

Chapter 14

“China’s 70-Year Development and the Building of a Community with Shared Future for Mankind”: Environmental Challenges Faced by Big Cities in China and Policy Responses



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In recent years, China has been associated with economic development. Over the past two decades, China’s impressive economic growth rate, accelerated expansion in manufacturing output, and trade with many countries have equipped China with strong competitiveness compared with other economies. Experts have embraced and recognized this situation, and even those who have reservations about China’s economic model have acknowledged its effect on the modernization of society. The successes and challenges of this economic model have been evaluated from multiple aspects, but in the context of history, we have to recognize and applaud the achievements made by the Chinese people in the past 70 years.

For any country in the world, accelerated industrialization, rapid urbanization, and a myriad of difficulties arising from urban life are challenges concerning economic development and to be addressed. A greater challenge is that people have come to realize that they need not only to ensure the coexistence of large numbers of inhabitants on limited land, but also to meet the needs of the current generation without compromising the abilities of future generations. These are some of the challenges of industrialization, urbanization, and sustainability of urban life proposed in this article.

The status quo and the forecast of urban system in the next few years point to the consolidation of the urbanization process. The United Nations predicts that by 2050, the world population will reach 9.8 billion, with main growth recorded in cities: the urban population will increase from 4.2 billion in 2018 to 5 billion in 2028, 6 billion in 2041 and 6.7 billion in 2050; in other words, over 22 years, the urban population will increase by 2.5 billion, while the world population will increase from

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7.6 billion to 9.8 billion.¹ Urbanization is characterized by concentrated population in big cities. According to the World Population Review, there are currently 65 cities with a population of more than 1 million, while 360 cities have a population between 100,000 and 1 million. A report released by Oxford University points out that 34 of the 100 largest cities in the world will be in China by 2035.² These cities will become the engines of economic growth, and by 2027, the total GDP of Asian cities will exceed that of North American and European cities for the first time. Cities will become the main drivers for economic growth and by 2035, Shanghai will rank alongside London as the fourth most important urban economy in terms of GDP, after New York, Tokyo and Los Angeles, the report said. If the world economy grows at an average annual rate of 2.6% (GDP at constant prices) between 2019 and 2035, the economy of 780 major cities will grow at an annual rate of 2.8%. Four of the top 10 cities (Shanghai, Beijing, Guangzhou, and Shenzhen) are from China.

In fact, by the end of 2011, China's population was predominantly urban (51.27%). Among them, the urban population amounted to 69,077 million and the rural population was 65,656 million.³ It was estimated that by 2020 the urban population would reach 800 million, which generates huge demand for infrastructure, transportation, energy, drinking water, and wastewater and waste treatment.

This short list of challenges is not unique to any country or region in the world because urbanization is ubiquitous, with varying growth rates. This article does not intend to describe it exhaustively. But it is worth noting that China's urbanization drive and diversified urban expansion involve not only the population situation, but also the sustainability of urban life, which requires preventive measures.⁴ The following are some interpretations of the concept of urban sustainability provided by international organizations, i.e., what types of measures and preventive means to adopt; taking China as an example, some concrete measures will be reviewed to translate the requirements of urban sustainability into actions, but in general, environmental protection is one of the prerequisites for sustainable development.

The United Nations presents these challenges to sustainable urbanization within three themed frameworks: sustainability, inclusiveness, and resilience.⁵ With regard to inclusiveness, options for achieving spatial and social equality, as well as balanced territorial distribution and access to public space were proposed. In terms of resilience, it is recommended to strengthen risk management, avoid urbanization

¹ United Nations, Department of Economic and Social Affairs, Population Division (2019), *World Urbanization Prospects, The 2018 Revision. (ST/ESA/SER. A/420)*. New York: United Nations.

² Holt, Richard (2018), *Global Cities: The future of the world's leading urban economies to 2035*. Oxford, UK: Oxford Economics.

³ Naciones Unidas estima que la población urbana en China pasó de 42.5% a inicios de 2010 a 55.5% al iniciar 2015. United Nations, Department of Economic and Social Affairs, Population Division (2019), *op. cit.*, p. 18.

⁴ Una clara explicación de cómo las diferencias del sistema de ciudades de China se expresa en la expansión urbana observada puede verse en Guangdong Li y Feng Li (2019), "Urban sprawl in China: Differences and socioeconomic drivers", *Science of the Total Environment*, 673, pp. 376–377.

