# Chapter 3 Reconstruction of Development Zones: Creating Industrial Conglomerates

#### 3.1 Policy Recommendations

A development zone is a specific defined area for which each level of government has obtained the approval from the higher level of government (Municipal, Provincial, Central). Through financial backing and the support of government policy, an investment environment is created which has advantages over other regions, a specialized space to attract foreign investment, orientated toward advanced and hightech industries involved in development and export. In the course of development in China's last 20 years of economic reforms, these various types of development zones have had an immeasurable impact in the utilization of China's rare resources, orienting economics toward development and export, vigorous development of high-tech industry, and bringing China's once closed domestic economy into line with global economics. Development zones have become the vanguard in China's opening up to the outside world, an important space in which to cultivate the essential factors necessary for advanced production, and drive regional economic development.

However, because of the problem of location, the repetitive set method of development, the over dependence of all levels of government on the development zone model, and the lack of effective control or regulation, problems have occurred in the development zones. These problems include the fact they are scattered over a wide area, the development area is enormous, industries lack distinction, structures are all much the same, connections to the local economy are weak, and a specialized high level business service industry is lacking.

Faced with the having to re-establish these development zones, a careful examination is necessary of the particular characteristics of competitiveness in the age of economic globalization. On this basis development zones should be relocated, to recreate their magnificence in the future economic development of China. From now on, the restructuring of development zones should be with the overall aim of bringing

into being and developing competitive industries. An effective path to realizing this aim is to use development zones as the core to create industrial conglomerates. In this respect, the main aim of national government policy should be to create an environment that is beneficial to conglomerates. Local governments should be responsible for drawing up and implementing measures that are suitable for the conditions of local areas. The following proposals have been put forward regarding the use of development zones as a core to create conglomerates:

#### (1) Relocate Development Zones

Facing global competition, development zones should be brought into fully utilized as the main drive in promoting modernization in traditional industries, innovation and the creation of new fields in industry. Development zones should be the aim of China's implementation of industrial policy, each region nurturing and developing a foundation space for industries with a competitive advantage.

#### (2) Carrying out Overall Control of the Development Zone

In order to prevent excessive competition and ensure concentrated effective development, we must have overall control of the area of development nationally. When carrying out overall control of the development zone, first detailed and thorough investigation of the condition of land already used for development zones should be conducted. Besides areas which have already been approved as state or provincial level development zones, the object of the survey should also include municipal, county and township (town) level development zones (often known as industrial parks). The aim of each development zone should be comprehensively grasped, including every level and every kind of land area that has been approved, areas that have already been developed, areas that have or will be made over to such zones, the situation of land use already transferred and the area of land used for industry within development zones. On this basis, and according to conditions such as the mid to long term industrial development plan, the development plan of State land, the demands of urban development and the development potential of each region, a general development plan

using the province as the work unit should be drawn up, to be completed within a fixed period of time.

In order to ensure the effective implementation of overall control, it is necessary to levy a fixed capital tax on the use of land, and set up a development permission system. In view of the present situation, where the income from transferred land has become the important if not the only source of finance for development zones (leading to a difficulty in controlling the area of development zones), it is necessary to establish a channel, which guarantees another source of revenue for development. Introducing private (non-governmental) funding is an option, and another is the issuing of development bonds, which have a repayment obligation.

## (3) Inducing Industries to Successively Concentrate in Development Zones

The geographical concentration of mutually connected enterprises and structures is the prerequisite condition for the forming of conglomerates. Besides introducing enterprises from outside the area into development zones, the doors of the development zone should be opened to enterprises within the region. For the enterprises of different ownership both in China and abroad, and for enterprises of different sizes, mutual points of contact, a learning exchange, the use of external resources, conditions and opportunities for the development of specialized division of work should be created. Regulation and encouragement through government policies will be used simultaneously. To enterprises within the region, the development zone should be a place where these enterprises study the way business modernization operates, a space to have the attractive choice of expanding or rebuilding. Regulation (environmental regulation, such as laws concerning the building of factories within the area) and encouragement (offering tax incentives and subsidies to enterprises moving in) used simultaneously to actively draw the local city and township enterprises to be concentrated in the development zone. The space in which township enterprises are centrally concentrated should use development zones which already exist, rather than being located in any old small city or town.

#### (4) Clearly Stating the Aims of Industrial Conglomerates

In the process of constructing industrial conglomerates the central part played by government policy should be ensured throughout. The aims of the conglomerate should be drawn up on the basis of analysis of what the area (including the development zone) presently possesses in terms of software and hardware resources, the industrial base, the advantages and disadvantages of the area, the extent to which the region's economy has effect and the maturity of the market. As soon as the aims have been defined, the wide ranging recognition of the industrial community, educational bodies and related government departments of the area, should strive for more participants to form the combined strength of the region.

## (5) Timely Readjustment of Government Policy on Attracting Capital

In accordance with the State strategy on regional development, a timely adjustment was made on the government policy on attracting foreign investment, and the policy on favoring investment in certain areas was implemented to a degree. The policy on attracting capital to certain favored areas should have the effective construction of conglomerates as its guiding principle, using the necessary supporting principle of operating with the shortcomings of local resources. This should mainly be implemented with the adoption of appropriately flexible restrictions on the trades admitted. According to regional demands, direct investment by small enterprises in the area into the basic technology of machinery for metalworking (such as shaping, cutting, surface work and molding technology) should be encouraged. The restrictions on direct investment in China should be relaxed in industrial design, high precision equipment testing services, maintenance services, the admittance into the market place of advanced enterprises which circulate materials and management control consultancy structures, and international specification consultancy structures.

# (6) Adopting a Government Policy of Positive Support of Small and Medium Enterprises

Small and medium sized enterprises are the indispensable members of industrial

conglomerates. SMEs special function is that by their very nature they form and strengthen the industrial competitive power of the conglomerate, which the large scale enterprises have no way of replacing : An important guarantee of production of a great number of varieties of products in low quantities; Overcomes the daily increase in internal management costs of large scale enterprises; SMEs can concentrate on fostering high level specialized core technologies and capabilities in the process of linking together to form a conglomerate; The organizer of such a network of small enterprises can select the best enterprise to cooperate with to complete each production task.

However it is exactly because SMEs are small scale that they often face difficult problems such as instability in operation, their capability to develop new products are low, marketing power is ineffective, it is difficult for them to guarantee personnel quality and a skilled labor force and transfer of information is inefficient. To overcome the limits of SMEs, their vitality should be exploited to the full, and positive wideranging supporting government policies should be adopted.

# 3.2 Restructuring Philosophy Behind Development Zones

#### 3.2.1 The Competitive Strength of Location in Economic Globalization

The global integration of the world's economies will only continue in the 21<sup>st</sup> century. The international competition will only grow in intensity; it is already inevitable that China will enter the WTO, capital both in China and abroad will become intensely competitive in the Chinese market. In an era when the tendency is for the free flow internationally of elements of production, and market competition has become global competition, the question for discussion facing every country, every region and every city is: how to assemble an advanced management of resources both domestically and abroad, and use this country, region, and city as the strong points to develop an industry which is strongly competitive, using all the products and services produced to open up and capture more markets outside of this region, and bring the wealth back.

The key here is whether or not one is able to provide the regional environment with competitive strength. So what is so-called regional competitive strength? It is the what an enterprise gains from a region, the competitive advantage that such a business environment could bring to an enterprise, both helping to raise the efficiency of investment and output of the enterprise, and it is sustainable. So exactly which kinds of factors are significant in deciding the region's competitive strength? These can be briefly summed up in the four broad aspects below:

1) Conditional Factors: the quality and specialization of resources invested

2) The Business Strategy and Competitive Environment: Fierce competition, and the high level of competitiveness characterized by diversity

3) Demanding Conditions: Customers with strict demands, the perceptive market sense which is first to take the lead in seizing new movements in demand outside the region.4) Key Industries and Supporting Industries: competitive strength to provide the conglomerate and key industries existence.

## **3.2.2** Conglomerates and Competitive Strength of Location

To satisfy the above-mentioned conditions, the ideal environmental form of the chosen area is a conglomerate. This is beginning to be recognized in the industrial community and by the governments of developed countries, and the central and regional governments of many counties work to build industrial conglomerates or are investigating how to revitalize already existing conglomerates.

A conglomerate is a group of interconnected enterprises and structures that are close to each other geographically in a specific area, in a state of both competition and cooperation. The fundamental elements composing a conglomerate are enterprises which produce end-user products or services, suppliers providing specialized investment of resources, parts, machinery, equipment, services; financial structures and enterprises belonging to connected industries. Some strong, wealthy, successful conglomerates still belong to downstream industries (channels for commodity circulation, users), enterprises producing complementary products, businesses providing infrastructure, governmental and other groups which provide specialized training, education, information, research, technological support (such as universities, think tanks, vocational training centers etc); and product specification determining bodies.

The centralizing force of different enterprises and structures gathered in a specific space comes from the external economic spilling over effect produced by the concentration of many different types of industries which is peculiar to the conglomerate.

Conglomerates positively influence the competitive advantage of the businesses and industries within them chiefly through the following three ways: Firstly, by raising the productivity of the enterprises and industries within the conglomerate; second, giving impetus to innovation within business and industry, and increasing the capacity for innovation; thirdly, stimulating the emergence of new enterprises, continuously reinforcing and expanding the foundations of the conglomerate.

This needs to specially emphasized: 1, that conglomerates are not a disordered gathering of businesses and structures which have no connection to each other, but rather that it requires the geographical concentration of businesses and structures linked to a specific industry; 2, Spatial concentration forms only the necessary condition for the existence of conglomerates, but this far from fulfills all the necessary conditions, it is important that a network of relations exists between the each of the parts which constitute the conglomerate. High degrees of specialization and division of labor, fierce competitiveness, and close cooperation are the source of continued, productive competitive power that this network of relationships requires; 3, A relationship of trust is established between the independent members, close and frequent exchange of information, sharing of resources, and a strong awareness of the community are necessary to maintain a social foundation of a flexible production system.

### **3.2.3 Development Zones and Conglomerates**

China's development zones are specific areas marked out by central and local government, in which through the investment of a certain sum of money and government policy, an investment environment is created which has advantages over other areas, a specialized space to attract foreign investment, industries orientated toward the development and export of advanced technology and high-tech industries. In the course of development in China's last 20 years of economic reforms, these various types of development zones have had an immeasurable impact in the development of China's rare resources, orienting economics toward development and export, invigorating high-tech industry, and bringing China's once closed domestic economy into line with global economics. Development zones have become the vanguard of China's opening up to the outside world, an important space in which to cultivate essential factors necessary for advanced production, and drive regional economic development.

However, because of the problem of location, the repetitive set method of development, the over dependence of all levels of government on the development zone model, and the lack of effective control or regulation, problems have occurred in the development zones. These include their dispersal over a wide area, obstructing high level development of the development zone. The full effect of development zones should be employed. Looking at the requirements of forming an industrial conglomerate, the existing problems presently facing development zones can be summarized briefly in the following points:

# (1) Factors of Excessive Quantity, Dispersal over a Wide Area, and Obstruction of Resources Affecting Conglomerates

National level development zones to a certain degree embody the principles of the strategy of the regional favoritism. However, development zones approved by each province obviously display the principle of regional egalitarianism, the majority of provinces and many counties and county level cities have set up provincial level development zones, even to the extent that many small towns have their own development zones. Development zones are too scattered, which hinders the efficient concentration of rare resources.

# (2) Industries Lack Distinction, Structures are Identical, Leading to Low Levels of Competitiveness

Identical industrial structures, and the repetitive introduction and construction of mechanisms are common place. If all of Chinas high-tech development zones where vying with each other for micro-electronics and electronic information technology, photoelectron and photo-electromechanical integrated technology, bio-engineering and new data technology, then development zones would become a production, manufacturing, and assembling base for foreign high-tech industries. In recent years, biological pharmaceuticals have also become a sector building competitiveness in the high-tech parks.

Identical structures not only appear in development zones of the same industry, but also across different types of development zones there is a tendency to intermingle them. In the competition to attract capital, each type of development zone all intermingle even to the point of convergence in respect to function and favorable government policy. The boundary between the different sorts of development zone becomes more and more blurred. Development zones should make the great strides forward that high-tech parks have, high-tech parks continuously increase their strength in inviting foreign capital and business, and work for the expansion of exports. This export oriented economics is becoming more and more important; bonded areas are also a key area to develop exports. The blurring of the function of each type of development zone exacerbates the identicalness of structures.

