# 5. People's Republic of China

APRODICIO A. LAQUIAN

## INTRODUCTION

The People's Republic of China (PRC) is the most populated country in the world and is undergoing rapid economic development and urbanization. Relevant statistics on the country's development are presented in Table 5.1. Most of the population still live in rural areas. However, by 2030, urban populations are expected to grow by more than 300 million, with 60% of the population living in urban areas. The ability to manage this expected level of urban development will be a major challenge. Significant social and environmental problems are already arising from 20 years of rapid growth.

This chapter examines some issues facing urbanization in the PRC and introduces three case studies: Revitalizing the Inner City—Case Study of Nanjing, Shenzhen; Building a City from Scratch; and Reviving Rust-belt Industries in the Liaodong Peninsula. The case studies provide examples of the application of good practice in support of sustainable urban development. The final part of the chapter reflects on what has been learned.

The PRC's commitment to sustainable development can be traced to its participation at the 1992 United Nations Conference on Environment and Development. Two years later, the State Council approved the "White Paper on China's Population, Environment and Development in the 21st Century." In that document, sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet theirs" (WCED 1987) was taken as official policy. The PRC also approved Agenda 21 that spelled out its developmental policies and programs.

The PRC's Agenda 21 program set as a target the quadrupling of the country's gross national product (GNP) (1980 as the base) and increasing

its per capita GNP to the level of "moderately developed countries" by the year 2000. Aside from this economic objective, the PRC's commitment to sustainability included (a) safeguarding ecological balance, (b) protecting the environment, (c) ensuring the people's social and cultural well-being, and (d) controlling population growth and distribution (People's Republic of China 1994).

It is worth noting that all the sustainability objectives included in the PRC's Agenda 21 program are directly linked to the country's urbanization policy. This is interesting because for 3 decades after the Communist victory in 1949, the PRC pursued policies favoring rural areas and strictly controlled the growth of towns and cities. Not until the launching of economic reforms and the PRC's opening to the outside world in 1978 did the country encourage more rapid urbanization. As a result, the PRC's urbanization level increased from 18% in 1978 to 41% in 2005. By 2020, the PRC projects that

**Table 5.1: Country Development Profile, PRC**

| | |
|---|---|
| Human Development Index (HDI) Rank of 177 countries (2003)^ | 85 |
| GDP growth (annual %, 2004) | 9.50 |
| GNI per capita, Atlas method (current $, 2004) | 1,290 |
| GNI, Atlas method (current $ billion, 2004) | 1,676.8 |
| GDP per capita PPP ($, 2003)^ | 5,003 |
| GDP PPP ($ billion, 2003)^ | 6,445.9 |
| Population growth (annual 2005–2010) (%)# | 0.63 |
| Population, total (million, 2005)# | 1,322.27 |
| Urban population, total (million, 2005)# | 535.98 |
| Urban population percent of total population (2005)# | 41 |
| Population largest city: Shanghai (2005, million) | 12.67 |
| Population growth (350) capital cities or agglomerations > 750,000 inhabitants 2000# | |
| - Est. average growth of capital cities or urban agglomerations 2005–2015 (%) | 21 |
| - Number of capital cities or urban agglomerations with growth >50%, 2005–2015 | 24 |
| - Number of capital cities or urban agglomerations with growth > 30%, 2005–2015 | 63 |
| Sanitation, percentage of urban population with access to improved sanitation (2002)** | 69 |
| Water, % of urban population with access to improved water sources (2002)** | 92 |
| Slum population, % of urban (households with access to secure tenure) (2001)** | 38 |
| Slum population in urban areas (2001, million)** | 178 |
| Poverty, % of urban population below national poverty line (1998)** | 2.0 |
| Aid (Net ODA received; $ million; 2003)^ | 1,324 |
| Aid as a share of country income (Net ODA/GNI; 2003)* | 0.1 |
| Aid per capita (current US$, 2003)^ | 1.0 |

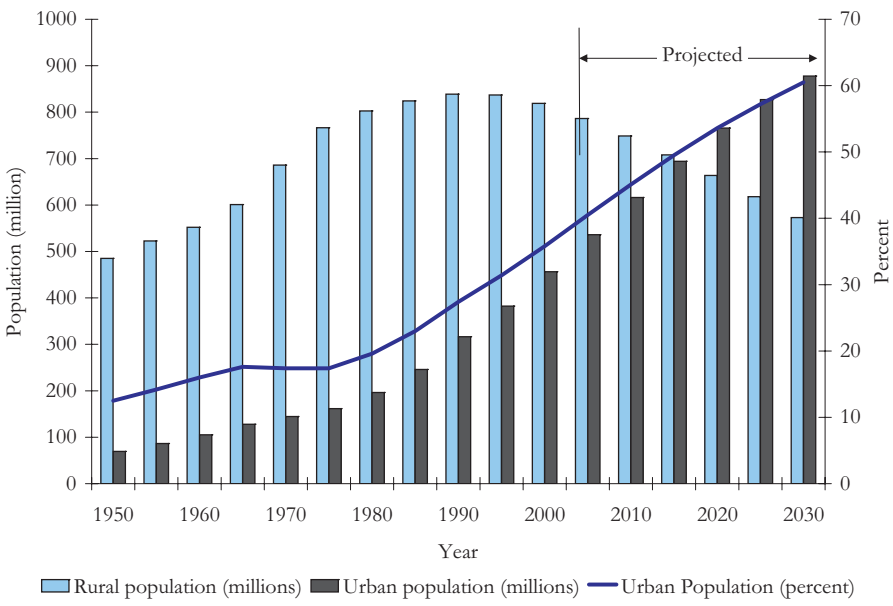
GDP = gross domestic product, GNI = gross national income, ODA = official development assistance, PPP = purchasing power parity.
Note: Data for the PRC do not include those for Hong Kong, China; or Macau, China.
Sources: See footnote Chapter 2 World Bank (2005); OECD (2003); United Nations (2004, 2005).

the country will be 54% urban, with an urban population of about 800 million (United Nations 2004). Figure 5.1 shows the expected change in urban and rural populations to 2030. The urban population is expected to grow by 340 million by 2030.

The main challenge to the PRC's pursuit of sustainability is its huge population. While the country has been able to reduce its annual population growth rate from 1.2% in 1975–2003 to a projected 0.63% in 2005–2010, about 12.9 million people are still added to its population every year because of the large population base. Drastically cutting down the PRC's population growth rate has also created other problems. The rapid decline in the PRC's population growth has reduced the number of people in the productive age groups. It has also increased the proportion of people aged 65 years and above from 5.9% in 2003 to a projected 9.6% by 2015, thereby increasing the country's dependency ratio (United Nations Development Programs 2005).

Aside from the size of its population, the PRC is faced with the problem of spatial imbalance. The bulk of the population is concentrated in the economically prosperous and highly urbanized coastal areas, while the interior regions have remained underdeveloped. At present, about 786.2 million or 59% of the PRC's 1,322.3 million people live in rural areas. Since agricultural land is extremely limited (the average farm size in the PRC is about 1 *mu* or 0.06 hectare), more people cannot be absorbed on farms. A significant number of

**Figure 5.1: Trends in Urban and Rural Population, PRC**



rural dwellers, estimated at more than 150 million, are considered redundant for efficient agricultural productivity. The authorities, therefore, have called for an acceleration of urbanization with the result that about 75 million farmers are expected to move to cities and towns by 2010 (*New York Times,* 16 October 2005). If, as expected, the PRC becomes more than half-urban by 2020, about 12–15 million nonfarm jobs each year will be needed to absorb the overflow of people from the countryside (*People's Daily Online*, 30 October 2003).

## COUNTRY CONTEXT

In the PRC, urbanization is considered not just a demographic variable but also a potent instrument for policy intervention. Ideologically, Chinese development policy has traditionally focused on the rural areas, in recognition of the fact that contrary to orthodox communist theory, the peasantry and not the urban proletariat won the 1949 Chinese Revolution. Under Chairman Mao Zedong, the Chinese communists redistributed land to peasants in a vigorous agrarian reform program, confiscated farms from landlords, set up rural communes, established state farms, and pursued a farm mechanization program. Backyard furnaces and other rural industrialization schemes were pursued during the Great Leap Forward (1958–1959) with markedly disastrous results. The size and number of towns and cities were kept artificially low by strictly controlling internal migration with the use of the household registration or *hukou* system. During the Great Cultural Revolution (1966–1976), there were even efforts to decongest the cities by forcibly sending urban residents to rural areas through the "rustication" or *xia fang* movement. The results of these antiurban policies can be seen in the fact that the proportion of citizens classified as urban went from only about 13% in 1950 to 18% in 1978.

After the launching of economic reforms and opening up to the outside world in 1978, the PRC aggressively pursued urban development policies. Pursuant to Deng Xiaoping's declaration that "to get rich is glorious" and that "it is all right for some people to get rich first," the pace of urbanization rapidly accelerated. Interestingly, the economic reforms first started in rural areas with the introduction of the production responsibility system, which encouraged farmers to cultivate private plots and engage in money-making nonagricultural activities. Eventually, the newly rich farmers could not be contained in the villages so the *hukou* system was relaxed around 1980, allowing rural dwellers to leave their farms provided they moved only to small towns. Township and village enterprises were also encouraged and became the initial drivers of the PRC's rapid rate of economic growth, which has averaged more than 9% per year for nearly 3 decades.

