

THE CURRENT STATUS AND THE PROSPECT OF THE MANAGEMENT SYSTEMS OF THE QIANTANG ESTUARY

Yangming WU

Qiantang River Administration of Zhejiang Province, Hangzhou 310016, China

E-mail: wuyangming1223@163.com

Abstract: Lying in the south of the Changjiang delta with favorable geographical position along the middle sector of eastern coast, the Qiantang Estuary is among the areas with the higher standard of urbanization and faster speed of economic and social development. Hence, strengthening the management in this area is of great importance for sustainable development of Zhejiang Province as well as the Changjiang delta. This essay is intended to analyze the current management systems of the Qiantang Estuary and summarize the experience and problems existing in the management in recent decades. From evolution of management in history and present reality, this essay provides the following ideas on new management systems:

1. Put the unified management into practice and make the two types of relations clear, i.e., longitudinal relation (relation between special managerial organs and regional administrative departments in charge of water conservancy) and horizontal relation (relation between water conservancy organs and other departments).
2. Set up the Qiantang Valley Management Committee.
3. Give full play to the function of special management organs.
4. Strengthen legal system and promote administration in accordance with laws.
5. Carry forward modern management modes featuring science, law and modernization of management methods.

Key words: New management systems, Sustainable, Longitudinal relation, Horizontal relation, Modern management modes

1. THE GENERAL SITUATION OF QIANTANG ESTUARY

Qiantang River is the longest river in Zhejiang Province. It is 668 kilometers long and covers an area of 55,558 km². The area of Qiantang Estuary is from Fuchunjiang hydroelectric station to Nanhui County's Luchaogang in Shanghai. It's about 282.4 kilometers long and 23,700 km². It's divided into three reaches: the river flow reach, the transitional reach and the tidal flow reach. Qiantang Estuary is famous for its most magnificent tidal bore throughout the world. The seawall, which was first built in Donghan dynasty about 2000 years ago, is called "the Great Wall in water" for its comparatively long history and the magnificent vigor. It makes a very important function to ensure the development of the two banks' socio-economy.

The region around Qiantang Estuary lies in the favorable geographical position along the middle sector of eastern coasts, being one of the highest standard of urbanization and fastest speed of economic and social development. It plays a very important role in developing the economy in Zhejiang. It makes up 35.7% of the population, 19.7% territory and 39.5% cultivated area of Zhejiang province. It's GDP accounts for 64.1% of the total in Zhejiang. It is the most active economic developing area in Zhejiang Province.

The resources of Qiantang Estuary are very abundant for its tidal flat, fresh water, shipping, tourism, shorelines, aquatic organisms, and tidal energy. With the economic development of

the estuarine area, the further demand in exploiting and protecting this area is put forward. It is a very important problem on how to strengthen the management systems.

2. THE CURRENT MANAGEMENT SYSTEMS OF THE QIANTANG ESTUARY

2.1 THE MANAGEMENT SYSTEMS AND THE CURRENT ORGANS

The organ of the Qiantang Estuary, which was called the Zhejiang General Seawall Bureau, was built in the Qing Dynasty in 1908. It had jurisdiction over the seawalls of Qiantang Estuary. The Qiantang Engineering Bureau was built in 1917. After that, though its name once changed, its organism as management still existed and now it is called the Qiantang River Administration of Zhejiang Province and belongs to the Bureau of Water Resources of Zhejiang Province. It always represents the Bureau of Water Resources of Zhejiang Province to deal with the building and maintenance of the seawalls, flood prevention, emergency works and the daily management works of the waterway.

The promulgation and implement of the *Management Rules of the Qiantang River in Zhejiang* defined the legal situation of the exclusive organ and conferred it the management and administrative powers. The exclusive organ implemented the systems of confining the valley management with administrative management, and the mode of combining the macro-control management with the direct control. The macro-control refers to the organization of drawing, supervision and the implement of the regulation scheme, the control of the sand mining, the prevention of the flood etc. The direct control refers to the water activities. It includes the building, maintenance, and management to the seawalls, which is about 121 kilometers long. And it also includes the examination and approval of engineering projects related to the water area and dykes, and the management of sand mining. The Qiantang River Administration sets up some subordinate management organs between the banks of Qiantang River, such as the management offices in Hangzhou, Haining, Yanping and Xiaoshaoyu. These offices manage the river sections downstream of Wenyan and important tributaries directly.