# (3) Weak Connection to the Local Economy, Difficult to Form Regional Industrial Advantages

That development zones are out of line with local economies is mainly shown in the following aspects: firstly, the industries attracted to the development zones have no clearly defined industrial targets, not only is there no division of labor between enterprises internally, there is no connection with the industries that already exist in the locality; secondly, the main decision making body for the businesses within the development zone is based outside the area, the business and local benefits are often in conflict; thirdly, industries in development zones and local industries lack a rational division of labor or collaboration; fourthly, local enterprises, in particular small and medium sized town enterprises within the region are excluded. Looking at the current situation, the more that the development zone is export oriented, the more high tech products are produced, the higher the proportion of investment from outside, and the weaker the connection is with the local economy.

#### (4) Lack of a Specialized, Highly Efficient Business Service Industry

In China, the business service industry was originally far from fully developed, many development zones were built in an independent space at a distance from the nearest city, making it inconvenient for them to use the services of the city. When you add this to the great value that development zones place on attracting productivity projects, outside capital has a very limited effect on the service industry. The business service industry, which has no way of forming itself to the same developed level of the development zone, or conforming to the high levels demanded for development, is particular obvious in the circulation of materials, the maintenance service of machinery and equipment, product testing etc, which affects the overall efficiency of the businesses within the zone.

To conclude, due to the existing problems mentioned above, development zones are still limited in the function of cultivating and raising a high level of specialized elements, the transfer of management resources of modern technology, autonomous innovation, improving the standard of existing industries, and expanding reproduction in the region.

The occurrence of the above problems is inevitable. From the point of view of regional development theory, China's present development pattern of its development zones in reality belong to the development pattern of "foreign dependence". And the experience of many countries and regions the world over show that the majority of the above mentioned problems are the common failing of this kind of pattern.

How to overcome this? To pursue the direction of making the development zone form the center of a conglomerate, and cultivating the capability of self disciplined development according to the particular factors of the region. The aim is that from the industrial bases already established, form a conglomerate prototype area to attract domestic and foreign capital in order to compensate for the shortcomings of the conglomerate. If the industrial base is weak, and the area has not yet clearly formed an industrial direction, first the areas potential must be fully dug out, the capacity of the local enterprises should be nurtured and increased, and as early as possible create a regionally distinct industry, and on this basis form a conglomerate of related businesses, introduced from outside and concentrated.

## 3.3 Industrial Agglomeration –New Point of Departure of Regional Industries

#### 3.3.1 Industrial Agglomeration and Its Characteristics

Industrial agglomeration refers to the gathering of relevant enterprises, specialized supply enterprises, service suppliers and relevant organizations (universities or industrial associations) in a specific area where they are in a state of both competition and co-operation. Let us first take a look at some typical industrial agglomeration in order to better understand what industrial agglomeration means.

Silicon Valley is located at the coastal area south of San Francisco in the state of California of the United States. It is the world's highly agglomeration area of semiconductor, computer hardware and software and information industry, thus known as the world's digital capital concentration area. It is home to many venture enterprises as well as world-famous enterprises. In the four counties centering Santa Clara, there are more than 12,000 enterprises engaged in high and new technology industry. \* (1) There, new ideas could be developed into a new venture; cut-throat competition is fierce among enterprises; creation and failure co-exist; numerous ambitious people realize their ``American dreams'' while losers may fight back. Silicon Valley, like a huge magnet, is attracting the talent and capital from all over the world. It is leading the IT industry, and at the same time, changing the people's way of life and work.

Kemo, which is located beside the Kemo Lake north of Milan in Italy, produces ties, silk scarves and women's garment with silk being the main fiber. It is home to the world's famous fashion brands. A large number of enterprises are respectively engaged in designing, printing, dyeing, processing, sewing and trading. They join to produce world-famous brands through work division and co-operation. In 1996, the total number of enterprises were 2,614.

Japan's Datian is located in southern Tokyo where nearly 10,000 enterprises of machinery and metallurgy industries are engaged in metal and plastic materials processing. The area has a reserve of extremely diversified and high-level technologies. Some of the enterprises can process batches of parts on order while other enterprises are entrusted by some big enterprises to produce trial products or small number of parts. The densely distributed enterprises are conducting extensive, close and specialized cooperation. They make up a huge system to support the technical base of Japan's machine building industry.

In general, industrial agglomeration is characterized by: first, geological location. The enterprises, especially medium and small ones, are highly concentrated geographically (See Table 1); second, the interest entities form an inter-related, competitive and co-operative relationship. Each entity combines its advantageous resources with those of other enterprises to participate in the competition as an industrial whole. At first glance, the enterprises seem to be competing individually in the world market. But they have not merely relied on their own competitiveness. Behind them is the competitive edge backed by industrial agglomeration.

## Table 1 The factories and their scales in Tokyo's Datian

Number of workers	Number of factories	Proportion (%)
1-3	3,777	47.2
4-9	2,416	33.7
10-19	724	10.1
20-29	348	4.9
30-99	229	3.2
100-299	62	0.7
More than 300	) 14	0.2
Total	7,160	100

Source: "Industrial Statistics" 1993 of Datian

#### 3.3.2 Composition Elements of Industrial Agglomeration

The varying geographical scope, depth and levels of industrial agglomeration present a diversified picture of regional industries. Geographically, some agglomerations are limited in a city or a whole country. Some can be seen cross the borders. In terms of agglomeration levels, some areas with solid basis and long development history have developed rather mature concentration while other areas only have low-level and developing agglomeration. Whatever forms, they are basically made up with:

\* Enterprises which produce final products or services

\* Enterprises which provide highly specialized resource input, parts, equipment and services

\* Financial institutions

\* Enterprises of relevant industries.

In addition, advanced industrial agglomerations often include enterprises which belong to downstream industries (circulation channels and customers), factories which produce supplementary products; suppliers of special-purpose basic facilities; government institutions and other institutions (such as universities, think-tanks, professional training agencies) which offer specialized training, education, information, technology support; and institutions that formulate industrial standards. Besides, many industrial agglomerations have enterprise groups and non-governmental groups that back the members of agglomerations.

To consider the regional development policies from the point view of industrial agglomeration, one should first determine the composition elements from the complex regional economic system. It could follow three steps. The first step is to determine the industries and enterprises, which belong to the same agglomeration entity. First of all, one should recognize if there exists a concentration of large enterprises or similar enterprises; vertically, which enterprises and institutions have upstream or downstream linkage; horizontally, whether there are any enterprises which use the same circulation channels or produce supplementary products or services; from the perspective of supply, whether there exist enterprises which use similar specialized resource input and

technologies. The second step is to find the institutions that offer specialized mature, technologies, information, capital and basic facilities to this industry and agglomeration members and the organizations joined by the agglomeration members. The third step is to determine the government departments that may exert major impact on various members and other supervisory bodies. Figure 1 shows the composition of Italy's shoemaking and fashion industry.

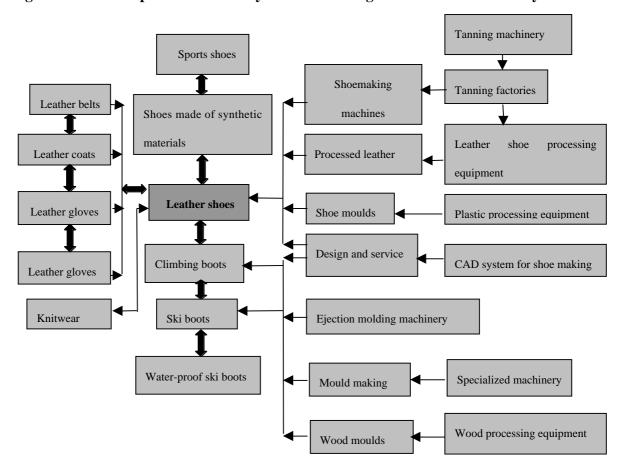


Figure 1 the composition of Italy's shoemaking and fashion industry

Source: Michael E. Porter. On Competition II. P.72. Diamond: Tokyo. 1999.

# 3.3.3 Why Do We Need to Consider Regional Economy from the Point View of Industrial Agglomeration?

For long, when we discuss the economic development and industrial structure of a country, region or a city, we usually think and analyze from the angle of enterprises

and industries or sectors such as manufacturing and service trade. This thesis advocates a new way of thinking -- discussing regional economy and industrial rejuvenation from the view of industrial agglomeration. The most adequate reason is that industrial agglomeration contains more than specific industries, and that from industrial agglomeration, we can grasp the important linkage and supplementary between enterprises and industries.

Industrial agglomeration involves final products, equipment, raw materials and services. It includes traditional industries, new high-tech industries, manufacturing and services. But they fall into different categories according to current industrial division. Therefore, it is hard to grasp the relationship between the rivals of competition and different industries. What can be ignored are the elements that affect the formation of agglomeration.

To the rejuvenation of regional economy and industries, the most important thing is to build up and maintain the competitiveness on the market in and outside the region. Competitiveness derives from competitive advantages, which are closely related to the interrelated enterprises within the agglomeration and industrial linkage. The competition among these agglomeration members does not appear to be direct competition as they are respectively targeting even finer industrial division and specialization. At the same time, as they face common market demand and opportunities, they also encounter the same restrictive factors and hindrances. Therefore, their goal is the same regarding the improvement of environment. Within the agglomeration, interrelated enterprises, suppliers, government bodies and other members can take specific measures to improve their conditions through efficient and constructive dialogues so that each of them will benefit from it.

On the contrary, if industrial rejuvenation and adjustment are considered from the view of electronics, automobiles and chemical industries, different tax reduction treatment and subsidies to different enterprises will cause the separation of interest. The overflow effect from the public investment will generally be very limited to other sectors, and it is also likely to cause unfair competition that may lead to market distortion. The industrial policy aimed to prioritize high-tech industries or leading

industries would either lead to similar duplicate industrial structures, which may ignite the vicious cycle of low-level competition such as cut throat price war, or diminish the competitiveness due to excessive protection. In a word, the policy emphasis on a specific industry or a narrow sector will easily distort competition. But agglomeration will focus people's attention on how to boost competitiveness.

#### **3.3.4 The Functions of Industrial Agglomeration**

The fundamental aim of regional industrial development and prosperity is to help the region's enterprises and industries maintain the competitiveness superior to other areas so that more wealth would be brought in from outside the region. The sustained competitiveness derives from high productivity, constant innovation and new undertakings. The economic return yielded from within the industrial agglomeration system will exceed the sum of the value of various component parts due to the overflow effect. Industrial agglomeration helps raise the competitiveness of enterprises and industries through the following mechanisms.

# (1) Raising the Productivity of Enterprises and Industries within the Agglomeration

\* Highly specialized input resources are easily accessed.

As previously mentioned, industrial agglomeration is composed of enterprises and institutions interrelated in production, technology, information, research and circulation. Various highly specialized input elements are easily formed in the agglomeration. The members can obtain such input resources as highly specialized parts, machinery and equipment, business services and talent in the region so as to save trading costs (including the costs to find them). If not for agglomeration, the enterprises' input resources can only be supplemented from outside at a higher cost.

From the point view of material circulation, enterprises can reduce the inventory to the minimum if they obtain necessary parts locally. They will reduce transport cost and losses due to delay.

When the supply activities are done locally, the members can keep intensive exchanges at a low cost. They can adjust themselves to the changes of environment or make timely adjustment, revision and addition with the change of plans.

For suppliers, they will find it easier to find market opportunities, as there exist many customers in the agglomeration. The more developed agglomeration, the more extensive the industries are. These interrelated enterprises tend to use similar input resources. This will create more business opportunities for suppliers.

Industrial agglomeration is no doubt a reservoir of highly specialized talent. This advantage enables enterprises to find the human resources at low negotiation costs within a short period of time. Besides, the agglomeration, which can offer jobs and individual development opportunities, will attract the talent outside the region. To them, the agglomeration means more job choices than in other regions, and the risk of moving is much smaller than in other areas.

In general, industrial agglomeration spurs on the emergence of the advantages in highly specialized input resources from two aspects, supply and demand.

\* Accumulation and spreading of information

Each enterprise obtains the information about itself and its sector through a great deal of contacts with outside organizations. The more rivals it has, the more information it needs to have. Much of the specialized information regarding market and technology is stored in the enterprises and institutions within the agglomeration. Members can get in touch with such information without having to spend much cost. Geographical proximity, frequent direct contacts, co-operation arising in the course of supply and demand and geographical links through various channels has promoted the information flow among the members. This has prompted enterprises to react effectively to the changing environment.