## Urbanization Issues

Despite the economic achievements since 1978, the country's leaders have been concerned with the environmental and social problems associated with the rapid growth of cities and towns. In 1980, the PRC adopted a policy "to strictly control the development of large cities, rationally develop medium-sized cities, and encourage the growth of small towns." In pursuit of this policy, rural dwellers were permitted to leave villages and move to towns provided they did not rely on urban governments for their grain supply and other benefits. This decision encouraged massive rural-urban migration as evidenced by the increase in the number of towns in the PRC from 2,786 in 1983 to 20,358 in 2005 (China in Brief 2005).

As the PRC's economic boom required more laborers and skilled workers in big cities, keeping migrants in towns became more difficult. At present, about 80 million people (known as the *liudong renkou* or "floating population") are living in cities without official nonagricultural worker status. About 20% of the population of big cities like Shanghai, Tianjin, and Guangzhou are not officially registered in those cities. These "temporary" migrants, many of whom have lived in the cities for many years, are often denied urban benefits, such as permanent jobs, standardized wages, affordable housing, health services, and education for children. They are fast becoming an impoverished underclass in a country officially committed to a policy of egalitarianism.

A serious consequence of the PRC's economic progress since 1979 has been the widening gap between rich and poor. In 2004, about 50% of the total income in the PRC went to the top 25% of the population while the bottom 20% received only 4.7% (*New York Times*, 16 October 2005). In terms of consumption, the bottom 10% of the population is estimated to consume only 2.4% of the country's output while the richest 10% consumes 30.4%. The PRC's Gini coefficient in 2003 was a high 40 (*The World Fact Book* 2003).

Another manifestation of inequality in the PRC is the widening rural-urban gap. In 2005, it was estimated that urban residents took home more than three times the income of the average rural dweller (*New York Times*, 10 October 2005). Furthermore, following Deng Xiaoping's advice, some people became richer much faster than did others. In 2003, *Forbes Magazine* came up with a list of "China's Richest," which showed that the 400 richest individuals in the PRC had a net worth of $36.6 billion. The richest person on the list had a net worth of $780 million and at least 20 persons had incomes in excess of $290 million (Liang 2003). Meanwhile, about 178 million people in urban areas lived in slum conditions and the average per capita gross domestic product (GDP) was only $5,003 per year (World Bank 2005).

Rapid urbanization has exerted strong demand for urban services. In 2002, the Government claimed that about 69% of the urban population had access to improved sanitation. The Government also indicated that 92% of urban households had access to improved drinking water sources. However, the demand for services in rapidly expanding cities has reached dangerous proportions. The national capital, Beijing, draws about 85% of its water from ground sources, causing sinkholes in some areas. In Shenyang City, the demand for water was set at 3.2 million cubic meters per day ($m^3$/day). It was revealed, however, that in 1995, there was already a shortage of 416,700 $m^3$/day of water; the city will face more serious shortages in the future (Economic and Social Commission for Asia and the Pacific [ESCAP] 1995).

Urbanization has exacerbated air, water, soil, and noise pollution. According to the World Health Organization (WHO), 7 of the 10 most polluted cities in the world are in the PRC. The largest cities have been the most affected by pollution. For example, in the largest city, Shanghai, heavy and light industries contributed 90% of gaseous emissions and 60% of liquid discharges into the environment in 1995. PRC industries relying mainly on coal for energy, contributed 81% of total sulfur dioxide and 78% of particulate emissions. The Huangpu River that cuts across Shanghai is essentially dead because about 3.4 million $m^3$ of industrial and domestic waste are dumped into it every day. Less than 5% of the wastewater that flows into the Huangpu and Suzhou creeks is treated (Lam and Tao 1996).

In Beijing and Tianjin, a study of water quality revealed that half of the water samples drawn from the Hai and Luan rivers did not meet the lowest quality standards set by the WHO (World Bank 1995). The Government estimated that to meet the environmental objectives of the 10$^{th}$ Five-Year Plan (2001–2005), it would need to spend roughly $85 billion during the plan period, about 1.3% of the country's GDP. Of this amount, about $33.8 billion would be needed for controlling air pollution, $32.6 billion for water pollution, $10.8 billion for solid waste treatment, and $7.8 billion for other types of pollution (Mayfield 2005).

The urban housing situation is a major issue. The average floor space of rural family houses is generally twice as big as that in urban family dwellings. Rural homes are also predominantly privately owned. The main problem in rural housing is lack of such basic services as water, sanitation, electricity, and solid waste collection and disposal.

The 1988 housing reform program introduced market mechanisms in urban housing provision. Instead of the Government providing housing through work units and housing bureaus, the reform program sold the houses to individual households. Traditionally, work units spent 40% of their funds for housing construction, maintenance, repair, and administration, a social

burden that made them inefficient and unproductive. By encouraging people to use their savings to buy housing units instead of consumer items like television sets, furniture, and other durable goods, the Government was able to dampen inflationary pressures on the economy (Tolley 1991).

Although the PRC has invested heavily in urban housing, the huge backlog in residential construction is proving to be a heavy burden on the country's economy. In 2005 alone, the country planned to build 436.6 million $m^2$ of housing, up from 185.8 million $m^2$ in 1998. However, housing loans from commercial banks, which increased from $2.3 billion in 1997 to $99.8 billion in 2002, have strained the resources of the banking system. By February 2005, the Central Bank reported that outstanding residential mortgages had reached $199 billion, about 23% of all the medium-term lending and 9% of total lending in the whole country. The Bank raised some cautions about the inflationary pressures of such a large volume of housing loans, especially in the light of a significant proportion of bad loans in the portfolios of many banks. Cautions were also raised about some malpractices in the housing market. In April 2005, a Beijing real estate developer was reported to have defrauded the Central Bank of $78 million in forged housing contracts (Asia Focus 2005).

## Regional Development Policies

PRC authorities are aware that to maintain high economic development growth, they have to make cities and towns more efficient engines of growth by concentrating investments in these settlements. With the urban population growing at 4.08% per year, the Government is pursuing policies to make urbanization a positive contributor to sustainable development. PRC authorities are keenly aware of the dangers of uncontrolled urban growth (inadequate urban services, slums, environmental pollution) especially in very large cities. To solve this dilemma, the authorities have adopted three urban policy approaches: (a) concentrate development in high-density urban nodes to take advantage of economies of scale, location, and agglomeration, as well as larger markets, availability of skilled labor, and accumulation of capital; (b) redevelop inner city areas to cope with urban decay; and (c) link inner city development with planned growth on the urban periphery to encourage the emergence of compact mega-urban regions.

## Concentrated Urban Development

When the PRC decided to open its economy and society to the outside world after 1978, it concentrated development efforts in priority development

areas, which included special economic zones (SEZs), coastal open cities, and open economic regions. SEZs were production enclaves where foreign and economic investors were allowed to set up their enterprises under favorable terms, provided they sold the bulk of their products in international markets. Within each zone, the Government offered economic incentives, such as duty exemption on importation of production machinery and material inputs, assured supply of reliable energy, good housing, efficient infrastructure, information and communication linkages, access to professionally trained and disciplined work force, free repatriation of profits, and full security for personnel and staff. Investors in SEZs brought in capital, technical know-how, new product designs and prototypes, raw materials, and new technology. The SEZ provided land, energy, labor, housing, social services, management, and logistical services. The most widely known SEZs in the PRC are Shantou, Shenzhen, and Zhuhai in Guangdong Province, Xiamen in Fujian Province, and the island-province of Hainan.

In 1984, the PRC opened 14 coastal cities for foreign investments (Dalian, Qinhuangdao, Tianjin, Yantai, Qingdao, Lianyungang, Nantong, Shanghai, Ningbo, Wenzhou, Fuzhou, Guangzhou, Zhanjiang, and Beihai). The following year, the state expanded the open coastal areas and extended the open economic zones to create open coastal belts in the Yangtze River Delta region, Pearl River Delta region, Xiamen-Zhangzhou-Quanzhou triangle in south Fujian, Shandong Peninsula-Liaodong Peninsula region in the northeast, and Hebei and Guangxi region in the south. Since 1992, the State Council has opened all the capital cities of inland provinces and autonomous regions to foreign investments and established 15 free trade zones, 32 state-level economic and technological development zones, and 53 new and high-tech industrial development zones located in medium-sized cities (China in Brief 2005).

One of the most dramatic urban programs has been the development of the Pudong New Zone in Shanghai. Founded in 1992, Pudong was extended preferential policies not allowed in other SEZs. In addition to policies allowing reduction or elimination of customs duties and income taxes, Pudong authorities were allowed to grant foreign investors the right to open financial institutions and run tertiary industries. Shanghai has also been permitted to set up a stock exchange and to allow foreign banks to engage in business using the local currency (renminbi).