⁵ UNDP (2016), *Sustainable Urbanization Strategy. UNDP's Support to Sustainable, Inclusive and Resilient Cities in the Developing World*. New York: United Nations Development Program.

in areas where population exposure and vulnerability are increased, and minimize urban violence. As to sustainability, UNDP recommended considering development options for relieving the burden of urban transport which would strengthen efficient and integrated public transport systems and establish policies to discourage the use of private cars. In terms of energy, UNDP put forward producing energy under the premise of the lowest environmental cost, adopting energy-saving measures in buildings, implementing incentives to invest in energy efficiency mechanisms of buildings, and adopting incentives to invest in renewable energy. Finally, it proposed waste management options, such as reducing the environmental degradation effects of waste through its treatment, reuse, and recycling, and generating energy from waste while reducing greenhouse gas emissions.

A formidable challenge is to formulate policies that can facilitate sustainable and fair urban development. In urban development, all residents can share the benefits arising therefrom. In another document,⁶ the United Nations put forward recommendations linked to UN Development Goal 11 to make cities inclusive, safe, resilient, and sustainable. In general, some people suggest that cities should focus on creating wealth and decent jobs, rather than discouraging migrants; they suggest that necessary infrastructure should be put in place to provide water and sanitation, energy, transport, and communications to these populations; efforts should be made to maintain a healthy environment and ensure equal access to housing. The United Nations also recommends that the needs of women, youth, and the elderly be taken into account, especially to promote healthy aging; also, special attention should be paid to the poor and the disabled. These challenges are multifaceted and relate not only to how to manage urban development, but also to infrastructure and transport policies, employment policies, policies that determine land-use patterns, and policies on the distribution and placement of population and activities on the territory. These policies are also relevant to those who seek to protect the environment, and this article will discuss some of the recent developments.

Generally, there is abundant academic thinking about economic activities accelerating demand for natural resources and leading to increased pollution.⁷ Stephen K. Ma⁸ analyzes the environmental challenges brought by economic globalization to China, and questions whether this has an impact on the formulation of national environmental policies. As we can see, government has intensified interventions to protect the environment in recent years. For many reasons, for example, the awareness that environmental protection is important to ensure sustainable economic development, or obliged by an international commitment, or as recognized by economic science, government intervention in environmental issues is reasonable due to its

⁶ United Nations, Department of Economic and Social Affairs, Population Division (2019), op. cit.

⁷ Por citar un ejemplo, Diez Jordi y O. P. Dwivedi (2008), *Global Environmental Challenges. Perspectives from the South*. Toronto: Broadview Press.

⁸ Ma, Stephen K. (2008), “Environmental Management in China: Globalization and its Challenges”, en Diez y Dwivedi op. cit., pp. 43–62.

externality or public goods attribute.⁹ Therefore, the author reviews efforts made by the Chinese government to solve the problem of environmental degradation in the country. As in any other country, economic development, especially in its early stages, is achieved at the sacrifice of environmental protection. For its part, China has formulated an environmental protection policy to address the challenges of the worsening environmental condition.

Since the early 1970s, the Chinese government has taken targeted measures. After attending the Stockholm Summit on Human Environment in 1972, China initiated some laws and regulations on environmental protection. On the one hand, China formulated the *Wildlife Protection Law*; on the other hand, in 1973, the *Trial Standard for Industrial "Three Wastes" Discharge* was formulated. In addition, the *Provisional Design Hygienic Standard for Industrial Enterprises* promulgated in 1956 was revised in 1973.

Environmental issues were enshrined in the Constitution in 1978, and decisions to address environmental protection challenges were translated into concrete actions at the legislative, academic, and governmental levels in the following years. On the one hand, several important laws and regulations have been drafted: the *Environmental Protection Law*, the *Forest Law*, and the establishment of standards for the protection of aquatic resources, the quality of water used for agricultural irrigation and fish farming, as well as standards for the safe use of pesticides. In the same year, the Chinese Society for Environmental Sciences was established, and the Ministry of Urban and Rural Construction and Environmental Protection was established in 1982. More efforts to reconcile economic development with environmental protection have been made due to the challenges posed by emissions and population concentration in urban areas.¹⁰ Since then, urban problems and environmental problems have begun to be connected. In fact, from the 1970s, people began to pay attention to balancing the urban system and promoting planning that is helpful for the development of small and medium-sized cities; limit the expansion of big cities; in addition, the impact assessment of construction projects has been established and advanced. Scientists and Chinese Academy of Sciences paid much attention to environmental issues.¹¹ The scientists and technicians in the environmental sciences distributed in many teaching and research centres have contributed to China's environmental protection.

In recent years, effective and rapid economic growth have put existing environmental protection measures under test. These increasingly severe environmental challenges are the underlying reason for the major revision of the *Environmental Protection Law* from 2011. The revision process was quite engaging because different views were presented, some of which were transformative, while others favored a

⁹ Bacache-Beauvallet, Maya (2008), "Marché et droit: la logique économique du droit de l'environnement", *Pouvoirs*, 127, pp. 35–47.

