

# City Cluster Development in Asia

Although many city clusters have emerged in Asia, the process by which a number of urban centers expand and take over adjoining settlements, thereby creating an integrated urban region, is not unique to the Asian region. As early as 89 BC, the patrician citizen-soldiers of Rome conquered surrounding cities, connected them by roads, and formed the nucleus of the capital of the Roman Empire. In the 17th century, when Philip II transferred the capital of Spain from Toledo to Madrid, the new capital city engulfed nearby towns that later became cities, for example, Aranjuez, Avila, and Segovia. During the 19th century, Baron Haussmann's plan for the expansion of Paris added eight *arrondissements*, or municipal boroughs, to the city's original 12, creating city clusters around the main city. In the United States, the growth of Boston, New York, and Washington, DC, resulted in a cluster of large cities that Jean Gottman called a *megalopolis* (Gottman 1961). Gottman also identified the Great Lakes Megalopolis, which runs from Chicago to Pittsburgh and includes the cities of Buffalo, Cleveland, and Detroit, and he described another urban corridor, in the United States west, stretching from San Francisco to San Diego.

City clusters in Asia, as in other parts of the world, have been shaped by networks of infrastructure and services. In such older cities as



Beijing and Delhi, infrastructure and services were reactively provided to accommodate the expansion of built-up areas. In recent years, however, some governments have proactively built infrastructure and services ahead of the development of built-up areas, thereby influencing the size and shape of city clusters in a planned way. A few have set up special economic zones and industrial parks to lead the way in the formation of city clusters. Although the individual cities are usually bound by clearly defined territories, their economic and social influences extend to other parts of the region. As a result, planning different types of linkages has enhanced CCD. CCD has also been energized by such economic forces as the linking of industrial clusters, such as in the case of Ho Chi Minh City; enhanced production and manufacturing facilities; and expediting buying and selling, financial transfers, and capital flows, such as in the case of Hong Kong, China, and Shenzhen. A few Asian cities are now cooperating with neighboring municipalities to formulate comprehensive CCD plans for a whole urban region, but in most cases, each city or town has adopted its own master plan, zoning codes, housing and building standards, and land use regulations.

City clusters in Asia fall into at least four types in terms of geo-spatial forms: urban corridors, megacity-dominated clusters, subnational regional clusters, and transborder clusters. By its function, CCD involving industrial parks or economic special zones could be added as another typology, though largely it could fall under any of the four types in geo-spatial terms. These types of clusters are distinguished by their population, the geographic area they cover, planning and governance mechanisms, and their spheres of economic and social influence in the context of the particular regions where they are located. Although settlements within the clusters initially developed as individual cities, those cities have been drawn closer by their economic and social links. In some cases, the built-up areas of the individual cities in the cluster have merged. In other cases, agricultural land, open space, and greenfields still separate the cities from each other, but economic and social activities and comprehensive regional plans integrate them into functional clusters.

