

## **Clusters and Innovation in China**

### **(draft report prepared for Prof. Zutshi)**

#### **The Formation and Development of SME Clusters in China**

The SME clusters in China are booming these 20 years.(Shao 2007) This attribute to institutional as well as economics development of China these 20 years. In 1970s, the agricultural reforms in most of the rural regions lead to the birth of thousands of township enterprise and family workshops. Later on, the open-door policy adopted since 1978(*C.P. lo, 1989*), the economy's shift from a centrally-planned system to an open, market-based economy as well as the development of private and semi-private enterprises (*Shao,2007*)all contribute to the formation of the SME clusters in China. In the middle 1990s, many MNCs came into the special economics zones of china (many of which are coastal regions) and bring along the international trades, foreign investment and new technology and skills and worked as the engine of the development of many of the clusters (*Chen 2000,Arvabutis,2006* ). The representative clusters can be the Pearl River Delta, the Long River Delta and so forth.

#### **Typology of the cluster in China (Shao 2007)**

	Endogenous Driven		Exogenous Driven		
Driving force	Rural township enterprises	Foreign, Taiwan or HK enterprise	Foreign, Taiwan or HK enterprise	Urban technology enterprises	State-owned enterprises
Type	Labor-intense	Technology-intense	Labor-intense	Tech-intense	Tech-intense
Representative	Wenzhou, Zhejiang	Yizhuang, Beijing	Dongguan, Guangdong	Zhongguangcun beijing	Gangqin Dongbei

## The contribution of SMEs clusters to China

The cluster contribute a lot to the GDP of China, according to China City Competitiveness Report, the GDP generated by a city with developed clusters can overpass a province without such advantage. And those cities are enjoying around 20% growth rate each year(eg: huizhou 19.7% shenzhen 19.2% dongguang 19.5%)( *China City Competitiveness Report 2005.*). The clusters also raised the competitiveness of the Chinese SMEs in world market. For example, the production of lighter in Wenzhou clusters consist 70% of the world lighter production (Shao,2007) And Zhongguangcun science park in Beijing, which contained 7 hi-tech SMEs clusters, also have become the “Silicon Valley ” of China and is quite influential in world now.

According to *Joung, (2006)* success in the cluster innovation system due to common

principles for the success of regional clusters, sharing the basic thinking, building the corporate innovation system

Moreover, according to many innovation literatures, innovative activity will be more geographically concentrated activity will be more geographically concentrated in industries where production is also geographically concentrated because the firms are within close proximity. The literature on innovation systems (*Cooke, 1992, Asheim & Isaksen, 2001, Porter, 1998, Joun, 2006*) showed that innovation processes are institutionally embedded in the institutional setting of networks of production (clusters).

### **The problems of Clusters in China**

Moreover, the disproportionate support for leading firms within a cluster leads to malnutrition for SMEs in terms of resources, leading to a weak support network. (Yi, 2007) For example, in the garment clusters in Quanzhou (*Shao, 2007*)

In some part of the China such like China's middle and western provinces, clusters are not formed by market forces but by administrative mandates. This kind of cluster lacks interaction and connectivity between firms, producing inefficiency and waste of public resource. (China City Competitiveness Report, 2004)

What is more, the restriction on labor migration by the “Hukou” (family registration) system leads to inefficient allocation of human resource and unbalanced city sizes. (Au and Henderson, 2004) This potentially limits cluster growth as they spread across administrative borders.

## Case studies

### (1) The cultural and media industry (innovation book)

The culture and media industries is called the “creative industries” in China, which involved a lot innovation and creativity in.

The clusters in these industries are mainly in

#### (1) Shanghai

Shanghai Creative Industry center was established on 6 November 2004

There are 11 clusters (Xuhui, Yangpu, Hongkou, Changning, Luwan, Jing'an, Zhabei, Pudong, Huangpu, Putuo, Minhang) which doing the handicraft design, advertising, visual art, cultural media, architectural design, cartoon and comic design and so forth.

#### (2) Chongqing (Yangzi Jiang Delta)

The Chongqing Municipal Government announced plans to develop creative industries as part of its 11<sup>th</sup> five-year plan and build the ecology business district(EBD) which was chosen as the location for a national animation base.

(3) ***Beijing***

The cultural industries cluster can be close to the business cluster, which will bring innovation and creativity to the latter. Chaoyang (a district in Beijing where the CBD is) is already the most clustered business center in China. The relocation of the CCTV (China Central Television) reshaped Beijing's CBD, bringing the talents of media professionals closer into the business services milieu (Keane, 2007).

The 798 artists' collective at Dashanzi, the Cultural and Creative Park in Tongzhou district. The Zhongguangcun Creative industries (in high-tech and new media) are all very influential cultural clusters in Beijing.

(2) **The high technology industry (Torch program)**

The Ministry of Science and Technology has launched a project called "the Torch Plan" (huo ju gong cheng) which aimed to develop Chinese Science and Technology Industrial Parks. Since 1988 the program first launched, it has funded 14884 projects. The ongoing 5541 projects have made a profit of 3.14 billion yuan.