\* Supplementary

In an agglomeration, the products and services of different industries often rely on and strengthen each other. They are very much complementary. Any industry is a system. If more factor areas within the system are located in the same region, the enterprises, which have a common goal, will improve and adjust various factor links, and solve problems and remedy setbacks so that the system would better run.

In marketing, the members are also supplementary. The interrelated enterprises

and their groups in the same region have the conditions to conduct joint marketing activities, such as joint investment invitations, commodity fairs and international expositions. They can also establish industrial magazines and organize market exploration groups. These activities, which have strong promotion and advertising effect (low cost and high efficiency), are helpful to making the agglomeration better known within and outside the region.

\* Use of a large amount of public goods and quasi-public goods

Industrial agglomeration can offer members various kinds if public goods (services or facilities) and quasi-public goods at low prices (sometimes free of charge). If enterprises can employ the labors trained by the training institutions within the agglomeration, they can save costs of training. They can also use other specialized basic facilities and experts' consulting of local organizations at low prices. The information reserved in the agglomeration is also equivalent to public goods. Firms outside the agglomeration will pay high prices if they wish to enjoy such services and facilities. Compared with the public goods (which is often limited) offered by government bodies, which is mentioned in economics, the facilities and services in the industrial agglomeration involve much wider areas, and their providers -- some are governmental while others are non-governmental -- are more diversified.

Meanwhile, when government bodies, industrial groups and non-government organizations clearly feel that the members have more demand for certain facilities, services and support, and are certain that it will yield strong overflow effect, they will make relevant investment decisions more easily. For instance, various kinds of training centers, research and experiment facilities, industrial journals, standardization institutions, quality control centers have been established.

#### (2) Bolstering Creation Ability

Innovation is the fundamental key to regional industries' sustained competitiveness and prosperity. The unique functions of industrial agglomeration have made innovation inside the agglomeration possible and quickened this process. In a sense, the agglomeration itself is an innovation system.

First, enterprises within an agglomeration can rapidly and accurately grasp the

latest demand of customers or consumers.

Second, enterprises within an agglomeration have more opportunities to get in touch with new technologies, parts, equipment, services and marketing ways. They can also grasp market opportunities sensitively. On the contrary, enterprises outside an agglomeration will pay high prices to obtain such information.

Third, industrial agglomeration pushes innovation in terms of speed, ability and flexibility. In speed, whether innovation is made on new product lines, new techniques or new material flow mode, enterprises, if within an agglomeration, can rapidly obtain the new parts, services, machinery and other elements, which the innovation needs from neighboring specialized enterprises. In addition, the supplement needed in the course of innovation can also be realized through the participation of neighboring members. In expenses, they can proceed with all kinds of experiments at low expenses on new products, techniques and services. On the contrary, the enterprises which have to obtain innovation elements from outside their region will have to spend much time and energy on signing contract, observing delivery date, keeping the suppliers of relevant technologies and services and coordinating with the bodies with supplementary relations.

Fourth, competing enterprises' proximity stimulates enterprises to spare no effort in innovation. Any competitor's innovation will exert pressure on other ones. If enterprises with similar basic conditions (workers wages, water and power prices) wish to lead the competition, they can only rely on innovation to make a difference. So innovation rapidly spreads within the agglomeration.

#### (3) Stimulating New Undertakings

New undertakings guarantee the vitality of industrial agglomeration. New undertakings occur more frequently in an agglomeration than in other regions. The reasons:

First, in industrial agglomerations exist rich information about market opportunities, which give rise to new enterprises and undertakings. In the agglomeration, enterprises can easily realize the setbacks of products, services and suppliers. New ideas and concepts are thus conceived. Second, industrial agglomerations themselves are a potential market, which can offer extensive supports to pioneers. So undertakings are more likely to occur locally. For new market participants with only new ideas, the highly specialized interrelated enterprises and organizations in an agglomeration will provide them with such necessary input resources as efficient and low-cost talent, technologies, funds, equipment, parts and operation knacks. That is to say, the entry barriers are low, which will make new undertakings much easier. At the same time, exit barriers are also low because capital markets are also easily formed in industrial agglomerations.

Third, in agglomerations, enterprises frequently spin off parent company. In Italy or Silicon Valley, it is very common to see firms separate from its original enterprise after it finds new market opportunities. Most of the new undertakings are born to fill the market vacancy or open up new product or service scopes in the agglomeration. Therefore, new undertakings have built up the overall strength of the agglomeration.

Fourth, the magnetic field of agglomeration effects to outside investors. The low entry barriers and high productive prediction are attractive to outside investors, who are prompted to realize their dream of undertaking. Likewise, agglomerations will also attract foreign investors. The competition is becoming more and more fierce as undertakings and innovations are happening constantly within the agglomeration; industrial agglomeration is expanding both in depth and in width; and enterprises enter and quit the agglomeration frequently as a result of low entry and exit barriers. The survivals are located in a more favorable position compared with their rivals outside the agglomeration.

#### 3.3.5 Conditions of Industrial Agglomeration

## (1) Geographical Concentration

The establishment of high-speed transport system and use of e-mails have greatly reduced the time and distance and lowered the expenses of factor flow, but the expense of factor movement still exists. And much information, which cannot be formatted, still cannot be separated from people. When an entity links with many other entities at the same time, distance is especially important. Worldwide raising and supply of various factors, and rapid global exchange of information have only alleviated the unfavorable factors in competition for the places apart, but have not yielded competition advantages.

Industrial agglomeration exerts influence over competition in three aspects: all highly rely on person-to-person exchange, face-to-face communication and interaction between individuals and organizations through network. Geographical concentration is an important premise for industrial agglomeration.

Geographical proximity is conducive to intensifying the determination of the impact of various factors concerning competition advantages and their interaction. If competition rivals, customers and suppliers are close to each other, the efficiency and specialization will be improved due to low transaction and adjustment expenses.

What is more important is the impact of geographical concentration on update and innovation. Proximity is conducive to information's concentration, creation and flow. Proximity will force enterprises to strongly feel the pressure competition all the time and the importance to keep up with the trend. With vigorous action, enterprises' innovation would extend at an extremely fast speed.

# (2) Building up a Flexible Work Division System

\* Changing the complete-set enterprise strategy and foster kernel management resources

Geographical concentration is the necessary, but not the sufficient condition for industrial agglomeration. If each enterprise includes in its organization all the direct departments (production), indirect departments (management, R&D, material flow, marketing and publicity) and even some social functions, it will find that it will be placed in an unfavorable position in competition due to too large input and the fact that each department cannot produce scale effectiveness. And it will find it hard to have its unique kernel resources. Therefore, enterprises should do away with its inferior and weak areas and enter into strong and competitive areas in order to foster its unique kernel management resources.

\* Actively using external resources and building up specialized work division system

A system to flexibly use external resources should be established. This is especially important to medium and small enterprises without sufficient management resources. When interrelated enterprises come up with their special competitive resources to supplement each other, regional work division system could be set up. The regional industrial competitiveness, which relies on this division system, would be greatly strengthened. Table 2 displays the division of work among its members within a typical industrial agglomeration.

Type of enterprise	Factory	
	Number	Proportion
Machine-building	318	10.5%
factories		
Heavy-duty equipment		
Tank making and welding	86	2.8
Plate work	280	9.2
Ram pressure	246	8.1%
Cast	74	2.4
Forgery	19	0.6
Thermal treatment	15	0.5%
Paint spray	63	2.1%
Electroplating	88	2.9%
Subtotal	871	28.8%
Mechanical processing		
Cutting	1110	36.7%
Die arrangements	239	7.9%
Subtotal	1349	44.5%
Relating functions		
Plastic molding machines	148	4.9%
Printed circuit board	4	0.1%
Processing and	60	2.0%
assembling on commission		
Machinery factors	69	2.3%
Raw-material-related	85	2.8%
machine building factories		
Other mechanical and	125	4.1
metal processing industries		
Subtotal	491	16.2%
Total	3029	100.0

Table 2 Function division system of mechanical processing enterprises in

Japan	's I	Datian	area
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Source: "On Regional Industry" by Yiteng Zhengzhao, Page 91. April 2000.

The original data were based on the inquiry over 9,075 enterprises in Datian in 1985. Effective answers were 3,575 (66.8%). The statistics in the Table covered the mechanical and metallurgical enterprises.

## (3) Create an Opening Atmosphere

Many of the competition advantages of industrial agglomeration rely on the free flow and sharing of information among individuals, enterprises, government bodies and other organizations; exchange and discovery of subsequent additional values; adjustment of plans among different organizations and willingness of co-operation; and strong desire to improve and update the overall entity. In a certain sense, industrial agglomeration is an economic network merged within the huge social system. Whether an industrial agglomeration could operate and maintain strong competitiveness will to a great extent be determined by the fact that each member is clearly aware of and concerned about the build-up of various relations. In summary, the creation of an industrial agglomeration requires a subsequent social structure as its base. The main points are summarized as follows.

\* Social atmosphere that allows free flow of factors within and outside the region;

\* A social link and operation system in which governments, producers and researchers jointly act and co-operate;

\* Social environment that encourages undertaking, competition and co-operation;

\* A sense of collectiveness among industrial members which depend on and trust each other;

\* A sense of community that transcends individual and small units or departments and the citizens' sense of responsibility;

The social network that an industrial agglomeration relies on should be different from the formal relations or ranking relations between traditional enterprises or between institutions and enterprises (for instance, the groups linked by capital). It should be a kind of flexible relation built on the basis of independence and equality. Such social network will become the social capital for industrial agglomeration and will be helpful to improving the overall efficiency of the whole regional industry and promoting unremitting new undertakings and innovation.

#### 3.4 Current Situation and Problems of Development Zones in Jiangsu

#### **3.4.1 Development Stages**

Jiangsu is one of China's first provinces to build development zones. Its development zones, large in scale, have been developing fast and reporting marked achievements. At present, it has 80 state-level and provincial-level development zones. Jiangsu's construction of development zones has kept abreast with the country's opening up and strategic adjustment. Its development has experienced the following two stages:

(1) Starting and exploration stage (1984 to 1991).

In 1984, the Chinese government decided to further open up 14 coastal port cities on the basis of opening and construction of special economic zones in the past five years. A clear regional line was drawn in these cities where economic and technological development zones were built and given policy support similar to those to special economic zones. Jiangsu's Nantong and Lianyungang economic and technological development zones were among the first batch of state-level development zones approved by the State Council. This unveiled the province's construction of development zones. But the real pioneer was Kunshan, which ignited the province's great surge of development. In early 1985, Kunshan Party Committee and county government decided to build development zone on its own without any backing from superior governments. This was an unprecedented move for a local government to attract foreign investment to a development area.

(2) Rapid development stage (From 1992 to now).

After Deng Xiaoping made its important speech in South China, the country's opening rapidly advanced from south to north, and from coastal to inland areas. Development zones were quickly spreading in China. In Jiangsu, Kunshan Development Zone was upgraded to a state-level economic and technological development zone in 1992. In the same year, the state approved the construction of Nanjing, Suzhou, Wuxi (including Yixing environment protection industry park),

Year	Form	Areas	Note
1978	Ports opened to foreign ships	Lianyungang, Nantong, Zhangjiagang and Nanjing ports	There were 10 in the country
1984	Coastal cities that are opened to the outside world	Nantong and Lianyungang	There were 14 in the country. (Tianjin, Shanghai, Dalian, Qinhuangdao, Yantai, Qingdao, Lianyungang, Nantong, Ningbo, Wenzhou, Fuzhou, Guangzhou, Zhanjiang and Beihai).
1985	Coastal opening areas	Suzhou, Wuxi and Changzhou as well as 12 counties and cities under them.	Pearl River Delta, Yantze Delta and Shangdong Peninsula.
1988	Areas open to the outside world	Nanjing, Taizhou, Zhenjiang, Yangzhou, Yancheng and their 28 counties and cities	Jiangsu's nine cities and 40 counties (cities) were opened. They covered 60% of the area and 64% of the population of the province. The total economic amount accounted for more than 80% of the province's total
1992	Kunshan was approved to be state- level economic and technological development zone	Kunshan	It was originally a development zone on its own funds.
1992	High and new tech development zones/	Nanjing, Suzhou, Wuxi (including Yixing environment protection industry park Wuxi Travel and Resort Zone Zhangjiagang Bonded area	Jiangsu government decided that Xuzhou and Huaiyin built development zone on themselves.
1994	Sino- Singaporean Suzhou Industrial Park were approved	Suzhou Industrial Park	
1997	Suzhou High and New Tech Development Zone was approved to one of the first zones opened to APEC members.	Suzhou high and new tech development zone	Science and Technology Development Park
2000	Export processing zone	Suzhou and Kunshan	To meet China's entry into WTO and promote exports. There were 15 in the country.