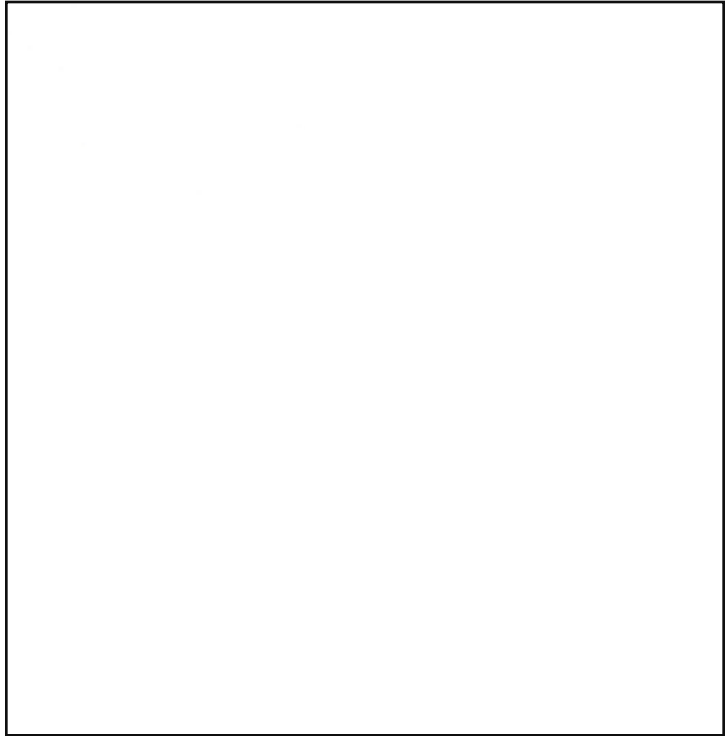
## Urban Corridors

Urban corridors are made up of a number of large cities and metropolitan areas linked together by shared urban infrastructure

and services, economic interrelationships, and information networks. Within a corridor are complex economic production, distribution of goods, and financial and commercial activities. Economic relationships linking governmental and private sector enterprises with each other abound. Cities in a cluster are connected to each other, to the central city, and to urban centers in other parts of the world by information technology networks. The backbone of an urban corridor is usually a major expressway, a rail line, or a combination of the two. Examples of urban corridors include the Tokyo–Yokohama–Nagoya–Osaka–Kobe–Kyoto Shinkansen, or bullet train, corridor in Japan; the Beijing–Tianjin–Tangshan development corridor in northeast People’s Republic of China; and the Mumbai–Pune development corridor in India.

**Tokyo–Yokohama–Nagoya–Osaka–Kobe–Kyoto Shinkansen Corridor.** The anchor of the Shinkansen corridor is the Greater Tokyo area, which, with its 34.5 million people, has been the largest metropolitan area in the world since 1965. Greater Tokyo, by itself, is a city cluster made up of 23 special wards (*ku*), 26 cities (*shi*), 5 towns (*cho*), and 8 villages (*son*), with a combined population of more than 8 million. Yokohama, 30 km from Tokyo, has a population of 3.6 million. It is a major port and commercial hub of the Greater Tokyo area, although it is an incorporated city and the capital of Kanagawa prefecture. Nagoya is a port city with a metropolitan population of 8.7 million, 2.1 million within Nagoya City proper. It is the capital of Aichi prefecture and the center of the Chubu region. Nagoya’s economy is based on automobile manufacturing, spearheaded by the Toyota Motor Corporation, now the largest car manufacturer in the world. Even if only the populations of the six agglomerations on the Shinkansen line are counted, the population in the whole corridor is estimated to be 66 million. If the residents of districts, towns, and villages clustered around the metropolitan areas are included, the corridor has more than 75 million people, or about 60% of the total population of Japan. Agglomerated impact achieved through city cluster development along the whole corridor has been the main impetus for Japan’s dominant economic position. Tokyo is acknowledged to be a global city, and it can be said that, with the complementary development of the other megacities, the whole Shinkansen corridor is now a global region.

**Beijing–Tianjin–Tangshan Corridor.** Development in north-east People’s Republic of China has been fastest in the so-called

**Figure 3: Tokyo–Yokohama–Nagoya–Osaka–Kobe–Kyoto Shinkansen Corridor**

Source: Laquian (2005).

Jing–Jin–Tang corridor, along the expressway that connects Beijing with Tianjin and its port, Tanggu. The master plan for Beijing follows the “urban clusters” approach; it encompasses four inner-city districts, four adjacent suburban districts, two outer suburban districts, and eight counties. Beijing city proper, at one end of the corridor, has a population of 6.5 million, and another 5 million people live in 14 satellite towns and 140 nearby small towns. At the other end of the corridor is the port city of Tianjin, which has a population of 9.9 million. Between these two large cities are nine special economic zones and eight development zones. Two intermediate-sized cities, Langfang and Tangshan, are located along the expressway. The total population along the corridor is estimated to be 36 million. The corridor successfully links the trading port, special economic zones,

and the capital, and demonstrates that different economic functions of each city can achieve better synergic impact of expediting economic growth through clustered cities and towns along the corridor.

