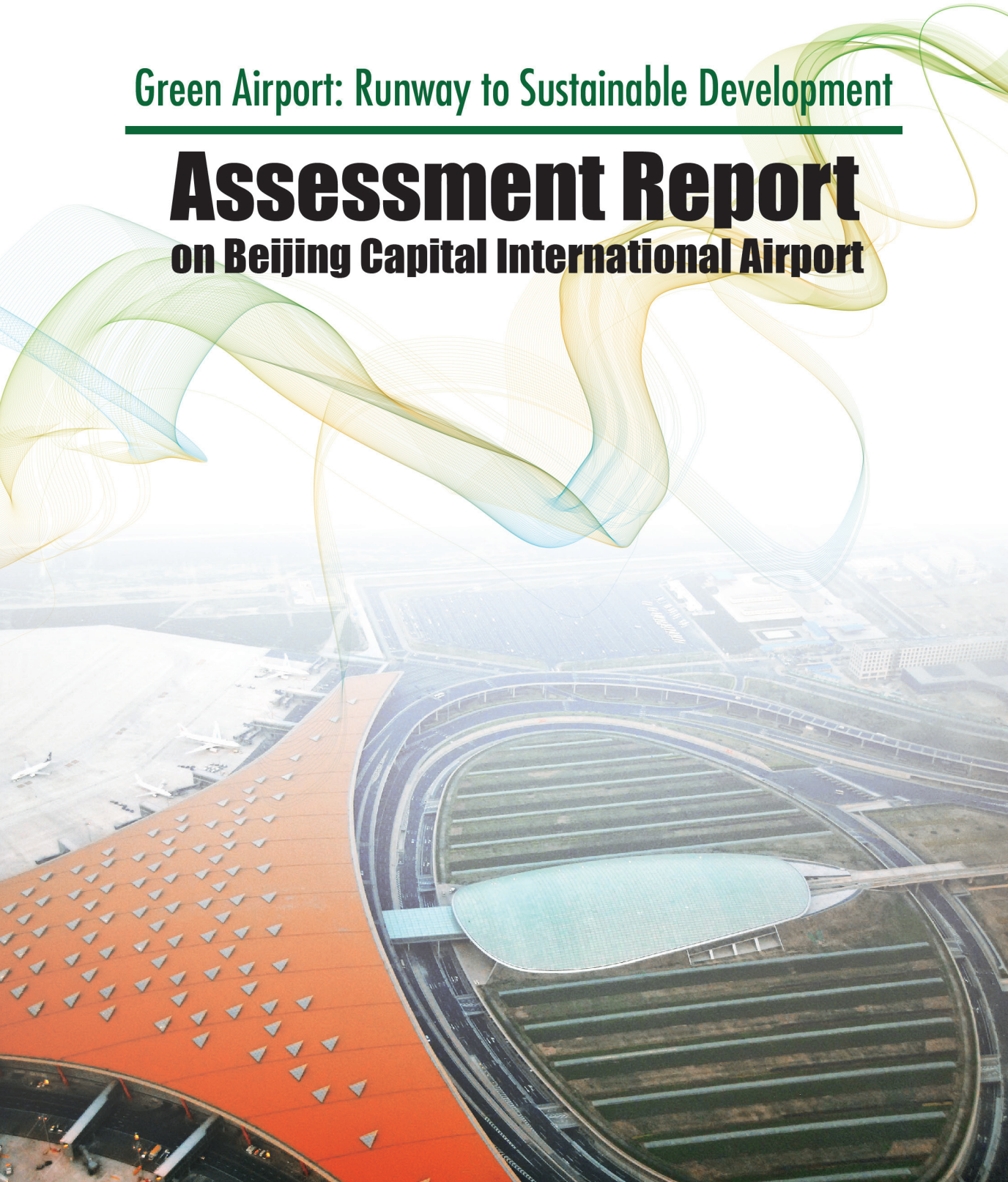
UN environment

Green Airport: Runway to Sustainable Development

Assessment Report

on Beijing Capital International Airport



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Acknowledgments

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Executive Summary

Modern aviation industry's rapid development, including that in China, has contributed to economic expansion locally and worldwide. Airports are at the core of this development by providing the infrastructure for air transport, thereby contributing to the generation of goods, services and jobs, as well as connecting local economies to global markets.

