

# REGIONAL EFFECTS BY THE CONSTRUCTION OF SUZHOU INDUSTRY GARDEN

Lu Yuqi(陆玉麒)

*Department of Geography, Nanjing Normal University, Nanjing 210097, P. R. China*

She Zhixiang(余之祥)

*Nanjing Branch, the Chinese Academy of Sciences, Nanjing 210008, P. R. China*

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**ABSTRACT:** Suzhou Industry Garden is one of the few areas which attract foreign capital on a large scale in China. Its construction will bring effects on regional economy obviously. First, the garden as an important part of the construction of high-tech industry belt between Shanghai and Nanjing will become the radiating source and core area in the course of development of high-tech industrialization in the southern area of the Changjiang (Yangtze) River. Second, the garden will influence the development of Taicang City, the door port city of Suzhou, and the development of peripheral villages and towns as well. As Taicang City is being constructed as the assistant center for International Shipping Centre in Shanghai, the structure of double nucleus by which Suzhou and Taicang could benefit from each other will come into being. Third, the garden which has been formed as the unique area for introducing foreign managing mode as a whole will be made the base for demonstration and using international economic management experience for reference.

**KEY WORDS:** Suzhou Industry Garden, regional effect, urban development

## 1 ADVANCING OF THE QUESTION AND CONSTRUCTION BACKGROUND OF SUZHOU INDUSTRY GARDEN

Perrox gave special attention to the effect of important items and construction of infrastructure when he discussed the production of growth pole (Li, 1988). Lots of domestic scholars have also probed into this, such as the analysis on regional reaction of Three Gorges Project, Jing-Jiu (Beijing-Kowloon) Railway and Jiangyin Changjiang Bridge (Zheng, 1987). Compared with other subjects, Suzhou Industry Garden can be called a super project according to its abstracting capital scope as much as US\$ 20 billion. Jing-Hu (Beijing-Shanghai) High-speed Railway which will begin in 2000 is one of the four over-century projects, which contains repairing jaws of the Changjiang (Yangtze) River, moving water form South to North, Shen-Huang (Shenmu-

Huanghua) Railway and Jing-Hu Railway, however its total investment will come to only 100 billion yuan (RMB) (Zhang, 1993). Suzhou Industry Garden is quite different from common projects. It maintains various sort of projects and has multiple functions. Its regional reactoin differs from that caused by common projects. Till present there is no comprehensive analysis on regional reaction by this kind of project in China (Yang, 1987). So the analysis on regional reaction by Suzhou Industry Garden will bring theoretic significance and application value undoubtedly.

Suzhou Industry Garden developed by China and Singapore officially is located by Jinji Lake to the east of Suzhou City. It was ratified by the State Council on February 11, 1994. The construction of Suzhou Industry Garden will be divided into three phases. During the first phase it will be built as a central area for modernized industries and commence, and the development of finance and tourism industries as well

In the second phase Jinji Lake's beautiful water will be fully utilized to be turned into a high-tech central area full of characters of Suzhou waterside land. In the third phase it will be constructed as a central area with lots of large technical manufactures and artifactitious industries. In the first phase an area of 8 km<sup>2</sup> has been developed and the total programme area will reach 70 km<sup>2</sup>. Government of Singapore intends to spend 10 years to finish the first phase. The garden will be developed by investment from Singapore and

Suzhou (Singapore 65%, China 35%) in the form of a joint venture. Singapore and China cooperate to improve infrastructure (mostly Singapore) (Sun, 1996). Then both China and Singapore will attract foreign investors to come here to set up factories in the garden. According to the agreement made by Singapore and China the total investment to the garden should come to US\$ 20 billion in Suzhou in 1993 (Fig. 1).