**Mumbai–Pune Corridor.** The Mumbai–Thane–Navi Mumbai–Khopoli–Pimpri–Pune corridor is one of the most progressive regions in India. It begins in the coastal city of Mumbai (formerly Bombay), India’s largest metropolitan area, which has a population of 23.5 million. Within the Mumbai conurbation is the city of Thane, located 30 km from Mumbai. Thane is the administrative headquarters of Thane district and has a population of 1.4 million. Also within the Mumbai conurbation is the city of Navi Mumbai (New Bombay), established in 1972, which now has 1.5 million residents and is one of India’s largest special economic zones. The Mumbai agglomeration is projected to be the second largest in the world by 2015, with a population of 26.2 million. About 150 km from Mumbai is the city of Pune (formerly Poona), capital of Pune district and the eighth-largest urban agglomeration in India, with a population of 4.5 million. The Pune urban area measures about 700 km<sup>2</sup> and consists of the Pimpri–Chinchwad Municipal Corporation and three cantonments (Khadki, Pune, and Dehu Road). Pune is a major industrial center in India and specializes in motor vehicle production (Bajaj, DaimlerChrysler and Tata Motors have manufacturing facilities there). In recent years, Pune has also developed a burgeoning software industry centered on such information technology (IT) parks as Rajiv Gandhi IT Park, Margapatta Cyber City, Marisoft IT Park, and Weikfield IT Park; the software industry benefits from the many high-level universities and technical colleges in the city region.

## Megacity-Dominated Clusters

Megacity-dominated clusters have one very large city that influences developments in an entire region, and surrounding cities, towns, and villages function as mere satellites of the large city. Most of these urban clusters are found in South and Southeast Asia, where the large cities exert significant influence in not only the city region but also the whole country. Examples of megacity-dominated clusters include the National Capital Region of Delhi, the Karachi-centered mega-urban region in Pakistan, the Dhaka-centered mega-urban region in Bangladesh, the Metro Manila

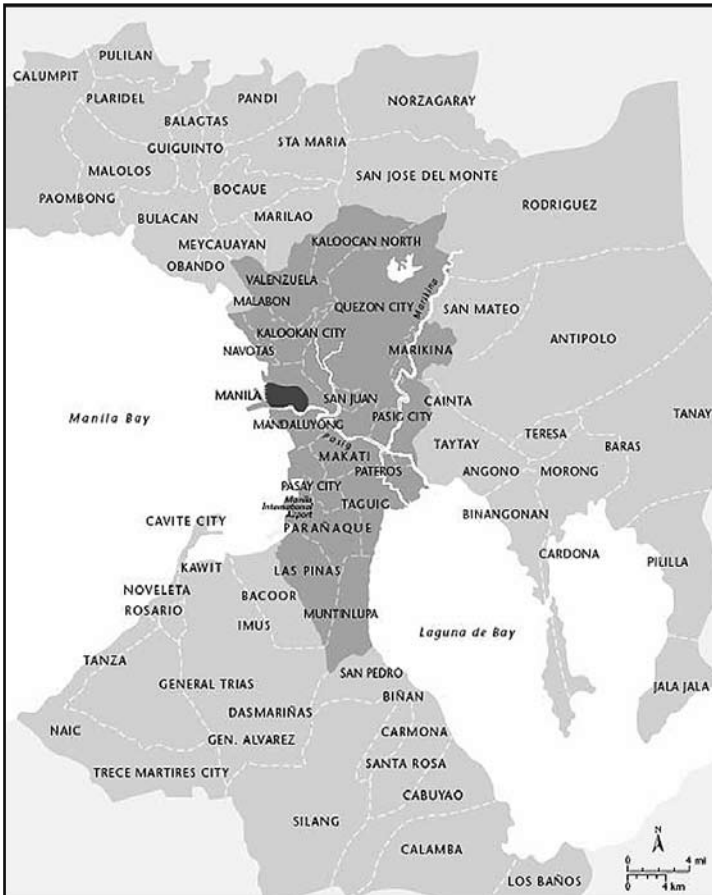
National Capital Region in the Philippines, the Bangkok–Thonburi metropolitan region in Thailand, and the Jakarta-centered Jakarta–Bogor–Tangerang–Bekasi region in Indonesia.

