, important considerations are the object of such a right, constitution of the right as well as whether the right has the nature of being a public right.

The aim of the traditional property rights system is to establish a legal order for the possession and ownership of real estate whereas the aim of the quasi-property right system is to provide institutional support for the exploitation and utilization of other natural resources. In relation to the effectiveness of the right, the law generally offers right-holders the ability to exclude others by sticking strictly to the principle of "one property one right," thus achieving effective possession and control of real estate. However, the aim of the quasi-property right system is not to realize possession and control of real estate, thus the law allows similar quasi-property rights to exist

¹² Deng, *supra* note 8, at 79.

¹³ Jianyuan Cui, RESEARCH ON QUASI-PROPERTY 20 (1st ed. 2003).

¹⁴ Wiquan Fa (物权法) [Real Right Law] (promulgated by the Standing Comm. Nat'l People's Cong., Mar. 15, 2007, effective Oct. 1, 2007) art. 123 (Chinalawinfo).

in the same real estate at the same time. This means that the quasi-property right system is not exclusive.

As to the methods of acquisition, traditional property law abides by the principle of autonomy, respecting the consensus of the owner of the real estate and the right holder of *jus in re aliena* to establish different types of just in re aliena. Since the various types of quasi-property rights relate to state sovereign rights over natural resources and social public welfare, the approval or permission of public organizations must be obtained.¹⁵

As a quasi-property, the marine pollutant discharge right has unique attributes which differ from traditional property. Firstly, the object of the marine pollutant discharge right is special. The object of marine pollutant discharge right, marine environmental capacity, cannot easily be physically separated from its carrier—seawater. It is necessary to interpret the uniqueness of marine environmental capacity according to an elastic and flexible standard. Due to the difference in the disposability and degree of independent existence between different properties, looser requirements may be required based on the uniqueness of the object of the right. Where the property holder must directly dispose of the object to realize the purpose of the property and a special quantity, region, or period is required, such object may be deemed as unique.¹⁶ Therefore, by examining the uniqueness of an object and coming to a conclusion on its identity, the marine environmental capacity may display definite scope in terms of space and time. This would allow the right holder to directly dispose of the object, thus realizing the marine pollutant discharge right.

Secondly, the marine pollutant discharge right is special in its ability to be occupied, to have exclusive power exercised over it and its function. On one hand, the core of the marine pollutant discharge right is utilization rather than disposal, i.e. occupying marine environmental capacity and its material carrier is not a necessary condition for its existence and the purpose of occupying the right is to realize the maximum value of marine environmental capacity while maintaining marine environmental quality. Therefore, there is no power or function of occupying the marine pollutant discharge right. On the other hand, the exclusiveness of property must be based on the power and function of occupancy and disposal, thus the marine pollutant discharge right is not exclusive in the strict sense and, in practice, there will be many marine pollutant discharge rights which coexist in the same body of seawater body.

¹⁵ Xiaying Mei, *The Characteristic of Quasi-property and its Legislative Model*, CIVIL LAW.COM (Dec. 11, 2014), <http://www.civillaw.com.cn/article/default.asp?id=7917>.

¹⁶ Weixing Shen, *PRINCIPLES OF PROPERTY LAW* 6 (1st ed. 2008).

Thirdly, the marine pollutant discharge right is a private right with a public right nature. The marine pollutant discharge right is produced in accordance with the relevant public law and must be affirmed through strict administrative license procedures. However, because the marine environmental capacity, as an object of a right, is not only an economic commodity, but also an environmental factor related to social public welfare and ecological benefits, some compulsory regulations at the public law level must be followed in utilizing the marine pollutant discharge right. This right is thus special property with dual attributes of public rights and private rights.

C. The “Mother Right” of the Marine Pollutant Discharge Right

The marine pollutant discharge right is the *jus in re aliena* which enables the right holder to use and derive earnings from the marine environmental capacity. According to property law, “since *jus in re aliena* must be produced from *jus in re propria*, *jus in re propria* is the motherland of *jus in re aliena*; there is no *jus in re aliena* without a mother right.”¹⁷ Thus, the marine pollutant discharge right should be derived from its “mother right.”