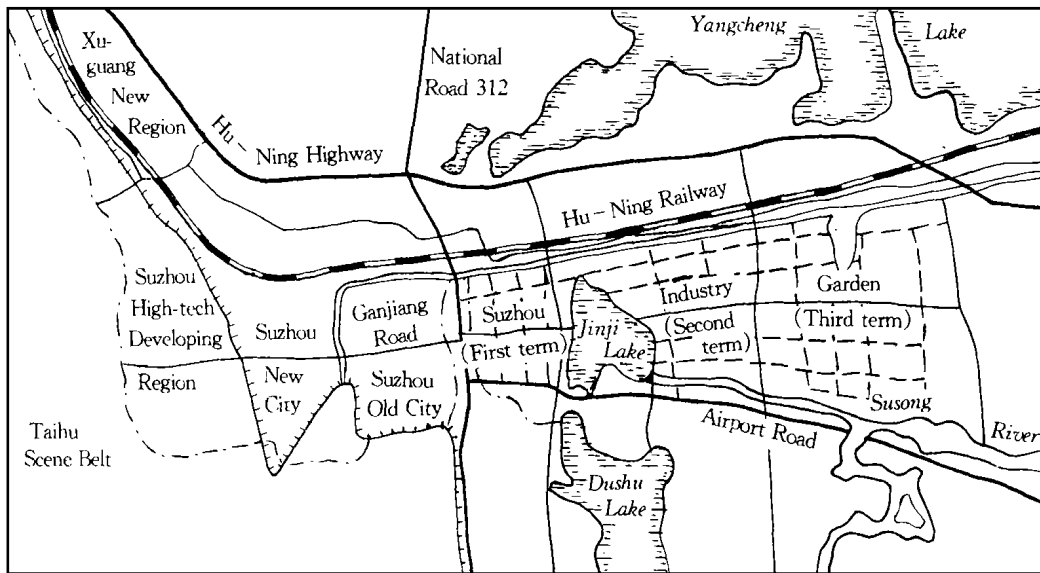


Fig. 1 The sketch of development planning of Suzhou Industry Garden

Now Suzhou Industry Garden has made great progress in attracting foreign capital. By the end of 1995, some 79 foreign-invested enterprises had signed contracts, 13 of which had began to construct, 7 of which had gone into operation. Altogether it has attracted US\$ 242 million of foreign capital and realized US\$ 189 million. Four of the enterprises have surpassed US\$ 100 million. The average investment exceeds US\$ 30 million. Most of the investors are international enterprises from America, Japan and Europe that own advanced technologies. The garden has made solid progress in international and high-tech industrialization and laid a solid foundation for being high-tech radiant.

## 2 RADIANT AND CORE AREA OF HIGH-TECH INDUSTRIALIZATION IN THE SOUTHERN PART OF THE CHANGJIANG RIVER

As a large item, development of regional reaction (character, function, intensity) has a firm relation with geographical location. The basic function is radiant and core area of high-tech industrialization of south of the Changjiang River even Jiangsu Province, in terms of its location and the trend of economic development in this area. High-tech industrialization has two basic contents. One is the development of new industry based on the exploiting and applying high-tech industry. The other is the wide application of high-tech industry to traditional industry. The

garden will take microelectronics as the core of its industrial system and make electrical information industries the leading factors. Afterwards the system of intelligent industry mainly including electron, new materials and biology will come into being.

## 2.1 Law of Transnational Corporation Technique Transferring and Choice of Developing High-tech Industry

Generally speaking, transnational companies are relatively independent, so it is strict to transfer core techniques. But the vital period of many high techniques is short, and they must be transferred before they lose values. As transnational companies regard China as the most important sales market and producing base, it must be a principle to cooperate with foreign companies when developing high-tech industries in the garden. Microelectronics is a high internationalization industry, whose specialization makes the production of microelectron mainly centralize at suppliers who produce on a large scale. In the past few years products from Japan and other developed countries have vastly entered China's market. These manufacturers have set up assembling factories in China to increase sales and decrease cost. Some have established parts factories to decrease wage, carriage and part of importable duty. At the same time they transfer mature product line of microelectron out of their own states step by step and set up the base of sale in order to increase competition of microelectron products. So it is feasible to adapt electronic technique and make electronic information industry the core of the garden by attracting foreign capitals. In the past two years while the garden was being constructed, there have been a list of microelectron investment including SAMSUNG (South Korea), LILY (USA) and SIEMENS (German). The investing items of the microelectron can supply us with new and international advanced technological achievements. It also can provide us cooperation in serving technical data, equipment and technical direction for the zone.