**Greater Bangkok.** Bangkok has been more successful than other Asian cities in planning and managing outward expansion. The Greater Bangkok Plan was formulated in 1960 for an estimated population of 4.5 million by 1990. The population sharply increased with the absorption of Thonburi into Greater Bangkok in 1970 and the annexation of parts of the adjoining provinces of Phra Nakorn and Thonburi in 1972. In 1980, the Bangkok Metropolitan Region was established, absorbing urbanized areas in the provinces of Nakhon Pathom Nontaburi, Pathum Thani, Samut Prakan, and Samut Sakhon. While the United Nations projects that Greater Bangkok's population will reach 9 million by 2010, Thailand's National Economic and Social Development Board has proposed an "extended Bangkok Metropolitan Region"—with a projected population of 17 million by 2010—by adding to the existing metropolitan region urbanizing sections of the provinces of Ayutthaya, Chachoengsao, Chon Buri, Rayong, and Saraburi, to the city cluster. Greater Bangkok dominates the country's economy, contributing 44% of GDP with 25% of its total population 64 million (UN 2007).

**The Metro Manila National Capital Region.** In 1964, the Metro Manila National Capital Region (NCR) was composed of only four cities and four towns. However, in the Philippines, city mayors and councils are vested with more powers than town mayors. Cities also generally have more income than towns, because towns have to share their tax and other revenues with provinces while chartered cities do not. While certain standards have to be met before a town can be converted into a city (for example, population, per capita annual income), granting a city charter to a town is basically a political act on the part of the Philippine Congress. Getting a city charter has become so politically attractive that at present all but 1 of the 23 local government areas within the Manila-centered NCR have become chartered cities. Despite the presence of the Metro Manila Development Authority, which deals with urban planning, traffic management, and solid waste disposal, the cities clustered in the Metro Manila NCR enjoy a great deal of autonomy, and subsequently coordination of area-wide infrastructure and services is largely ineffective. Some urban planners have suggested that the

Manila-centered region already extends to the urbanized sections of the provinces of Batangas, Cavite, Laguna, Quezon, and Rizal, and that the total population of the NCR is more than 30 million.

**Figure 4: The Metro Manila National Capital Region**



Source: Laquian (2005)

**Greater Jakarta.** The Greater Jakarta mega-urban region is made up of entities from three jurisdictional levels: the Special Region of the National Capital of Jakarta, locally referred to as Daerah Khusus Ibukota, or DKI Jakarta, which has the status of a

province in the Indonesian system; the municipalities (*kotamadya*) of Bogor and Tangerang; and the districts or regencies (*kabupaten*) of Bogor, Tangerang, and Bekasi. The municipalities and districts that cluster around DKI Jakarta belong to the province of West Java, which has been resisting the expansion of DKI into its territory. The province has pursued its own urban development plans by approving the establishment of special economic zones and industrial estates on the outskirts of DKI. Efforts to rationally plan the spread of the settlements in the city cluster generally referred to as the Jakarta–Bogor–Tangerang–Bekasi region have been made, but political and administrative fragmentations have frustrated them. Meanwhile, the “field of influence” of the Greater Jakarta mega-urban region is far beyond the geophysical sphere and is believed to have reached 200 km away to the city of Bandung (Dharmapatni and Firman 1995).

