

Sites under different rules

INDUSTRIAL PARKS IN CHINA One of the motors of the still tremendous high growth rates of China's economy are its industrial zones and parks. They are governed by different management models. This article focuses on the Tianjin Economic and Technological Development Area (TEDA).

Since the start of China's economic reform and opening up to the outside world in the early 1980s, the establishment of development zones and industrial parks represents the prominent instrument of China's national economic policy. Development zones and industrial parks enhance economic growth by attracting foreign investment, supporting export-oriented economics, promoting industrial restructuring and developing the regional economy through the application of preferential policies and improved infrastructure. Besides these overall objectives, understanding the management models of Chinese development zones and industrial parks requires an insight into their position in China's overall administrative hierarchy.

China's administrative structure is made up of four levels: 1) province level, 2) prefecture level, 3) district level and 4) town level. The authority of a city government depends on a city's status in China's administrative ranking, based on size, population density, and the number of inhabitants. The highest ranked cities, so-called municipalities, include Shanghai, Tianjin, Beijing and Chongqing and their municipal governments have a similar status to provincial level administrations. Municipal governments steer independently their economic, environmental and social development. The second ranked 15 coastal cities, so-called sub-provincial cities, gained their special status and rights in 1994, and comprise Changchun, Chengdu, Dalian, Guangzhou, Hangzhou, Harbin, Jinan, Nanjing, Ningbo, Qingdao, Shenyang, Shenzhen, Wuhan, Xiamen and Xi'an.

Their city governments are positioned according to their authority between the provincial governments and governments of prefecture level cities. Such city governments can independently decide on their economic and social development, but the decision authority over the environmental development is allocated to the provincial government. The economic, environmental and social development of prefecture level cities is directed by their provincial governments. The development zones and industrial parks in China are embedded in the above men-

tioned administrative structure, and consequently can be ranked at four levels in regard to their decision-making authority, and scope for offering preferential policies to encourage new businesses:

1. Zones with administrative committees (ACs) possessing the decision-making authority of a municipal government, e.g. AC of the Tianjin Economic-Technological Development Area (TEDA). Such ACs are nominated by the municipal government and act as their affiliates, and can offer numerous preferential policies.

2. Zones with ACs have the decision-making authority of a sub-prefecture or district government, e.g. AC of the Dalian High-Tech Zone (DHTZ). The ACs of such zones are authorized by the city government and act as their delegates. These ACs have a high degree of authority and can offer a relatively large number of preferential policies.

3. Industrial parks focused mainly on business with no residential areas, the ACs of which are nominated by the district govern-

ment. These ACs have a low decision-making authority and can only offer a few preferential policies.

4. Private industrial parks purely focused on business. These ACs have very low decision-making authority and can offer hardly any preferential policies.

The two main models used to develop and manage Chinese development zones and industrial parks are: the integrated Administrative Committee model, and the separated Administrative Committee and Development Corporation model. The integrated Administrative Committee usually consists of 15 to 20 functional bureaus and is responsible for both governmental administration and the management of investments, infrastructure and utilities. In the case of the separated Administrative Committee and Development Corporation model the responsibility for the construction and development of the infrastructure and public utilities is transferred from a Planning and Construction Bureau of an Administrative Committee to the Development Corporation.

The administrative department with highest authority in both models is the one having the duties of a Development and Reform Bureau (DRB). This bureau is responsible for the overall economic, environmental and social development of a zone, including the promotion of the circular economy. An overview of the management models of Chinese development zones and industrial parks is depicted in Table 1. Whereas the models "Administrative Committee and Investment Holding" and "Public Development Corporation" are presented later in connection with the TEDA, the models applied in the Shanghai Chemical Industry Park (SCIP), the China-Singapore Suzhou Industrial Park (SIP) and the Wuxi-Singapore Industrial Park (WSIP) will be discussed here.

The SCIP applies the "Administrative Committee and Development Corporation as Multi-shareholder Chinese Enterprise model". In this model the SCIP Administrative Committee (SCIPAC) is authorized by the Shanghai municipal government and is

More information

A more detailed assessment on the management models of Chinese development zones and industrial parks in combination with circular economy strategies will be presented in the PhD-thesis of the author titled "Structures and Instruments for Network and Resources Management in Industrial Parks - The Cases of Germany and China". The research is being carried out at the Institute for Infrastructure and Resources Management at the University of Leipzig, Germany, under the supervision of Prof. Dr. Robert Hollaender and will be finished in 2007.