## Inner City Redevelopment

Unlike many North American cities where the downtown area becomes dark and abandoned after offices are closed and people drive back to their subur-

ban homes, those in the PRC have vibrant and densely populated urban cores. However, basic urban services in the PRC's inner city areas (water, sanitation, and solid waste collection and disposal) are often inadequate. Housing is usually congested and some residents live in "dangerous and dilapidated" structures. Nevertheless, inner city residents are generally able to cope with these problems because they possess a strong community spirit. They extend mutual aid to each other and enjoy life in inner city lanes, in courtyard houses, and in tiny well-maintained parks. Often, they close small streets for periodic markets and celebrate traditional fairs and festivals. Since many cities trace their origins to ancient times, their inner cores usually feature heritage structures, such as temples, villas, clustered apartments (*lilong*), and courtyard houses (*siheyuan*). Specific programs to redevelop and rehabilitate these structures are now being pursued in most PRC cities.

With the high level of economic growth achieved by the PRC since 1978, considerable pressures are now being exerted on poor conditions in inner city areas. As market mechanisms have taken over from central planning, the real value of urban land has become an important element in governmental decision making. Planners and developers want to convert inner city areas from residential, governmental, and cultural functions into higher-value uses (office towers, entertainment complexes, and shopping centers). As a result, in big cities like Shanghai, Beijing, and Guangzhou, old residential areas are being cleared and offices, shopping malls, and luxury condominiums are being constructed in the central business district. Even the Ming Dynasty courtyard houses in central Beijing and the lilong apartments in Shanghai are being razed, with their occupants resettled to suburban areas.

The high level of economic growth since 1978 has revitalized urban areas. A random citing of GDP growth rates in cities attests to their rapid development. The GDP of Shenyang City in Liaoning Province, for example, grew at an annual rate of 19% in 1986–1995. The per capita GDP of Shenzhen City in the Pearl River Delta during 2000–2005 increased at a rate 5.5 times higher than the average for the whole country.

Aside from its rapid rate of economic growth, the PRC has achieved significant social advances. Unlike many developing countries, the country has been able to provide adequate housing for most of its urban residents through a massive housing reform program. Before 1988, 30% of urban households in the PRC had less than 4 square meters ($m^2$) of livable housing space per person. Work units and housing bureaus provided 83% of all housing units. Each household paid about 1% of cash income for housing, which was clearly not sustainable because it barely paid for maintenance costs. The housing improvements have been achieved by redeveloping inner city areas and resettling people in new houses in the suburbs.

Many Chinese cities have also redeveloped inner city areas by combining cultural conservation efforts with tourism-oriented projects. In big cities like Shanghai, Beijing, Chengdu, and Xi'an, areas adjacent to temples, historic places, and cultural shrines have been transformed into shopping and entertainment complexes that are enjoyed by local and foreign visitors alike. Traditional housing structures, with stores on the ground floor and residences in upper floors, have been restored. Streets and lanes in the vicinity of cultural and historical centers are often closed to traffic and lined with small eateries, shops, and service providers. These inner city areas, therefore, integrate employment, residence, entertainment, and services in a holistic development scheme, thereby ensuring that they continue to thrive.

The city of Nanjing, capital of Jiangsu Province, is noted for a successful program of redevelopment of its inner city areas. Founded in 495 BC as the city of Yecheng and made a provincial capital in 229 AD during the period of the Three Kingdoms, Nanjing has served as the capital of 10 dynasties. While the city walls of Beijing were torn down as symbols of the PRC's feudal past, those of Nanjing, 19 miles long and 39 feet high, have been preserved. The Ming Dynasty tombs in the city have been declared a World Heritage Site. Aside from these imperial historical sites, Nanjing also has the Sun Yat-Sen mausoleum, Art World of Red Mansions, the Presidential Palace during the Republican Period, and a famed temple of Confucius.

## Development of City-regions

While inner city areas in the PRC are being revitalized, outlying regions are also planned to form viable city-regions. The main instruments that the PRC uses in fostering regional development include (a) establishment of innovation centers and high technology parks, (b) creation of special economic zones; (c) designation of coastal open cities; and (d) setting up of open economic regions. The key idea behind these regional development schemes was to concentrate population, employment, infrastructure, social services, and governance structures in designated urban places. At the same time, the economic and social linkages between urban and rural areas were not forgotten. Food production was encouraged not too far from the cities to reduce transport costs. The conversion of agricultural land into urban uses was controlled to prevent urban sprawl. Nonagricultural economic activities were encouraged in accordance with the slogan "leaving the land but not the village." Most important of all, the functional linkages between urban and rural settlements were strengthened by such schemes as "letting out" contractual jobs by urban entrepreneurs to rural dwellers, capital investments from cities in township and village enterprises, urban marketing of rural products, and

extension of technical assistance and training services by urban enterprises to rural producers.

In the planned development of innovation centers, three types of high-tech parks were created. *Spark parks* were located in remote and lagging areas to stimulate growth by the introduction of high-tech innovations. *Torch parks* were set up in small and medium-sized cities to enhance growth in surrounding hinterlands. *Comprehensive high-tech parks* were established in large cities and metropolitan areas, especially in districts where universities, research institutes, industrial enclaves, export-processing zones, and special economic zones were located (Laquian 2005, p. 335).

As Chinese cities expand, they increasingly demand conversion of rich agricultural land into urban uses, putting at risk the country's objective of food self-sufficiency. The loss of agricultural land has been most serious in rapidly urbanizing regions, such as the Pearl River Delta and the Yangtze River Delta. A study in 1996 revealed that about 35% of the cropland in Dongguan City, close to Guangzhou, had been converted into urban uses (Yeh and Li 1996). Furthermore, the development plan for Guangzhou requires expanding the metropolitan territory from 335 square kilometers ($km^2$) in 2000 to 555 $km^2$ in 2010, and most of the land would be taken from croplands (Taubman 2002).

The results of the regional development policies in the PRC are seen in the relatively smooth urban hierarchy of the country. Although the country has a very large territory (9,596,960 $km^2$), no one mega city dominates the urban scene. Of the 666 cities, only 2 (Shanghai and Beijing) have populations in excess of 10 million. Nine cities have populations between 2 and 9 million and 23 cities with populations between 1 and 2 million. The rest of the cities (632) have populations of less than 200,000 to 1 million (People's Daily Online, 16 September 2004).

## Decentralization Issues

People not familiar with the PRC's development have the common impression that it is a highly centralized authoritarian state. The reality, however, is that local governments in the country enjoyed considerable influence and power even before 1978. Strictly speaking, of course, the central Government had mainly delegated administrative authority to local units without politically devolving power to them. The center appointed top provincial and city officials. Provinces and cities are mainly held responsible for local development plans, economic administration, and management of local enterprises, and their decisions in these fields have to conform to national policies and performance standards.

Despite the legal-structural limits of central-local government relations, the demands of rapid economic development have endowed local officials with considerable influence and power. The practical demands for quick action have forced the central Government to give more leeway to local officials in decision making. The country is so large and the pressures to pursue local development so strong that local officials, like their ancient mandarin counterparts, adopted the slogan "the mountains are high and the emperor is far away." Many local officials nowadays usually decide local issues without clearing these with Beijing. Besides, such officials can rely on informal power relationships with key Beijing leaders, relying on the age-old traditions of *guanxi* (personal networks of influence) and *houmen (*back door connections) to enable them make local decisions independently. Because local officials are held responsible for results, they often assume powers without waiting for formal decentralization edicts.

The actual decentralization of authority to local officials, of course, differs from region to region. As the economic power of richer urban regions increased, the central Government delegated more authority to officials in these areas. For example, city-regions have been reorganized to form unified governance structures, with local cities and municipalities placed under the authority of regional governors and mayors. The mayors of cities like Shanghai have been authorized to approve financing for very large projects without clearing the decisions with Beijing. The Constitution has been revised to allow local officials to sell land or lease it to foreign investors. Local executives have been given powers to deal with loss-ridden state-owned enterprises, giving them direct authority to hire and fire personnel and to sell, privatize, or close down bankrupt enterprises. Local governments have even been allowed to borrow funds from local and international sources to finance infrastructure projects, with the sovereign guarantee of the central Government (Laquian 2002).

An interesting trend is the decision to decentralize authority and power at the grassroots level. Officials at the village level are already directly elected by the people. Unlike in the past when the Communist Party nominated local candidates, multiple candidates can now contest village elections. In the address of President Hu Jintao to the Politburo on the eve of the PRC's National Day in October 2003, he said that: "We must enrich the forms of democracy, make democratic procedures complete, expand citizens' orderly political participation, and ensure that the people can exercise democratic elections, democratic decision making, democratic administration, and democratic scrutiny" (*New York Times,* 1 October 2003). Based on these statements, "China watchers" are expecting that the PRC will allow open election of officials at the township, county, and higher levels of local government.

## Regional Economic Governance and Intergovernmental Financial Relations

The main problem in regional economic governance in the PRC is the proliferation of government agencies, which creates administrative and political fragmentation. There is functional fragmentation where agencies in charge of water, transport, energy, solid waste management, and other urban services pursue their policies and programs independently. There is also vertical fragmentation where central government ministries and bureaus as well as local authorities at the provincial, prefectural, metropolitan, city, town, district, municipal, and neighborhood levels exercise their own authority and power. Governance is complicated further by the presence of special authorities responsible for specific functions (water boards, electric companies) as well as agencies with exclusive authority over affairs in designated geographic areas (port authorities, SEZ authorities).