**Delhi National Capital Region.** The Delhi National Capital Region (NCR) covers 33,578 km<sup>2</sup>, which includes the Union Territory of Delhi (1,483 km<sup>2</sup>); the Haryana subregion (13,413 km<sup>2</sup>), which comprises Faridabad, Gurgaon, Jhajjar, Mewat, Panipat Rewari, Rohtak, and Sonapat districts; the Rajasthan subregion (7,829 km<sup>2</sup>), which is made up of the whole of Alwar district; and the Uttar Pradesh subregion (10,853 km<sup>2</sup>), which comprises Baghpat, Bulandshahr, Ghaziabad, Gautam Budh Nagar, and Meerut districts. While the United Nations estimated the population of the Delhi NCR at 15.0 million in 2005, the regional plan for the whole region set the 2001 population at 37.1 million, composed of 13.8 million for the Union Territory, 8.6 for the Haryana subregion, 2.9 for the Rajasthan subregion, and 11.5 for the Rajasthan subregion. Within the NCR are 3 metropolitan cities (Delhi, Faridabad, and Meerut); 14 districts; 66 *tehsils* (towns; 108 other urban settlements with populations ranging from 5,000 to 100,000; and 7,528 rural settlements (National Capital Region Planning Board, Delhi 2005).

**Greater Karachi.** Karachi is the largest city in Pakistan and the capital of Sindh province. It was the national capital until 1958, when the Government moved the capital to Rawalpindi, and then moved the capital to Islamabad in 1960. Greater Karachi covers 3,530 km<sup>2</sup> and has a population of 12.3 million, which is projected to increase to 16.5 million by 2010. In 1976, Karachi had five subdivisions. In 2000, the Government of Pakistan abolished the subdivision and merged the five into the Karachi district. At present, Karachi has a three-tier federated system of governance composed of the city district government, town municipal administrations, and union

council administrations. The Karachi city district is divided into 18 towns, which are each governed by an elected municipal administration. The towns, in turn, are divided into 178 union councils. The mayor (*nazim*) and council system in Pakistan makes for extreme fragmentation of the decision-making process. Despite security and political problems, Karachi continues to be the financial center of Pakistan; about 60% of national revenue is generated in Karachi. Clustered around the city are several large industrial zones. Future planned city cluster development in Greater Karachi may be facilitated by the Government's ownership of about 1,600 km<sup>2</sup> of the metropolitan area's 1,722 km<sup>2</sup> (93%) of land.

**Greater Dhaka.** Dhaka, the capital of Bangladesh, covers 816 km<sup>2</sup>; in 2005, its population was 15.3 million, and its population is projected to reach 18.3 million by 2010 and 21.1 million by 2015. Dhaka city proper, which is governed by the Dhaka City Corporation, is divided into 135 wards. Greater Dhaka includes the central city, 7 principal and 14 auxiliary *thanas* (subdistricts), and covers 1,463 km<sup>2</sup>. Urban and regional planning in Greater Dhaka is carried out by Rajdhani Unnayan Karttripakkyya (commonly referred to as RAJUK), or Capital Development Authority. However, governance and management of urban functions are divided among at least 41 government agencies and units, making coordinated CCD difficult.

