



# CASE STUDY

## 100 cities working to become low-carbon habitats China's low-carbon city project

### Key point

- *The principle of eco-efficiency – producing more while consuming less and polluting less – has been mainstreamed into the development of cities in China to manage the crisis of rapid urbanization and promote long-term growth.*

### There was a problem...

The migration of Chinese people from remote provinces and villages to cities began in the 1980s. Since then, the urbanizing process has provided millions of workers who helped buttress the fast economic growth. Hardly surprising however, the urbanizing process also moved new challenges such as resource shortages and environmental deterioration into all the cities, from small up to Beijing and Shanghai and especially as migration sped up in the mid-1990s. As of 2009, the energy intensity of the Chinese urban centres was 2.75 times the world average<sup>1</sup> and was expected to be higher in the coming decades. Shifting the direction of the city development for eco-efficiency was imperative for the survival of cities.

### What was done?

In July 2010, the Government's National Development and Reform Commission launched a pilot project to construct low-carbon cities in five provinces (Guangdong, Liaoning, Hubei, Shanxi and Yunnan) and eight cities (Tianjin, Chongqing, Shenzhen, Xiamen, Hangzhou, Nanchang, Guiyang and Baoding (figure 1)). The good practices pursued through the pilot projects are intended to be applied to other Chinese cities after the project.

**Figure 1: China's five low-carbon pilot provinces and eight cities**



Source: ESCAP, based on the source from the National Development and Reform Commission, China

<sup>1</sup> The National Bureau of Statistics of China, *China Statistics Yearbook 2010*. Available from [www.stats.gov.cn/tjsj/ndsj/2010/indexch.htm](http://www.stats.gov.cn/tjsj/ndsj/2010/indexch.htm) (accessed 18 July 2011).

The heavy burden on resources had forced many cities to rethink their urban plans even before the government introduced its national response. In scattered corners, urban planners began promoting low-carbon directions for their cities or at least adaptation responses to climate change issues. For instance, city planners in Baoding, Hebei Province, released a development plan for a low-carbon city in December 2008. Urban planners in Tianjin municipality announced their plan to address climate change in March 2010.<sup>2</sup> Currently, nearly 100 other cities are also willing to construct low-carbon environments.

The plan's purpose is to encourage cities to find new strategies for economic growth and improving people's quality of life. The plan requires the following:<sup>3</sup>

- **Creating a low-carbon development plan.** The plan integrates the adjustment of the industrial structures, the optimizing of the energy structures, improving energy saving and efficiency and increasing the carbon sink.
- **Setting supportive policies for low-carbon green growth.** Market mechanisms are encouraged to achieve the greenhouse gas emission-control targets. Promoting of green building and public transport are part of them.
- **Establishing a low-carbon industrial system:** This includes green innovation and R&D, installation of low-carbon technologies into industrial process, nurturing green business in energy efficiency and renewable energy sectors.
- **Establishing a greenhouse gas emission statistics and management system.** Data collection and accounting system need to be set up along with strengthening the skills of staff to proficiently manage it.
- **Advocating lifestyle and consuming patterns of low carbon green growth.** Education and advertising campaigns on the imperative of low-carbon lifestyles that target both policymakers and the general public are required.

## Results

Given the pressure as well as incentives from national government, many cities had begun moving towards eco-city development even before the project. The pilot project to construct low-carbon cities in the selective areas thus became a good opportunity for the participating cities to showcase their achievements in a spotlight that had not been there before.

Still, whether due to previously set regional targets relating to carbon and energy intensity or greater impetus through the low-carbon city project, as the following table explains, many changes are taking place with industrial structures, building energy codes, heavier promotion of public transport, ecologically efficient vehicles and non-motorized transport and increases in renewable energy generation and use.

**Table 1: Targets, programmes and activities for low-carbon environments, by city**

City	Target	Major programmes	Activities
Tianjin	By 2015, the carbon intensity, compared with 2010, reduced by 15.5 per cent By 2015, the energy intensity, compared with 2010, reduced by 15 per cent By 2015, the proportion of forest cover increased to 23 per cent or more	Combating Climate Change Plan	Sino-Singapore Tianjin Eco-city, a collaboration with Singapore and Japan to build a model low-carbon city.
Chongqing	By 2015, the carbon intensity dropped to less than 1.15 ton per 10,000 yuan GDP By 2015, non-fossil energy accounts for more than 30 per cent of total energy consumption By 2015, the proportion of forest cover increased to 38 per cent or more		Accelerating the development of low-carbon transport, green buildings and green energy

<sup>2</sup> TThe Climate Group, *The Clean Revolution in China: Cities* (London, 2010).

<sup>3</sup> People's Republic of China, National Development and Reform Commission website "The Notice of the Development of Low Carbon and Low Carbon City Pilot" (2010). Available from [www.sdpc.gov.cn/zcfb/zcfbtz/2010tz/t20100810\\_365264.htm](http://www.sdpc.gov.cn/zcfb/zcfbtz/2010tz/t20100810_365264.htm) (accessed 18 July 2011) [Chinese language website].