As in other countries, the primary instrument that the central Government uses in intergovernmental economic relations is control over budgetary and expenditure functions. Traditionally, the bulk of central Government income came from operations of state-owned enterprises, customs duties, and the center's share in local tax proceeds. These resources were allocated to local governments on the basis of need. Central government allocation of funds, of course, did not encourage local units to raise their own local revenue.

After 1978, most state-owned enterprises ran into economic difficulties, reducing the income of the central Government. Township and village enterprises, on the other hand, thrived thereby increasing the income of local bodies. In addition, tax reforms launched in 1994 included the imposition of value-added taxes, with the proceeds from these taxes shared between central and local governments (75% to the former and 25% to the latter). Even with this adoption of a tax-sharing scheme, the portion of tax revenue going to the central Government has declined since 1995. In contrast, rich local governments have become much richer.

Before 1978, the fiscal system in the PRC was heavily redistributive, with richer local units transferring a high proportion of their GDP to poorer regions. Decentralization, however, encouraged richer local units to keep a higher portion of their GDP for themselves. For example, in 1970–1980, Shanghai gave 50% of its GDP to poorer provinces but gave only 8.5% in 1993. Similarly, the wealthy province of Guangdong gives only 0.4% of its GDP to poorer regions (Riskin 2000).

Because housing demands huge financial resources, supporting housing programs plays a prominent role in intergovernmental financial relations. Before 1984, individual work units all over the PRC provided 84% of urban

housing. The housing reform program in 1988 introduced market mechanisms, setting up programs to encourage families to save funds for down payments, increasing rents, increasing wages, and encouraging the sale of housing units to individuals. The World Bank helped set up the Housing Loans Bank in 1987. In 1994, the Government required work units to create "housing accumulation funds." Under this system, employees deposited 5% of their monthly incomes into the fund and employers matched these with another 5%. The accumulated funds were then used as down payment for the purchase of a house. In 1997, the Government stopped the work units and housing bureaus from providing subsidized housing to workers. By 2002, some 65 million citizens had accumulated about $49.9 billion in the funds. About $18.3 billion of those funds had been used to purchase 20 million houses. More than 3.4 billion $m^2$ of housing floor space had been constructed and 500 million $m^2$ of older buildings had been rebuilt or renovated. Citizens had purchased about 94% of the houses in the open market (*Peoples' Daily*, 21 August 2003).

## Leveraging International Assistance for Sustainable Urban Development

Unlike other developing countries, the PRC, with its huge population and robust economy, has not been overly dependent on international assistance for its development efforts. Total official development assistance (ODA) to the PRC in 2003 was only about $1,324.6 million (roughly $1.00 per capita), which is barely 0.1% of total national income. With its strong commitment to national self-reliance, the PRC initially tended to be wary of international loans as a way of financing development projects. Even after the PRC started tapping international financing, it preferred to invest in profit-generating projects and "hard" infrastructure, such as roads, railways, ports, harbors, energy generation, and water and sewerage projects. Social development projects, such as health, education, and poverty reduction schemes are given low priority in foreign borrowing schemes, especially when loans are made in hard currency that would have to be paid at set foreign exchange rates. The authorities believe that the country has enough resources to pay for these projects.

With economic profitability as a principal criterion, the PRC has tended to focus international financing on projects located in highly urbanized areas. Thus, most internationally funded projects are concentrated in the coastal regions. This tendency to favor the highly developed coastal regions has prompted the Asian Development Bank (ADB) to give higher priority to projects in the central and western provinces. In the update of the country strategy and program for the PRC for 2006–2008, ADB is allocating 85%

of its projected lending of $4.5 billion to these lagging regions. Leveraging ADB resources in this way conforms to the objective of reducing poverty and promoting more equitable development between richer and poorer individuals as well as residents of urban and rural areas.

The bulk of ADB lending to the PRC is devoted to projects with strong multiplier effects, such as infrastructure (roads, railways, power generating plants), and town-based urbanization. Recognizing the country's reluctance to borrow for social projects, ADB has allocated $11 million from the 2006–2008 country program funds for technical assistance grants to encourage the country to consider support for such projects. The Government has also contributed to the Technical Assistance Special Fund. Furthermore, funds from the Poverty Reduction Cooperation Fund from the United Kingdom have been used to encourage the PRC to invest not only in "single projects" to build additions to the National Trunk Highway System, but also to encourage area-wide approaches that link smaller roads in a regional transport network (People's Daily Online, 25 March 2005).

## GOOD PRACTICE CASE STUDIES

The rapid economic growth achieved since 1978 and the country's accelerating rate of urbanization have raised the issue of whether such growth is sustainable in an economic, social, and ecological sense. Economic sustainability addresses the proper and full valuation of natural resources, maintenance of capital stock, promotion of growth with equity, and internalization of the impact of economic activities that most economists treat as externalities. Social sustainability requires consideration of "social capital," which includes factors that enhance the capabilities of human beings (education, health, skills training). It also includes consideration of social mobility, the empowerment of disadvantaged groups, poverty reduction, and the prevention of the disintegration of societies. Ecological sustainability addresses ecosystem integrity, habitat conservation, the interaction of species and their preservation, and consideration of the "carrying capacity" of ecological systems (Serageldin 1995).

A quick look at economic growth in the PRC shows its close association with the opening of the country's economy to the outside world. Globalization effects— such as foreign direct investments, trade liberalization, expansion of exports and imports—and the PRC's acceptance of foreign trade regimes by its membership in the World Trade Organization have greatly assisted economic progress. Opening-up to the outside world has brought in new ideas, technological innovations, and tradable products. It has also

**Figure 5.2: Map Showing Location of the Case Studies**

forced the PRC to abide by requirements of global trade regimes, such as respect for intellectual property rights and adherence to fair trade practices.

As far as social sustainability is concerned, economic progress has been essentially built on human development efforts that were pursued during the country's socialist period when the Government invested heavily in education, health, housing, and public welfare. Endowed with a disciplined and highly motivated work force, the PRC has been able to compete successfully in the world economy since 1978. At the same time, the country needs to be conscious of the dangers of inequality, especially the widening gap between rural and urban areas and the ultra rich and the very poor.

As the PRC has progressed economically, the environmental costs of development have become a serious problem. Many cities suffer from environmental pollution because of the heavy dependence on coal for energy. Urban areas lack an adequate water supply and suffer from poor sanitation. Surface and ground water sources have become heavily polluted. In some ways, the PRC is still paying for the environmental costs of misguided programs, such as reliance on Soviet-style planning that favored heavy industries, use of communes for agricultural production, lack of investments in urban infrastructure, and failure to enact environmental control laws and standards.

Many good practices in urban and regional development have been used in the PRC as it pursues sustainability. In this chapter, three case studies are presented to highlight the three main problems facing the country in its pursuit of sustainable development: (a) how to deal with inner city decay, especially in ancient cities (Nanjing); (b) how to create new urban settlements to serve as alternatives to existing ones (Shenzhen); and (c) how to revitalize aging industries, make regional development more efficient, and balance regional growth by effectively linking urban and rural development schemes (Liaodong Peninsula). Location of the areas is shown in the map.

The first case study—revitalizing the inner city section of Nanjing—shows the importance of economic, social, and cultural interventions in a program that attempts to deal with inner city decay. Nanjing planners, noting that many North American cities often have deteriorating inner cores, want to prevent this from happening in their own city. They realize that inner city decay is the result of factors that contribute to suburbanization and urban sprawl such as (a) a transport policy based on the use of private automobiles; (b) land policies that make the value of land the primary basis for public decisions; (c) housing programs that result in "hollowing out" the inner city by locating people in suburban housing projects; and (d) taxation policies that favor growth in rapidly growing suburban areas.

The second case study focused on Shenzhen illustrates how building a city from scratch can be achieved through careful urban and regional planning. Of the PRC's five SEZs, Shenzhen is easily the most successful, having grown from a small town of 30,000 residents before 1980 to a metropolis of more than 9 million at present. The Shenzhen story reveals the importance of urban and regional planning tools. It also shows how strategic and iterative planning can be used to deal with problems that arise from unexpected and unanticipated developments.

The third case study of how the Liaodong Peninsula has been able to revitalize its rust-belt industries and backward technological base through urban and regional planning illustrates good practices that can be adapted to conditions in other developing countries. The case study reveals how mobilizing domestic capital and infusing foreign funds and technology were used to revitalize aging industries. It highlights the importance of basic urban infrastructure as a necessary first step in achieving economic development. It shows the importance of linking urban and rural sectors of the economy in a comprehensive regional development plan. Like the case studies of Nanjing and Shenzhen, it also illustrates the importance of creating a polycentric urban form in urban and regional development.

## Nanjing: Revitalizing the Inner City

| GOOD PRACTICE | |
|---|---|
| Good Governance | ✓ |
| Urban Management | ✓ |
| Infrastructure/Service Provision | ✓ |
| Financing and Cost Recovery | |
| Sustainability | ✓ |
| Innovation and Change | |
| Leveraging ODA | |

The city of Nanjing, capital of Jiangsu Province, is noted for a successful program of redevelopment of its inner city areas. Founded in 495 BC as the city of Yecheng and made a provincial capital in 229 AD during the period of the Three Kingdoms, Nanjing has served as the capital of 10 dynasties. While the city walls of Beijing were torn down as symbols of the PRC's feudal past, those of Nanjing, 19 miles long and 39 feet high, have been preserved. The Ming Dynasty tombs in the city have been declared a World Heritage Site. Aside from these imperial historical sites, Nanjing also has the Sun Yat-Sen mausoleum, Art World of Red Mansions, the Presidential Palace during the Republican Period, and a famed temple of Confucius.