2.2 THE CURRENT OPERATING MECHANISMS

The current operating mechanisms has been reformed in recent years. Following the principles of changing the style but not the systems, the mechanisms has realized to separate the construction from the management, and the management from the supporting by the government. It's also realized the enterprise orientation without changing its system. The organization is still a unique institution. It not only undertakes the water administrative function but also is in charge of building, maintaining, and designing of seawalls. Before 2000, it also undertook a large number of scientific research tasks. It's directly subordinated to the Hydraulic Department of Zhejiang Province. At present, it includes 8 basic units and 298 staff at their posts. Its main finance resource is the expenditure giving by the Department of Finance in Zhejiang and the income of the enterprises that belong to it.

3. THE MAIN MANAGEMENT EXPERIENCE OF THE QIANTANG ESTUARY

3.1 THE SETUP OF QIANTANG SPECIAL MANAGEMENT ORGAN IS THE OBJECTIVE CHOICE OF QIANTANG RIVER MANAGEMENT

The Qiantang Estuary consists of 5 region-grade cities and 14 county-grade cities in Zhejiang Province and part of Shanghai area. Along the banks there are over 20,000,000 residents in Zhejiang area and Suzhou and Hangzhou were once given the name of "Granary for all" by previous dynasties. The Qiantang Estuary is very wide and shallow with strong tides and high sediment content, so the main stream shifts frequently and shoals rise and fall constantly. The highest tide can be over 8 meters higher than the plain area along both banks.

Hence, if the seawall be ruined, disastrous consequences are inevitable. Because of the importance of Qiantang seawall, early in the Song Dynasty such organs as dyke-guarding Command/Department were engaged in the river management. From the Ming and Qing Dynasty, the Republic of China to the foundation of the People's Republic of China, the traditional system of special management still exists today. Without such special management organs, it's impossible to manage the Qiantang River featuring such disasters as frequent floods, tides and typhoon. In recent decades, great benefits have been gained by combining river regulation with land reclamation. If there is no supervision and control from special management organs and each administrative area goes his own way, it will be impossible.

3.2 SPECIAL MANAGEMENT ORGANS DIRECTLY IN CHARGE OF IMPORTANT RIVER/SECTION AND CONTROLLED PROJECTS

The river sections below Wenyan, which are influenced by floods, tides and typhoon, are important sections of Qiantang River. The Xijiangtang dyke is a safeguard of Xiaoshao Plain. The seawall of Binjiang section is a safeguard of Hangzhou city. The old seawall of the north bank of Haining and Haiyan is a safeguard of Hangjiahu Plain. Long groins at Laoyanchang and Meinushan are controlling projects to guide the main channels. History shows that, in the recent decades, the special management organs' administration of the important seawall construction and the protection of controlling projects ensured the safety of Qiantang Estuary and its economic development.

3.3 STRENGTHEN LEGAL SYSTEM AND PROMOTE ESTUARINE ADMINISTRATION IN ACCORDANCE WITH LAWS

Since the promulgation and implement of the Water Law of PRC and the Waterway Management Rules of PRC, Zhejiang province carries forward the Zhejiang Province's Methods of actualizing Water Law of PRC and the Zhejiang Province's Methods of actualizing Waterway Management Rules of PRC. Qiantang River, as the mother river of Zhejiang people, plays an important role in the economic development of Zhejiang Province. In order to administrate and regulate Qiantang River properly, the Standing Committee of People's Congress in Zhejiang promulgated Management Rules of the Qiantang River in Zhejiang in 1997 and brought it into effect in April 1st, 1998, which was the first legislation for a single river nation wide and promote the estuarine administration in accordance with law.