The aviation industry's growth, however, also entails pressure on natural resources and the environment, as reflected in its contribution to greenhouse gas emissions. In this context, Beijing Capital International Airport is among several embracing the concept of becoming 'green' or 'sustainable'. While this concept does not have an internationally accepted definition, it is strongly aligned with the major strands of sustainable development – economic, social, environmental and, increasingly, governance.

Beijing Capital International Airport has shown strong commitment towards ensuring that its growth in air, cargo and passenger traffic is balanced with improved performance in this regard.

The airport has contributed up to 9.7% of Beijing's economic output and employed up to 6% of the city's working population directly and indirectly. It has furthermore brought broader positive impacts on investments, trade, and tourism to the local economy.

Parallel to its economic performance, the airport has invested in the health and professional development of its staff, leading to it being named among the top 30 employers in Beijing in 2016. Further progress could be achieved by ensuring that its recruitment procedure becomes more encouraging for women applicants. The airport provides wastewater treatment and solid waste management for neighbouring communities. It is also taking noise complaints seriously and has launched a project whereby technologies will be developed to reduce noise levels.

In terms of environmental performance, Beijing Capital International Airport has shown increased energy efficiency and reduced carbon emissions per unit of operation, even as its business keeps growing. Use of gasoline and diesel by airport vehicles declined 45% and 49% respectively between 2010 and 2016 for example, while overall carbon emissions were cut by almost 16% between 2014 and 2016. Performance in terms of indoor air quality and wastewater treatment is fully up to national standards, while efforts to encourage recycling among passengers are innovative and commendable. Further milestones could be achieved by ensuring that a greater share of electricity is sourced from renewable energy, that waste volume is reduced and energy is recovered from incineration.

Departments involved in the day-to-day running of the airport are seen to work together closely to improve flight punctuality and the efficiency of ground transport for example – with implications for energy consumption, carbon emissions, and air quality. The airport has also set up a Science and Technology Management Committee to conduct research on issues such as rapid transit and smart airport decision-making systems. One area where further efforts from multiple stakeholders are required in this regard is improving public transport between the city center and airport. Meanwhile, relevant products are being procured in favour of projects to introduce LED lighting and switch from gas to electricity. Preliminary efforts to conduct environmentally-selective procurement provide a sound basis for adopting a full-fledged green procurement policy. Linking financial management to the growing green bond market could lay the grounds for further positive highlights in its next green airport assessment.

Chapter 1.
Introduction

This chapter provides the background and contour of this report. It starts with an introduction to the development of global and Chinese aviation industry and airports, and places the “green airport” concept in that context. It then presents the basic information on Beijing Capital International Airport (hereafter Beijing Airport), on which this report focuses. Finally, the chapter ends with a roadmap to help readers navigate the rest of the report.

1.1 Global Aviation Industry and Airports

Modern aviation industry's rapid development has contributed to economic expansion worldwide. According to the International Air Transport Association, this industry provides over 60 million jobs, transports cargo worth US$18.6 billion daily, and accounts for 1/3 of the global trade by value[1]. Global airline passengers exceed 3.7 billion annually[1], largely travelling between Asia, Europe and North America - accounting for over 80% of the global market in 2014[2]. The industry has kept growing at a high rate, fueled by the growth in emerging economies and the global economy's gradual recovery. The International Civil Aviation Organization estimates that, by 2030, the number of airline passengers worldwide will exceed 6.4 billion[2].

Airports are at the core of the aviation industry. They provide the infrastructure for air transport and play an important role in facilitating cooperation among different entities. Apart from managing runways and providing aviation- and non-aviation-related services to passengers, airports are also responsible for transport control, provision and maintenance for aircrafts, and cargo transport, among other functions. These activities involve airline companies, other airport-based businesses, and government agencies. Airports serve as a platform where different agents can coordinate to move towards a common vision, as well as multiple destinations.