While maintaining its cultural heritage, Nanjing aspires to transform itself into an international metropolis to rival neighboring cities like Shanghai and Hangzhou. By 2050, city authorities project that their city will reach a population of 10 million or more. The present population is about 6.4 million, occupying a territory of 6,516 km$^2$. About 91% of the population are classified urban

and 9% rural, the latter being mostly residents of areas around 12 satellite towns and 14 organic towns in the metropolitan area. Politically, the People's Government of Nanjing City is under the authority of the Communist Party and the Nanjing Communist Party Committee secretary is the de facto governor of the city. An appointed mayor heads the executive branch of the government.

Nanjing has jurisdiction over 12 districts (Xuanwu, Baixia, Qinhuai, Jianye, Gulou, Xiaguan, Pukou, Luhe, Qixia, Yuhuatai, Jiangning, and Jiangpu) and two counties (Lishui and Gauchun). Suburban development is being pursued with the establishment of high-density urban settlements, such as those in Hexi, where the future central business district is being transferred. The cores of suburban development are usually large industrial parks, such as those in Gaoxin, Xingang, Huagong, and Jingning. Foreign financing of these parks has been encouraged and Nanjing has been able to attract electronics, petrochemical, and iron and steel enterprises such as Panda Electronics, Jincheng Motors, and Nanjing Steel. Foreign firms such as Fiat, Iveco, and Sharp have set up plants in Nanjing.

## Examples of Good Practices

To revitalize its inner city areas, ensure environmental conservation, encourage economic growth, and enhance social equity and reduce poverty, government authorities and local citizens in Nanjing have set up programs and projects that reflect a number of good practices. Some noteworthy examples of such practices include (a) redeveloping inner city areas, (b) using a regional approach to achieve metropolitan development, and (c) pursuing housing reforms and poverty reduction schemes.

**Redeveloping Inner City Areas.** The most important feature of the Nanjing master plan is the redevelopment of the inner city. Within the downtown area of Nanjing, well-defined zones have been devoted to specific types of development: information centers, administrative centers, shopping centers, cultural institutions, and areas for production and sale of scientific and technological products.

For historical and cultural purposes, the development plan of Nanjing has demarcated 13 "protected zones" exclusively devoted to cultural structures, relics, and heritage sites. These include important structures, such as the Chaotian Palace, the Presidential Palace of the Republic of China, and buildings that date back to previous dynasties. Also protected are the Zhongshan Scenic Area and the Stone City Scenic Area, as well as ancient traditional houses, such as Mendong, Menxi, and Nanbuting. Within the historical and cultural zone are located seven major museums on ancient and modern history and a number of buildings holding historical relics.

The inner city development scheme combines cultural conservation with tourism and entertainment. For example, the Fuzimiao area focused on the ancient temple of Confucius is a noisy, rowdy, and brightly lit center for shopping, eating, and entertainment. In contrast, an area formerly occupied by squatters adjacent to the city walls in Xiaotaoyuan has been cleared and transformed into a nicely landscaped park. Part of the future plan for the area is the construction of high-end luxury housing on the other side of the river, the earnings from which would cross-subsidize the maintenance and management of the park.

To provide economic vitality to the inner city, the Nanjing authorities have converted areas formerly occupied by rundown structures into commercial, service, and entertainment centers. The 1912 development scheme located behind the Presidential Palace of the Republican era now serves as the entertainment enclave for Nanjing. There are more than 70 enterprises, such as nightclubs (Red Club), restaurants, boutiques, a spa, coffee shops (Starbucks, the Coffee Beanery), teahouses, and fast-food places. The area is well connected to the city's public transport system and currently has parking for about 180 vehicles.

Although urban redevelopment has required the relocation of some inner city families to suburban housing projects, the inner city redevelopment plan for Nanjing gives a great deal of importance to people actually living in the city center. To this end, a wide range of housing types, ranging from high-end luxury condominiums to densely inhabited courtyards where people share water facilities, toilets, and kitchens are provided in the plan. Slum upgrading programs have been pursued in a number of informal and uncontrolled settlements. Mini-parks and open spaces have been created for the enjoyment of local residents. In some areas, streets are periodically closed to make way for night markets. Conscious community development programs are pursued in inner city areas to mobilize people through social campaigns, such as neighborhood beautification, vaccination, maternal and child health, and family planning.

**Using a Regional Approach to Achieve Metropolitan Development**. The Overall City Plan for Nanjing (1991–2010) features not only the redevelopment of the inner city area encompassed by its ancient walls, but "clustered settlements" or urban nodes formed along the banks of the Yangtze River. The suburban settlements are connected to the central city by a system of arterial expressways (spokes) and to each other by a system of circumferential roads (rings). Unfortunately, the transport system is mainly focused on the use of road-based conveyances, especially private cars. Nanjing has constructed a rail-based metro system with a 17-km north-south line made up of 13 stations and an east-west line that started operations in 2005. To date, the metro system does not yet reach key urban nodes in the metropolitan area.

To control urban sprawl, Nanjing has concentrated high-density development in specific zones. The most important of these development schemes is located in Hexi, southwest of the city, where an ambitious development program designed to transfer the central business district from inside the city walls has been pursued. Industrial and technological development has also been concentrated in suburban areas, such as the high-tech enclave located near the international airport. It is noteworthy that the Nanjing metropolitan region has been planned as a totality, with specific functions allocated to designated areas. The areas between the nodes are also preserved as green spaces and agricultural production sites. The suburban regions of Nanjing have traditionally produced vegetables, fruits, freshwater fish, and other food items for the city. The current city master plan continues to stress urban agriculture as a major thrust in the total development scheme.

**Housing Reform and Community Development Schemes.** Like other ancient Chinese cities, Nanjing has densely occupied inner city zones where "dangerous and dilapidated" housing structures are found. Typical of these zones is the Menxi area located west of one of the main gates of Nanjing's city walls. Menxi is occupied by more than 40,000 people living in extremely crowded housing enclaves with multiple courtyards. With technical assistance from the American Planning Association, the Nanjing city authorities have adopted a redevelopment scheme that includes a landscaped park, high-rise condominiums, affordable housing units, local community service centers, and provision of water and sanitation.

Instead of proposing wholesale destruction of traditional houses, the redevelopment plan for Menxi will use a "slum upgrading" approach where the physical structures that can be saved will be retained. Courtyard walls will be cleaned and improved, adequate water supply and sanitation facilities provided, and people organized and directly involved in the improvement of their community. The upgrading scheme may involve the resettlement of about a quarter of the original residents. Resettlement to apartments in the suburbs will be done on a voluntary basis, with families that agree to be relocated compensated with cash awards as well as provided with apartments that have more than twice the floor space occupied in Menxi. Suburban apartments will also have private kitchens, toilets, and baths instead of shared facilities as in the old neighborhood.

## Shenzhen: Building a City from Scratch

In 1978, the Third Plenary Session of the Eleventh Central Committee of the Chinese Communist Party approved the "Open Door" and "Economic

| GOOD PRACTICE | |
|---|---|
| Good Governance | ✓ |
| Urban Management | ✓ |
| Infrastructure/Service Provision | ✓ |
| Financing and Cost Recovery | ✓ |
| Sustainability | ✓ |
| Innovation and Change | ✓ |
| Leveraging ODA | |

Reform" policies. Pursuant to these policies, Shenzhen was declared the first SEZ in the PRC in August 1980. Shenzhen was a small town with an area of 3 km$^2$ and a population of 30,000. When it was made an SEZ, it absorbed Baoan county and Shenzhen municipality, increasing its population to 70,000 and expanding its territory to 1,800 km$^2$. By 1988, Shenzhen's population had increased to 800,000 and its territory expanded to 2,020 km$^2$. The 2000 census set Shenzhen's population at 7 million, despite the reduction of the territory to 1,948 km$^2$ in 1995. Current estimates set Shenzhen's population at 9 million, making the city-region one of the largest (and certainly the fastest-growing settlement) in the PRC.

The years 1979–1999 were the boom periods for Shenzhen's development, with its population increasing by 13.6% per year. People migrating to Shenzhen increased from 1,500 in 1979 to 4 million by 1999, among them some of the best trained professionals in the country, attracted by high salaries, better housing, and educational opportunities for their children. GDP per capita increased by a factor of more than 60. By 2000, Shenzhen's GDP ranked it sixth among the PRC's large and medium-sized cities. The structure of Shenzhen's GDP also changed drastically, with primary sector industries making up 1%, secondary sector 52%, and tertiary sector 46% (Shiu and Yang 2002).

## Examples of Good Practices

The comprehensive and strategic planning of the Shenzhen city-region illustrates a number of good practice policies and programs: (a) locating the SEZ close to the city of Hong Kong to facilitate foreign investments, technical assistance, and access to foreign markets; (b) linking the SEZ to urban nodes in the city-region instead of isolating it and limiting the spread effects of its development; (c) placing the development of the Shenzhen city-region in the context of the whole Pearl River Delta region; and (d) shifting the transport infrastructure from a road-based to a rail-based system.