4. THE MAIN PROBLEMS EXISTING IN QIANTANG ESTUARY ADMINISTRATION

4.1 THE FUNCTIONS OF THE SPECIAL QIANTANG RIVER ADMINISTRATIVE ORGANS HAVEN'T BEEN FULLY ACTUALIZED

Though *Management Rules of the Qiantang River in Zhejiang* authorized special management organs administrative power and executive power, the powers are limited to a certain degree. The special management organs are not involved in developing, exploiting and protecting water resource; managing water usage; developing, exploiting and protecting beach and shoal resource; or the administration of seawall construction which is in the charge of regional water conservancy organs. Therefore, some regional organs are not willing to have special management organs inspecting their work. One of the difficulties the special management organs facing is the supervision of estuary regulating and designing work. Limited power is one of the reasons why regional water conservancy organs surpass special management organs. Another reason lies in historical background. Before the rename of Provincial Qiantang River Administration in 1992, it was an organization of projects planning, maintenance and management and took it for granted that special management organs were in charge of technical supporting. Though it changed from a project management organ into a

waterway management organ after *Management Rules of the Qiantang River in Zhejiang* took effect, its main responsibilities remain unchanged. So Provincial Qiantang River Administration didn't successfully transformed into a waterway administrative organ. Above are some of the reasons affecting the actualizing of the functions of special management organs.

4.2 TO SAME EXTENT, THE INHARMONIOUSNESS OF MULTILATERAL ADMINISTRATION OF RIVER RESTRICTS THE ECONOMIC DEVELOPMENT OF THE RIVER AREA

Qiantang River is a multifunctional river, it can prevent flood, resist tide, irrigate, generating electricity, providing shipping, supplying water, attracting tourists and breeding aquatics. When Qian Zhengying, the former vice chairman of National Consultative Conference, inspecting Qiantang River, Qian emphasized that "the planning, administration and implement work of developing, exploiting and protecting Qiantang River must be unified. Developing must be combined with regulating and protecting." However, as the environment protecting organs are in charge of water quality and water pollution; the traffic organs are in charge of shorelines and shipping safety; Sea organs are involved in the administration of estuarine areas; cultural relic organ are involved in the administration of the ancient seawalls, responsibilities of different organs overlap, which makes the multilateral administration of Qiantang River still exist. Some of these organs only solve problems from their points of view, thus the inharmoniousness of multilateral administration may influence the economic development negatively.

4.3 THE INTEGRATED DEVELOPMENT, EXPLOITING AND PROTECTION MUST BE PLANNED, REGULATED AND ADMINISTRATED COORDINATELY

Qiantang Estuary area is rich in natural resources. As the economy in Zhejiang transfer from "Westlake period" to "Qiantang River period" and thus Qiantang Estuary becomes a promising area of economic development in China. The economic development in this area calls for new standards of the integrated development, exploiting and protection. For example, how to enhance the flood preventing ability, how to make further use of shoals, fresh water, shipping, shorelines and other touring resources are some of the challenges we currently face. Fortunately, the provincial government understood fully the importance of integrated development of estuarine area, and promulgated *The Answer to the Report of Integrated Plan of Qiantang Estuary* in 2002, which marked the beginning of integrated regulating and planning of the estuary. Meanwhile, a corresponding integrated administrative organ is required in order to maximize the integrated benefits through unified regulation and development.

5. THE PROSPECTS OF THE CONSTRUCTION OF QIANTANG ESTUARY ADMINISTRATIVE SYSTEM

5.1 THE UTILIZATION OF WATER RESOURCES AND THE MAINTENANCE OF WATERWAY IS INSEPARABLE, THUS UNIFIED ADMINISTRATION SHOULD BE STRENGTHENED

Most foreign countries take the relationship of water, earth and environment into consideration when planning the integrated administration of water. The generalized definition of valley management refers to the development, exploiting and protection of the water and earth resources in the valley, as well as the integrated administration of the ecologic system in the valley area. Therefore the administration of Qiantang Estuary should be unified in accordance with the definition of valley. Generally speaking, a valley is a unit. Water

quality and quantity, surface water and groundwater are coexisted parts, which means changes occurred to one part may affect other parts. The development and exploiting of different banks, sections and parts (main section or a branch) also affect one the other. Divided administration does not fit the integrity feature of river. If every administrative organ only aims its own benefits, regional conflicts must be more and more fierce. We can imagine that divided administration and double management cannot meet the requirement of river management, and every administrative organ's focus on its own benefits can only lead to more and more fierce interregional conflicts.