Shenzhen, Guangdong Province!		Shenzhen: Medium- and Long- Term Low-Carbon Development Plan (2011–2012) Shenzhen 2010 Energy-Saving Emission-Reduction Work Plan Action Plan for Speeding up the Elimination of the Outdated Industrial Capacity in Guangdong	Low-carbon Development Promotion Law in special economic zones and a national model low-carbon city
Xiamen, Fujian Province	By 2020, the carbon intensity, compared with 2005, reduced by 60 per cent By 2020, the total amount of carbon dioxide emission less than 68.64 million tons	The Outline of Building a Low-Carbon City in Xiamen	Strictly control the greenhouse gas emissions from the transportation, residential buildings, public buildings and manufacturing
Hangzhou, Zhejiang Province!		Opinions on Constructing a Low-Carbon City in Hangzhou	Plan to build a six-in-one low-carbon city: the low-carbon economy, low-carbon architecture, low-carbon transportation, low-carbon lifestyle, low-carbon environment and low-carbon society
Nanchang, Jiangxi Province	By 2015, the carbon intensity decreased by 38 per cent, compared with 2005 By 2015, non-fossil energy accounts for more than 7 per cent of total energy consumption By 2015, the proportion of forest cover increased to 23 per cent or more	Nanchang: An Action Plan for Promoting the Low-Carbon Economy and Building a Low-Carbon City Jiangxi: 2010 Contingency Plan for Energy Conservation and Emission Reduction Monitoring and Early Warning System	The first regional carbon emission and energy-consuming monitoring system and carbon emission publishing system in People's Republic of China
Guiyang, Fujian Province	By 2020, the energy intensity lower than 1.3–1.4 tons of standard coal, down by 40 per cent compared with 2005 By 2020, the carbon intensity decreased from 3.77 ton per 10,000 yuan GDP in 2005, to 2.07–2.24 ton per 10,000 yuan GDP	Action Plan for Low-Carbon Development in Guiyang (outline) 2010–2020	Exploring and developing a carbon emission trade system under the current conditions (trial operation)
Baoding, Hebei Province	By 2020, the carbon intensity (carbon dioxide emission per unit GDP), compared with 2010, reduced by 35 per cent By 2020, the carbon dioxide emission below 5.5 ton per person	Implementing Suggestions on Building Low-Carbon City in Baoding Opinions on Constructing Baoding as a Solar City	Focusing on creating the “Chinese electricity valley” and “solar city”

Source: The Climate Group, *China Clean Revolution Report III: Low Carbon Development in Cities* (London, 2010). Available from [www.theclimategroup.org.cn/publications/2010-12-Chinas\\_Clean\\_Revolution3.pdf](http://www.theclimategroup.org.cn/publications/2010-12-Chinas_Clean_Revolution3.pdf) [In Chinese language]; Clean Air Initiative in Asia Centre (CAI-Asia Centre), *Low Carbon Cities and Development Plan-8 Pilot Cities* (Dalian, 2011).

## Lessons learned

**Low-carbon city development should be pursued in accordance with a broader national framework aimed at low carbon green growth.** Even though the pilot project to build low-carbon cities became a trigger to encourage city planners to come up with action plans for low-carbon development, there were national energy intensity targets impressing upon city governments for change. The energy-intensity reduction targets established at the municipal level are based on the national goals set under the Twelfth Five-Year Plan (2011–2015), which was the initial motivation on most cities to improve their energy efficiency in production and consumption.

**Providing incentives is critical to attract cities to follow through on complementary policies.** Many Chinese cities regard the participation in the project as an opportunity to nurture a greener economic engine due to the various programmes offering support. For instance, the Promoting New Energy Automotive Industry Development Policy, introduced by the Ministry of Industry and Information Technology, facilitates the development of local low-carbon businesses. In Guangdong Province, special funds have been established for helping low-carbon industries development. Under the Demonstration and Popularization Project of Renewable-Energy

Building Application, participating cities are granted around US\$70 million from the central Government.

**Designating a coordinating body to guide the low-carbon city projects can better assist local government to handle cross-sector issues.** The pilot project involved many supplementary policies across sectors, including those that related to the national emissions reductions targets and those looking to boost green business. Management of the eco-city project was delegated to the National Development and Reform Commission, which has responsibility for integrated national socio-economic planning and producing the Five-Year Plans.

### **Further reading**

*China Clean Revolution Report III: Low Carbon Development in Cities* (New York, The Climate Group, 2010). Available from [www.theclimategroup.org.cn/publications/2010-12-Chinas\\_Clean\\_Revolution3\\_Summary.pdf](http://www.theclimategroup.org.cn/publications/2010-12-Chinas_Clean_Revolution3_Summary.pdf)