When operating concretely, two points must be

noticed. First, the mode of technological adaptation should be widened. According to the high investment rewards by foreign capitals, domestic companies combined with foreign capital and technology make up nearly all the ventures in Pudong. So the garden should make a point of attracting high technique of microelectron and constitute cooperated enterprises with microelectron when arousing foreign businessmen to constitute sole-invested enterprises. Second, the introduction progress should be divided into several phases. During the initial stage introducing high technique should be first assembling technique then transit to processing and design techniques. Furthermore the garden should construct technical innovation system to attract new techniques depending on universities and research institutes.

The garden has good developing prospects by attracting foreign investors to form the industrial structure taking high-tech industry as the main part. For example, the potential of attracting Japanese high-tech industry is still gigantic. On the one hand Japan quickens regulating industrial structure with the strengthening of East Asian economic integrity. Production bases are being transferred gradually out of Japan, their main investing goals are consumer markets and sale bases. The cooperation items of intellectual and technical-intensive industry increase gradually. High-tech industry such as semiconductor industry has been transferring to other countries. On the other hand investments from Japan to China mainly centralize the Changjiang River delta in recent years. Especially in Pudong, the investment from Japan is only next to Hong Kong among the 55 countries and areas investing there, but its investment amplitude is the largest. This trend has been best proved by HITACHI who set up the first base for producing semiconductor in the garden.

## 2.2 Functional Orientation and Regional Reaction of the Garden

The function orientation will influence the south of the Changjiang River, even the whole Jiangsu

Province. Jiangsu economy has been keeping fast increasing since the reform and opening, owing to the investment to production factors such as capitals, resources and raw materials than by technique progress. Jiangsu economy as a whole is in the transferring process from extensive management to intensive management. The reform of traditional industry urgently requires abundant technical equipment and high-tech product. The Southern Jiangsu has formed a character of "two inclinings". One is firstly allocating foreign high technique to modern department as machine-electricity. The other is to transfer the technique obsolete from key industries of the nation to industry of villages and towns. This action has been widely spread and applied during the swift development of rural industries in the Southern Jiangsu so that binary structure, a new-style in industrial areas, has been formed in urban and rural industries. On this background it is an inevitable choice to alter traditional industrial structure and form industries of high-tech colony within the Southern Jiangsu. Now High-tech Torch Belt of Suzhou, Wuxi and Changzhou has become an important area where Jiangsu carries out the project of high-tech industrialization(Wang, 1997).

After that, dominated by high-tech industries, Suzhou Industry Garden can establish its leadership to the economic opening in the Southern Jiangsu by exerting the superiority of good location. Suzhou Industry Garden is in the hinterland of the Southern Jiangsu so that it has regional superiority to radiate neighboring areas, which is convention for working out the tactics of industrial integration in this area. In that case, a state of chain spurt integration and flowing development will accelerate the development of pillar industries, such as electronic information, machine-electricity integration and household appliance. Meanwhile, by cultivating and developing electronic information industries taking microelectronics as the core, the garden will breed a passel of industrial arising to effect traditional industries and establish its first status among various developing areas in the Southern Jiangsu. The garden can construct a system

of cooperation and strengthen professional production which has the superiority of complete sets in order to alter the backwardness in industrial fields and small-scale production that is common in this area after exerting its function of radiation and concatenation of high-tech industries. It helps to turn similar tendency of industry in each developing area and develop each potential industry by its own relative superiority and boost economic development of the Southern Jiangsu.

In general the process of high-tech industrialization in the south area alongside the Changjiang River three hierarchies will come into being. They are Suzhou Industry Garden, Suzhou-Wuxi-Changzhou High-tech Industry Belt and other high-tech industrial belts, while Suzhou Industry Garden will be in the position of chief centre. So Suzhou Industry Garden will help alter regional traditional industry and enhance levels of middle or small enterprises, construct high-tech industry colony which are relocating highly the radiation of Suzhou Industry Garden during its development.

### 3 EFFECT OF THE GARDEN CONSTRUCTION ON NEIGHBORING AREAS

#### 3.1 Obviously Driving Economic Development of Taicang

Taicang will be built into a main door port city auxiliary to the garden. It is forecasted by scholars that the garden will have 800 000 TEU (normal containers) by the year 2005. It is a remarkable developing chance to the garden because the quantity of containers is about half of the amount of Shanghai. Of course the influence of garden construction on Taicang is various and Taicang itself has notably developing superiority.