For the hosting city, airports not only contribute to economic output and job creation, but also connect the surrounding areas to the world economy. Almost every large city now has at least one airport, which is like a "business card", providing visitors with their first impression of the city. At the same time, an airport is also a bridge connecting the hosting city to the world, enhancing accessibility and providing an impetus for urban development.

While the aviation industry is growing, natural resource and environmental constraints are also increasing. Take carbon emission as an example: IPCC estimated that 2% of total anthropogenic CO_2 emissions were emitted by aircrafts in a special report on Aviation and the Global Atmosphere[3]. In 2009, at the United Nations Climate Change Conference in Copenhagen (known as "the Copenhagen Summit"), International Air Transport Association announced a goal for the aviation industry to reduce half of the carbon emissions by 2050 compared to a 2005 baseline[1]. The delivery of this commitment requires collective efforts of airports, airline companies, and all the components of the aviation supply chain.

1.2 Chinese Aviation Industry and Airports

China's aviation industry has been growing rapidly in conjunction with the country's urbanization, the rate of which increased from 20% in the 1980s' to 57% in 2016[4], amounting to an increase of 500 million urban residents over this period. This rate is estimated to reach 60% by 2020[5]. Rapid urbanization has expanded demand for leisure services, resulting in growing demand for air travel. In 2016, there were 218 civil airports in China (excluding Hong Kong, Macao and Taiwan) servicing 1 billion passengers for the first time (26.2% of which was accounted for by hub airports in Beijing, Shanghai and Guangzhou, which also handled 49.6% of total air cargo in China)[6]. In terms of total civil aviation turnover, China's ranking among International Civil Aviation Organization member states rose from 37th in 1978 to 2nd in 2005, and it has remained in that position ever since[7-8].

1.3 Beijing Capital International Airport

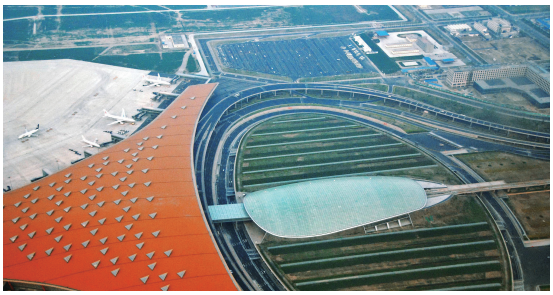

Fig. 1.1 Aerial view of Beijing Airport

Beijing Airport is geographically important by virtue of being located in the Chinese capital, which has a population of 21.73 million[9]. As China's major center for political affairs, cultural activities, international exchanges, and innovation, Beijing generates huge demand for domestic and international air services. Fig. 1.1 shows the aerial view of Beijing Airport. Fig. 1.2 shows Beijing Airport's development over the years. Fig. 1.3 shows the airport as a hub connecting Asia, Europe and America.