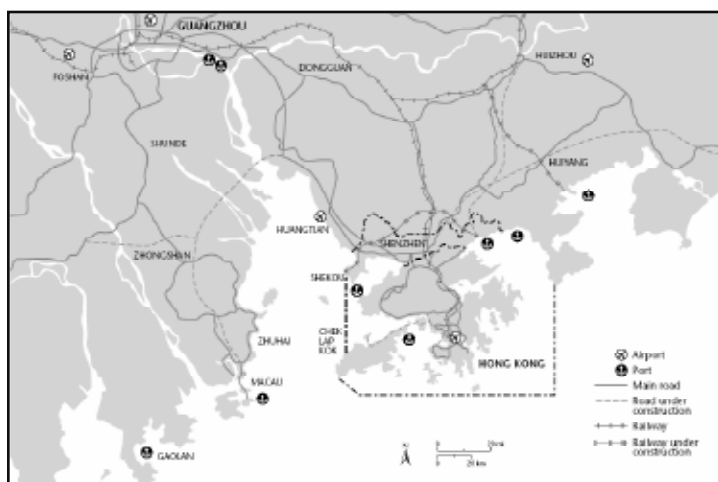
## Subnational City Clusters

Subnational city clusters are made up of large, medium-sized, and small cities and towns that are functionally interlinked. However, no one city dominates the whole region, and economic and social interrelationships may be truncated by the autonomous nature of each city. Examples of subnational clusters include the Guangzhou–Shenzhen–Hong Kong–Macau region in the Pearl River Delta of the PRC and the Naga City–Legaspi–Iriga city cluster in the Philippines.

**Pearl River Delta cluster.** The oldest cities in the Pearl River Delta cluster are Guangzhou (formerly Canton); Macau; and Hong Kong, China, although Hong Kong, China, and Macau, as special administrative regions, did not become part of the PRC until 1997 and 2000, respectively. In 1979, the PRC set up Shenzhen and Zhuhai as special economic zones to accelerate economic growth in the region. The strategic locations of Shenzhen, which is only

20 km from Hong Kong, China, and Zhuhai, which is next to Macau, were significant factors in their rapid development. By 2007, the population of Shenzhen had grown to almost 10 million, outstripping both Guangzhou, with 7 million, and Hong Kong, China, with 7.5 million. At present, the Pearl River Delta cluster has three levels of cities: the three large cities of Guangzhou; Shenzhen; and Hong Kong, China; the eight medium-sized cities of Macau, Zhuhai, Foshan, Jiangmen, Zhongshan, Dongguan, Huizhou, and Zhaoqing; and 22 small, county-level cities, as well as some 300 towns (Yeh et al. 2002).

**Figure 5: The Pearl River Delta City Cluster**



Source: Laquian (2005)

The Pearl River Delta cluster grew fast as a result of the provision of modern infrastructure and services that link the cities together through a regional development planning with a longer-term perspective. Within the Pearl River Delta region can be found eight airports, four of which can handle international flights. In addition to the port of Hong Kong, China, the region also has three major seaports and 70 smaller ports along the seacoast and the Pearl River. The region is served by the Beijing–Guangzhou railway and the Beijing–Kowloon railway. Expressways and ultramodern telecommunications networks crisscross the cluster. The Pearl River Delta region is, therefore, a city cluster with many hubs. One study

projects that by 2022, the cluster will have become a “South China Megalopolis” with a population of 51 million and a contribution to GDP of \$1.1 trillion (Enright et al. 2003).

**The Naga–Legaspi–Iriga Urban Cluster.** The Naga–Legaspi–Iriga urban cluster is in the Bicol region, one of the poorest areas in the Philippines. Since the election of a 29-year-old mayor in Naga in 1988, Naga’s economy has surged ahead at the growth rate of 6.5% per year. Naga city is 377 km south of Manila and has a population of 137,800. It is the core of Metro Naga, composed of 12 municipalities and Naga city. Although Metro Naga started as a voluntary federation, its metropolitan structure was granted legal status in 1993. The Metro Naga Development Council, which is composed of the mayors in the metropolitan area, has formulated a comprehensive development plan for the entire city cluster, and has set up an executive office, headed by a director, to coordinate development activities. Observing visible economic growth impacts of the cluster development approach, other adjacent local governments joined in recent years. Led by the council, local governments in the Bicol region have pooled resources to set up an economic development fund to pursue projects like small-scale waterworks and farm-to-market roads. They have also invited the private sector to invest in such infrastructure projects as markets and shopping malls. The biggest challenge to the council is that it is an island of progress in a sea of want. The leaders of the cities within the region, however, hope to see the city cluster become the engine that will spur the development of the whole Bicol region (Mangahas 2006).