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responsible for the overall development of the park, project approval procedures, and the coordination of affairs with the municipality. The SCIP Development Co. Ltd. (SCIPDC) is in charge of the development and construction of the infrastructure, the supply and treatment facilities, and for attracting investors. For the construction and operation of supply and treatment facilities, the SCIPDC has founded several joint ventures with foreign enterprises. The SCIPDC is a state owned corporation and shareholders include: Shanghai Petrochemical Co., Ltd. (38.26 %), Shanghai Hua Yi (Group) Company (38.26 %), Shanghai Gao Qiao Petrochemical Corporation (11.74 %), Shanghai Industrial Investment (Group) Co., Ltd. (7.17 %), Shanghai Jiu Shi Company (1.62 %) and Shanghai International Holding Co., Ltd. (2.95 %).

Sino-Singapore governmental joint venture

Both the SIP and the WSIP represent cooperation models with the Singaporeans. The SIP was founded as a Sino-Singapore governmental joint venture in 1994, close to Suzhou New District (SND). Its management entities include Suzhou Industrial Park Administrative Committee (SIPAC) which acts as a local government, and the China-Singapore Suzhou Development Company (CSSD), which is responsible for the development and construction of the infrastructure and the supply and treatment facilities, as well as investment promotion. In the beginning, the shareholding ratio of CSSD between Singaporean and Chinese consortia was 65:35, but in 2001, the Singapore government reduced its share to 35, mainly due to the severe competition posed by the neighbouring SND.

Besides bringing in capital and new technology, the Singaporean government has transferred software by providing training to the SIPAC authorities on industrial development and administration. The WSIP was established as a Sino-Singapore public-private joint venture in 1993, between the Wuxi Municipal Government and the Singapore SembCorp Parks Management, which is a wholly-owned subsidiary of government-linked Sembcorp Industries Ltd. The park is located within Wuxi New District (WND). WSIP is managed by Wuxi-Singapore Industrial Park Development Co. Ltd. It started as a 30:70 Sino-Singapore JV, but in 2002, the shareholding ratio was changed to 51:49. The major role of SembCorp Parks Management has been in the overall design of the park, and in the development and construc-

tion of its infrastructure, and the supply and treatment facilities.

Tianjin Economic and Technological Development Area (TEDA)

The TEDA was founded during the first wave of national development zones in 1984. Together with the functional zones of Tianjin Port Free Trade Zone, Tianjin Port, and the city districts of Tanggu, Hangu and Dagang, it is part of the newly constructed Tianjin Binhai New Area (TBNA). The TBNA, with a planned area of 2,270 km² and a coastline of 153 km, boosts the economic development of the circum-Bohai region.

The TEDA is located 40 km from Tianjin city centre and 120 km away from Beijing. It is well connected to China's railway and motorway networks, and is close to Tianjin's international harbour and airport. In terms of management models, the TEDA applies to a certain extent the separated Administrative Committee and Development Corporation model.

The TEDA Administrative Committee consists of 14 different bureaus and is responsible for governmental administration and investment management. The Development and Planning Bureau has a high decision-making authority and formu-

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Management models of Chinese development zones and industrial parks		
Model	Management	Zone or Park
<i>Industrial zone level</i>		
Administrative Committee	1. Zone Administrative Committee	Most of the zones
Administrative Committee and Investment Holding	1. TEDA Administrative Committee 2. TEDA Investment Holding Co., Ltd.	Tianjin Economic-Technological Development Area (TEDA)
Administrative Committee and Development Corporation as Multi-shareholder Chinese Enterprise	1. SCIP Administrative Committee 2. SCIP Development Co., Ltd.	Shanghai Chemical Industry Park (SCIP)
Administrative Committee and Development Corporation as Sino-Singapore public JV	1. SIP Administrative Committee 2. China-Singapore Suzhou Development Company (CSSD)	China-Singapore Suzhou Industrial Park (SIP)
<i>Industrial park level (within a zone)</i>		
Public Development Corporation	TEDA Chemical Industrial Park Co.	TEDA Chemical Industrial Park
Development Corporation as Sino-Singapore PPP JV	Wuxi-Singapore Industrial Park Development Co. Ltd 1. Wuxi Municipal Government 2. Singapore SembCorp Parks Management	Wuxi-Singapore Industrial Park (WSIP)

lates the short and long term development plans for the TEDA. It is also in charge of price management and regulation. The Economic Development Bureau is responsible for the implementation of the TEDA's economic development plans, and is in charge of investment promotion and management of investment projects and contracts.