Table 3 Opening and development pattern of Jiangsu

Source: Extracted from various materials by the survey group.

Changzhou high and new technology development zones, Suzhou and Wuxi Taihu Travel and Resort zones and Zhangjiagang Bonded Area. In February 1994, the State Council approved the construction of Suzhou Industrial Park jointly developed by Chinese and Singapore governments. Since 1993, Jiangsu provincial government has approved 69 provincial-level economic and technological development zones, port development zones, Taiwanese Investment Zone, high and new technology development zones, travel and resort zones and export-oriented agriculture development zones. In 1997, the State Council approved Suzhou High and New Tech Development Zone to be one of the first batch of scientific development zones which were open to APEC members.

Up to now, Jiangsu's development zones have developed into a large scale. It has become one of the few provinces in the country which reported remarkable achievements in development zone construction. Its zones cover a large area, and the development has been in various forms.

#### **3.4.2 Characteristics**

## (1) The Development Zones Are in Large Number and Various Forms

Jiangsu now has 80 development zones above provincial level, including 11 statelevel development zones and 69 provincial-level zones. They fall into various categories. Of them, the state-level zones can be summarized into seven types while the provincial zones are of four types. Jiangsu's development zones are most complete with various types (See Table 4). It has become one of the provinces, which have largest opening area and most types of opening except the special economic zones. A multi-dimensional and multi-level opening pattern has taken shape in the province, from coastal opening areas to Suzhou Industrial Park, export processing zones, bonded areas, economic and technological development zones, high and new tech development zones, state-level travel and resort zones and various provincial-level development zones.

These facts show the favorable geographical conditions and diversified resources of Jiangsu Province and, in particular, local officials and people's strong desire to develop economy and enterprising spirit in grasping development opportunities. \*5

Types of state-level development zones	Types of provincial-level development		
* Comprehensive development zone (1,	zones		
Suzhou Industrial Park)	*Economic development zone (51,		
* Bonded area (1)	including port development zones and		
* Economic and technological development	Taiwanese investment zone)		
zone (3)	* High and new tech development zone		
* High and new tech development zone (4)	(2)		
* Travel and resort zone (2)	* Travel and resort zone (4)		
* Cross-Straits science and technology	*Export-oriented comprehensive		
zone	agricultural development zone (12)		
* Environment protection industry park (1)			
* Export processing zone (2)			
Note: Export processing zones were approved in 2000			

#### Table 4 Types of development zones in Jiangsu

Note: Export processing zones were approved in 2000.

Source: "50 years of Jiangsu" (1999, China Statistics Press), pp 141-149.

# (2) The Development Zones' Great Contribution to the Province's Export-Oriented Economy

After more than 10 years' development, Jiangsu's development zones have made major contribution to the province's economy and have become the important point of growth. Its important position and role could be summarized into the following aspects:

\* Important bases for attracting foreign investment

By the end of 1998, the province's development zones have approved 5,540 foreign-invested enterprises. The total of contractual investment was 30.48 billion US dollars, and the actual investment was 15.3 billion US dollars, respectively accounting for 15.3%, 44.9% and 48.5%. In 1993, the proportions were respectively 11.1%, 28.1% and 26.6%. In five years, they grew by 4.2, 16.8 and 21.9 percentage points. In 1999, the province's development zones used 4.3 billion US dollars of contractual foreign investment, making up for 61.6% of the province's total. \*6 Most of the foreign investment introduced in 1990s has been gathered in these zones.

	1998 total		1998 current	t year
		Percentage in		Percentage in
		the province		the province
Total foreign-	5540	15.3%	557	30.6%
invested				
enterprises				
approved				
Contractual	30.48 billion	44.9%	4.63 billion US	61.2%
foreign	US dollars		dollars	
investment				
Actual foreign	15.3 billion US	48.5%	4.52 billion US	67.9%
investment	dollars		dollars	

Table 5 Use of foreign investment by Jiangsu's development zones

Source: "years of Jiangsu" (1999, China Statistics Press), pp 144-145.

In 1998, the enterprises in the development zones reported 10.23 billion US dollars of import and export volume on a self-operation basis, including 5.34 billion US dollars in exports and 4.89 billion US dollars in imports. Compared with 1994, the growth was respectively 5.6 fold, 4.9 fold and 6.5 fold while the growth rate was respectively 60.0%, 30.5% and 54.3%. The foreign-invested enterprises in the zones imported 4.02 billion US dollars of goods and exported 4.77 billion US dollars of goods, respectively accounting for 60.8% and 52.5% of the province's total import and export volume by foreign-invested enterprises. No doubt, the development zones and their foreign-invested enterprises have become a major force in bringing along the growth of the province's foreign trade.

# Table 6 Total foreign trade volume of the province's development zones in 1998and its position in the province

	Total foreign trade volume of the province's development zones in 1998					
	Total volume	Percentage	Export	Percentage	Import	Percentage
The province's development zones	102.3	38.6%	53.4	30.5%	48.9	54.3%
Foreign-invested enterprises (Proportion in the development zones' total)			47.7 (89.3%)	52.5%	40.2 (82.4%)	60.8%

Source: Same with the source of the above Table.

\* Contribution to employment

As foreign-invested enterprises in the development zones are engaged in capitalintensive production, they have contributed relatively less to employment. Even so, the province's development zones have employed 798,000 people by the end of 1998, a rise of 20.7% over the year before. So they have played an active role in increasing employment

# (3) A Number of Nationally First-Class and Internationally Well-Known Development Zones Have Been Built in the Province.

First, take a look at the country's 52 state-level high and new tech development zones (excluding Yangling) in 1998, the first 10 development zones in terms of total industrial output value were Beijing, Shanghai, Shenzhen, Qingdao, Mianyang, Suzhou, Nanjing, Tianjing, Wuxi and Changchun. The first 10 zones in terms of total export volume were Wuxi, Shanghai, Suzhou, Shenzhen, Beijing, Tianjin, Zhongshan, Shijiazhuang, Xiamen and Huizhou. The first 10 zones in terms of total industrial and commercial income were: Beijing, Shanghai, Shenzhen, Qingdao, Suzhou, Tianjin, Nanjing, Wuxi, Xi'an and Mianyang. The 10 first zones in terms of per capita industrial value were Shenzhen, Hangzhou, Wuxi, Qingdao, Nanjing, Foshan, Shanghai, Mianyang, Fuzhou and Zhengzhou. That is to say, in terms of gross economic amount, export-oriented economy and yield efficiency, Jiangsu's Suzhou, Wuxi and Nanjing development zones were ranked in the forefront of the country. Jiangsu has three of the top ten. \*8

Take a look at the country's 32 state-level economic and technological development zones in 1998, 10 of them realized 5 billion yuan of GDP (Tianjin, Dalian, Guangzhou, Fuzhou, Kunshan, Changchun, Ningbo, Qingdao, Suzhou and Shanghai Jinqiao). Kunshan and Suzhou were two of them. In the year, Kunshan's total export was ranked third in the country, only next to Tianjin and Dalian. By 1998, three of the top 10 zones with the highest amount of actual foreign investment were from Jiangsu (They were Tianjin, Dalian, Suzhou, Shanghai, Guangzhou, Kunshan, Wuhan, Ningbo, Fuzhou and Nantong. In terms of current year actual foreign investment in 1998, Suzhou, Kunshan and Nantong were respectively ranked first, fourth and 10th places in the country. In 1998, of the first 10 zones which reported the highest industrial value added, Suzhou and Kunshan were ranked second and seventh (They were Tianjin, Suzhou, Dalian, Huizhou, Shenyang, Guangzhou, Kunshan, Guangzhou, Harbin and Hangzhou). \*9

Wuxi Economic and Technological Development Zones and Suzhou Industrial Park were ranked first and second in the ``Enterprise Rank"??? done in United Kingdom in 1996. \*10 In 1997, Suzhou High and New Tech Development Zone was ranked first in a comprehensive evaluation over the country's 100 state-level development zones by Chinese media including the Economic Daily. Kunshan Economic and Technological Development Zone, as a state-level development zone built in a county-level city on its own funds, set the famous ``Kunshan model" for its effective services and the ``business friendly" spirit.

### (4) High-Input and High-Yield Areas

By the end of 1998, the province's development zones and the zones being built covered nearly 300 square kilometers. A total of 34.49 billion yuan has been put into

infrastructure construction. The per-square-kilometer investment in the zones' basic facilities has reached 140 million yuan. High input has led to high yield. In 1998, the total income from the development zones' primary, secondary and total of tertiary industry services was 215.76 billion yuan, a rise of 3.4 times compared with that in 1994. Their industrial enterprises' sales income was 152.31 billion yuan, accounting for 20.7% of the total industrial sales income earned by the state-owned enterprises and non-state-owned enterprises, which reported more than 5 million yuan of annual sales income in the province.

	Total in Jiangsu Province	State level	
		Number	Percentage
Total	300 sq.km	16.93 billion yuan	49.1%
development area			
Investment in	34.49 billion yuan	18946	49.1%
infrastructure (total)			
Total number of	31057 (18119)	18946	61%
enterprises approved			
to enter the zones			
(firms which started			
operation at the end of			
1998)			
Total investment	400.57 billion yuan	213.18 billion yuan	53.2%
Actual funds in	195.45 billion yuan	105.05 billion yuan	53.7%
account			

**Table 7 Development zones in Jiangsu** 

Source: "50 years of Jiangsu" Page 144.

#### (5) Imbalanced Development in the Development Zones

Although the preferential policies given to the development zones were similar, and they got started at almost the same time (except state-level development zones in Lianyungang and Nantong), the province's development zones have been developing at a very different pace due to geographical conditions, strength of central cities they are attached to, economic development level of their back-land and the input by local governments. And the gap tends to be widened as the advanced zones, which have established their competitive advantages, have entered a sound development cycle. We cannot do precise analysis on this point as the data available are very limited. According to statistics, of the province's development zones in 1998, 44 reported more than 1 billion yuan of total income from primary, secondary and tertiary industries. They accounted for 55.7% of the total. The high and new tech development zones in Nanjing, Suzhou, Wuxi and Changzhou and Kunshan economic and development zone all reported more than 10 billion yuan of total income. The total income of these five zones reached 80.6 billion yuan, making up for 37.4% of the total income of province's development zones, more than one-third of the total. In Kunshan, by the end of October 2000, the zone has introduced 1 billion US dollars, roughly one-fifth of the province's total.

## 3.4.3 Problems with the Construction of Development Zones

After more 10 years of construction, the development zones have become the most vigorous economic areas in Jiangsu. They have set an example in system restructuring, export-oriented economic development, and industrial upgrading and urban construction. But we need to have a thorough examination over the development zones from the point view of how to rationalize the province's industrial mix, strengthening regional industry's overall competitiveness, bring along the development of local industries and push forward modern urban construction.

## (1) Problems with the Zones as Industrial Space

\* Extensive distribution and duplicate investment

The state-level economic and technological development zones were generally located on external transport routs, especially ports (Nantong and Lianyungang). \*11 The state-level high and new tech development zones were generally located in the cities with overall economic strength, especially in terms of human resources and scientific talent. But the provincial-level development zones were obviously set up in consideration of regional equilibrium. Almost all the counties and county-level cities have a development zone. Most of the development zones were built in early 1990s, and all the provincial-level development zones were set up in 1993. So many development zones -- even more than the state-level zones -- were approved in such a short period of time. One can doubt whether adequate feasibility study has been done. As the cities close to each other all have an development zone, one of the goals to build such zones -- reflecting the government's regional preference -- will not be met.

Now all the development zones are all developing export-oriented economy by attracting foreign investment and boosting exports. In recent years, the world's capital market has maintained a certain scale in terms of foreign direct investment. The developing countries, including China, and even United States, Japan and European countries are also dedicated to attracting foreign direct investment. Now the general demand has exceeded general supply. Our development zones are competing with developed countries and developing countries in attracting investment. At the same time, a heated competition is on in the country. The competition among the adjacent cities in a province with conditions of location has often triggered war of land prices and tax reduction, resulting in a waste of resources and decrease of economic return.

We should seriously summarize the current situation of the province's development zones, which will be evaluated in light of such indexes as development scale, level, land use and development potentials. An adjustment will be made on this basis. Before the development plan is adjusted, we should be clear about the province's space strategy and then adjust the number, scale and distribution of the development zones in order to design a phase-by-phase development plan.

\* The development zones are too large, and the land use efficiency is low.

