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UNITED INTERNATIONAL CENTRAL CITY: A NEW SPATIAL ORGANIZATION MODEL IN TUMEN RIVER ECONOMY DEVELOPMENT ZONE

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ABSTRACT: This paper puts forward a new conceptual idea on constructing an international central city in the Tumen River Economy Development Zone (TREDZ) on the basis of analysis of the superiorities and problems in developing city, and from the view point of present social, economic and natural conditions in this area and the background of Northeast Asia. The united international central city is the best distribution model not only in its polycentric spatial structure but also in organizing form. Its feasibility and practicability are thoroughly proved from various aspects including urban planning principles, comparison of port cities, special characteristics of cooperation in TREDZ, and natural, social, cultural factors etc.

KEY WORDS: united international central city, spatial structure, spatial organization, Tumen River Economy Development Zone

I. INTRODUCTION

Since 1980, Northeast Asia has experienced a rapid regional economic unification against economic globalization. The Tumen River Area (TRA) becomes the focus of the Japan Sea Rim's Economy Zone due to its considerable locational potentiality. The profitable geographic situation makes this area to be an important conjunction point for resources and economy exchange, vertical and horizontal division of labor etc. (Chen, 1995). It is expected that TRA will grow to be a very active region concentrating and dispersing resources, laborforce, funds and technology around Northeast Asia. On 24 October 1994, UNDP (United Nations Development Programme) announced its magnificent developing plan to the world, that is, it would organize and coordinate relevant countries jointly to transform Tumen River Delta into an international trade zone envisaged as the "future Rotterdam of the Far East". The great project will cost US$ 30 billion in future 20 years, and the central goal is to construct an international port

city in Tumen River Economy Development Zone(TREDZ), which covers about 1000 km^2 borderland of three littoral countries (China, Russia and North Korea). On 6 December 1995, the governments of 5 countries including China, Russia, North Korea, South Korea and Mongolia, signed a series of joint agreements and memorandums. From that moment, developing Tumen River delta became multi-national action. Nevertheless, many scholars realize that a full-scale development is an arduous time-wasting project, the reasons are as follows: there is a very intricate political and economic network covering this area; all necessary regional infrastructures are almost vacant; by now, there isn't a systematic cooperating and developing plan; no available model can be used for reference to make a framework of policy and legislation that represents common benefits and can be operational in every aspect; also a lot of pre-researching works for regional development need deepening. Therefore, the paper is mainly about how to construct the international central city in TREDZ.

II. CONDITIONS FOR URBAN CONSTRUCTION AND DEVELOPMENT IN TREDZ

1. Superior Conditions

1.1 Superior geographic situation

TREDZ is located at the lower reach of the Tumen River, it covers the borderland of China, Russia and North Korea, and faces the Japan Sea, also it is at the geometrical center of Northeast Asia. As a result, the composition of natural, social and economic factors is very profitable to form a large city and to sustain it to grow. In long-time view, it is the growth point of international city, and an ideal place for global trade. TREDZ is expected to become a new international trading center radiating whole Northeast Asia.

1.2 Integrated transport network

In the view of present condition and future tendency, TREDZ could develop an integrated transport system including water, land and air transport (Ye, 1993). Especially the new land bridge if eventually constructed linking TREDZ to Europe will shorten the existing Eurasia land bridge via the Trans-Siberian railway at least 1000 km, and it will promote the development of cities along railway line.

1.3 Profitable water resources

In Yanbian Korean Autonomous Prefecture, there are 487 big and small rivers, they produce 13 billion m^3 of runoff annually. If adding groundwater, the prefecture can provide 7.5 billion m^3 of fresh water. So, in the near future, water resources will be enough to sustain economy and residents, but if population increase to 11 million calculated by UNDP, water shortage will become a serious problem, even though above equilibrium of water supply and demand doesn't include that of Russia and North Korea for lack of their basic information.

2. Problems

2.1 *Fragile infrastructure and no large cities*

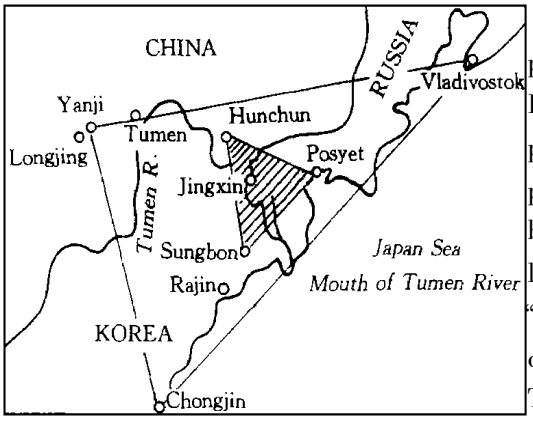

Fig. 1 Sketch map of "Big Triangle" and "Small Triangle" in TREDZ

Before the 1980s, this area is one focus of political and military conflicts in Northeast Asia. For state defense and safety, each side hardly planed and built any project for economic purpose, so urban infrastructure construction lagged behind a lot. As to population, there isn't a large city with population more than 1 million in "Big Triangle", and there isn't a medium-sized city with a population 0.2 million a in "Small Triangle" (Fig. 1). Especially, in "Small Triangle", the population of Hunchun is about 120 thousand, that of Sungbon is about 50 thousand, and Posyet is less than 10 thousand.

