ECOLOGICAL PROBLEMS ON THE URBAN DEVELOPMENT IN THE TAIHU LAKE REGION OF SOUTHERN JIANGSU

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ABSTRACT: The Taihu Lake region in southern Jiangsu is one of the regions with flourishing economy and the highest level of urbanization due to favourable natural conditions and socio-economic foundation. However, there emerge a series of urban ecological problems on continuous stretch of cities and towns, a vague division of urban functions, ground subsidence, serious pollution of atmosphere and waters arising from dense population, irrational distribution of industry, backwardness of municipal engineering facilities, and inexperienced scientific management of water resources. In order to improve the urban eco-environment in this lake region, we should work out an overall regional eco-environmental programme, perfect the urban economic set-up from the requirements of urban material circulations and energy exchanges, and finally put into practice the urban functional regionalism, so that the Taihu Lake region in southern Jiangsu has not only a higher economic benefit, but also a beautiful and comfortable eco-environment.

KEY WORDS: eco-environment, material circulation, environmental division, coordination balance

In southern Jiangsu, the Taihu Lake region covers three municipalities: Suzhou, Wuxi and Changzhou and ten counties: Jiangyin, Shazhou, Changshu, Taicang, Kunshan, Wuxi, Wujian, Wuxian, Wujin and Yixing, with a total land area of 15,000 square kilometers and a population of roughly 11,000,000.

Located close to such metropolises as Shanghai, Nanjing and Hangzhou, the region is flourishing in industrial and agricultural production, thanks to the favorable natural and economic conditions and the convenient land-water communications. However, along with the steady expanding of urban sizes and the growth of small cities and towns, the areas un-
der cultivation have been rapidly on the decrease. For this reason, the contradictions between population and land in this region are becoming increasingly intensified, whereas due to the densely urban population, the irrational industrial distribution and the congested traffic conditions, environmental quality is sharply on the decline and the urban eco-environment is deteriorating with every passing day. Hence, it is of vital significance in the harmonious development of regional economy to summarize the ecological issues and predict the ecological changes possibly emerging in the process of future urban development.

I. BASIC NATURAL AND ECONOMIC FEATURES IN THE TAIHU LAKE REGION

As cities or towns are the focal point in the specifically regional economic development as well as the organic whole of dynamic development formed under a high concentration of a variety of substantial elements, they are, however, restricted by such factors as natural conditions and social economy. Therefore, to analyse natural and economic conditions is the prerequisite for the study of urban ecology.

1. A Region Typical of Rivers and Lakes in the South of the Lower Reaches of the Changjiang River, Characterized by Mild and Moist Climate, Abundant Rainfall and Dense River Networks

In this lake region, the annual average temperature is about 15-16°C; the monsoon circulation constitutes an essential factor to bring the climate of this region under control. In winter, the wind direction prevails to the north and to the south in summer, with the dominant wind direction for an average year being to the southwest. The annual average precipitation is about 1,000-1,400mm; summer (from June to August) is a season when the precipitation is the most abundant throughout the year, amounting to 35-40% of the whole year, with rainstorm being concentrated to cause waterlogging in some localized areas, especially in the city proper.

Being a big dish-like depression lying at the south bank of the Changjiang River Delta, this region is dense in the river network, widespread in lakes and marshes, well-known as a region of rivers and lakes downstream in the south of the Changjiang River. Here the water area distributed as lake groups covers up to 5,000 square kilometers, occupying 33% of the total land area and constituting the key to keep the balance of water storage within the region. It was only estimated from those larger lakes that the water-storing capacity is roughly 6.3 billion cubic meters, stable in water level, providing plentiful water sources for navigation, and water supply for industry, agriculture and the urban inhabitants. In the whole region, the navigable water run total more than 5,300 km, accounting for one-fourth of those in the whole province. But owing to the smooth terrain, the rivers flow in an indefinite direction. For example the river, 42 km long, from Wuxi to Suzhou, its fall of water level is only 28 cm, and its hydraulic grade is nearly 1/150,000.