Compared with the development zones abroad, China's zones are generally two large. The province's 80 zones above provincial level cover an area of 557.07 square kilometers, each occupying 6.96 square kilometers. If all the zones were put together, they would take up vast land. Foreign industrial parks and zones usually cover one to three square kilometers. As land in their countries is privately owned, large plots of land can hardly be occupied. The land prices are also very high. Besides, the development is usually entrusted to developers, not governments. They have to do a strict calculation of land use scale, prices, utility rate (plot ratio and coverage rate) and potentials. According to the statistics of Japan's center of location in 1999, Japan has 737 industrial plots, which cover 73,262 hectares (732 square kilometers), and each unit covers only one square kilometers. \*12

Jiangus has a large population but less land. As the development zones are all located in suburban areas, they usually occupy high-yield farmland or vegetable land. Some zones have occupied much precious land as a result of over-emphasis of large scale and grand view of zones. Some rushed to level the land and build high-grade roads to offer infrastructure facilities. As a result, too large investment has made the development zones run with debts and the land idle.

The current task is to predict the total scale of land use, land supply potential for the province's future industrial development as well as the current situation of land use and future space development. On this basis, the land use scale would be adjusted.

\* Industrial mix is duplicated.

Nationally, duplicate industrial mixes in the country's high and new tech are very serious. \*13 They have competed to introduce microelectronics and information technology, opt-electronics, optical-mechanical-electronic integration technology and bioengineering and new materials from abroad. Now they have become the important production, manufacturing and assembling bases for foreign high-tech industries. In recent years, biomedicine has been a hot item for high and new tech zones for pursue. \*14

Structural duplication is not only seen in the same type of development zones, but also in different type of zones. The state once had different definition over development zones, high and new tech development zones and bonded areas. The economic and technological development zones are mainly aimed to use foreign investment and develop manufacturing and export-oriented industries. The high and new tech enterprises focus on high and new tech industries by relying on its own strength in order to develop into the state's high-tech industry bases. The bonded areas mainly develop enter-port business, bonded warehouses and export processing. The bonded warehouses and export processing are the unique functions of a bonded area while the export processing is the function of development zones. However, with the increase of development zones in types and number, they have been competing more and more fiercely. In the course of competition for foreign investment, the development zones have tended to be similar to each other in function and preferential policies. The definitions of different development zones are more and more blurred. The economic and technological development zones are trying to move towards high and new tech zones; the high-tech zones have also increased their effort to attract foreign investment and \*15 expand export, so they have become more and more export-oriented; and bonded areas have also focused on export processing. \*16 The confusion of different zones has also resulted in a more duplicate industrial structure.

\* The development zones, which are not related with local economy, have become the space for ``international economy" in the Chinese territories.

The separation of development zones from local economy can be seen from the following aspects: First, the decision-making bodies of the enterprises in the zones came from outside. These enterprises are controlled by the head office in their countries in terms of strategy, management, financing, price and profit distribution, as a part of international work division of transnational corporations. It is hard for them to keep identical with the goal of local economy. Second, the enterprises in the zones and local enterprises lack rational work division and co-operation with local enterprises. Third, local enterprises, especially medium and small township enterprises have been kept outside the zones.

In the course of the survey, we found that the foreign-invested enterprises which target exports, produce high-tech products and have a high share of investment (especially those solely foreign-invested firms) are more weakly linked with local economy. \*17

In addition, high-tech industries are placing a more strict demand for the suppliers' technological level, delivery time, product specification and quality. This has also helped widened the gap with local enterprises.

Local enterprises, especially medium and small enterprises and rural enterprises, have been kept outside the zone. This also explains why the zones are cut off from local economy. As the development zones have been casting their eyes on foreign investment or investment from outside, the high entry requirements have virtually weakened the link of foreign invested firms with local enterprises and to a certain extent, reduced the opportunities for local enterprises to get in touch with modern business. \*18

From internal factors, we can see that what block the supply relations between local and foreign enterprises is, in addition to technological level, the fact that domestic business routine cannot suit international practice, especially in terms of payment conditions, understanding of goods delivery and quality control. \*19

\* There lacks necessary effective enterprise service industry.

In China, enterprise service sector has not been fully developed. The zones are usually built in a separate area at a distance from their cities. So it is not convenient for the enterprises in the zones to receive the limited services from the city. China's development zones have emphasized manufacturing projects, not service firms due to policy restriction. So an enterprise service sector that meets the demand of development of the zones cannot be established, which has affected the overall efficiency. \*20 In the course of our survey, many foreign-invested enterprises demanded for improvement in material flow efficiency and costs, customs clearance, maintenance service and testing service. \*21

These problems might be the result of short development period of the zones. But they are also caused by the pattern of development zones.

#### (2) The Problems of Development Zones as Urban Space

Except very few large-scale zones such as Shanghai Pudong and Suzhou Industrial Park, which were designed as urban space with comprehensive urban functions, most of the zones have been designed and built as a space to attract foreign investment. To introduce industrial projects, the zones have concentrated their funds on road, port, power, water supply and telecommunication facilities.

Recently, one can see in many development zones modern residential buildings and villas, supermarkets, large-scale specialized markets and new campuses of the universities in the urban area. The zones are becoming new parts of the city. They have been developed from merely industrial space to an urban space. There are four reasons: First one is on location. Early development zones, affected by special economic zones which were built far from old urban area. The construction had to start from scratch, which needed a large sum of investment. Later, the zones were built at near suburb instead of far suburb of cities. The development zones far from urban area have to pay a lot to cover the staff's transport and the services offered from the urban areas. To solve these problems, the zones started to build residential buildings and commercial facilities, hospitals, schools, banks, customs, postal offices, telecommunication facilities and hotels. The development zones have taken an initial shape of a city.

Second one is the need of urban expansion. Affected by the urban development policy, China's large and medium-sized cities' development has been controlled by the state. The development zones' construction offered an opportunity to break this restriction. \*22 Many cities in Jiangsu faced the task to protect historical cities while renovating old cities. The zones have become the space for reducing the burden of old cities and building modern cities.

Third, sources to collect funds. Most of the development zones cannot get the capital support from the superior governments. The funds needed for development were mainly obtained from local governments' allocations, bank loans and land transfer funds. Land development income is a very handsome income to a development zone. Merely foreign investment cannot fill in the space in the zone in a short period of time. But the cheap land and good environment in the development zones have caught the attention of real estate developers. The housing reform in the country also has given an excellent chance for them. Compared with inviting foreign investment, real estate development is an effective way to accumulate development funds for less input and quick return. The booming real estate construction has greatly quickened the urbanization of the development zones.

Fourth one is evolution of competitive advantages. Comprehensive urban environment –whether efficient and convenient services and beautiful environment can be offered –has become a new competition factor instead of merely basic facilities for development zones. Many problems have arisen when the zones are turned into new city areas. Sufficient attention should be paid to and effective measures must be taken to deal with them.

First, to build a development zone as a new urban area, it needs a explicit administration system, which defines duties, authorities and responsibilities. The development management committees are the representative offices of local governments but not a level of government. Their duties are mainly on project construction. They do not assume social function, so they do not take care of local social affairs.

Second, most of the development zones were planned as industrial areas, but as cities. Urban planning should be done as early as possible so the construction would be conducted strictly according to the plan. The views will be of modern characteristics while being harmonious with old cities. The new and old cities should function differently and back each other.

Third, the land market must be initiated now that new cities will be built so that the land would become an important mediation mechanism for the building of new city area. The large non-industrial land plots should be transferred in the form of bid invitation and auction in order to make full use of the land. Only in this way can the state's (owner of the land) interest be protected, and the development zones obtain more development funds. \* 23

#### (3) Development Mode and Problems with Management System

The emergence of problems with the development zones is resulted from the fact that the development zones only experienced a short history. The problems also closely related to the development mode and management system.

In development mode, the development zones are generally similar. A certain plot of land (usually in suburb) is first set aside. Then, infrastructure facilities are built with public investment. The enterprises in the zones will be given preferential policies so that a good environment would be created than other areas. The zones introduce foreign capital and advanced technologies, and develop export-oriented industries and high-tech industries. Infrastructure construction, amount and scale of foreign capital introduced and total export volume are the most important indexes to evaluate the performance of development zones. Under this mode, what concern the development zones and the subsequent problems could be summarized as follows:

\* How to raise starting funds: One source is financial allocation from local government. Second, land development income. As the financial allocation is limited, the second method is more relied on. This has led to an expansion of actual area of development zones, by far exceeding the area planned by the state and provincial departments. \*24

\* Emphasizing newly increased investment but ignoring existent investment. The zones care more about the number of projects and scale of investment introduced a year. They put more energy into introducing new investment, but more or less ignore the improvement of internal structure of the development zones.

\* Attaching more importance to foreign firms than domestic firms. Local township enterprises are excluded from the zones, as they are widely believed to be of low technological level. The role of development zones is to push forward the modernization of local enterprises and to foster medium and small enterprises.

\* Stressing high tech and large-scale industries. As the development zones target high and new tech industries, the gap between these enterprises and local economy is more and more widened. And the target industries themselves lack technical linkage or supply linkage between upstream and downstream industries. The members in the zones are actually independent entities. The development zones have become ``enclaves."

\* The basic facilities and preferential policies are very much similar, which cannot meet the demand of the zones' industrial target. For instance, the development zones, which gather electronics and electric industries, refuse the inevitable electroplating enterprises out of consideration that they may be polluting and damage the image of the zones. In the zones with many garment factories, there are not enough training centers (including CAD tailoring courses). In the zones where foodstuff factories, which require highly pure and large amount of water, do not have any measures to guarantee the water quality. The material flow's efficiency is low while the costs are high. \*25 In a word, there lack specialized factors and services to highlight the competition strategy aimed to improve the investment environment.

In management system, when China's administrative efficiency is still low, it was necessary and effective to set up relatively independent management system when the zones were first set up. \*26 After a decade of construction, the development zones have achieved great achievements and played more and more important role in their cities, we should consider whether the original management system and mode are still effective. Following points should be considered:

\* Whether the cities (counties) whose development zones have taken up a large share in local economy should continue to keep a position independent of local administration? \*27

\* Whether the zones' management system and mode, which blend administration with enterprise management, are beneficial to improving service? \*28

\* At a time when the competition among development zones is becoming so fierce that an environment is changing towards that of a comprehensive city, whether the management committees of the development zones are capable to handle the situation? \*29

\* To avert blind development and avoid waste of resources, whether it is necessary to introduce risk mechanism under which the zones each bear their own risks?

\* As the development zones are constructed as a kernel of regional industrial agglomeration, whether it is necessary to designate different developing entities according to different goals?

\* In consideration of a city's overall coordinated development, whether several different types of development zones existing in a city and each has its own management system is reasonable. \*30

\* Whether it is time to spread the experience of some zones such as "one-station service", "one-office fee collection" and "business-friendly notion" to the administrative departments of provinces and states?

# 3.5 The Basic Ideas of Building Industrial Agglomeration Centered on the Development Zones

In discussing the construction of industrial agglomeration, we should first change the set mode of thinking around regional development (especially in medium and small cities) and high degree of industrial structure. Only after jumping out of these old ideas can we really restructure regional economy including the development zones from the perspective of industrial agglomeration. The old ideas which should be updated are:

\* The old industrial division standard should be changed. The internal link between industries, industrial efficiency and industrial innovation should be considered in the course of regional industrial rejuvenation and upgrading.

\* Whether an enterprise belongs to high-tech enterprises should not judged by its final products. Any industry can be developed into a firm with high value added. Even a traditional industry can become a knowledge-intensive enterprise if it adopts advanced techniques and technologies and offers innovative products or services.

\* The factor that determines a region's (location's) vigour and prosperity is not the type of products their enterprises produce, but how they join in the competition. Even if the products fall into the high-tech category, they cannot bring prosperity to the region if their production mode is backward and not efficient.

\* What a region or a city should really care about is how to improve the productivity, not just selecting manufacturing or service trade, high or low technology, the industries to be developed are resources-based or knowledge-based.

\* Location is an extremely crucial factor to determine enterprises' competitiveness. Its influence on the competitiveness will surpass any single production factor or the significance of a single enterprise's economy of scale. In an era of globalization and information, one cannot guarantee that the development mode of large enterprise groups characterized by vertical integration must be effective.

\* Under an open system, enterprises are movable. They can choose their location freely. How to attract firms from outside is important, but in the long run, how to retain the current enterprises is even more important.

\* In an era of globalization and information, the advantages of Internet economy

may by far exceed economy of scale. The competitiveness from dynamic network links among the ``small" entities with ``kernel technologies" and ``kernel technologies" will be more and more important.