**Locating Shenzhen Close to Hong Kong**. The location of Shenzhen was no accident: the SEZ's proximity to Hong Kong was a key factor in its establishment. Even when the city was a British colony separated from the PRC, it obtained its water, fresh food, and human resources from Guangdong Province. Shenzhen's location made for a ready source of capital, technical assistance, and managerial expertise. In effect, the Pearl River Delta served

as Hong Kong's hinterland, despite the then presence of an international border. The status of Hong Kong as an international tax free port also gave the PRC good access to trade information and foreign markets.

Shenzhen's linkages to Hong Kong, China, have passed through three stages since 1978. The first stage (1979–1987) mainly involved "cross-border" manufacturing arrangements between Hong Kong enterprises and small businesses in the Pearl River Delta. These arrangements included subcontracting of manufacturing operations in which partial production of certain goods was done by small-scale Shenzhen companies.

The second stage in Hong Kong-Pearl River Delta relations (1988–1992) focused on direct investment of Hong Kong manufacturing firms, mainly in SEZs like Shenzhen. Exorbitant land costs, high salaries and wages, expensive housing, and high rentals in Hong Kong encouraged firms to have these operations done in the mainland. During this period, Hong Kong investments made up 80–90% of foreign direct investments in the Pearl River Delta, the largest portions of which went into SEZs. As manufacturing was moved to the Delta region, the role of Hong Kong shifted to transshipment of Pearl River Delta products, facilitating opening up of foreign markets to Chinese goods, serving as a source of capital, providing high-level management and technical assistance, and easing global information and communication.

The third stage, which started in 1993, involved complete plant relocations and outward service processing for mainland goods and services. The division of labor between headquarters' functions in Hong Kong and production facilities in the Pearl River Delta became more defined. Hong Kong continued to play a dominant role in capital financing, high-level management, product design, research and development, and global marketing but the bulk of manufacturing was now done in the Pearl River Delta. A 1998 survey of 37,724 foreign enterprises in the Delta found that 82% of these were manufacturing firms and 90% of these manufacturing firms were linked to Hong Kong (by then a part of the PRC) mainly as joint ventures. Half of these joint ventures were located in the SEZs (Tuan and Ng 2002).

Chinese jurisdiction under the "one country, two systems" policy in 1997 has accelerated the integration of the Hong Kong Special Administrative Region with the Pearl River Delta. In fact, one can now view Hong Kong as a mega city with the Pearl River Delta as its hinterland. One indicator of this close relationship is the cross-border traffic through Lowu that increased from 10 million persons in 1983 to 40 million in 1994 and 86 million in 2000. Vehicles crossing the border increased from 0.7 million in 1983 to 11 million in 2000.

**Sharing and Spreading the Fruits of Development.** A common mistake in the setting up of SEZs is the strict isolation of these production

enclaves from surrounding areas. In the Philippines, Sri Lanka, and other countries, for example, SEZs are designed to be completely separated from nearby areas. Within the SEZ, foreign investors are provided with serviced land, energy, housing, technical and professional staff, and security. Products from the SEZ cannot be sold locally and are mainly exported. Access to the SEZ is strictly controlled, the zone is surrounded by barbed wire, and armed guards control the entry and exit of people and goods.

The main effect of separating the SEZ from its hinterland is to inhibit the spread of the beneficial development in the zone. In Clark and Subic Bay in the Philippines, for example, people working in the SEZ are allowed to enter in the morning and then leave in the late afternoon. These workers have to find their own housing, which means that they often live in slum and squatter areas. The cities of Olongapo near Subic and Angeles in Clark have to provide water, sewerage, electricity, solid waste collection and disposal, and other services but they do not profit from the fruits of development in the SEZs, which mainly go to the central Government. These cities are saddled with problems created by the concentration of development in the zones, including crime, prostitution, drugs, vagrancy, and juvenile delinquency.

Early in the development of Shenzhen, the negative effects mentioned above were also felt in Baoan, Dongguan and other adjacent areas. Tens of thousands of migrant workers were attracted to the SEZ and lived in makeshift dwellings near the gates, along the railroad tracks and other vacant lands under squalid conditions. To deal with the problems, the boundaries of Shenzhen Municipality were gradually expanded so that housing and other urban services were made available to all citizens. Although the boundaries of the SEZ continued to be manned, movement of people and goods was facilitated. More importantly, by expanding the boundaries of Shenzhen Municipality, the urban authorities extended urban services to all residents.

One of the most important decisions made by Shenzhen authorities was the abolition of rural *hukou* or household registration in the municipality. By erasing the distinction between rural and urban hukou, all urban services became accessible to all residents of Shenzhen. In the past, workers in Shenzhen who did not have an urban hukou did not have access to good housing, good salaries, permanent employment, education of their children, and other benefits. Despite the fact that many of these "temporary" migrants had lived in the municipality for many years, they were still discriminated against. Making Shenzhen the first city in the PRC to be completely urban, therefore, has resulted in enhancing social sustainability in the city-region.

**Integrating Shenzhen into the Pearl River Delta Region.** A noteworthy aspect of the planning of Shenzhen as a city-region is its integration into

the whole Pearl River Delta region. Although designed as an exclusive special economic zone, Shenzhen's linkages with its hinterland and with other urban nodes in the Delta region were carefully considered in planning for its development. The all-important link of Shenzhen with Hong Kong has already been noted. In formulating Shenzhen's transportation system, energy requirements, residential enclaves, and industrial and commercial sectors, the future relationships of the city-region with other urban nodes in the Delta were carefully worked out.

Administratively, Shenzhen is made up of six districts of which four (Yantian, Luohu, Futian, and Nanshan) are in the SEZ and two (Baoan and Longgang) are outside it. The SEZ occupies only 391 $km^2$, roughly one fifth of Shenzhen's total area. Checkpoints in nine cross-boundary zones used to isolate the SEZ from the rest of Shenzhen but these have become unimportant and people and goods now come in and out of the SEZ regularly. Shenzhen's CBD is in Luohu, which is the main gateway for "foot passengers" to Hong Kong. A new city center is emerging in Futian, which is the locus for government offices, community services, and commercial activities. West of the city center is Nanshan on the Shekou Peninsula, the site of high-tech industries and recreation facilities. Also in the peninsula are Shenzhen's three major seaports: Shekou, Chiwan, and Mawan. To the east of the city is Yantian, Shenzhen's major deepwater port. Immediately south of Yantian is Shatoujiao, a major residential and manufacturing center.

The comprehensive plan for Shenzhen envisions a "polycentric metropolis" that connects the SEZ to a number of urban nodes through efficient transport modes. Four fifths of Shenzhen's territory lie outside the SEZ. Most of the land in the two districts of Baoan and Longgang is still undeveloped, made up of open country and farmland. The plan seeks to develop high-density settlements in the towns of Baoan and Longgang while preserving the green spaces between those towns and the SEZ center. The Shenzhen International Airport is located in Baoan and expressways connect it not only to the SEZ but also to other parts of Guangdong Province. Longgang is being developed as an important regional center despite being located some distance from its closest urban neighbors.

The development of Shenzhen is an integral part of the Pearl River Delta Regional Plan adopted by the Guangdong provincial government in 1995. Three major strategic goals were embodied in that plan: (a) to develop the Delta region as a whole; (b) to develop an urban system with an improved rank-size distribution of different types of cities, a clear division of labor with complementary functions, and a functional and balanced distribution of transportation and communication networks; and (c) to enhance rural-urban integration (Campanella et al. 2002).

As conceived, the Delta settlement pattern is made up of three city-region clusters that form a pyramid. At the apex of the pyramid is the Guangzhou-Foshan cluster. In the southeast, about 120 km from Guangzhou is the Hong Kong-Shenzhen cluster. The third part is the Macao-Zhuhai cluster in the southwest. The three urban clusters are linked together by efficient transport systems. The clustering of development in high-density urban nodes is designed to avoid urban sprawl and encroachment of development into agricultural areas.

**Shenzhen's Transport Strategy.** The original transport system for Shenzhen was heavily focused on roads. Expressways connect the SEZ with Hong Kong and other urban nodes. The construction of these road networks created a huge boom in car ownership in Shenzhen. In 2003, about 60,000 new cars were licensed in Shenzhen during the first 6 months of the year alone. It is worth noting that about 320,000 cars were already operating in the city during that period.

To deal with the transport problems in Shenzhen, the city authorities proposed a shift from road-based to rail-based transport. In 1988, a light rail transit (LRT) system was proposed to be set up in the city. The scheme to link the SEZ to the international airport was approved in 1992. A complete network of 272 km—composed of six heavy rail and light rail routes, three commuter rail services, and a monorail line—was approved in 1999. By 2002, the Shenzhen municipal government endorsed a Railway Development Plan to 2010 made up of eight new extensions and four additional LRT lines, covering a total of 249 km.