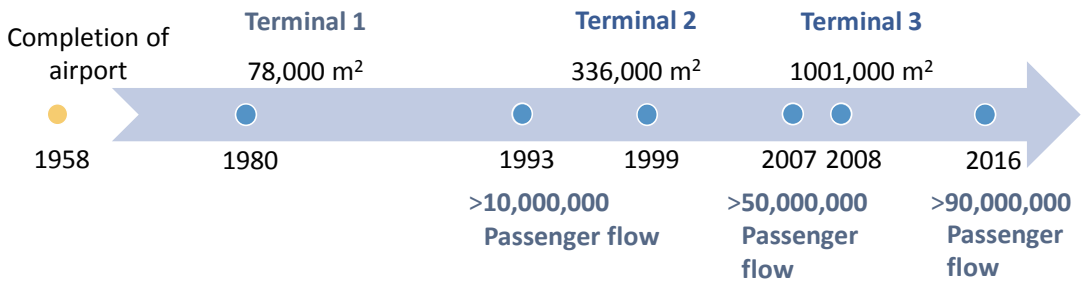

Fig. 1.2 Beijing Airport's development over the years

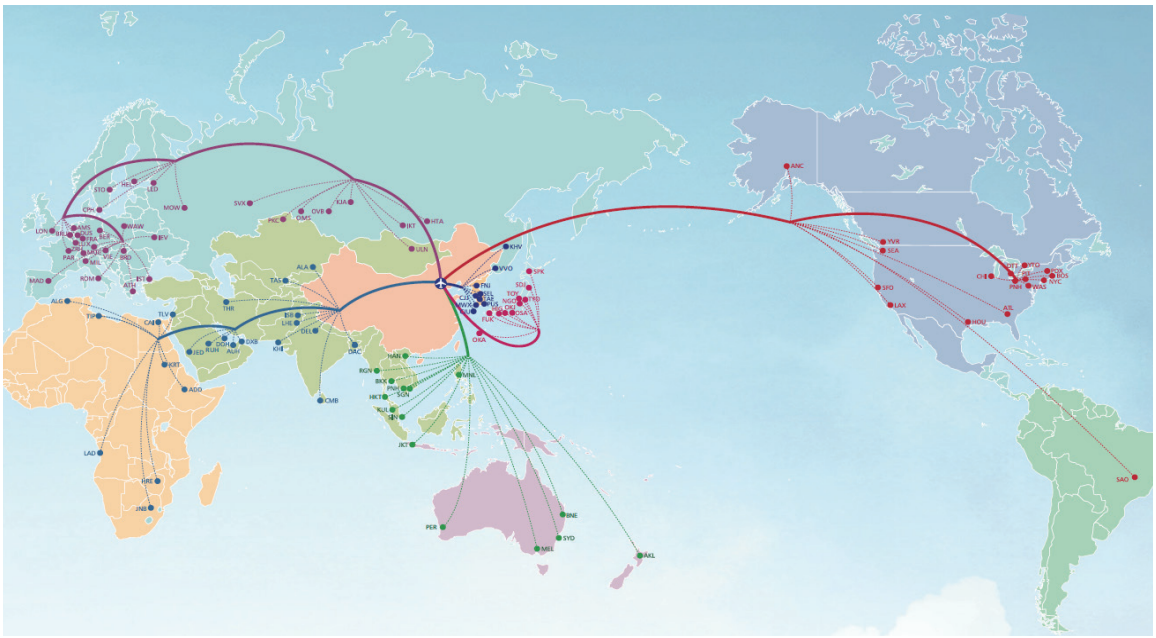

Fig. 1.3 Beijing Airport connects the city to the world
Source: Corporate social responsibility report of Beijing Airport Co., Ltd.[11]

Beijing Airport is also China's largest and busiest international airport. In 2016, the airport moved 94.39 million passengers and handled 606,000 aircrafts, more than any of the other 217 airports in China.[6] Its passenger handling capacity is ranked as second in the world after Hartsfield-Jackson Atlanta International Airport (Atlanta Airport) in the United States. In terms of cargo handling capacity, Beijing Airport is second in China at 1.94 million tons, after Shanghai Pudong International Airport (Pudong Airport)[6].

With an increasing capacity, Beijing Airport has set itself the goal of "building a green gateway to China by mobilizing multiple actors". It is a representative of existing Chinese airports that have systematically pursued the green airport concept, taking steps in areas such as improving service quality, saving energy, and monitoring and managing noises. During China's 12th Five-Year

management. The Green Airport Initiative launched by the Clean Airport Partnership in the United States, for example, provides guidance for American airports to pursue balanced development and reduce environment impacts.

As another example, Chicago Aviation Administration has produced a Sustainable Airport Manual for O'Hare International Airport (Chicago Airport), covering planning, design, construction, airport management, operations and stakeholder involvement[11]. Since 2007, the Chicago Aviation Administration and American Association of Airport Executives have hosted the annual "Airports Going Green Conferences", attracting participants from around the world.

Other than Chicago, Atlanta Airport has also produced a Sustainable Management Plan, focusing on raising