It is necessary to examine the idea that “the ownership of the object of *jus in re aliena* is the mother right of *jus in re aliena*” in determining of the mother right of the marine pollutant discharge right. Firstly, the object of the marine pollutant discharge right is the marine environmental capacity within a certain sea area. Further, ownership of marine environmental capacity is the ownership of marine environmental capacity within such an area of seawater. Therefore, the ownership of marine environmental capacity and the marine pollutant discharge right, which takes marine environmental capacity as a common object, corresponds to the “mother right” and “son right” respectively.

The ownership of marine environmental capacity is the private law expression of the state’s perpetual sovereign rights over the source of marine environmental capacity. The size of the area of seawater in which a country owns exploration and utilization sovereign rights over the marine environmental capacity determines the boundary of the marine environmental capacity ownership right. This further determines the boundary of marine pollutant discharge right as the “son right.”

Firstly, with regard to territorial sea are and in accordance with the United Nations Convention on the Law of the Sea, the sovereign rights of a coastal State extends beyond its land territory and internal

¹⁷ Deng, *supra* note 8, at 88.

waters to an adjacent belt of sea, described as the territorial sea. Territorial sea extends to an area not exceeding 12 nautical miles from the baseline.¹⁸ It is evident that a state shall be entitled to exploit and utilize resources in the territory that falls under its sovereign rights. Thus the entire marine environmental capacity in the territorial seawater within a 12 nautical mile radius is part of the natural resources of the state. Since China has adopted the Law on Territorial Sea and the Contiguous Zone,¹⁹ the government, on behalf of the state, enjoys the ownership of marine environmental capacity in the territorial sea.

Secondly, it is necessary to confirm whether marine environmental capacity beyond the territorial sea area should belong to the state under international law. In accordance with the United Nations Convention on the Law of the Sea, within a 200 nautical miles radius (measured from baselines used in measuring the breadth of the territorial sea), also known as the exclusive economic zone, the coastal state may have sovereign rights for the purpose of exploration, exploitation, conservation and management of natural resources, including waters superjacent to the seabed, the seabed itself and its subsoil.²⁰ The waters superjacent to the seabed beyond 200 nautical miles is subject to the high sea system and no state may declare sovereign rights over such an area. Payments must be paid during the exploitation of a biological resource on the continental shelf beyond 200 nautical miles.

It can be seen that the boundary of a state's sovereign rights over marine environmental capacity is the exclusive economic zone of 200 nautical miles, and a coastal state may have national ownership or private ownership of marine environmental capacity to this extent in accordance with the traditions of the state on resources ownership.

As far as China is concerned, Article 9 of the Constitution specifically declares that China carries out a unitary model of ownership in relation to all natural resources and the government exercises the ownership of natural resources on behalf of the state. Therefore, the entirety of the marine environmental capacity resource in the exclusive economic zone of China is owned by the state; natural or legal persons cannot become the owners of marine environmental capacity.²¹ Under such model, the ownership of

¹⁸ U.N. Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, 1833 U.N.T.S. 397, art. 2-3.

¹⁹ The Law of the People's Republic of China on Territorial Sea and the Contiguous Zone article 5 states, "the sovereign rights of the People's Republic of China over the territorial sea shall extend the sky, seabed and subsoil of the territorial sea."

²⁰ U.N. Convention on the Law of the Sea, *supra* note 18, art. 56.

²¹ Haifeng Deng, *The Way of Taking Marine Environmental Capacity into Property and the Structure of the Right*, 31(2) TRIB. OF POL. SCI. AND L. 131, 135 (2013).

marine environmental capacity may be defined as the rights owned by the state for its use and disposal. If any private entity uses the marine environmental capacity, he must file an application and the government may grant him the right to use the marine environmental capacity, i.e. the marine pollutant discharge right. This approval from the government would be in the form of an administrative license issued on behalf of the state.

In the event of any act committed by a bordering state, which involves use of the sea or causes cross-border marine pollution and ecological damage in China's exclusive economic zone, the latter may bring claim for infringement damages as her ownership of the marine environmental capacity is injured. This would be a solution to China claims against other states for cross-border marine pollution, ship carriage pollution, collision, and oil pollution damage. Any loss or damage to marine ecological value could be remedied in the course of investigating and affixing responsibility for such damage.