These also contribute a lot to the innovation and technology development. In year 2006, the technology industrial parks and clusters have got 3250 domestic patents and 68 international patents. (For more information refer to <http://www.chinatorch.gov.cn/>).

**(3) A case study of cluster regarding to the innovation and policies' influence in clusters—Zhongguangcun Science Park**

Akifumi(2007) conducted interview survey on the hi-technology industry cluster at the Zhongguangcun Science Park (ZSP) in Beijing, and find out that

(1) The government played a very important role in the ZSP

**I. Fund support**

The Beijing Municipal People's Government established professional funds such as development funds for the hi-technology and new technology industries and the software industry in the ZSP. It subsidizes the interest rate by 1.5% for credit on items of integrated circuits.

**II. To attract human resources**

The people\_(including the new graduate from university and research institutes) identified as professional technicians and managers required for hi-technology and new firms can get the temporary proof of residence and further family registers in the Beijing Municipality. This policy resulted in the invitation of 7,400 persons and the establishment of 3,200 firms in the ZSP up to 2006.

**III. Land policy, and**

The hi-technology and software companies are charged 75% of the value of the land

transfer and half the rate for the cost of urban infrastructure construction and municipal government administration.

#### IV. Tax policy

The new technology companies do not need to pay tax for three years from the day of establishment.

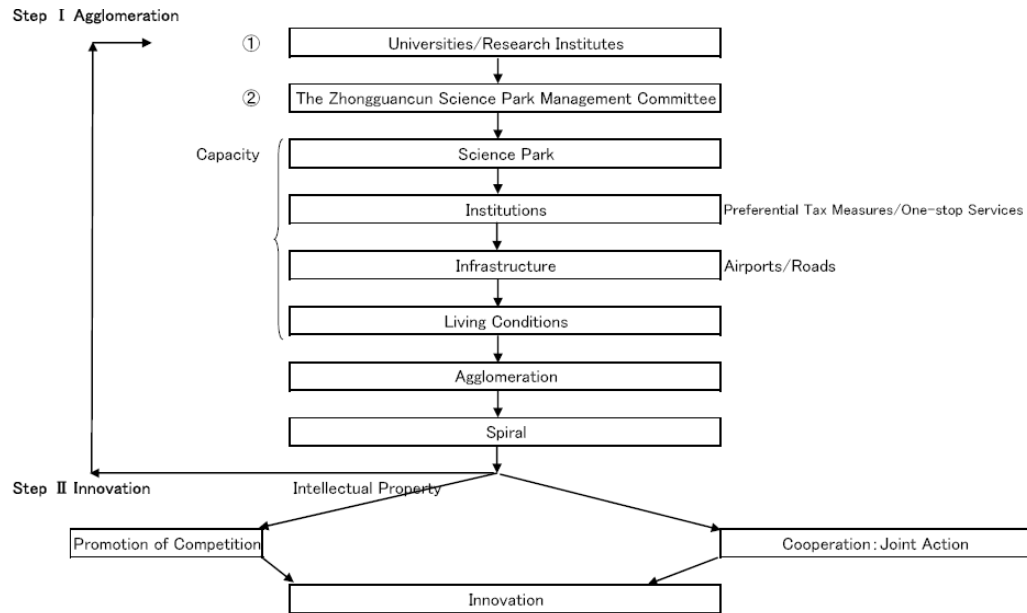
(Source: Zhongguancun Science Park Management Committee (December 8, 2002), "Regulations for Zhongguancun Science Park".)

- (2) The innovation is realized by partnership between firms and universities and research institutes (There are 39 universities, 700 thousand students, 75 national engineering research institutes, and 71 nationally important laboratories as well as 17 thousand firms in the ZSP).

**Table 1 Enterprises Invested in by Research Institutes/Universities**

Research Institutes/Universities	Name of Enterprise	Notes
Institute of Computing Technology, Chinese Academy of Sciences	Lenovo Group Ltd.	Leading enterprise in development, manufacture and sales of computer products.
Software Research Institute of Chinese Academy of Sciences	Red Flag Software Co., Ltd.	The Linux OS developed by the company is at the highest level in China. Ministry of Information Industry invested one hundred million Yuan in CAS Red Flag in 2001.
Chinese Academy of Science	China Sciences Group (Holdings) Corporation	Consists of over 40 enterprises, such as Zhong Ke San Huan, Zhong Ke Hope Software, Shanghai China Science, Dayang and CSCA Technology.
	China Daheng Group Inc.	Manufacturer of optical components. Ranked in China's Top 100 Electronics Enterprises.
Peking University	Peking University Founder Group Corp.	The second largest enterprise for computer and multimedia products (after Lenovo). Leading position in the field of Chinese character laser-typesetting system.
	Beida Jade Bird Group	Software production, mainly software development, system integration and computer security.
Tsinghua University	Tsinghua Tongfang Co. Ltd.,	Computer products (personal computers for home and business, servers and laptops; application information systems; digital television systems, and civil nuclear technologies)
	Tsinghua Unisplendour Co. Ltd.,	Pioneer in Chinese character recognition technology. Leading enterprise in China's environmental protection industry.

**Figure 1 the industrial innovation of ZSP**



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