## Transborder City Clusters

Transborder city clusters are made up of urban settlements located in different nation-states and, despite the existence of different political systems and legal regimes, pursue common development initiatives. The best example of a transborder city cluster is the Singapore–Johor–Riau “growth triangle” formed in the early 1980s by the governments of Indonesia, Malaysia, and Singapore. The core of the development scheme is the island nation of Singapore, which has a population of 4.6 million and occupies an area of 704 km<sup>2</sup>. Although Singapore is the smallest country in Southeast Asia, it has a per capita GDP of \$37,489 (purchasing power parity) and ranks 25th among the world’s countries in the human development index.

Located just across the causeway from Singapore is Johor Bahru, the capital of the Malaysian state of Johor. The state of Johor has been critical to Singapore's development because it supplies practically all of the water for the nation-state, as well as many workers. When Singapore's economy expanded after it became independent from the Federation of Malaya in 1965, it did not take long before Malaysia and Singapore started to cooperate with one another for mutual benefit. During the 1980s, the governments of Singapore and Malaysia signed an agreement to create a growth triangle that included not only Singapore and Johor but also the Indonesian province of Riau. For most urban settlements in the cluster, the growth triangle scheme created many advantages, among them

- lower transportation and other economic transaction costs; more efficient production and distribution networks;
- access to investment capital from Singapore and land and other natural resources in Johor and Riau;
- more productive specialization in economic activities, economies of scale, and enlarged markets;
- improved urban infrastructure and information networks;
- job creation in all the urban settlements in the cluster; and
- improved access to foreign direct investment.

**Figure 6: The Singapore–Johor–Riau Growth Triangle**



Source: Laquian (2005)

The growth triangle, in effect, created an extended metropolitan region despite the urban development areas that made up the cluster being located in three different countries (Macleod and McGee 1996).

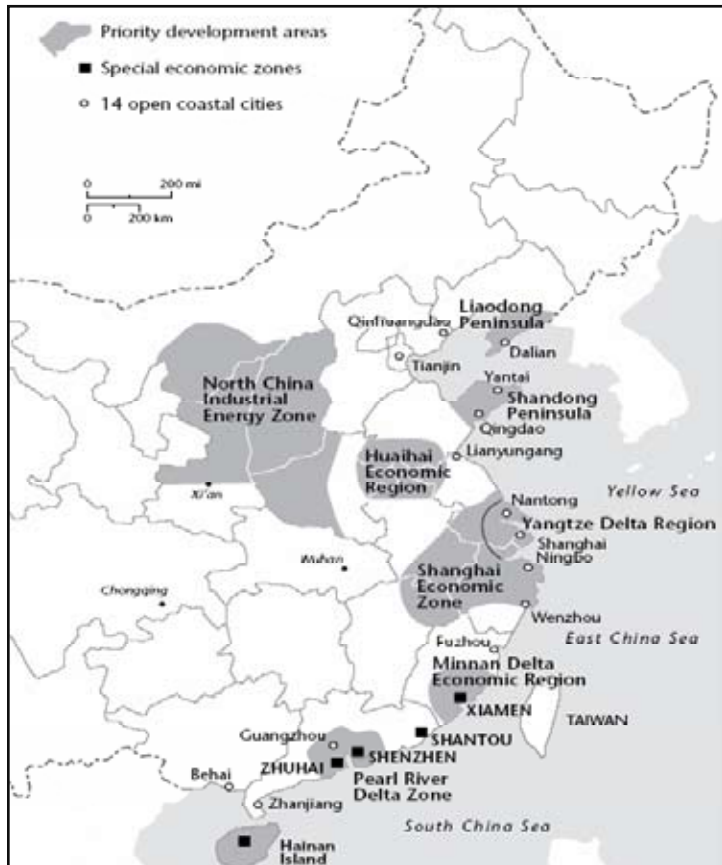
## **Special Economic Zones and Other Enclaves by Distinctive Functions**