IV. CONFLICTS BETWEEN MARINE POLLUTANT DISCHARGE RIGHT AND THE DIFFERENT RIGHTS

Since the marine pollutant discharge right is not exclusive and the marine water body carries a variety of different marine resource rights, there exists conflicts among the marine pollutant discharge right and other rights. The marine resource usufructuary right, which includes the marine pollutant discharge right, is the appropriate legal basis for successive economic loss and the pure economic loss victims to seek compensation for marine ecological damage. Thus, seeking rules to coordinate the rights will create conditions for establishing a process for payment to the different victims mentioned above. When the loss cannot be fully compensated, the process of payment has a particularly significant meaning.

A. Conflicts Between Marine Pollutant Discharge Rights

The conflict between the marine pollutant discharge rights in the same sea area may be resolved using the following methods:

Firstly, a priority sequence of purposes for marine pollutant discharge rights could be established. If all marine pollutant discharge rights are used for various purposes, the conflict may be solved according to this sequence. The marine pollutant discharge right at the top of the list would be higher in priority than the second purpose sequence. The implementation of such a method must be based on a determined reasonable purpose sequence. For example, the purpose sequence of water right takes priority over the purpose of marine pollutant discharge rights. Listed below are three legislative models on water right priority sequence:

(1) Article 21 in the Water Law of PRC states “the exploitation and utilization of water resources, shall first satisfy the living water of urban and rural residents, and concurrently give attention to the need for agriculture, industry, ecological environmental water use, and shipping etc.” It may be concluded that water right priority is, in sequence, living water for residents, agricultural water, industrial water, ecological environment water, and finally, shipping water.

(2) In accordance with the provision of Article 18 of Water Resources Law of Taiwan, China, the sequence of water use is, in order: (i) household and public supply of water; (ii) agricultural water, water for water conservancy; (iii) industrial water; (iv) shipping water; and (v) water for other purposes.

(3) The applicable water right sequence in Kansas, USA, is: (i) household water; (ii) municipal administration water; (iii) amusement water; and (iv) water for water conservancy.

From the above legislative models, we can see that civil water and public water generally takes priority and industrial water is secondary.²² Therefore, when there is a conflict between the marine pollutant discharge rights for different purposes of pollutant discharge, the solution should follow the following sequence rule:

- (1) the household marine pollutant discharge right,
- (2) the public marine pollutant discharge right,
- (3) the agricultural marine pollutant discharge right,
- (4) the industrial marine pollutant discharge right,
- (5) the shipping marine pollutant discharge right, and
- (6) amusement marine pollutant discharge right.

Secondly, the conflict could be resolved according to the time of creation of the marine pollutant discharge right. If all marine pollutant discharge rights are created for the same purpose, the principle of “first in time” should be applied to solve the conflicts. Thus, the right holder who acquired the marine pollutant discharge right at an earlier time should be protected preferentially.

The implementation of such a principle must be based on the confirmation time of instituting the marine pollutant discharge right. Therefore, the rules for coordinating such rights shall be applied such that if there is earlier registration, it is higher priority, taking into account the time of pollutant discharge right registration and obtainment of the pollutant discharge permit. In general, the marine pollutant discharge right that is registered earlier and the marine pollutant discharge permit that is obtained earlier has higher priority than the pollutant discharge right that is registered at a later date.

²² Cui, *supra* note 13, at 316.

B. Conflicts Between the Marine Pollutant Discharge Right and other Marine Usufructuary Right

In addition to the above-mentioned conflicts among the marine pollutant discharge rights, the marine pollutant discharge right may conflict with other usufructuary right in the sea due to the different ways of utilizing marine resource. For example, while the right to cultivation is created to exploit seawater's culture function, the waste discharge capability of seawater may be used to institute the marine pollutant discharge right through quantization into marine environmental capacity in order to realize the maximum benefit of utilizing marine resources. In this way, both rights which take seawater as a right carrier in obviously different ways overlap and the conflict is unavoidable in the course of utilizing the rights.

This paper argues that we should take the division of marine function as a basic principle of requirements on sea use and follow the standard of survival interests while taking functional use of the sea as priority. This would resolve the conflict between the marine pollutant discharge right and other marine usufructuary right.