Considering its location (Fig. 2), the port of Taicang is located in the end of the Changjiang River Delta. Taicang has three rivers connecting with the Suzhou River, Yangcheng Lake and wide water network in the Southern Jiangsu, its land route connects with two national roads and Hu-Jia (Shanghai-Ji-

axing) highway which can reach Puxi and Suzhou-Wuxi-Changzhou on land directly. From developing background, the shortage of essential factors in economic development such as resources, raw materials and the ability of storage and delivery is getting more and more obvious with fast economic development of the Changjiang River Delta. For the transference of liquefaction petrochemicals, according to incomplete statistics, only in Puxi of Shanghai and Suzhou area the annual handling capacity is 1 500 000 t. But be-

cause this area is short of fixed transferring storage stations, and liquid docks in Nantong, Shanghai and Beilun are in long distance or not convenient for delivery, the cost is rather high. All the concerning departments wish to construct a new port at Taicang, which will have effect on not only settling the contradiction between products and shipment but also accelerating the economic development in the Changjiang River Delta and the areas alongside the river.

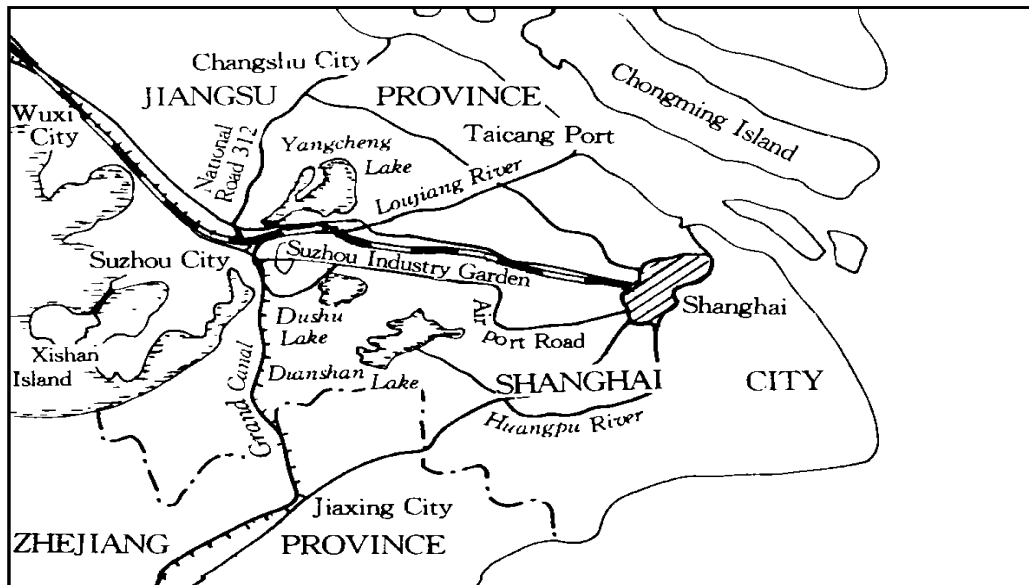


Fig. 2 The geographical location of Taicang City (port)

The Government of Jiangsu Province listed Taicang in the Regional Economy Program in 1992 as a key port to be developed and large-sized raw material base after analyzing the regional superiority and developing potential. In this program, Taicang plans to build 30–40 berths along the bank from Qiyakou to Liuhekou with a length of 11.5 km. At the same time, the city will take out 80 km<sup>2</sup> of land along the bank to construct economic development areas of the port, 6 km of which have been ranked the developing area of the province.

In recent years Taicang makes full use of its good regional conditions of the port to cooperate comprehensively with foreign and domestic associates. Jiangsu Changjiang Petrochemical Co. Ltd. which is

formed by six large corporations from Shanghai, Jiangsu, Shenzhen and Hong Kong, will set a port with a length of 1756 m and a capacity of 25 000 t, which covers various fields shipment, importing & exporting materials storage management and marketing, especially for petrochemical products. Zhao Tingjian, the international magnate of plastic, found “Hua-Su Plastic Co. Ltd.” cooperating with other 4 magnates. The phase of the valued project has begun. Suzhou Petrochemical Center can produce 300 000 t macromolecule and organic material annually. A lot of magnates from America, South Korea, Norway, Hong Kong and Taiwan have investigated the city and held negotiation. Sixteen items with large investment, high-tech contents, better benefit and wide de-

veloping prospect have come to the early stages of preparation. Gross investment reaches 14 billion yuan (RMB), among which foreign capital is more than US\$ 90 million.