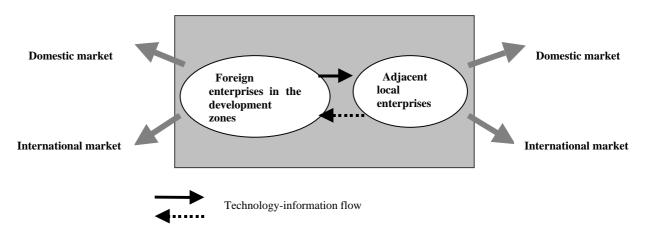
#### **3.5.1 Urgency for Jiangsu to Build Industrial Agglomeration**

#### (1) Bolstering Competitiveness

International and domestic competition pressure has pressed Jiangsu to raise its competitiveness. Internationally, with the pending entry of WTO, the domestic industries, which were protected by tariffs, will face a shock from imported products due to market opening. On the other hand, the foreign investment, which has entered China to bypass the high tariff barriers, may quit if their locations cannot provide them with an environment leading them to success. They may move to other areas or completely leaving China, and then re-enter China in the form of imports. Domestically, Jiangsu faces the tough competition rivals in Shanghai, Zhejiang, Shandong and Guangdong. Compared with other advanced areas, Jiangsu's productivity still lags behind. \*31 The effort to increase competitiveness cannot be made in too wide a scope without any specific goal. It needs a strategy. One of the most effective shortcuts is to build industrial agglomeration with the help of the province's advantages.

## (2) The Development Zones' "Second Undertaking" and Regional Industrialization

The "second undertaking" of development zones must target regional industrialization. They must transfer from the current ``transplanting" economy which relies on foreign management resources to an economy based on the network links among the members in the region. If in the previous period the development by relying on foreign investment was called regional industrialization, the development spurred by internal network will be the regional industrialization of industries. Figure 2 indicates the relationship pattern among enterprises when a development zone really becomes an industrial agglomeration space.



**Figure 2 Regional industrialization** 

Source: JICA-Study Team, 2000

#### (3) Pushing forward Urbanization and Developing the Characteristics of Cities

Industrial agglomeration can not be cut off from cities. The emergence of an agglomeration will mainly depend on the services offered by the city. In return, the industrial agglomeration will further push forward the development of cities. World-level agglomerations generally appear in large cities or on their outskirts. Globalization and information progress trend will further push for the concentration of industries to be concentrated in specific cities. In this sense, industrial agglomeration can be realized comparatively easily in large cities. But in medium and small cities, there exist many hindrances. Therefore, the basis for industrial development should be strengthened and environment of the location improved. The situation in Jiangsu is fairly good as its rural enterprises are quite active, and the counties have solid industrial basis. In the future, rural enterprises should be oriented in the direction of central cities or the cities' development zones (not to small towns). The cities should keep improving their functions so as to offer efficient and low-cost services.

Building agglomeration centering on specific sectors will also help the cities develop their own industrial characteristics. Combined with the cities' history, culture and natural environment, industrial agglomeration will help the cities shape up its unique style.

#### (4) Saving Land

The economy developed by industrial agglomeration is one of thrift and efficiency. Saving land is even more important to Jiangsu, especially southern Jiangsu, with a large population and little land. Repeated construction of development zones and extensively distributed rural enterprises have caused excessive occupation of farmland. With the rectification of development zones, aimed at industrial agglomeration and concentrating rural enterprises in a specific area, the original factory sites will be turned back to farmland; less land will be occupied for infrastructure facilities and more people will migrate to cities. As a result, the intensive use of land will be made possible.

#### (5) Effective Control of Pollution

Agglomeration of specific industries has made it possible technologically and economically to treat industrial wastes and waste water in a concentrated way. The prevention of excessive use of underground water, control of water pollution and recycling of waste water can also be realized with the construction of industrial water plant and paving industrial water pipes.

#### **3.5.2 Current Conditions**

#### (1) Industrial Basis

Jiangsu has a long history and solid basis in industrial development. Its manufacturing industries have been leading the country either in terms of scale or development level. It is the country's important petrol chemistry, machinery and light and textile industry base. Table 9 indicates its position in various industries of manufacturing sector in the country. Jiangsu has also a large number of famous enterprises and groups, which are leading their industries. In addition, it owns a large group of rural enterprises and private enterprises all over the province. All these have laid a solid technological foundation, mainstay basis and factor technologies for Jiangsu's future industrial development and agglomeration.

#### (2) Space Basis

After more than 10 years' centralized construction, the development zones are the space basis for Jiangsu's industrial agglomeration. The cities where the development zones are located are the suppliers of various urban services. In the future, the province should make full use of the good basic facilities, current technological basis and management resources reserved in foreign-invested enterprises and international network. The zones should intensify the links with local and outside enterprises so as to become the base for corporate restructuring, innovation and new undertaking for enterprises of different ownership.

#### (3) Opportunities from the Changes of Foreign-Invested Enterprises' Strategies

China's sustained high-speed economic growth and drastic increase of people's income have added great charm to China as a market. China's pending entry into the WTO will turn the potential market into an actual market. As the environment changes in China, the strategy of foreign direct investment is at a turning point -- changing from using China's cheap factors to develop export-oriented processing base to targeting China's domestic market. To produce the products Chinese consumers need, foreigninvested enterprises will develop and design new products in China and try to turn out low-priced and high-quality products Chinese consumers can accept. Then the location factors that determine foreign direct investment will be changed from tax reduction, land prices, rich and cheap laborers to whether the zones have access to the market, and whether their are auxiliary medium and small enterprises with basic technologies. If we can grasp this opportunity and adjust the strategy of development zones -dedicated to fostering local supply enterprises, fostering highly specialized factors and offering a more open competition environment, we can continue to absorb foreign investment and promote the transfer of management resources in a bid to push forward the process of regional industrialization.

#### (4) Cosmopolitan Circle

The Yangtze River delta, with Shanghai at its core, is China's most charming

market with a large population, development economy and transport facility. It is also an area with the best economic potential. It is no doubt that foreign and domestic will gather in this cosmopolitan circle with Shanghai as its center. This offers an excellent opportunity for Jiangsu to structure its industrial agglomeration.

#### 3.5.3 Obstacles Which Should Be Removed

#### (1) Systematic Obstacle

Household registration system, land system and social security system what restrict the free flow of production factors.

The obstacles derived from administrative divisions is also a systematic obstacle, causing separations between provinces, prefectures, cities and townships, which prevent the free flow and rational allocation of resources and lead to dispersed and duplicate investment. It has not only wasted resources but also affected overall effectiveness. A mechanism needs to be set up for the coordination and co-operation between different administrative regions. The regional imbalance brought along by the agglomeration can be eased through population migration and income redistribution.

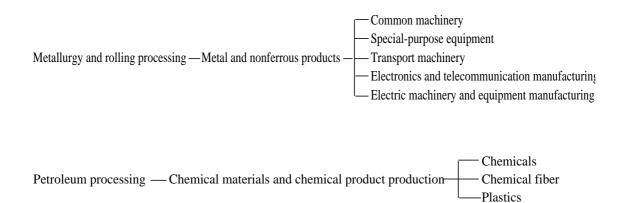
#### (2) Non-Systematic Obstacles

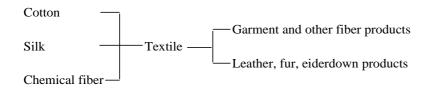
Lingering to land, local policy support (reduction and exemption of land and other expenses), entrepreneurs' reputation in localities and their value, one-sided sense of cost (only stressing labors, land, water and other direct expenses while ignoring indirect costs in transport, transaction, information acquirement and high-level talent). These factors prevent production factors from gathering in the cities. At present, that the cities can not offer sufficient and high-quality services is also a reason why they cannot attract enterprises from outside.

#### **3.5.4 Orientation of Agglomeration**

#### (1) Industrial Orientation

In principle, any industries can raise their competitiveness through building agglomeration. But as resources are very limited, it cannot proceed from all the industries. An effectively way is to depart from the current industrial basis and build industrial agglomeration through expanding product series and strengthen processing technologies. Jiangsu should also stand on its current industrial basis and start from its advantageous industries.





### (2) Strategic Orientation

The industrial agglomeration with development zones at its kernel should first be built in the following strategic orientation.

\* Cosmopolitan circle: Shanghai cosmopolitan circle (including Suzhou, Wuxi, Changzhou and Nantong);

\* Axis: first along Beijing-Shanghai railway and expressway; then along the Yangtze River;

\* Regional central cities: medium and small cities and counties should expand their industrial space with the current provincial-level development zones at its core.

#### 3.6 Proposals for Jiangsu Province

## 3.6.1 Adoption of Policies and Measures Appropriate for the Region to Create an Industrial Conglomerate

## (1) Formulating and Implementing a Spatial and Temporal Program for Development

In essence, this is a development zone which has been or will be established, that takes the encirclement of large urban areas and growth cores as its designated center around the development axis of the province (if the province has territorial axis, then it includes the territorial axis), as specifically reflected in the development area in the spatial and temporal program.

#### (2) Clearly Defining the Aims of a Conglomerate

Throughout the process of creating an industrial conglomerate, the central role of the region's governmental policies should be ensured. The soft and hardware resources, the industrial base, regional advantages and disadvantages, the sphere of influence of the local economy as well as the market growth of the region needs to be calculated (including the development zone within the analysis). On this basis, the aims of the conglomerate can be drawn up. As soon as they are defined, these aims should be made publicly known in the region's business circles, academic centers, and the related government departments, to strive for the optimum number of participants in the establishment of strong regional cooperation.

## (3) Synthesize the Current Management System of the Development Zone, Establish a Centralized Management System

It is not unusual for one city to have two or more development zones, each of which with its own management committee. This lacks a sensible division of labor, repeating the building of infrastructures, something that is actually favored by government policy. Starting with the overall targets of regional economic development, relationships should be harmonized, a centralized management system established, and the layout and planning designed as a whole.

#### (4) Adopting a Tactical Strategy to Attract Capital

Firstly, bring in and concentrate strong mutually connected enterprises.

Secondly, make full flexible use of large scale transnational companies. Foreign enterprises, in particular transnational companies, are the customers with the highest demands in the business world. Customer groups who impose harsh conditions on transactions are an extremely effective management resource in nurturing technology, quality, and delivery deadlines in local enterprises. Once the capability of smoothly dealing with this exceptional group of customers has been achieved, then conditions are ripe to expand into markets outside the region, even into the international market. Through the appropriate regulatory and persuasive mechanisms, raise the proportion of local involvement to the extent that it becomes important in demanding quality of the conglomerate.

Next, close relations should be established with conglomerates abroad within the same field. Attract companies and investment for concentrated and sustained development of the area. SMEs should be introduced to increase and strengthen the capacity of the conglomerate to produce new products, have a sound technical base and be innovative.

One great advantage of Jiangsu industry lies with the heavy machinery industry, but presently this advantage only has significance domestically, it is far from having a competitive advantage in the international market. A particular area of weakness is in basic processing technology, such as galvanizing, precision machining, precision polishing and cutting, precision sheet-metal working, precision punching press, molds, spray paint and heat treatment. This is a common failing in developing countries who have only a short history of industrialization, but it is exactly this basic processing technology which is the backbone of the competitive strength of the mechanical manufacturing industry. In order to develop the Jiangsu machine industry into an industry with competitive strength internationally, it needs to be built up from the most basic technologies, in this respect foreign capital should be fully utilized.

-Systematically introduce businesses in the basic technology field, and create opportunities for study and contact with foreign enterprises that work in cutting edge areas.

-In other countries (like Japan), the leading players in this field are more often than not SMEs, and these SMEs are the best at sustaining the economic pressure and make up the majority of customers – the affect of the global strategy of large scale enterprises is that when faced with economic crisis, objectively what is needed is the expansion of a companies sphere of operations.

-The basic technology department's investment in factory equipment is a heavy burden of capital intensity. When introducing this technology it is necessary to consider measures, which would alleviate the burden of investment.

-SMEs usually lack the experience of multinationals, and have no security in doing business abroad. In order to give them this security adopting the method of collectivizing them in development zones can be considered, which will also enrich the services available in the zone.

-Besides overseas investment, related enterprises from other areas of China can also be introduced, for example companies which produce electronic and metal components from Guangdong province<sup>1</sup>; this will further enrich the development zone's capabilities.