Firstly, the use of many usufructuary rights in the sea should follow the basic principle of division of marine functional areas. This is a division of areas with special leading function and is applicable to various exploitation methods. It would obtain the most comprehensive benefits according to the geographical location, natural resources, and environmental situation while keeping in mind the current circumstances of marine exploitation as well as the demands of economic and social development.²³ One of the major roles of marine functional area division is to evaluate the spatial distribution of marine resources in addition to the compound and open nature of the performance. This allows resolution of the conflicts in resources exploitation such as to form a reasonable order of marine resources utilization.²⁴

At present, the marine functional division in China includes seawater baths, seawater culture zone, marine natural protection zone, marine dumping area as well as marine oil and gas zone. It is necessary to achieve the orderly performance of various kinds of marine *jus in re aliena* using marine functional zone division. For example, seawater baths is a zone serves recreational purposes while the right to use seawater for marine fishery focuses on the seawater culture zone. In addition, the marine dumping area, as well as oil and gas zone are zones in which one can exercise their pollutant

²³ *China Marine 21 Century Agenda 1996-2005*, the Central People's Government of the People's Republic of China (June, 1996), http://www.gov.cn/zwgk/2006-06/05/content_300288.htm.

²⁴ Xiangmin Xu, *RESEARCH ON LEGAL PROTECTION OF MARINE ENVIRONMENT* 90 (1st ed. 2006).

discharge right. Therefore, within a special marine functional zone, the main marine *jus in re aliena* should have higher priority than other rights. For instance, with regard to seawater culture zones, the marine pollutant discharge right should not infringe upon the marine fishery rights. In view of this, the Law on Marine Environmental Protection specifically states that no newly-built pollutant discharge point may be located in important fishery waters and, when discharging heated waste water into the sea, measures should be taken to ensure that the water temperature in the adjacent fishing areas are kept within the state's water quality standards. On the other hand, in the marine dumping area, and oil and gas exploitation zone, where the marine pollutant discharge right plays a leading role, marine *jus in re aliena* such as fishery rights and use of the sea for amusement may not be enjoyed.²⁵

Secondly, in sea areas without differentiated functional zones or with unclear functional zone division, it is necessary for the conflicts between marine usufructary rights to be resolved based on the principle of fairness in determining the sequence of realising the rights.

Marine *jus in re aliena* carrying survival interests should be given preferential treatment as this protects human survival and property interests. The human survival right connotes that everyone has the right to maintain his and his family's health and welfare in accordance with a minimum living standard so as to guarantee and improve basic living and health level. It is evident that the survival interests' guaranteed is a basic requirement of human society and indispensable in safeguarding fairness and stability. Therefore, the survival interests in natural resources should be given higher priority.

With regard to the specific utilization of marine rights, the civil sea-use right is closely related to human survival interests. This includes the civil marine pollutant discharge right and self-use fishery right and should be given priority. However the industrial and commercial sea-use rights, which serve the purpose of realizing property interests, should be given less priority.

Marine *jus in re aliena*, which take the form of functional resources, should be given priority. According to the differences in the interests, all marine resources may be divided into resource-based resources and functional resources. Resource-based resource refers to the natural resources that exploitation and utilization will exhaust or change; examples include the marine environmental capacity resource and seawater resource used for irrigation. Functional resource refers to the natural resources which remain unchanged after

²⁵ Deng, *supra* note 21, at 137.

exploitation and utilization, such as the seawater resource used for marine culture or shipping. Generally, marine *jus in re aliena* taking which makes use of functional resources should be given higher priority than those making use of resource-based resource. This is due to the fact that functional resources will not be reduced or changed in the process exploitation and utilization. For example, when fishermen utilize seawater for the purpose of fishery, their acts will not exhaust the marine water body or obviously change its nature. Thus, the marine pollutant discharge right may be realized after the fishery right has been exercised. However, if the marine pollutant discharge right were to be exercised first, the fishery function of seawater will be affected and it would be difficult to realize such a right. In light of this consideration, the marine pollutant discharge right should take lower priority than marine *jus in re aliena*, which has functional resources as its object.