Aside from the rail-based system, Shenzhen operates a bus system that had 3,495 buses in 2001. Within the SEZ, 16 bus operators provided transport services while 16 operators served Baoan and Longgang districts. Bus patronage in Shenzhen, however, has been relatively low, with each bus carrying 369 passengers each way on average per day. In Hong Kong, this average is 597 passengers. Patronage of more affordable minibuses, of which there were 3,057 in 2001, was relatively heavy because of the lower fares. In addition, people also patronized about 9,000 licensed taxis in Shenzhen (Atkins China Ltd. 2003).

In 2005, a proposal to set up a bus rapid transit (BRT) system was formulated with World Bank support. It was argued that a BRT would cost much less than a heavy rail or light rail system. Some Shenzhen officials, however, were of the opinion that a BRT system was not "modern" enough and they preferred an expanded rail-based metro system. These officials were also against another World Bank proposal to expand the use of the bicycle by providing more exclusive bicycle lanes, bicycle parking facilities, and repair shops. They viewed the bicycle as a backward technology and expressed their determination to ban the bicycle from most major streets.

Despite some problems related to its transport system, Shenzhen still leads most cities in the PRC in linking land-use control by a comprehensive transport network. The city government has officially adopted sustainable development in transport planning. The strong role of the Transport Bureau in formulating transport and land-use plans and in enforcing transport regulations is very important in Shenzhen's development. Having noted these advantages, a number of issues still need to be resolved if Shenzhen is to achieve its sustainability goals.

A serious issue is the competition among various agencies and local governments in the Pearl River Delta in setting up airports, maritime ports, and other transport facilities that cause duplication and harmful competition. The growth of private automobiles has been extremely rapid, leading to serious road congestion. The rail-based transport system is just starting and Phase I of the whole metro system is not expected to be operational until 2010. The bus system is heavily used, leading to traffic congestion. With the city government authorities strongly against the use of bicycles, this environmentally friendly mode of transport will probably not flourish in Shenzhen.

## Liaodong Peninsula: Reviving Rust-belt Industries

| GOOD PRACTICE | |
|---|---|
| Good Governance | ✓ |
| Urban Management | ✓ |
| Infrastructure/Service Provision | ✓ |
| Financing and Cost Recovery | |
| Sustainability | ✓ |
| Innovation and Change | ✓ |
| Leveraging ODA | |

One of the most successful efforts to achieve urban sustainability in the PRC has been the planned development of the Liaodong Peninsula. This region in the northeastern PRC is made up of 8 cities and 16 counties. Shenyang, the capital of Liaoning Province, is at the northern end of the region and the port city of Dalian at the southern tip. The peninsula is strategically located because of its proximity to the Korean peninsula and Japan.

The Shenyang city-region's population in 1995 was 6,668,000 inhabiting 12,980 km$^2$ of territory. It is made up of five urban districts (Heping, Shenhe, Dadong, Huanggu, and Tiexi), four suburban districts (Dongling, Yuhong, Xinchengzi, and Sujiatun), and four counties with the rank of cities (Xinmin, Liaozhong, Kangping, and Faku). About 81% of the region's population was classified as urban. The city of Dalian is the second largest seaport in the PRC with an area of 13,800 km$^2$ and a population of 5.9 million. It was declared an open coastal city in 1984 and became a successful economic-technological zone soon afterward. In 2000, the Government set up the Dalian export processing zone that attracted massive investments from Hong Kong, China; Japan; Republic of Korea; Taipei,China; and the United States.

Shenyang started as a border outpost of the Chinese empire around 300 BC. It was the capital of the Manchu dynasty in 1625–1644 before the capital was moved to Beijing. In 1861, Shenyang was invaded and taken over by Russia. After Russia's defeat in the Russo-Japanese War in 1905, the region was occupied by Japan. Taking advantage of the rich deposits of coal, iron, and other mineral resources, Japan started heavy industries in the region. The PRC regained jurisdiction over the region in 1911, only to be ousted again by the Japanese in 1931. Shenyang and Dalian were liberated from Japanese control in 1945.

After the Communist victory in 1949, the PRC took over the heavy industries in the Liaodong Peninsula. During the first 5-year plan (1956–1960), Shenyang was allocated the largest amounts of investments in industrial technology, especially in coal, metallurgy, and machinery production. The movement of rural dwellers to urban areas was allowed so that by 1957, 66.4% of Shenyang's population was classified as nonagricultural. The city's territory also expanded from 116.8 $km^2$ in 1956 to 157.7 $km^2$ in 1976.

Before economic reforms in 1979, the Liaodong Peninsula economy was depressed because state-owned enterprises used outmoded machinery, inefficient processes, and backward technology. Industrialization had resulted in serious environmental problems. The most serious was lack of water, especially for industrial use. Liaoning Province drew its water from eight large reservoirs, most of which were designed to support agriculture. Industrial demand had increased so rapidly that the water earmarked for agriculture decreased significantly. Adding to the problem was the discharge of wastewater, both from industrial and domestic sources. For the six industrialized cities of Shenyang, Anshan, Fushun, Benxi, Liaoyang, and Tieling, the proportion of wastewater from industry was projected to increase from 79.7% in 2000 to 80.3% in 2010 and 84.8% in 2020. Industrial solid waste was also expected to increase from 98,823 million tons per year in 2000 to 99,940 in 2010 and 100,112 in 2020 (ESCAP 1995).

A principal reason for the difficulties in controlling environmental pollution in the Liaodong Peninsula is the lack of coordination among government agencies. There are at least eight agencies concerned with environmental issues in the region. The Land Planning and Land Management Bureau is charged with land use and urban planning. Construction activities are the responsibility of the Urban Construction Bureau. The Industry and Commerce Administration examines and approves construction projects. Other agencies whose functions are linked to the environment are the Health Bureau, charged with urban sanitation and public health; Water Conservation Bureau, which manages water resources; Agriculture Bureau, which is responsible for rural environmental management; Forestry Bureau, which protects forested areas; and Environ-

mental Protection Bureau, which has general responsibility for controlling pollution. In theory, all these agencies are supposed to be coordinated through the Shenyang Planning Committee and the Construction Committee, but each agency exercises a great deal of autonomy and coordination depends heavily on the personality of officials. Coordination is also made difficult by the fact that most direct measures for environmental protection are carried out by officials at the district and county levels. Most district and county level officials are more interested in expanding industrial production than environmental protection, so the central and provincial agencies are often thwarted in their efforts.

## Examples of Good Practices

Since 1978, the provincial and regional authorities in the Liaodong Peninsula have been pursuing policies and programs to solve the main problems in the region. Some of these policies and programs that constitute good practice are (a) taking a regional rather than a single city approach in urban development, (b) urban densification and revitalization of inner city areas, (c) conservation of agricultural areas, and (d) controlling environmental pollution.

**Coordinated Regional Planning.** Many earlier problems in the Liaodong Peninsula could be traced to the unplanned location of various urban functions. For example, the bulk of heavy industries such as iron and steel, vehicle manufacturing, and chemical production were located in the central districts of cities. Since state-owned enterprises were also responsible for housing, education, training, and other welfare services for their workers, intense overcrowding occurred in the inner city areas. Saddled with old and antiquated physical plants and machinery, the industries created a great deal of pollution, endangering the health and lives of inner city residents.

The first innovation made by authorities was the formulation of coordinated regional plans. In 1988, the entire peninsula was named an "open economic region." Instead of focusing attention on individual cities, the regional scheme was a network of urban centers. In the northern part of the peninsula, a plan was formulated for the so-called "middle city group." This included the larger cities of Shenyang, Fushun, and Anshan, two medium-sized cities (Liaoyang and Benxi), and four small cities (Tiering, Xinmin, Tiefa, and Haicheng). This group contained 36.6% of the population of Liaoning Province. Because of the concentration of industries in the subregion, it accounted for more than half of the provincial GDP. It also anchored the northern end of a major transportation corridor known as the Shenyang-Dalian Expressway.

In the southern end of the peninsula, development was focused on the port city of Dalian. Dalian is the PRC's second largest seaport (after Shanghai), a major industrial and shipbuilding center, a busy communication hub, and

a popular tourist destination. It was declared an "open coastal city" in 1984 and soon became a successful "economic-technological development zone." Unlike Shenyang, with its aged "rust-belt" industries, Dalian concentrated on electronics, finance, textiles and garments, processing of agricultural products (especially seafood), and tourism. It has also been very successful in safeguarding its physical environment, having been awarded the "Habitat Scroll of Honor" award in 1999, and the "Global 500 in Environment" award by the United Nations Environment Programme in 2001. The Government gave Dalian the first "Outstanding Cities in Tourism Attraction" award.

**Densification and Inner City Redevelopment**. Shenyang was the capital of the Manchu emperors from 1625 to 1644. The Manchus later ruled all the country as the Qing Dynasty. The Shenyang Imperial Palace, a smaller version of Beijing's Forbidden City, was built in 1636. The Mukden Palace, a former Qing Dynasty palatial complex, is now listed as a United Nations Educational, Scientific and Cultural Organization World Heritage site. Several tombs of Qing emperors are found in the Huanggu District of the city. The city also has ancient temples, parks, gardens, and palatial homes of prominent officials and warlords that have been converted into museums and cultural centers.