5.2 SET UP AND PROMOTE MANAGEMENT COMMITTEE SYSTEM OF QIANTANG ESTUARY

According to the great importance of Qiantang River and the practice of the estuarine integrated development exploiting and protection, setting up a Qiantang Estuary management committee (we can promote a Qiantang River valley management committee later) made up of people from corresponding departments in provincial government, regional government and special management organs is advisable. This organ, as the administrative organ of estuary management, is mainly in charge of mediating estuary regulation, solving the problems arising from developing and exploiting resources, establishing management rules, inspecting and checking management work and executing the powers authorized by provincial government. The departments that handle affairs in this organ should be Qiantang River special management organs. Taking the importance of Qiantang Estuary into consideration, director of the estuary management committee can be one of the vice governors, vice directors can be the principals from department in charge of planning and provincial department in charge of water administration.

5.3 GIVE FULL PLAY TO THE FUNCTIONS OF SPECIAL MANAGEMENT ORGANS

The natural feature of water determines that it has a notable valley feature, so flood also has a valley feature. Therefore the management of Qiantang River should be in accord with the nature of water, systematic and integrated management should be applied to every valley, which is regarded as a management unit. The management of Qiantang River waterway must be strengthened in the following aspects: (1) the workout, supervision and implement of integrated planning and other specific planning involved; (2) the unified management of water resource in Qiantang River valley; (3) the supervision of setting up and implement projects of flood preventing and typhoon preventing; (4) managing, guiding, and mediating the regulation and development of Qiantang estuary and shoals; (5) management and protection of important river sections, dykes(seawalls) and shorelines as well as the examination and approval of the construction projects within the waterway area; (6) harmonizing the water affair conflicts among regions and departments; (7) the water and soil conservation project in the valley area. In order to enhance the management of Qiantang Estuary, we should make full use of the functions of the special management organs and build up a management system, which truly combine valley management with regional management. In this way, the sustainable development of economy in Zhejiang province will be promoted.

5.4 STRENGTHEN LEGAL SYSTEM AND PROMOTE ADMINISTRATION IN ACCORDANCE WITH LAWS

Management rules of Qiantang River in Zhejiang, as the first regional law of a single river nation wide, confirms the important role of the Qiantang River, the mother river of Zhejiang people, plays in the economic development of Zhejiang province. This law also opens a new era of managing and regulating Qiantang River. However, with the promulgation of new *Water Law*, *Management Measures of Maritime Space Usage* and other state laws, the

overlapped fields of department laws and the deficits arising from the implement of *Management rules of Qiantang River in Zhejiang* become more and more obvious. Therefore, according to the state laws, rules and the current situation of Qiantang River, a committee made up of people from water conservancy, environment protection, traffic and ocean departments should be set up to frame a new *Management rules of Qiantang River in Zhejiang*, at the height of sustainable utilization of Qiantang River and sustainable development of economy in Zhejiang. The departments involved should actualize their corresponding functions, as to ensure the sustainable economic development in Qiantang River area.

5.5 CARRY FORWARD MODERN MANAGEMENT MODES FEATURING SCIENCE, LAW AND MODERNIZATION OF MANAGEMENT METHODS.

Carrying forward modern management modes featuring science, law and modernization of management methods is a necessary path to modernize the waterway management. Featuring science refers to handle affairs in strict accordance with objective rules. The management of water should not only follow the natural order of water but also follow the rules of market economy. Only in this way, can proper policy of water management be established and executed. Featuring law refers to make the management methods, which tally with sustainable development standardized and legislated, i.e. these methods should be written into laws. Featuring modernization of management methods refers to using new ways (decision-making system of flood preventing, geographic information system of sea walls), new hardware (computer, auto control devices) and new information gathering system (distant detection, inspecting and control, distant data detecting and sending) as basis to strengthen integrated applying capabilities and improve the management level and efficiency of Qiantang Estuary.