¹⁰ Ma, Stephen K. (2008), "Environmental Management in China: Globalization and its Challenges", en Diez y Dwivedi op. cit., 52–53.

¹¹ Ma, *Ibíd.*: 48, Véase también Qu, Geping y Woyen Lee, [eds.] (1984), *Managing the Environment in China*. Dublin: Tycooly Internationa publishing.

gradual reform of the *Environmental Law*. Great progress has been made in openly discussing environmental issues and transforming them into legislative instruments.

In 2014, the amended *Environmental Protection Law* was passed to improve the definition of punishment and increase the intensity of punishment. Measures have also been taken to guarantee people’s right to information on environmental issues and to strengthen the capacity of law enforcement agencies and accountability mechanisms of local governments. Another reform undertaken in recent years is related to the law that came into force in early 2016 and is designed to prevent and control environmental pollution, which pays special attention to pollution sources, emissions, and pollutant density. Further, between 2013 and 2016, the government issued three Ten-point Action Plans to implement new laws and regulations on air, water, and soil pollution. The implementation of this new law system requires adjustments to the administrative structure of the Ministry of Environmental Protection, in particular departments responsible for pollution prevention and control and the total pollutant control, which have been reorganized in three areas: air, water, and soil.¹² The changes have resulted in stricter enforcement of environmental legislation, including stronger local government controls and extensive inspections and tough sanctions against polluting enterprises. In 2015 alone, 1.77 million companies were investigated, 191,000 were sued, 20,000 were shut down, and 24,000 were partially closed.¹³ Due to changes in the legal framework of pollution control, environmental issues have been dealt with judicially. Zhang and his colleagues mentioned more than 50 civil and administrative lawsuits, in which two non-governmental organizations (“Friends of Nature” and “Green Home in Fujian”) received orders from judges to claim compensation for forest and land losses caused by unlicensed quarry operations and achieve ecological restoration.¹⁴

Thanks to the quality of the currently available environmental information, they have come to realize that these modifications alone would not have an immediate and noticeable effect on the environment, as the information on the issue was recent and dissemination measures were just developed in recent years. Some authors say that the definition of environmental objectives and pollution reduction are not entirely based on scientific information about environmental capabilities or human health.¹⁵ Nevertheless, in fact, by gradually improving policy instruments and capabilities, they have minimized the impact of economic activities on the environment, paving the way for significant improvement of the environment and representing the pledge of the Chinese government to environmental protection. As such, China’s leading position in environmental protection has been strengthened. In this sense, although the results are not obvious at the environmental level, the environmental protection

¹² ¹³ Véase Bo Zhang, Cong Cao, Robert M. Hughes y Wayne S. Davis (2017), “China’s New Environmental Protection Regulatory Regime: Effects and Gaps”, *Journal of Environmental Management*, 187, pp. 464–469.

¹³ Zhang et al., *Ibíd.*, p. 465.

¹⁴ Zhang et al., *Ibíd.*

¹⁵ Zhang et al., *Ibíd.*

performance evaluation system established by local governments shows that environmental management can be adjusted and improved efficiently through regulations. But most importantly, it reflects a strong political commitment, which, though still a long way to go, is essential for improving environmental management.¹⁶ For more than a decade, Stephen K. Ma has made no secret of his optimism when it comes to globalization, which is not only the engine of China's export industry, but also the carrier of international demand for local production methods, which minimizes the environmental risks. According to the author, in 2005, disasters such as the release of millions of gallons of toxic liquid into the Songhua River and the bad weather conditions in Beijing before the Olympic Games have triggered adjustments in environmental policy,¹⁷ such as the revision of the *Environmental Protection Law* and other laws related to animal, fishery, residue, and forestry activities, and the gradual use of environmental management tools described in this article.

Environmental sustainability also depends on the consumption patterns of urban life. Although urban dwellers spend more, consume more energy, and produce more CO₂ emissions than rural dwellers, these changes in consumption patterns may have a significant impact on sustainability. Urban life is an opportunity to strike a balance between development and environmental protection. In China and many big cities, the ever-changing changes and technological innovations will lead this trend in the next few years.

¹⁶ Estas son algunas de las conclusiones del estudio realizado en la ciudad de Shenzhen. Lei Liu, Martin de Jong y Ying Huang (2016), "Assessing the Administrative Practice of Environmental Protection Performance Evaluation in China: the Case of Shenzhen", *Journal of Cleaner Production*, 134, pp. 51–60.

¹⁷ Ma, op. cit. p. 60.