INTRODUCTION AND OVERVIEW OF BANGKOK, THAILAND

According to the National Statistics Office Thailand, the most updated population census was conducted in 2010 show a population of 65.98 million, with 8.30 million (around 12.6%) residing in Bangkok, the capital. Considering the whole Kingdom, 44.2% lived within municipalities, compared to 55.8% in non-municipalities. Thailand has a total area of 513,120 km^2. On average, population density in 2010 was 128.6 persons/km^2. However, Bangkok had the highest population density of about 5,294.3 persons/km^2 (NSO 2018). By 2018, Bangkok's population is estimated at 10.15 million, which will exacerbate common issues found in urban settings of developing countries – particularly transportation and waste management.

In response to the UN Sustainable Development Goals (SDGs), the Cabinet Office of Thailand set up 'the National Committee for Sustainable Development (CSD)' to oversee all SDGs-related activities. This committee is comprised of 37 members from public, private academia and civil society, with the Secretary-General of National Economic and Social Development Board (NESDB) as the secretariat (UN-DESA 2017; NESDB 2016). In January 2016, CSD's first meeting resolved the ownership; hence each SDG goal is led by particular Ministry(s) and supported by specific organisations (NESDB 2017a). SDG Goal 11 — to make cities and human settlements inclusive, safe, resilient and sustainable — is co-led by the Ministry of Interior, and Ministry of Social Development and Human Security.

At city level, the sole organisation that is responsible for the management of the city of Bangkok and the well-being of Bangkok residents, is the Bangkok Metropolitan Administration (BMA). The BMA has two main bodies: the Governor and the Bangkok Metropolitan Council (BMA 2018b). Currently, the Department of City Planning is reviewing the fourth edition of the city master plan, which is expected to be endorsed by 2019 to replace the Bangkok Comprehensive Plan 2013. The key features cover the land use zoning, the open space plan, the transportation plan, and the public utility plan (BMA 2018c).

Discussion of Target 11.1 within city

Target 11.1:   By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.

At national scale, legal measures, particularly land ownership and land distribution, are reflected in a 10-year housing development strategy. And to cope with informal settlement, an affordable housing plan is implemented with short-, mid-, and long-term targets with 5,000 households by 2017; 76,710 households by 2021; and 310,000 households by 2030 (NESDB 2017b). At city level, BMA adopts a polycentric strategy and addresses on the development of suburban centres with the balance between job opportunities and housing provision (BMA 2018a).

Evaluation: Major housing developments are still clustered along the skytrain and subway networks. The urban densification, especially in CBD, is driven chiefly by market demand and the private sector. However, the BMA plays more important role in the upgrade of informal settlements by apportioning the area into specific zones, and separating the development into steps including services provision, housing upgrading, and relocation to nearby areas/outskirts. While the BMA focuses on infrastructure, the NGOs address people empowerment through educational programmes.

Discussion of Target 11.2 within city

Target 11.2:   *By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.*

Bangkok is notorious as one of the world's worst traffic cities. In 2017, Bangkok ranked second behind Mexico City in terms of the overall Traffic Index Congestion Level; but the evening traffic was much worse than Mexico City (TomTom 2018). Despite the existing public transportation network—including BRT, boat, bus, skytrain and subway—the number of passenger vehicles has increased significantly. The 2017 government reported the total vehicle driving licenses in Bangkok was 4.7 million, compared to 26.6 million from regionals (Department of Land Transport 2017).

Evaluation: While the skytrain and subway networks are extending, other road transportation modes still suffer from severe traffic jams, especially during rush hours. Both public and private buses operate with issues in the overlapping routes and unpredictable timetable. However, the natural gas vehicle (NGV) buses have recently been introduced and BMA aims to reduce GHGs from the transportation sector. A trend of electric vehicles is approaching, but high cost and a lack of charging stations are some major hurdles of technological adoption. Innovative digital platforms, like Grab and Line, provide alternative logistic solutions not only for point-to-point commute, but also delivery services. Nonetheless, public transportation infrastructure is inadequate for the elderly and people with disabilities. And Bangkok is far from a walkable city due to limited pedestrian walkways.