On the whole, Taicang port as the door for Suzhou to sea will benefit from development of the garden, on the other hand Taicang port has the function more than this because of its location superiority. In International Marine Conveyance Center of Shanghai which is under construction, Taicang port will be built as the associate center (it is the center port of Jiangsu). So spacious structure of two nuclei which regards Suzhou as a center city and Taicang as a port city will come into being (Lu, 1996).

### 3.2 Driving Economic Development of Neighboring Villages and Towns

Suzhou Industrial Garden planned to construct an area of 70 km<sup>2</sup>, including 5 villages and towns of Loufeng, Kuantang, Xietang, Weiting, and Shengpu. With permission from the provincial government, these 5 villages and towns (covering an area of 214 km<sup>2</sup> land and having a population of 164 700) which formerly belong to suburban area of Suzhou and Wuxian County are now transferred to Suzhou and managed by the Management Committee of Suzhou Industrial Garden (Fig. 3). This step advances the development of villages and towns around the zone.

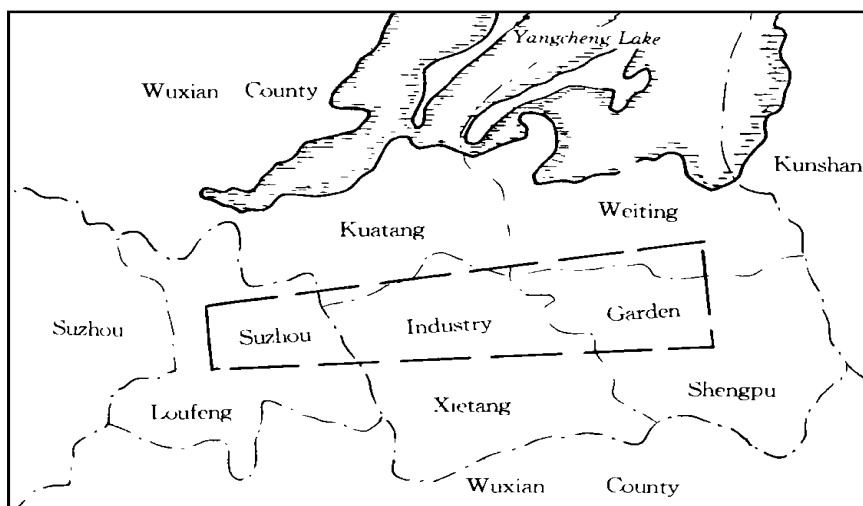


Fig. 3 The sketch of Suzhou Industry Garden and its suburbs

#### 3.2.1 The level of programming of villages and towns around the garden has been improved efficiently

Both domestic and foreign scholars according to Yulang Industry Town in Singapore work out program of Suzhou Industry Garden. Neighboring villages and towns are newly adjusted based on original edition. Their developing objects are much more specific and scientific. First, both the economic and social developing objects embody incomparable idea of programming of the zone. Second, the distribution of villages and towns are much more rational. Following the principle of relative focus every town is programmed by three level — towns, central villages and

basic villages. Third, the distribution of all kinds of land is better balanced. Fourth, establishment of basic public welfare institutions is much more convenient.

#### 3.2.2 The appeal of peripheral villages and towns to foreign investors is enhanced effectively

During the 3 years of developing the gross of foreign capital to peripheral villages and towns exceeds the summation of past few years before developing. The average investment of the projects increased from US\$ 884 000 in 1993 to US\$ 4 690 000 in 1996. Alteration of industrial structure of peripheral villages and towns is driven.

### 3.2.3 *Alteration of industrial structure of peripheral villages and towns is driven*

In the process of movement, peripheral villages and towns turn stress to power and adjust industrial structure and raise economical level. According to statistics, the number of enterprises in 5 villages and towns whose fixed assets are more than 5 000 000 yuan enhanced from 14 in 1993 to 35 in 1996. The product value of rising supporting industry increased from 86 000 000 yuan to 244 000 000 yuan and profit of enterprise increased from 235 000 000 yuan to 877 000 000 yuan. At the same time agricultural structure of peripheral villages and towns is optimized farther. The number of business units on a moderate scale increased from 36 in 1993 to 254 in 1996. The number of the bases of a diversified economy units increased from 56 to 129.