The main ideas that eventually led to the establishment of special economic zones (SEZs) evolved from such early ventures as the Shannon Export Free Zone in Ireland, which was established in 1959. Basically, an SEZ is a production enclave in which foreign and domestic investors are allowed to set up enterprises under favorable terms and generous incentives, provided they sell their enterprises' products in international markets. The investors bring in capital, materials not available locally, and technological expertise. The SEZ provides land, infrastructure and services, labor, management of, and logistical facilities. In the PRC, an SEZ is defined as "a small area demarcated within a country's territory and suitably insulated for adopting special and flexible policies to attract and encourage foreign investments in industrial and other economic activities" (Yee 1992). In India, SEZs are regarded as "duty-free enclaves deemed as foreign territories for the purpose of trade operations, duties and tariffs." They are considered second-generation reforms and a continuation of such earlier governmental initiatives as export-processing zones, export-oriented units, technology parks, and free trade zones (India SEZ 2007).

Thus, a number of Asian countries have used them—along with export-processing zones, bonded areas, industrial parks, and high-tech parks—as instruments for pursuing urban-led development. Typically, SEZs and other development enclaves are on the outskirts of large cities. For example, in the PRC, the Shenzhen SEZ was 20 km north of Hong Kong, China, to attract investments from that haven of free enterprise. The dramatic growth of Shenzhen, from a fishing village of 30,000 to a city of more than 10 million within 27 years, has become a cluster of urban districts in the Pearl River Delta that includes Baoan, Futian, Longgang, Luohu, Nanshan, and Yantian. Although smaller than Shenzhen, the Zhuhai SEZ has been expanding rapidly, energized by its proximity to Macau. Similarly, the siting of an industrial park in the ancient city of Suzhou, which is about 80 km from Shanghai, has sparked the growth of a

city cluster around the ancient city, Suzhou, involving Changshu, Kunshan, Taicang, Wujiang, and Zhangjiagang, as well as the districts of Canglang, Jinchang, Pingjiang, Wuzhong and Xiangcheng.

**Figure 7: The Development Regions in the PRC**



Source: Laquian (2005)

In India, where at least 404 SEZs had been formally approved by the end of 2007, entrepreneurs are offered attractive fiscal and other incentives to invest in these facilities. Thus, investors in SEZs benefit from

- a 100% exemption from income taxes for 5 years, and a 2% tax exemption an additional 2 years thereafter;
- exemption from customs duties on the importation of capital goods, raw materials, and consumables;
- exemption from central excise taxes on goods procured from domestic markets;
- exemption from licensing requirements for items used by small-scale industries; and
- freedom to repatriate profits without any dividend-balancing requirement.

Aside from these incentives, the Government of India offers a full range of banking, insurance, storage, warehousing, and other logistical services. A large, well-trained, skilled workforce capable of managing modern enterprises is required. Interestingly, unlike other countries, where SEZs and other development schemes are mainly government run, India relies more heavily on joint ventures and public-private partnership arrangements.

In the Philippines are proposals to extend the planning of the Manila-centered region to include developments in the SEZs set up in the former Subic Bay US naval base in Zambales province and the former Clark Air Force base in Pampanga province. Growth in the Subic SEZ has spread to the adjacent city of Olongapo, and the Clark SEZ has contributed to the rapid growth of nearby cities like Angeles and San Fernando. The construction of an expressway linking the Subic and Clark SEZs is encouraging the growth of towns strung along it. Plans are being developed to make Clark the main international airport of the national capital region, and a rail-based transport system and limited-access expressways are being developed to connect it to Metro Manila. In addition to the Clark and Subic SEZs, the Government has also set up an export-processing zone in Mariveles, Bataan province, and an industrial park in Rosario, Cavite province. All these development enclaves have contributed to the economic expansion of the Manila-centered urban cluster. Because of their proactive nature, SEZs are excellent instruments for pursuing CCD.