The need to preserve some cultural heritage sites has complicated the redevelopment of the inner city of Shenyang. Also, like other old cities in the PRC, Shenyang has tens of thousands of densely inhabited communities where people have lived for centuries. To improve living conditions in these inner city communities, old and dilapidated housing structures had to be torn down. Buildings that were still in good shape were renovated at great expense. While plumbing, electricity lines, and other modern facilities were introduced, the facades of old structures were kept. People who had lived in the inner city communities for generations also resisted being moved to other places. They had to be compensated for the destruction of their old homes, and offered much better housing elsewhere.

A particularly vexing problem in Shenyang was the dismantling of old factories and associated workers' housing that used to be located in the inner city. As Shenyang modernized its rust-belt industries, the city moved the factories to the suburbs. The workers and managers were also moved out, freeing the inner city land for commercial and other purposes but requiring massive resources for alternative housing.

Before 1978, almost all families in Shenyang rented their homes from their employers or from the Housing Bureau. Housing reforms were introduced in 1988 increasing rents significantly. However, wages did not rise accordingly so most people resisted the housing reforms. Later, market housing was introduced and many families started buying their own homes.

In recent years, the housing market has become so overheated that the Government has started to worry about the inflationary effects of housing. During 2005, housing prices in major cities in the PRC rose by 10%. Shenyang recorded the highest rate of increase in housing prices, about 19.2% in the last quarter of 2005. The price of land in the city rose 10.2% by the end of the year (China Daily Online, 1 January 2006).

Despite many problems, Shenyang has been able to improve the inner city by conserving historical landmarks, providing adequate housing both in the inner city and the suburbs, removing factories and heavy industries from the inner city, and providing tourist-oriented shopping and entertainment complexes downtown. Employment and housing for former inner city residents have been provided in special development areas, such as the Shenyang Economic and Technological Development Area in Tiexi District. This area covering 126,000 $km^2$ has been designed as a new urban node in Shenyang with a projected population of 1 million in 10 years.

**Protection and Conservation of Agricultural Areas.** Heavy industrialization in the Liaodong Peninsula created uncontrolled urban sprawl. The cultivated land in Shenyang City, for example, decreased from 598,300 hectares (ha) in 1980 to 567,400 ha in 1995, a decline of some 2,060 ha per year. To counter the loss of agricultural land, the Shenyang municipal government passed strict regulations on land conversion and land use. Strict standards were set up governing the use of land. Thus, if a local government sets up an industrial estate or high-tech zone on agricultural land, actual development should occur within 1 year. If no development occurs, the land is seized and returned to crop cultivation.

Because northeastern PRC has long winters and a very short growing season, technological innovations have been applied to expand greenhouse production around Shenyang. On 1 January 2006, the Shenyang municipal government announced plans for the construction of a large garden and tourism complex on the outskirts of the city. The 5.3 $km^2$ complex will feature 66 gardens devoted to growing vegetables, potted plants, and flowers. The garden complex will be the site of a World Horticultural Exposition in 2006 in which hundreds of foreign producers are expected to participate. The Exposition will become permanent and will be maintained both as a food production complex and a tourism and recreation area.

**Controlling Environmental Pollution.** In 1988, the WHO identified Shenyang as one of the 10 most polluted cities in the world. The city burned about 11 million tons of coal a year, resulting in sulfur dioxide and particulate pollution. Hundreds of metallurgical, chemical, paper, automotive, and industrial plants simply dumped their waste into the Liao River, turning it into a dead body of water.

The Environmental Protection Bureau of Liaoning ordered the enterprises to meet pollution standards within 1 year or face closure. By 2000, 700 factories were closed. However, many of these enterprises were very small inefficient units. The larger enterprises, such as Anshan Iron and Steel that employed more than 220,000 people, could not be shut down because it would cause massive unemployment and end housing, welfare, and other benefits of the workers.

In 2003, the Shenyang municipal government allocated $181 million for an environmental cleanup in the city. More than 500 heavy industries responsible for environmental pollution were shut down. Among these were paper mills, cement factories, and steel plants. Another 300 industries were ordered to improve their technologies to make them less polluting. Heavy use of coal was curtailed and buildings were required to shift to natural gas for central heating systems. These measures succeeded in controlling pollution and Shenyang has now been taken off of the WHO list of most heavily polluted cities (China Daily Online, 31 December 2004).

To complement the Shenyang municipal government's efforts, the Liaoning provincial government adopted a number of measures to control pollution. These included (a) closing polluting enterprises, (b) relocating polluting industries from urban to suburban areas, and (c) setting up strictly enforced pollution standards. The central Government, through the State Environmental Protection Administration, pursuant to a 1996 decision of the State Council, set up emission standards to be complied with by all enterprises in accordance with a national timetable. Enterprises that failed to comply were shut down. Some cities such as Shenyang posted "countdown clocks" in a number of factories indicating how many more days were left before they must meet the pollution standards.

After a great deal of effort, Shenyang achieved considerable progress in controlling environmental pollution. By 2000, Shenyang was not only off the list of the 10 most polluted cities in the world; it also ranked 12$^{th}$ best in environmental quality among 47 cities in the PRC. Some measures used to achieve this progress were (a) shifting from coal to natural gas or liquefied petroleum gas for household cooking and heating, (b) prohibiting the use of coal with more than 1.5% sulfur content, (c) installing water membrane dust and sulfur removers in power plants generating electricity for the city, (d) strict enforcement of automobile emission standards by annual inspections, (e) washing coal and using "desulfurizing" additives to raw coal, and (f) treating 1.5 million tons of sewage daily.

Dalian matched its annual GDP growth of more than 12% with investments in environmental improvement. In the past, the city mainly depended on soft coal for energy. By 2004, 98% of households used piped coal gas for cooking

and water heating. The city's water supply was expanded and 70% of the sewage was treated before being pumped into Bohai Gulf. Vehicle emissions were strictly controlled. Harmful emissions from enterprises were also controlled: in 1998, of 519 industries that formerly violated emission standards, 385 achieved compliance, 44 were relocated or restructured, and 90 were shut down.

More important, Dalian used region-wide planning to control environmental pollution. Strict zoning ordinances were passed, requiring polluting industries to move out of the central city. The city bought vast land tracts and turned these into parks and open spaces (about 40% of the central city area is now devoted to parks and open spaces). In 1997, Dalian was designated as one of the five Chinese "model environmental cities" along with Shenzhen, Zhuhai, Xiamen, and Shantou. The city received the highest rating among 47 cities in the country in a 1999 evaluation by the National Environment Committee that used 36 environmental criteria.

## CONCLUSION

Since launching economic reforms and opening-up to the outside world in 1978, the PRC has pursued policies and programs to accelerate the rate of urbanization. After 1994, the PRC formally committed itself to achieve economic, social, and environmental sustainability. The three case studies discussed in this chapter illustrate the importance given by the PRC to sustainable development. As far as good practices are concerned, the case studies highlight the following policy interventions:

1. All three case studies show the effects and impact of the adoption of a comprehensive regional approach to planning. Aside from developing the inner city area, the regional plans include suburban nodes and areas of high density that are more or less self-contained in terms of sources of employment, residences, service centers, shopping, and entertainment. Some of these urban nodes are devoted to high-tech and industrial parks and SEZs. They are not designed as new towns or residence communities but are planned and managed as complete communities in themselves.
2. All three case studies illustrate the importance of linking the urban nodes to the central city and to each other through a comprehensive transport system. These transport systems are mainly road-based at present but there are extensive plans to use rail-based systems in the future. An important good practice is the direct linking of land-use planning with transport planning. The adoption of a hierarchical transport

system that improves mobility for people and goods and access to all types of travelers is an important intervention in all case studies.

3. Preservation of agricultural land and conservation of open spaces are key interventions in all three case studies. The planned development and management of watershed areas follows a regional approach. Urban agriculture is fast becoming an important means not only for producing food close to the city but also of using the waste of the city as an input to food production.
4. The redevelopment of inner city areas is a very important element in all three case studies. Interventions and good practices in this field include (a) provision of economic opportunities in the inner city, (b) ensuring affordable housing in inner city areas, (c) creating entertainment and commercial enclaves, (d) enhancing cultural conservation by combining it with tourism and entertainment, and (e) fostering environmental sustainability by the provision of parks and open spaces.
5. The three case studies show the importance of adopting intergovernmental political and administrative mechanisms to make metropolitan and regional governance more efficient and effective. Unified metropolitan governance is used in all case studies to coordinate the delivery of urban services, with special concentration of key urban functions that are region-wide, such as water and sewerage, transport, and solid waste disposal. Financial mechanisms are also important, illustrating how a regional approach can improve the financial viability of metropolitan governments, improve sharing of tax revenues, and bring about more equity among local governments in a metropolitan area.
6. Compared to other countries, the PRC lags behind in the use of people's participation in urban governance. Essentially, urban management in PRC cities is vested in Communist Party officials although increasingly, highly trained professional planners and managers are taking over urban management functions. Even here, however, the uniqueness of the PRC situation is quite apparent. While NGOs and community-based organizations may not be active in the PRC, many structural mechanisms elicit people's participation in decision making. At the most basic level, the neighborhood associations serve as excellent mechanisms for local decision making. They are also efficient transport channels for disseminating information on urban policies and programs. In the performance of key functions, such as maintaining cleanliness and hygiene, community beautification, control of crime and juvenile delinquency, and maintenance of local road and community facilities, these neighborhood associations work very effectively by mobilizing local human and financial resources.