

Abstract

This thesis deals with coastal zone management, focusing public seacoast from the comprehensive viewpoint of historical transition, impacts and responses of natural processes and transition of social conditions. It also analyzes legislation and revision of seacoast law from viewpoints of both social system and technology on the basis of practices in the field and establishment of community agreements. Then it describes both implementation in the direction of establishment of a new legislation about coastal zone management and future appropriate directions.

Chapter 1 describes characteristics and problems before and after the establishment of seacoast law in 1959 for both social system and technology viewpoints. It also discussed the historical transition of coastal zone management. Coastal management in Japan started from protection of small salt pans and reclaimed land together with their backyards. As seacoast dikes for protection becoming larger and accommodation to storm surges or high waves getting more complicated, present system for public management was initiated. Since the Meiji Restoration, the Japanese government actively promoted centralization and river law was constituted as first management system of public domain. However, seacoast was managed only as one of national properties without specific management law. Shortly after the end of the Pacific War, Japanese land was frequently hit by typhoons and tsunamis, resulting in enormous damages. As a result, seacoast law was enacted in 1959 aiming at disaster prevention. Four governmental agencies (the Ministry of Construction, the Ministry of Transportation, the Ministry of Agriculture and Agency of Fishery) were designated to be responsible for coastal zone management in accordance with each management area. At that time, a technical council was established among agencies for communication and coordination by which a Technical Standard for coastal protection works was compiled in cooperation with all agencies. As the Seacoast Law was introduced to mitigate coastal disasters, various systems were developed by focusing mainly shore protection structures. Since then, a large number of seawalls and groins were constructed for prevention of flooding due to storm surges and tsunamis after catastrophic disasters like Ise Bay Typhoon and Chili Earthquake Tsunami. The plan of seacoast protection in 5 years was developed in order to promote seacoast protection, and various projects for coastal protection and projects were developed in cooperation with coastal preservation. Establishment of these systems has rapidly enhanced the safety of Japanese coastal zones against natural disasters. On the other hand,

however, we have yet to fully mitigate coastal erosion.

In Chapter 2, in order to understand changes of natural conditions after the establishment of seacoast law, scientific practices for information and research in fields are discussed. According to analysis based on geographical maps, the Japanese coast was found to be retreated in the period between the Meiji era and Showa 20's compared with that between Showa 20's and the Heisei era. Because of unbalance in sediment movement on seacoast, coastal erosion is very serious. Sediments supplied from river decreased by gravel extraction in river and as a result coastal erosion was progressed. The shoreline was advanced, on the other hand, on the coast where flood diversion channel was constructed. Flood control projects are introduced considering sediment flow in the midstream area based on practices in field and changes of natural conditions. Field practices suggested that sand bypassing is effective against coast erosion in which sediments are artificially bypassed from the accreting side to the eroding side of the coast.

Furthermore, change in material movement from river basin to seacoast seriously developed water pollution and influenced ecosystem in the sea. Analyses between impact and response are found to be effective against these problems. According to these analyses, it is confirmed that a wide viewpoint of seacoast preservation and a connection between river and coast are very important and necessary to overcome problems caused by changes in natural conditions surrounding the seacoast.

Chapter 3 describes new requirements for coastal management system following change of social conditions during the period of rapid economic growth after the establishment of seacoast law in 1959. Social needs and tides made seacoast managers to apply a wide variety of seacoast prevention methods and seacoast preservation, resulting in adaptive correspondence. However, not only increasing awareness of need for environmental protection in the world but also diverseness in people's sense of value show people that mistaken actions on natural environment and landscape in natural seacoast make serious problems. In the field of seacoast environment accident of oil spills from the Russian tanker Nakhodka occurred in the beginning of 1997. Many accidents frequently caused pollution of beaches by oil spills then. Furthermore, law of promotion of decentralization was enacted in 1995 which accelerated review for institution of government from the viewpoint of sharing functions between central government and local government. About seacoast law, different discussions among committee ask national agencies for clearance between central and local and for management of public domain in seacoast areas. Following national policy, it must be more fair and transparent in seacoast preventions than tradition. As a result, several

problems were identified for seacoast management at that time.

In Chapter 4, the Seacoast Law was finally revised in 1999 in response to transition before and after the constitution of seacoast law described in Chapter 1, changes of natural and social conditions and new social needs described in Chapter 2 and 3. This chapter describes the progress and improvement of revised seacoast law, and discusses implementation and future directions of the new legislation. The new seacoast management system was enacted in 1999 on the purpose of integrated management in harmony with disaster prevention, environment and utilization. The roles shared between central government and local government were prescribed as follows. At first, the competent minister of state shall establish a basic policy for coastal conservation for national land, and prefectural governors will be responsible for drafting a master plan for coastal conservation for each coastal zone. Secondly, in order to achieve the management of seacoast environment by local communities, “public seacoast area” is created. The introduction of the public seacoast area is considered to achieve the seacoast management as public domain, which was one of important unsolved problems left from Meiji era. Thirdly, seacoast like Oki-no-Torishima shall be directly managed by the competent minister of the state. In particular, the third point indicates the achievement of partially wide coastal zone management as the preservation of the territorial integrity. And in the field of management new provisions are determined in order to regulate injurious actions to conservation of coastal environment and enhancement of people’s use. In the sense of shore protection technology, it is remarkable that sand and gravel beaches are defined as one of shore protection facilities and that a new Technical Standard is established on the basis of performance design concept. Thus, an integrated system of coast zone management is established which is considered to be appropriate for the 21 century.

In Chapter 5, conclusion of this thesis is summarized by comprehensively looking over analyses and discussions in the thesis.

Nowadays the implementation of the new seacoast law is progressing. Basic policy for coastal conservation was determined as a fundamental view with philosophy. According to the basic policy, master plans for coastal conservation were determined on 71 coastal zones by prefectural governors. From the planning stage, planners must consult academic experts listening to the opinions of local residents concerned the plan in order to enhance the transparency of the project. Recently, methods of forming agreements on seacoast protection are popular, and methods of daily coastal management are used by municipalities, and regulations against actions effective to coastal environment are provided in all parts of the country. Then new provisions of

revised seacoast law are functional in Japan. As for future directions, it is necessary to develop policies in practical application as more effective constitution. Accordingly, it is preferable to promote systematic collection of coast-related information and to increase information and knowledge of coastal environment, and to achieve mutual coordination among different organizations in order to solve actual problems. Recently in Japan, new legislation concerned with coastal zone management is also determined. Furthermore, integrated coastal zone management over a wide area is legitimately necessary like overseas system in order to solve complicated problems in coastal and ocean zone.