#### (5) Strategic Measures for Constructing an Industrial Base

The initial investment in factory equipment is no doubt important in attracting capital from outside the area into the development zone, however local governments must consider the following points, especially when building the industrial infrastructure of medium and small sized cities:

#### 1) Level of Cost and Convenience

The condition of the industrial infrastructure is an important factor in enterprises'

<sup>&</sup>lt;sup>1</sup> Taiwanese and Japanese companies entered Guangdong province comparatively early, and conglomerates of the components industry have already been established to a reasonable degree.

location, but with increasing globalization of economics, the cost and convenience of industrial infrastructures is obviously all the more important. But the construction of industrial infrastructure requires enormous investment, the burden of the cost of use can be transferred to the user. If the requirements of the infrastructure can be limited, the cost borne by each work unit can be reduced, thus raising the competitive cost of the infrastructure. In particular it is infrastructures such as airports and ports that can provide the most convenience to users.

 Using Encirclement of Large Urban Areas as the Work Units to Implement Optimum Integration

Infrastructure now being constructed has a blinkered view of development, each zone having a complete infrastructure regardless of its size or of what is available in the surrounding area. The cost of this is a huge waste of scarce capital, which puts the local public finance department in a difficult position. Each level of the administrative area, starting from invigorating the area's economy and increasing the competitive strength of local industry, should coordinate the benefits for all stakeholders, explore the issues of a planning, construction and operating system for infrastructure in a wide area.

On the basis of local government's analysis and calculations of the national infrastructure for the circulation of materials, the optimum combination of industrial infrastructure should be considered within existing or proposed large urban encirclement zones (which will in turn compete with other large urban encirclement zones). Secondly, the lay out of infrastructure within large urban encirclement zones should be considered, laying particular importance on setting up a network, the linking of infrastructure, consumption land and production land using railroads and highways. The capital saved can then be used to build the specialized infrastructure required by the conglomerate.

#### 3) Constructing Specialized Infrastructure

Investment should be concentrated on the construction of specialized infrastructure according to the particularities of the conglomerate,. To take water as an example, if the industries within the region were the type that consume water on a large scale, water works for industrial use can be constructed in order to reduce the over-extraction of ground water. If there was a concentration of many food industries or integrated circuit and semiconductor assembly line industries, then the water would be treated appropriately according to the water quality requirements of each industry, carried out before the water (or steam) is supplied to the factory. Waste water reclamation pipelines have to be laid with the industrial water supply pipelines, and through concentrated treatment waste water reclaimed.

Another example is for the development of precision machinery, parts and processing, for which a publicly used research, testing and experimentation center could be set up. This would be provided for the use of SMEs within the area at a low cost for the free development and trial of newly developed products. This can be used as the basis for continued industrialization.

#### 4) Improve Software with the Aim of Raising Efficiency

The low efficiency and high cost of the circulation of materials still exists as a great problem in the investment environment in China. From the user's standpoint, the improvement of software through a relaxation of regulations and simplification of procedures is of more concern than the scale and position of hardware. A system for handling information of goods in transit at customs, ports and airports should be set up as soon as possible. And centralized management of the operations system established. At points where the circulation of materials have a high concentration of demand, and the need of the user urgent, the establishment of a 24 hour year-long service system should be considered (this is essential for the circulation of goods for high-tech products, where the changes in the market are sudden, and the time taken for manufacture short).

 Active Support of SMEs, Raise the Level of Their Organization, Establish a Specialized Division of Labor and a Coordinated Network

SMEs have an important function in developing distinctive features of an area, and in the process of fusing the benefits of industry together with that of the region. In the majority of medium and small sized cities, the main role of regional economics is to foster the growth of SMEs within local conditions. Usually, the effect that the existence of SMEs brings to the society and economy of the area can be summarized in the following:

-Increasing employment and income – for the managers of SMEs, those running family businesses and employees, they provide an opportunity for a place of employment and income

-Knowledge and information– SMEs become a point of intersection or a source for the circulation of information on the area.

-Education – Diverse skills and specialized knowledge is handed from the managers to the employees. The employees who receive the training of their techniques and management skills have a strong awareness of how to set up their own business independently.

-Innovation – In the process of being alert and resourceful in responding to a changing environment innovative thinking is fostered.

-Cultural – The effect produced on the way of life of an area. With SMEs at the center, it is easy to form a commercial center that is rich in local flavor.

-The forming of features distinctive to the region – combining the above mentioned effects, distinctive regional economic, social and cultural factors are created.

To conglomerates, the existence of SMEs is extremely important. Often, conglomerates are victorious in competition by using the weapons of efficiency and disparity of size. Within the conglomerate in the close knit chains of specialized divided labor, the SMEs usually provide the precision work pieces which are of extremely small quantity, are difficult to process by machine alone and require the sense and skills of an 'artisan'. In respect to satisfying the demand for goods for which the delivery date is extremely urgent, SMEs also have unique advantages.

However it is precisely because SMEs are small scale that they face instability, the level of technology and capacity to develop new products is low, marketing weak, and it is difficult for them to guarantee the quality of their staff or proficiency of the labor force. To resolve these limitations, the method bringing the greatest degree of vitality to SMEs is: 1, provide extensive public services and support for the vast number of

SMEs. 2, Improve the location and environment of SMEs (including the construction of attractive cities to prevent the drain of able, persons from leaving the area and attract outside talent, provision of residential flats for the use of the SMEs' factories within the development zone). 3, Promote the establishment of stable division of labor and collaborative relations between SMEs and large enterprises, as well as companies who manufacture the end-user products.

 Guide Township (Town) Enterprises into being Concentrated in the Development Zone

At the moment, all towns and townships are setting up their own small industrial zones, this goes against the pattern of industrial conglomerates, and is possibly a factor in the eventual disbanding of such zones which often occurs. We should fully utilize the national and provincial level development zones which presently exist, and concentrate the town SMEs in these spaces. One method to achieve this is as the city wants to reduce the number of town enterprises entering its limits, the development zone act as a buffer absorbing these unwanted businesses by offering subsidies and preferential tax and land price treatment. Another method is to curb the setting up of new enterprises in rural areas, for which the forbidding of new investment and new enterprises should be considered. For enterprises, which already exist the standard water rate for ground water use should be raised, to encourage them to move to the development zones. The land market should be revitalized to compensate for the cost of moving. No matter whether the enterprise is in the countryside or in a city district, the moving of the enterprise and the modernization process should be organically integrated.

7) Setting Up Supporting Facilities for the Region's Industries

To promote enterprises within the conglomerate members should continuously pioneer in new areas of work, raise their capacity to develop new products and new technology, and push forward standardization as an important guarantee of sustaining and maintaining the conglomerates competitive strength. However, to the SMEs of the medium and small cities, due to the influence of factors such as funding, technology and staff quality it is difficult for them to realize this on their own. Thus, it is necessary to give them the necessary support. Currently every large high-tech development zone in China has a research and development department, or scientific and technical research and development department, software technology parks, university research institutes, foreign student business development parks, international enterprise research and development etc. But the main aim of this is to push forward the industrialization of high technology, and is aimed at innovation or risk enterprises within the high technology field. Medium to small sized cities should set up industrial support facilities according to the actual local situation. These facilities should pursue the aim of being low cost and convenient (i.e. available at any time during the year).

The construction of industrial support facilities should not only place emphasis on the hardware such as equipment, installations, and facilities. Beginning with the aims of setting up enterprises within the region, innovation and development these facilities should also strengthen the support system, including research into production and management; technological exchange, consultancy and guidance; industrial design; obtaining international product standards; trials of new products, experiments, analysis and tests; training of technological staff; and provision of market and technological information.

 Setting Up a Specialized Technology Training School, Developing the Professional Personnel Required by the Conglomerate

To the majority of medium and small sized cities, there is a great degree of difficulty in attracting personnel from outside the area. Therefore the training of local employees and enlivening the local business circles is a wise choice. During Japan's period of rapid development after the second world war, the industrial and vocational high schools across the country provided a vast work force. The scene of growth in Japan's urban manufacturing industry had a skilled labor force and government policy as its technological backbone, and made an undeniably crucial contribution to comprehensively raising the international competitive strength of Japan's manufacturing industry.

Currently in China's vast countryside and small and medium sized cities the rate of those entering senior high schools is still low. Middle school graduates have not gone through any vocational education or technological training and urban migration means the work force in the cities is enormous. If the development of a skilled labor force and professional staff relied solely on the enterprises, the costs of the enterprise would go up. Moreover the vast majority of SMEs do not have the capacity to develop training within their enterprise, and even if they did it would not be sufficient.

A great resource of experts, skilled workers and technically able employees within the zone is an essential condition to creating a successful conglomerate. Every level of local government should clearly define the direction in which industry will develop, and it is important to develop reserve forces of personnel and labor most needed by the conglomerate. In order to raise efficiency a vocational training system aimed at different ages, after hours and vacation should be established. Geared towards the needs of SME owners, they can also develop an irregular course of lectures concerning commercial management, international business practices and management of goods circulation. The conception and business convention that a great gap exists between Chinese and foreign enterprises should be eliminated, and the smooth development and mutual cooperation should ensured.

9) The Long Term Aim of Constructing Ecological Development Zones

The building of an ecological society in symbiosis with the environment and produces no waste is one of the arduous tasks that faces humanity this century. Yet the recovery of waste, the economics of re-use is also involved in the economics of scale. The intense development pattern of seeking industries to concentrate in the special space of a development zone has positive environmental significance.

Firstly, the high density of land use can save on precious land resources; secondly, the concentration within a space of mutually linked enterprises is helpful to establishing a waste recovery and a system of re-use in production, circulation and consumption within the area. The greater the quantity of material recycled, the more obvious the result. Besides promoting more enterprises within the zone to obtain the ISO 14001 series of environmental standards, enterprises can work together to mobilize people within the zone in the cause of recovering waste and reuse gradually reducing the harsh burden placed on the environment by work units within the zone.

Acting as demonstration zones of modern industry, they should strive to solve environmental problems within the area, and in the end take into consideration environmental liability.

10) Gathering Information, Making Information Public and Information Exchange

In order to produce an exchange of information firstly means that government departments, business groups, non-governmental consultancy bodies must often gather and issue specialized economic statistics and information. This should be made public to all members within the zone, and allow each member to grasp the state of the competition, and know clearly their own position as compared to the other industries in the area, and thus take the initiative in adopting counter measures. The second thing is to establish an atmosphere that values human interaction. Without a smooth exchange between people, there is no way to establish the relationship of mutual trust, and thus have the full exchange of information. Government should work hard to establish positive efficient regular exchanges of all kinds between participants.

#### **3.6.2** Proposals for Enterprise

## (1) Large Scale Enterprises Should Actively Promote Rational Reform, Positively Use External Resources

In the process of constructing a conglomerate, the function of the large enterprises forming the industrial core is critical. Large scale enterprises acting on the principle of rational and efficient operation, should in the process of expanding strip off all inefficient departments, service departments and connected departments. They should establish a system of using external departments through methods of sub-contracting and serialization of products. The transformation of the management policy of large enterprises will create business opportunities for the specialized SMEs of the area.

## (2) Thorough Business Accounting for the Total Cost, Actively Transfer to a Good Location

Many enterprises in the process of conducting business often only value the cost of what their present location can provide fundamentally. If a town enterprise located in a rural area believes that the locality can provide cheap labor and land, and they have a good relationship of trust with the local government (often as not in the convenient form of remitting or reducing all manner of costs), then they are convinced that moving to the city necessitates paying out much more, greatly influencing cost. Indeed, the factor cost of being located together with their competitors in the conglomerate is undoubtedly high, but if a strict calculation of the total factor cost is made, including business efficiency, the advantages of a conglomerate are manifold. Conglomerates are able to provide all the elements of highly specialized operations, which there is no way of obtaining when these elements are scattered over a wide area. It provides a specialized infrastructure that can be commonly shared, can obtain specialized information, can move toward a common plan, can greatly reduce the indirect costs of enterprise activities (including economizing on transportation), and can also through this expand into more markets, produce products at a higher price, and give benefits both in cost and income.

#### (3) Enhancing the Contact Between Related Structures in the Same Area

Firstly a close relationship should be maintained with the vocational schools, technical training and research bodies (including universities), putting forward to them the demands of business, and cooperate with them guaranteeing specialization. Second, frequent contact with the providers of the local infrastructure should be maintain (including those in charge of circulation of materials, data communication, and transportation of goods), and provide them with specialized requirements and pressure to improve.

## (4) Bringing Together a Trade Organization, and Fully Utilizing the Function of That Trade Organization

The non-governmental department within the conglomerate should grasp its right to direct the conglomerate, and not the government, which should actively participate and give wide ranging support. Because the enterprise is the clearest about the obstacles and restrictions that exist within the environment in which it is located, it is easy for them to discover opportunities.