The TEDA Investment Holding Co., Ltd. is a state owned corporation, authorized by the TEDA AC to manage state assets, and is responsible for land development, infrastructure construction and the operation of the public utility companies affiliated to the Holding. The major companies include Water Company, Wastewater treatment plant, Power Company, Gas Company, Heat and Power Company, Public Works Company, Bus Company and Landscaping Company. Most of the TEDA's original planned area of 33 km² is already occupied. The main industrial sectors in the zone comprise telecommunications (61%), machinery – with a focus on automobile industry – (25%), bio-pharmaceuticals (5%) and the food and beverage industry (6%). From 2005 to 2006, the GDP of TEDA rose by 22% to ca. USD 10.0 Bio. The number of approved foreign funded enterprises in the TEDA reached 4,332 by the end of February 2007 and the total investment ca. USD 35.1 Bio.

The number of inhabitants in the TEDA was 116,300 by the end of 2006. The sectoral

priorities in terms of further development include the high-tech industry and service sector. At present, the TEDA is developing at full speed the new West Zone of the TEDA, with an area of 48 km², and by the end of 2006, USD 0.62 Bio had been invested in its development.

The transport and environmental infrastructure includes heat, power, gas and water supplies, to satisfy the needs of investors already in place. Regarding administration and services, the TEDA Investment Service Center has opened a sub-centre in the West Zone, integrating the governmental services, energy suppliers and business offices of the telecommunication companies, and the TEDA Administrative Committee has opened their service desks. By the end of 2006 56 enterprises had invested in the zone, 18 of which had already begun production, and over 20 were under construction. The total investment reached almost USD 3 Bio. by the end of 2006, and the average investment volume exceeded USD 500 per m².

Beyond these zones, the TEDA Administrative Committee has established three specialized industrial parks: 1) Microelectronics Industrial Park (4.6 km²), 2) Yat-sen Scientific and Industrial Park (10 km²) and 3) Chemical Industrial Park (27 km²). Furthermore, the TEDA Administrative Committee is responsible for the Tianjin EPZ (2.5 km²) and the Tianjin University Scientific and Technological Park.

The TEDA Chemical Industrial Park (CIP) was founded as a satellite zone of the TEDA in 1996. The total planned area of the TEDA CIP is 27 km², but the current development focuses on the Fine and Special Chemistry Area covering 2.57 km². The body responsible for the planning and development of the TEDA CIP is the TEDA CIP Co. It is a state owned development corporation that works as an agent of the TEDA Administrative Committee and the TEDA Investment Holding.

Development of the fine chemicals industry

The TEDA CIP Co. is in charge of investment promotion, provision of transport and environmental infrastructure, the organization of safety and security management, and the execution of environmental and safety inspections. The sectoral priority of the TEDA CIP has been the development of the fine chemicals industry. Investments into the park are promoted through preferential tax policies that apply to both the TEDA and the TEDA CIP. Furthermore, the TEDA CIP is engaged in the enhancement of the circular economy policy, and consequently encourages recycling industries to set-up on the site.

The total number of investors by the end of February 2007 was 33, and the total investment reached USD 493.25 Mio. Alongside domestic enterprises, overseas

investors (from Japan, the U.S., Singapore and Taiwan) – in the form of joint ventures (JVs) and wholly foreign owned companies (WFOEs) – dominate the TEDA CIP. The WFOEs of the Japanese investors comprise Tokai Carbon Tianjin Co., Ltd. (USD 57 Mio) with the production capacity for 40,000 t/a of carbon black and Tianjin Sekisui Plastics Co., Ltd. (USD 5.6 Mio) that produces Piocelan, a resin composite of polyethylene and -styrene.