2.2 *Insufficient land space for city and infrastructure*

According to the natural geographic situation in the mouth of the Tumen River, it is difficult to find a ideal place for building a solo-centric international metropolis. The best place of Jingxin Basin is about 100 km^2, and it is separated by mountains with Russia in the north and east, and by the Tumen River with North Korea in the south. In such a narrow flood basin, apparently it is impossible to construct a big city with subsidiary infrastructure such as airport, railway station and river dock etc. Except for these, Jingxin Basin is very low, average altitude is about 5 m above sea level, also its engineering geologic, hydrologic and meteorological conditions are not definite.

2.3 *Huge vacancy of construction funds*

The Tumen River Area and its surrounding area are less-developed areas so that they have less capacity to fulfill self-development. Also it is suspected that UNDP could raise US$ 30 billion in future 20 years. According to a rough calculation, the money only spent on regional infrastructure and urban facilities such as railway, highway, seaport, airport and power station, amounts to US$ 55 billion (Wang, 1993). So the fund vacancy for full-scale construction will be a huge figure.

III. CONCEPTION OF UNITED INTERNATIONAL CENTRAL CITY IN TREDZ

In the light of a new agreement signed in December 1995, TREDZ covers an area of 15 thousand km^2 including whole Yanbian Korean Autonomous Prefecture (China), the north of Chongjin (North Korea), the south of Vladivostok (Russia). According to UNDP's planning

goal, TREDZ will be developed to an international agglomerate city centered by "Small Triangle" and supported by "Big Triangle" (Wang, 1993). This international urban system is characteristic of protruding function, feasible structure, concentrated spatial distribution.

In the framework of international urban system, some scholars take generally similar conceptual idea: in the Jingxin Basin and the riparian area, each country (China, Russia and North Korea) puts up a piece of land without violating territory sovereignty, and jointly build a super international city with 2.5 million population in the far future (Wang, 1993). But regretfully, this plan seems inoperable because the huge project is related with many aspects.

1. Key Problems Affecting Development of TREDZ

1.1 Developing model

Developing model of TREDZ can be classified into 3 types: multi-national cooperation, bilateral cooperation and self development (Chen, 1993). In fact, each model will exist in different stages of whole developing process. At beginning, the third one, or mix of the third and the second models will be welcome, but at the late stage, the first will be the leading model, namely, many aspects will come together and form a tight cooperating relationship to develop this area. Therefore, a flexible and elastic spatial organizing form is in need to correspond with different developing models through their transition process. Otherwise, an unreasonable urban distribution plan (such as solo-centric model), not only can't contrast to different developing model, but also is harmful to the regional urban system.

1.2 Central city function

The central city of TREDZ should have the role to organize the whole international urban system effectively, so its urban nature, size and spatial structure need to fit to its function. For improving regional urban system, the focus problem is to coordinate relations between urban development and distribution among cities in "Big Triangle" and "Small Triangle". At present, three cities of "Big Triangle" are bigger and more developed than that of "Small Triangle" (Fig. 1); but in long run, "Small Triangle" will develop to be focus of TREDZ, cities in it will hopefully grow bigger than that of "Big Triangle". During this process, it is necessary to grasp the opportunity to fulfill principal function transition from "Big Triangle" to "Small Triangle", and make a better division of urban function.

1.3 Large-scale infrastructure

Large-scale infrastructures have macroscopic strategic meaning to a region so that macro-control and feasible distribution are very necessary. Therefore, when planning a large infrastructure, any decision making on the place, alignment and size of a project, must be based on a comprehensive analysis as well as any new requirement of urban development. So, a scientific decision and a reasonable distribution model can avoid any uneconomicalness generated by repeated construction or low benefit, additionally it has positive meaning in protecting environment.

2. Conception of United International Central City

United international central city refers to the megalopolis which consists of several urban units which are subordinate to different countries in a bordered area, all urban units jointly act as the role of the international central city that is characteristic of scattered spatial form. Therefore, the united international central city is believed to be the best spatial organizing model for promoting the development of TREDZ according to following analyses.

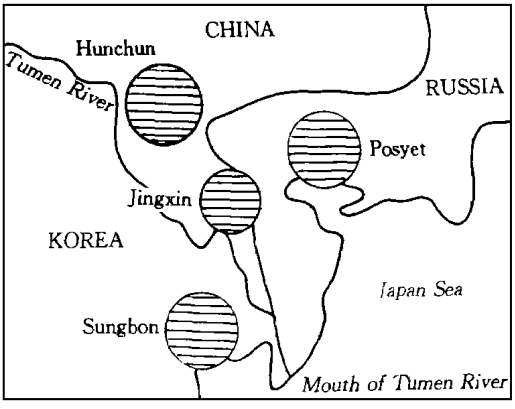

Fig. 2 Spatial structure of the united international city in TREDZ

1) This distribution model is profitable not only in spatial structure but also in spatial organizing form. The future international central city will be composed of 4 units: Hunchun, Jingxin, Posyet and Sungbon (Fig. 2). The direct distance from central unit Jingxin to the other three units is not more than 50 km. With each part expanding, the distance from one unit to another will be shorten considerably. If supported by advanced transport and communication networks, a very convenient and rapid linkage will be established among the units.