Compared to scattered and independent individual, the influence of commonly organized groups is much greater and more effective, groups such as the establishment of an informal network of relations between enterprises, formal trade bodies, and groups and coalitions. Trade groups are organized in the construction and strengthening of the conglomerate and can bring into full play their impact through the following:

-Trade groups should join the links between the members of the conglomeration, forming a system of contact between them.

-Find out the common needs of members, restricting factors and opportunities, and become a basis of activities to deal with these.

-Act as a bridge between government and business.

-Organize and hold national scale or even international scale trade conferences, product demonstration meetings, expositions, and organize investigations both in China and abroad, at the same time as widely publicizing the conglomerate both in China and abroad, expand into new markets for the conglomerate.

-Gather and publish the conglomerate's information

-For issues of general concern, convene discussion meetings, study groups and lectures, raising the business capacity

-Set up local experimentation and standardization bodies

#### 3.6.3 Proposals for Universities

The developing pf close relations with the activities of local industries, and the cultivation of specialized personnel by university courses should respond to local demands, (and according to the different characteristics of each area, the establishment of branch colleges that can respond to this). Research facilities can also be opened to enterprises, and with the enterprises' trust, or by working together with enterprise development and research, the cost source of research is guaranteed. Also the results of research can be use to speed the transformation of production. In the long-term, universities can become highly specialized, satisfying the knowledge activities of the

production base. This will achieve the complete support of the region and gradually

raise the existing value of the regions high schools and universities.

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#### Notes:

1. Of them, nearly 3,900 are engaged in computer, semi-conductor, telecommunication equipment and parts; 3,900 are trading companies; and nearly 4,500 are engaged in computer software development, R&D and engineering service.

2. The simplest example is tourist industry. The factors that attract tourists are not only places of historical interests. It requires the support of considerate service, comfortable hotels, good restaurants, inexpensive but fine souvenir shops and convenient transport facilities (including airports). Any problems arising in any one of these aspects will affect the whole tourist industry.

3. Italy's leather products (shoes and bags), garment and ornaments enjoy high reputation in the world, from which enterprises greatly benefit. The reputation itself has become an invisible public assets of relevant enterprises.

4. Enterprises in the Silicon Valley are much faster than the firms in other places in grasping the world's most accurate trend of computer industry and consumers' latest demand.

5. Jiangsu grasped three big opportunities in developing economic and technological zones. In 1984, the central government decided to further open up 14 coastal cities. The provincial government pushed for the opening of Nantong and Lianyungang. It spared no time to plan for the development zones and, at the end of the same year, reported the plans for the development zones in the two cities to the State Council for approval; in April 1990, the central government decided to open up Pudong of Shanghai. As the country focused its development on the Yangtze River Delta with Shanghai at its center, southern Jiangsu areas reacted quickly to the Pudong development by building more development zones; and in the spring of 1992 after Deng Xiaoping made its important speech during his South China trip, and the 14th Party Congress was held, the counties along Yangtze River with good economic bases and conditions built a large number of zones on their own.

6. Adapted from ``50 years of Jiangsu" (1999, China Statistics Press), pp 144-145.

7. Ibid.

8. "China's Industrial Development Zone, 2000", Page 339, Economic Management Press, 2000.

9. ``A Guide to China's Development Zones"

10. This is the result of an evaluation of the 25 famous industrial parks in Asia-Pacific area's Japan, Australia, Singapore, New Zealand and other countries and regions.

11. The case of Kunshan is special. It has no port, nor is it near any large cities. Without any name, the county government developed the zone on itself. The zone was recognized After it has developed into a certain scale. When it needed to the state's policy support for further growth and make itself better known, the zone was upgraded to state level.

12. The statistics cover Japan's capital, do, fu and ken, city, township and village, development commune, regional rejuvenation zhengbeigongtuan housing and urban zhengbeigonguan and non-governmental developers. It also covers the main industrial land plots being allocated or to be allocated, including industrial plots, circulation plots and business plots.

13. According to an analysis of the country's 52 high and new tech development zones, in 1997, the first five major industries of the 36 zones were electronics and information industry, new materials, bioengineering, new energy and optical and electronic integration. Twenty-nine zones placed electronics and IT as their first important industry. At the same time, the industrial mixes have tended to be identical. Twenty-six zones produced PCs, and 16 zones produced TV sets. Pagers, Video players and mobiles were produced by seven, five and four zones.

14. "China's High-tech Industries and Industrial Parks" by Gu Chaolin, Page 308, CITIC Press, 1998.

15. In 1998, the total export volume of the state-level high and new tech zones reached 70.6 billion yuan, accounting for 16.3% of their total industrial value, a rise of 9.4 percentage points compared with 1993. In Jiangsu, the proportion of Wuxi's zone was 63.5%, that in Suzhou was 42.9% and that in Changzhou also exceeded 20%.

16. ``Current Situation and Prospects of Development Zones," by Wei Houkai, Page 343, from ``China's Industrial Development Report, 2000" by the Industrial Economics Institute of the Chinese Academy of

Social Sciences," Economic Management Press, 2000.

17. Foreign businesses' direct investment in Jiangsu mainly take the form of sole investment. Their contractual foreign investment and actual foreign investment in the zones were 4.05 billion US dollars and 2.98 billion US dollars, respectively accounting for 58.0% and 44.9% of the province's total.

18. Many development zones believed that local enterprises' entry would not increase the tax revenue in the area, and that only firms from outside would increase total investment and tax income. Even if local enterprises entered the zones, they could not enjoy the tax reduction treatment to foreign firms. As the land prices were high, many medium and small firms could not bear the cost. Local enterprises were also not welcome for their low technological level and pollution problems.

19. In terms of payment conditions, first, Chinese firms require low prices (Take the parts of electric appliances for example. As Chinese firms are in a price war, they stress low prices more than quality.) Second, in payment method, they wish to get delivery before payment. Third, in delivery time, Chinese firms usually ask for six months while the foreign side wishes it would not exceed three months. In material flow, transnational companies generally adopt JUST IN TIME mode (with zero inventory as the goal. When necessary, they can send the goods at the amount ordered.) Early delivery will increase inventory costs. Late delivery will affect production flow. Domestic firms cannot quite adapt to this practice.

20. China's specialized service industry is characterized by: first, the government's protection over its service trade is stronger than to other sectors; second, in terms of scope of foreign business' entry, foreign service companies are more limited by local human resources compared with those foreign firms entering into other industries.

21. Maintenance, for instance. When foreign firms encountered breakdowns with equipment or production lines, they have to rely on their parent companies, which may entrust other firms to solve the problems. Although transport conditions have greatly improved, it will take at least one week. In customs clearance, a manager of Japanese-invested firm in Suzhou Industrial Park said in Japan it took one day to get through the customs but in China it will take five days, at least 2-3 days. For electronics and telecommunication sectors, time has become an important competition factor. So it is urgent to improve customs efficiency. In testing, semiconductors and integrated circuits cannot do without the test of function, precision and safety in the course of its developing, manufacturing and use. The testing equipment is extremely high. Once broken, it will cost a car to repair it. So enterprises need routine maintenance service nearby. At present, only few enterprises in the world can offer top-level testing equipment and services. Now China does not allow foreign enterprises, which do not product testing equipment in the country to offer testing services. The problem is that if this inevitable link of semiconductor production is blocked, it will affect the semiconductor business companies' investment decision-making.

22. "China's High-tech Industries and Industrial Parks" by Gu Chaolin, Page 11, CITIC Press, 1998.

23. If a development zone covers only one to three square kilometers and is used only for industrial purpose, the land market does not need to be initiated. If the zone is larger than 10 square kilometers and is built as a new urban area, a land market has to be set up. The land prices will no longer be set through negotiation. At present, the land prices are not subject to great changes in many development zones. The great value of infrastructure construction cannot be fully displayed. As the land price mechanism has not quite functioned, some enterprises and real estate developers rush to occupy well-located land. As a result, the projects stretched mostly along the road while the land in the middle lay idle.

24. First, the governments at various levels give new land quota to development zones. Second, the areas that can be applied to the policies to the development zones are expanding (For instance, there is more than one park in a zone).

25. China's air cargo and passenger transports are not separated. Those high-tech enterprises have to bear expensive costs of transport as their products' cycle is short and heavily rely on air transport. Merely the zones cannot solve this problem. But this should be considered as a joint measure by the government to improve investment environment.

26. The management committees are the government agencies to manage the development zones. They basically exercise the power of a level of government. Their functions include: compile the zones' overall development plan and socio-economic development plan, and organize its implementation after being approved; formulate the administrative rules according to the state's laws and regulations; manage

the land and basic facilities in the zones; approve the investment projects according to their power scope; manage the zone's finance, taxation, labor affairs and industrial and commercial administration; handle foreign affairs; manage the education, scientific, culture, sports and other undertakings in the zones; instruct and supervise over the enterprises and institutions; manage the work of branch departments of the city government in the zones; and exercise other powers authorized by the city government. But specific functions vary among different zones.

27. In Kunshan, 50% of the city's financial revenue in 2000, 60% of the taxes, 70% of the industrial sales, 80% of the foreign investment and 90% of the import and export volume came from its development zone. In Suzhou, in 1999, the industrial sales income, export earnings and financial income from the industrial park accounted for 55%, 50% and 36% of the city's total.

28. Many management committees not only exercise approval and planning powers, but also are responsible for fund raising and specific construction affairs. Much of the management power is concentrated with the committees. This system played an active role in the early years. But as things change, the shortcoming of this system is more and more obvious.

29. For instance, reminded of China's investment environment, foreign businessmen would mention a major problem, high living expenses for their staff in China. According to the weekly's DIAMOND special survey group (1994), the employees sent to China spent 500,000 to 650,000 yen a month in Beijing on residence and 150,000 yen a month on living expense. The total expense is 650,000 to 800,000 yuan. If their monthly income in China (on average 250,000 yen), in Japan (on average 750,000 yen) and necessary transport expenses are considered, their monthly average expense will be 2 million yen (about 150,000 yuan RMB). In addition, there is no school for foreign children, and their spouses cannot live with them. As time goes on, they will be under great stress. This will affect their work efficiency. Merely development zones themselves cannot solve such problems. It needs the whole city to work together to improve the investment environment.

30. The administrative and coordinative relationship of China's development zones is complex. The economic and technological development zones are affiliated to the State Council's Office of Special Economic Zones. The high and new tech development zones are directed by the Ministry of Science and Technology. The State Tourism Bureau manages the travel and resort areas. The export-oriented agricultural development zones are subordinated to the Ministry of Agriculture. The bonded areas are under the jurisdiction of the General Administration of Customs. In Jiangsu, many cities have different types of development zones. In Suzhou, it has four types of state-level development zones (industrial park, the new development zone, export processing zone and travel and resort area, each having its own management committee.

31. According to the research of Industrial Research Institute in the Chinese Academy of Social Sciences on the net-assets profit ratio of 36 mining and manufacturing industries, the best industrial efficiency in the country is distributed in Shandong and Zhejiang provinces. In Shandong, all the industries reported good returns, and the gap between industries in the rank is not large, with the absolute value being within 3. In Zhejiang, except mining industry (due to limit of resources), all the industries reported good economic return. Only 20 and 14 industries of Jiangsu and Guangdong were ranked in the first 10 places in the country in terms of net-assets profit ratio. Jiangsu's industries, which entered first 10 places in terms of net-assets profit ratio, are mainly in light and textile industries and machinery and electronic industries. But they were only ranked from six to ten places. Guangdong is similar to, but not as good as Jiangsu. Many of its industries whose output value ranked first in the country cannot be placed in the first 10 places of the rank of net-assets profit ratio. Shanghai has advantages in heavy processing industry, textile industry and electronic industry. It has a large-scale resource processing industry, but effectiveness was relatively low. Judgeing from total output value, profit and effectiveness, Jiangsu is not quite good. The provinces with the best-combined performance in output value, profit and effectiveness were Shandong and Zhejiang. They have 27 and 23 industries with a coincidence of their output value, profit and effectiveness, ranked in the forefront in the country. Jiangsu and Shanghai were ranked second. Except mining industry, Jiangsu's manufacturing industries were all developed, and the coincidence rate of output value, profit and effectiveness was also high -- 16. In particular, the processing industry with high technological content, the coincidence rate was even better. But the effectiveness of Jiangsu is obviously not as good as Shanghai. Of the comparable industries, more industries of Jiangsu lagged behind Shanghai's in terms of effectiveness within the sector.

