



Jiangsu coastal highland reclamation and its wetland ecological construction—a case analysis of the Tiaozini reclamation project

Meixiu Yu (1,2) and Xianghong Xu (2)

(1) College of Hydrology and Water Resources, Hohai University, Nanjing, China (397378450@qq.com), (2) Jiangsu Coastal Development and Ecological Construction Engineering Center, Nanjing, China (13002526138@163.com)

Reclamation is one potential solution for the increasing demand of new land for living and development. In past centuries, many coastal countries, such as the Netherlands, UK, Japan, South Korea and Singapore, had exploited extensively sea enclosing and reclamation for defense against storm surges, agricultural and industrial development, as well as for coastal city expansion along the coast. China has continuously reclaimed coastal sea areas from the 1950s. With rapid economic development and increasing population in coastal areas during recent decades, reclamation has been regarded as an effective measure to resolve the land shortage as cities and industries expand, particularly in South-East coastal areas. Jiangsu province, located in East China, has a similar amount of land territory area to the Netherlands, however, its population is almost fivefold instead. Since its coastal area generates large amounts of tidal flat resources due to its unique hydrodynamic and geomorphic conditions, coastal reclamation plays a vital role in guaranteeing the food security for the Jiangsu Province or even the whole nation. The Tiaozini Reclamation Project (TRP), located between $N32.720^{\circ}$ - 32.882° , $E120.894^{\circ}$ - 120.969° , in Jianggang county of Jiangsu coastal region, with an area of 6,746ha, was reclaimed along the prograding muddy silt coast in 2012. It should be noted that the TRP was reclaimed from theoretical bathymetrical datum of about 4.6m. It is estimated that the shoreline moves towards the sea at a rate of 100m/year and the tidal flat raises at a rate of 5~10 cm/year respectively because of the external tidal flat being continually prograding and drying. After finishing reclamation, the TRP develops with nature: for the dried tidal flat high land, developing ecological agriculture after integrated soil improvement with reducing salt and cultivating fertilizer; for the drying tidal flat, developing ecological fishery by increasing artificial wetland area; for lower tidal flat, developing more suitable water bird habitats by reserving natural ecological wetland and restoring affected wetland. The TRP is attempting to be built as an ecological cultivation demonstration integrated with ecological restoration, science research and education, and ecological leisure respectively. To better protect and restore tidal wetland, and for sustainable utilization and management of wetland resource, Jiangsu coast development group CO., Ltd (it is in charge of the TRP reclamation and development), Hohai University and Deltares signed a triple cooperation strategic framework agreement, co-building the Jiangsu Province coastal development and ecological construction engineering center. Besides, routine surveys in ecological, hydrological, topographic data in/around the TRP are also carrying out as well as the ecological compensations.