THE SYSTEMATIC STRUCTURE OF THE ENVIRONMENT AND RESOURCES OF THE HUANGHE RIVER DELTA

Xu Xuegong

Department of Geography, Peking University, Beijing 100871, PRC

(Manuscript was received in December 1995)

ABSTRACT: On the basis of characteristics of the physical geographic environment and natural resources of the Huanghe (Yellow) River Delta, this paper studies the integral structure of the environment and resources system of the region with the Interpreting Structure Model (ISM). This paper chooses 9 environment factors, 7 superior resources and 6 disastrous or restrictive elements to make the structure matrix separately. And by using the ISM to tidy up the relations among the elements, three system structure graphs are obtained. Then they are integrated into a great environment-resources system of the Huanghe River Delta. The structure of the environment and resources system is an entirety. It should be studied and perfected with a comprehensive and systematic view. In regional development, the resources exploitation often occupies the key position. In the Huanghe River Delta, oil and land resources should be exploited first. This can bring about the comprehensive development of other resources. The region will finally be built into an oil energy base, an oil and salt chemical industrial base and bases of agriculture, animal husbandry and fishery. In the territorial management of the Huanghe River Delta, great attention must be paid to the root, middle links, result and appearance which constitute the resources and environment of the region. The harnessing of the Huanghe River Delta should focus on the river’s mouth, ground water, saline-alkali land and ecological fragility. The final goal is to transform and overcome the bad conditions to promote a good cycle of the environment and resources system.

KEY WORDS: Huanghe River Delta, natural resources, interpreting structure model

The Huanghe River is a river with the highest sediment concentration in the world. Its mouth is a type of weak tidal, continental and wandering river mouth, which makes the course of the river mouth part extend rapidly and change frequently, and consequently a rapidly-growing delta has come into being. It is unique
both at home and abroad.

The Huanghe River Delta (HRD) has rich resources and is being developed on a large scale. So it is very necessary to gain a clear idea of the systematic structure of its environment and resources. On the basis of analyzing the characteristics of environment and resources in the HRD, this paper intend to make the complicated relationship between each element clear, set up an integral concept of the systematic structure of environment and resources, and discover the crux of regional development and territorial management by means of Interpreting Structure Model (ISM).

I. CHARACTERISTICS OF THE NATURAL ENVIRONMENT

1. Continent Environment

The HRD located in the northern part of Shandong Province of China, is on the south beach of Bohai Bay and the west beach of Laizhou Bay. Its environmental characteristics are as follows:

1) In geologic structure, this region is controlled by Neocathaysian NE NNE and NW structural system, belongs to a block indentation basin of Mesozoic and Cenozoic eras. Because of subsidence over a long period of time, the Quaternary stratum reach to a thickness of more than 400 m, and gradually becomes 100 m eastward.

The HRD's sediments formed in the later stage creates a special landform. The HRD body consists of three parts: upper delta plain, lower delta plain and subaqueous delta. The upper delta plain is formed by changes of the Huanghe River tail course. It can be divided into two delta systems, the modern HRD taking Ninghai as top and the current HRD taking Yuwa as top, the latter's top shifts lower superposes the former. Now the Huanghe River flows through the middle part of two delta systems. The high lands of paleochannels spread like palms from the two tops of deltas. The flat lands and low-lying lands are between every two high lands. There are also burst fans and back-river hollows along the Huanghe River. The lower delta surrounds the upper delta like a belt. It is formed by the alternate action of continent and ocean. Its landscapes are coastal beach and woodland. The subaqueous delta is shallow sea environment. If seen vertically, the whole delta is like a lozenge with a handle lying on the sediments of ancient delta and shallow sea.

2) The scope of the region is from 118°E to 119°E, and from 36°N to 38°N. It belongs to the warm temperate semi-humid continental monsoon climate area. The sunshine hours are 2,590—2,830 h/a. The amount of solar radiation is