2) In the prospective international city, each unit will act a special role. But at present, except that Hunchun has some urban functions, the others are small in size and hardly have urban functions. In the future, each unit will be an organic part of the international city, except for similar basic urban functions. With TREDZ developing, each unit will have some special principal functions different to each other, by then functional division will become reasonable and clear. Jingxin, in the center of "Small Triangle", acts as CBD of the megalopolis, it has strong financial, commercial and traffic functions; Hunchun will develop highly modernized export-oriented processing industries, and become a comprehensive functional center and the hub of railway transport; Posyet and Sungbon mainly develop export-processing industry and commercial industry, also both have strong land-sea transport function. Additionally, all units need to develop tourism industry.

3) The developing schedule is connected with developing model and effort of each side. The multi-national cooperation is wanted by each side, it will come into being in far future. Actually, at the beginning stage, every unit probably develops some similar functions for the sake of no integrated planning, but by the late stage, functional division will become more feasible, urban nature of each unit will become more outstanding.

4) On the basis of permissible environmental capability of "Small Triangle", and in conformity with efficiency demands of scale economy and agglomerate economy, a proper population scale is limited to 3 million in the four units. However, at present, even in "Big Trian-

gle", there are only 3 million people, and about two-thirds of that lives in the Yanbian Korean Autonomous Prefecture; the total population in "Small Triangle" is just 0.2 million. In the view of future immigrant supply potentiality, the population scale of Hunchun unit probably keeps lager than the other three units, so prospective population of each unit is planned to be: 1 million in Hunchun, 0.5 million in Jingxing, 1.5 million in Posyet and Sungbon

IV. FEASIBILITY AND PRACTICABILITY OF UNITED INTERNATIONAL CENTRAL CITY

1) Polycentric distribution model represents up-date tendency of urban spatial structural form from centralized to dispersed distribution(Song, 1985). With urban expanding, original central functions are divided and moved to new centers. The multiple new small centers integrally act as the old big one. As to spatial form, generally speaking, united form and polycentric distribution form are flexible and elastic so that they are profitable for urban further development. Therefore, the united international central city of TREDZ not only confirms with up-date urban planning principle, but also skillfully coordinates intricate conflicts in various aspects.

2) Worldwide successful cases prove the planning model practicability. The most famous example is Ranstad of the Netherlands(Shen, 1980). Ranstad is an agglomerate urban area which consists of a number of large, medium-sized and small cities and towns, its spatial form looks like a huge "hoof-shaped magnet", it spans 48 km from one side to the other, its perimeter prolongs 170 km with an opening mouth in the southeast. In the opening mouth there is an agricultural zone called "green heart" which has great ecological function. Early in the 1970s, in the Ranstad agglomerate urban area, there was totally 4.4 million population, which was one-third of the population of Netherlands. Among them, there were 3 large cities with 0.5–1.0 million population respectively, 3 medium-sized cities with 0.1– 0.3 million population and a number of small towns scattering along seaside. By now, Ranstad is the fourth megalopolis in Europe only next to London, Paris and Lain-Rule megalopolis. Except for Ranstad in the Netherlands abroad, many Chinese port cities are typical of polycentric distribution features. Probably, Hong Kong is a typical polycentric city, the other port cities such as Dalian, Tianjin, Qingdao etc., also have the similar features(Zheng, 1991). Therefore, all these port cities mentioned above can provide lots of reference materials for the future city in TREDZ.

3) The polycentric spatial structure expands broad space for city development, environmental protection and ecological construction. It is researched that most rivers in this area are seriously polluted, and the atmospheric layer above Jingxin Basin is easily turned to be inversion layer if polluted, therefore, in order to make a balance between environment and economy, the annual industrial growth rate should be controlled under 20 percent (Zhu, 1996).

4) The united megalopolis consists of many "green belts" or "green sphenic zones" which act as "buffer zones" to improve ecological and environmental conditions by restricting urban

expansion. So, from the beginning, this spatial organizing form could avoid some probable urban problems to a satisfactory extent, in reality, this spatial form is a kind of sustainable spatial structure.

5) The united international central city seldom touches upon state sovereignty problem, so it has great convenient both in self-management and in coordination among the four units.

6) The plan depicts a clear blue-print to stimulate multiple aspects participating development process, so it will promote the great project remarkably.

7) The united city opens up a broad space for worldwide participants because of the industrial diversity and varied preferential conditions, so that there are many opportunities for international investors.

Finally, each unit could make full use of present infrastructure and municipal facilities, so it can relax funds shortage at present.

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