Chapter 10

Developing a Sustainable Eco-City in Pre-Olympic Tokyo:
Potential of New Methods and Their Limits in an Urban Era

Mariko Ikeda
University of Tsukuba, Japan

ABSTRACT

This chapter intends to elucidate the emergence of sustainable urban development in Tokyo in light of the upcoming 2020 Olympics by exploring various administrative and commercial practices, such as urban development plan with rooftop and wall greening or river projects in the inner city. The research methods involved a review of the empirical literature, an analysis of existing statistical data, and a detailed examination of case-specific data collected in a field survey. This chapter concludes that since Tokyo Metropolitan Government encourages urban greening projects as a solution of urban heat island from 2000s, utilization of "green spaces" in the landscape design of commercial and office facilities is gaining attention. This chapter concludes that various practices for sustainable urban development in Tokyo, which faces a restructuring process in light of the 2020 Summer Olympics, exist and that some of these could be further developed by the private sector.

INTRODUCTION

Environmental Problems in the Urban Era: Overinvestment, Overpopulation, Overshoot

The concepts of "city" and "nature" are perceived as intrinsically contradictory, and authors who stand for the latter have criticized cities for their negligence of and dominance over the environment. Moreover, on a global scale, the concentration of populations in urban areas is growing. It is estimated that in 2030 more than 60% of the world's population will live in cities, and 27% will reside in cities with at least 1 million inhabitants (UN Habitat, 2016). The agglomeration of gross domestic product (GDP) in cities escalates accordingly and 80% of the world's total GDP is concentrated in urban areas. Paris, for instance, houses only 16% of the French population but produces about 27% of France's GDP (UN Habitat, 2016, p. 27). This condition is known as the 'overdevelopment, overpopulation, overshoot' issue, suggesting the excessive burden to the natural environment caused by urbanization (Butler, 2015). The United Nations has therefore adopted a new 2030 Agenda for Sustainable Development, which presents 17 goals that replace the previous Millennium Development Goals (United Nations, 2016, pp. 38-39). This agenda includes several new elements, such as making cities and human settlements inclusive, safe, resilient, and sustainable. Furthermore, it demands the development of low-carbon societies and green technology or the replacement of conventional energy resources with renewable energy, especially in cities, which represent more than 70% of the global energy demand.

Environmental Problems in the Urban Era: Heat Island

Japan's capital Tokyo is, together with its surrounding areas, the largest megacity in the world with approximately 38.1 million inhabitants, which is more than 10 million people more than the population of Delhi, the second-largest city (United Nations, 2016). It is also the city with the largest GDP worldwide. Tokyo's population increase began during the period of Japan's rapid economic growth (1955–1973) with an influx of people from rural regions into suburban areas, which were constructed around the inner-city area; this trend of urbanization is still increasing (Figure 1). The extreme concentration of the population in the metropolitan area has led to an increase of housing, offices and commercial facilities and to a decrease of the natural environment, causing an environmental problem characteristic for large cities, the heat island effect.This phenomenon, also called 'city climate', occurs rather in the city's center than in its outskirts and is mainly caused by solar heat during the day and by waste heat from human economic activities. This artificial heat disposal

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