Moreover, the Japanese are involved in the Sino-Japanese JVs of the Tianjin Cosmo Polyurethane Co., Ltd. (USD 31.4 Mio), Tianjin Toho Lead Recycling Co. Ltd. (USD 4.75 Mio) and Tianjin Dai-Ichi Fine Chemicals Co., Ltd. (USD 3.6 Mio). Tianjin Cosmo focuses on urethane materials and derivatives, with a capacity of 54,000 t/a, Tianjin Toho produces 20,000 t/a of secondary lead alloys and Tianjin Dai-Ichi manufactures industrial additives. The major American investments include the JV Cabot Chemical (Tianjin) Co., Ltd. with the total investment of USD 51.9 Mio for 100,000 t/a of carbon black, the JV Tianjin Cenway Chemicals Ltd. with USD 24.2 Mio for pharmaceutical intermediates and biopurification, the WFOE Volclay (Tianjin) Industrial Minerals Co. Ltd. with USD 8.0 Mio for 70,000 t/a of additive products for foundry and the WFOE PQ (Tianjin) Silicates Technology Co. Ltd. with USD 4.2 Mio for silicates and zeolite.

The Sino-Singaporean JVs Tianjin Yunian Bio-Pharmaceutical Co. Ltd. (USD 10.9 Mio) and Tianjin Eastern Acrylic Chemical Technology Co., Ltd. (USD 18.2 Mio) will build the plants for 60 t/a of pharmaceuticals and 3,000 t/a of acrylic acid resins, respectively. At present, the only European customer is the WFOE Cappelle Pigments (Tianjin) Ltd. from Belgium with an investment of USD 12.5 Mio for a plant producing 5,000 t/a of pigments. Also the WFOE Rotachem Chemical Industry Co. Ltd. from Canada has signed a contract with the TEDA CIP for USD 12.1 Mio and a production capacity of 1,200 t/a of pesticides.

The major Taiwanese investments include Tianjin Longqiao Engineering Plastics Co. Ltd. (USD 30 Mio) that will build a plant with a capacity of 180,000 t/a for expandable polystyrene, phenolic resins and furan resins, Taita Chemical (Tianjin) Co., Ltd. (USD 20 Mio) that will open a plant for 100,000 t/a of polystyrene and ABS polymers and Taiding (Tianjin) Environment Technology Co., Ltd. (USD 12.1 Mio) that has the annual capacity to recycle 30,000 t of electronic waste. The biggest domestic compa-

nies comprise Tianjin Zhongwei Pharmaceutical Co., Ltd. and Tianjin Shenghua Pharmaceutical Development & Research Co., Ltd. that have invested USD 33.9 Mio in a plant for Vitamin B1, with the capacity of 3,000 t/a and USD 21.8 Mio in a plant for medicine and pesticides, with the capacity of 2,000 t/a, respectively.

Plans for wastewater recycling

In terms of centralized supply and treatment facilities, the construction of the park internal heat supply plant, with the capacity 120 t/h of heat and steam, has been finished, whereas the wastewater treatment plant is still under construction. With regard to other utilities, the park is connected to public supply systems. Water supply with the capacity of 30,000 t/a is the responsibility of Hangu Water Supply Company. Since the Tianjin area suffers from water shortages, there are plans to develop wastewater recycling measures, and to start the desalination of sea water, in order to meet long term demand. Power to the park is supplied by the Coastal Power Company. Since the current

35 kV substation is nearly at full capacity to meet existing demand, new substations with 220 kV and 110 kV are being built.

The Tianjin Gas Group Company provides the park's gas, and in order to secure a stable gas supply, a gas reservation station is being planned. The contracts for the treatment and disposal of industrial residues have to be organized by individual tenant companies, with the treatment companies certified by the Tianjin Municipal Environmental Protection Bureau. In terms of the emergency response system, there has been a temporary Fire Duty Spot run by the TEDA fire department since August 2006, in the TEDA CIP. A special Fire Fighting Station is being built and should come into operation in 2007. The overall work plan of the TEDA CIP for 2007 consists of: the adjustment of the sectoral structure to enhance the still little developed inter-firm value chains, the development of additional circular economy initiatives and service offers, and the improvement of environmental protection and management standards at the site.

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