### 3.2.4 *Peripheral infrastructure is developed radically*

Depending on the development of infrastructure of Suzhou Industry Garden, peripheral villages and towns input 164 000 000 yuan in infrastructure and built roads of 32 kilometers long. The capability of telephone enhanced from 6981 in 1993 to 14 500 in 1996.

## 4 EXPERIMENTATION AND DEMONSTRATION BASE FOR INTERNATIONAL ECONOMIC MANAGEMENT

Suzhou Industry Garden attracts international capitals and uses the convenient part of Singapore economic management experience for reference while constructing international first level infrastructure. None of our special economic zones and economic developing areas currently existed takes the orientation like this. After the government stops approving developing area, it is unusual that government contracts with foreign government to develop Suzhou Industry Garden.

At present Suzhou Industry Garden has done lots of preparation as to how to learn the experience of Singapore. The garden first trained personnel in spe-

cial fields and has gained primary effect (Zhu, 1996). Of course, looking from development in the days to come, some key questions about influence of experience from international economical management are to be solved. First, based on studying systematically and scientifically the experience of economical management of Singapore, it should be defined what parts Suzhou Industry Garden will learn and a convincing analysis should be given as to why to accept or reject them. It is easy to list the experience of Singapore, but it is difficult to grasp the pulse of economic and social development of Singapore in more than 30 years combining the special history, culture, geography, politics in Singapore. It is difficult to make clear all factors of the economic and social development of Singapore and find out the immanent mechanism and supporting condition which Singapore depends on to exist and improve. Obviously in order to finish the task it is inadequate to make several cursory investigations. Second, the object of new experience and system should be assigned after learning the experience of Singapore. It must be known how to conquer the difficulty in realizing the object. It must be specially noticed that human beings are the main body to learn the experience of Singapore. Thereby it is especially important to set up a troop of professionals adapting to the work of learning experience. They not only have special knowledge and know foreign language and the conditions of internal and external of economic development as well as the operating rules but also have responsibility, enterprise and dedication spirit. Third, external circumstance adapting to learn the experience of Singapore should come into being rapidly. Legislation and warranty are pivotal. From actual situation warranty has been solved well but legislation has not got adequate consideration.

On the whole, the character of Suzhou Industry Garden is that the Chinese government study and use the experience adapting to China for reference which has been proved advanced and scientific by practice in a certain foreign countries. This function is unique of all developing areas in China. So the effect of learning the experience of Singapore and its applied value in

Suzhou and the whole nation is an important symbol measuring whether the construction of Suzhou Industry Garden is successful. On the other hand, the practice of Suzhou Industry Garden means that the garden is an experimentation and demonstration base for learning international economic management.

#### REFERENCES

- Li Rengui, 1988. Study on growth pole and policy in economic development. *Economic Study*, (9): 63– 70. (in Chinese)
- Lu Yuqi, 1996. Dredging of the Yangtze River estuary and the economic development of Jiangsu along the Yangtze River. *Economic Geogra-*

*phy*, 16(4): 255– 258. (in Chinese)

- Sun Xiaoyuan, 1996. Direction of industrial development of Suzhou Industry Garden. *Economic Management*, (11): 33– 36. (in Chinese)
- Wang Changgen, 1997. Investment and thought of common development of Suzhou Industry Garden and peripheral villages and towns. *Jiangnan Forum*, (12): 18– 19. (in Chinese)
- Yang Kaizhong, 1987. Choice of regional developing tactic of our country. *Development Study*, (6): 15– 19. (in Chinese)
- Zheng Hongyi, 1987. Social and economic feasibility study on constructing second channels of Yangtze River of Jiangsu Province. *Geography and Territorial Research*, 3(4): 15– 22. (in Chinese)
- Zhang Wudong, 1993. *Conspectus of Traffic Layout*. Shanghai: East China Normal University Publishing Company, 127. (in Chinese)
- Zhu Yiming, 1996. Several solved relation on building of Suzhou Industry Garden. *Only Fact*, (8): 53– 56. (in Chinese)