Discussion of Target 11.6 within city

Target 11.6:   *By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.*

The situation of solid waste management in Thailand is critical. In 2017, the total waste was 27.40 million tons. Around 31% was recycled, and 43% was disposed of in a sanitary fashion. However, 26% was improperly disposed in open dump sites or through open burning. The city of Bangkok generated around 4.88 million tons (18% of the total) and the BMA targets a 7% reduction annually. The industrial sector has a higher rate of material recycling: 75% of glass, 82% of paper, and 77% of aluminum; and industrial waste requires special treatments prior disposal (Pollution Contral Department 2018). Despite policy encouragement, residential waste segregation is not successful. Subsequently, garbage scavengers/waste pickers and garbage collectors/road sweepers play important roles in keeping cities clean.

Evaluation: Even though the 3R (Reduce, Reuse, Recycle) campaign has been implemented for many years, the recycling rate is still very low in the residential sector. Waste from Electrical and Electronic Equipment (WEEE) is also increasing and still lacks a specific waste segregation policy framework. The long-term solution needs to start from individual behavioral change, together with an integrated waste management plan. To replace open dump sites, many potential studies are conducted, but only a few pilot projects are executed, e.g. waste-to-electricity using incinerator. Benefits are debatable due to a lack of waste segregation from source. And power plant from waste faces the not-in-my-backyard (NIMBY) issue. Currently, ocean plastic waste gains public attention; thus, stringent waste policy is urgently required.

Discussion of Target 11.7 within city

Target 11.7:   *By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.*

On average, an international standard for park and greenery space in a large city is set at 15 m^2/person. The US standard is at 40 m^2/person, while the UK standard is at 23 m^2/person. Thailand's development master plan, the National Economic and Social Development, sets the national standard at 16 m^2/person, and this figure is applied to the city of Bangkok. However, the official report in 2012 estimated that green space ratio was merely 2.93 m^2/person. Subsequently, the BMA aimed for a five-year-short-term target at 4 m^2/person, a ten-year-mid-term target at 10 m^2/person, and a twenty-year-long-term target at 16 m^2/person. While the population density in Bangkok is increasing, more green and public spaces are required (Pongpool 2007).

Evaluation: Large areas of Bangkok's outskirt have yet to be developed, so currently serve as green and public spaces. However, as urbanization is expanding to urban fringe and suburban areas, these green spaces are highly likely to shrink. So, BMA targets may not be able to achieve easily within one large plot of land (a.k.a. botanic or special parks). Alternative solutions include shifting towards pocket or community parks, and creating vertical green space or rooftop garden in urban core. It is noteworthy that the BMA's key indicator is land area, not plant diversity or quality of place. Safe and inclusive perspectives should also be added to the city planning consideration and execution.

CONCLUSION

Bangkok is accommodating more than 10 million residents (roughly 12% of total population). So, common challenges in urban settings are, more or less, similar to those in developing countries. Concerning housing issues, urban densification is concentrated along the skytrain and subway networks, which is mainly driven by market demand. While the government pays particular attention to the informal settlement upgrading and relocation. Bangkok's notorious road congestion indicates inadequate public transportation network. And the public transportation infrastructure is inadequate and unsuitable for the elderly and people with disabilities. Limited pedestrian walkway and safety issues hinder Bangkok from being a walkable city. Municipal solid waste lacks waste segregation from source, which impose further challenges on the entire waste management system. Behavioral change and stringent policy are urgently required to minimise the negative consequences from land and ocean contamination. The shifting from horizontal to vertical green and public spaces in Bangkok is expected; nevertheless, plant diversity and quality of place should also be considered.

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