Apr 6th, 2:45 PM - 2:51 PM

Building Resistance and Sustainability to Improve Population Health in Tokyo, Japan.

Ma'Adjoa N. Manu
OHSU PSU School of Public Health

Building Resistance and Sustainability to Improve Population Health in Tokyo, Japan.

Ma'Adjoa Manu | Adjoa@pdx.edu

Oregon Health & Science University and Portland State University School of Public Health

Background

The Greater Tokyo Area or Tokyo Megalopolis Region consists of Tokyo Metropolis, and the three neighboring prefectures of Saitama, Chiba, and Kanagawa [1]. It is the most populous metropolitan area in the world with 38.14 million residents in 2016 [2].

Profile of Tokyo Metropolis

- **Area** (2018) --- 2,194km square
- **Population** (Jan. 2020) --- 13.95 million inhabitants
- **Gross Domestic Product** (2016) --- 105.5 trillion yen (19.6% of national GDP)~USD 91.3 billion.
- **Number of enterprises** (2016) --- 622,000. Half of the companies in Japan have their head offices in Tokyo.
- **Number of foreign tourists** (2019) --- 15.18 million
- More than 500 **skyscrapers**, and alongside New York and Shanghai. Tokyo is known for having more than 100 buildings over 150 meters [1].

Disaster as an Urban Health Issue

Some History

- Sept 1923: Great Kanto Earthquake - fires destroyed the city center, 140K people dead or missing, and 300K houses destroyed, city reconstruction plan failed because of financial constraints [1].
- 1945: The Pacific War – Tokyo was bombed 102 times in the final phase, raided on March 10 [Fig. 1], the war ended in Sept. after the government and military surrendered, the population had fallen to 3.49 million, half of its level in 1940.
- 1950: New technologies and innovations helped the economy to recover.
- March 2011: The Great East Japan Earthquake and tsunami in the Tohoku region struck.
- Sept 2013: Elected to host its second Olympic and Paralympic Games.
- 2021: Hosted 2020 Summer Olympic and Paralympic Games.

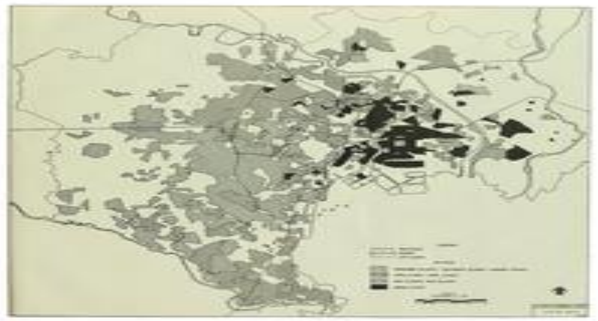

Fig 1: Wikiwand: 1947 U.S. military survey showing bomb-damaged areas of Tokyo [3]

Environmental & Policy Action

- Given past events/disaster and Tokyo's economic and industrial contributions in the world, the Tokyo Metropolitan Government (TMG, Fig 2) developed policies and initiatives **to create a sustainable city** and to **make Tokyo a disaster-resistant city.** These initiatives were also to make Tokyo fully prepared to host 2020 Summer Olympic and Paralympic Games. Should there be a disaster, its impact would be minimal, and waste and emission would be managed/reduced with more people in the city. The actions were to increase greenery, have net-zero carbon dioxide emission, and reduce the impact disaster on high-risk areas.

Creating a sustainable city [1]

- **Greenery**, the percentage of green and blue spaces (water areas), as of 2018 was **52.5%**. This was achieved by planting trees to nurture biodiversity and flowers to express the Japanese spirit of *omotenashi*, or hospitality.
- As of 2018, **energy-related carbon-dioxide emission** was **55.57 million-CO2 tonnes**. The policy target is a Zero-Emission-Tokyo by 2050, Tokyo net CO2 emission will be zero.
- The decarbonization strategy involves encouraging the use of Zero-emission vehicles (ZEV): plug-in hybrid vehicles (PHV), electric vehicles (EV), fuel cell vehicles (FCV).
- Recycling is encouraged by giving out free toilet paper to residents who recycle.
- The target is that by 2030, ZEV use will be 50% and plastic waste will be reduced by 40%.
- Revolutionary innovations (alternative energy invention) are strongly encouraged and funded by the TMG.
- The TMG has the policy goal to reduce Greenhouse gas emissions by 30%, reduce energy consumption by 38%, and all TMG facilities will use 100% renewable power in 2030.

Fig.2: Tomizawa, 2021. Tokyo station. [4]

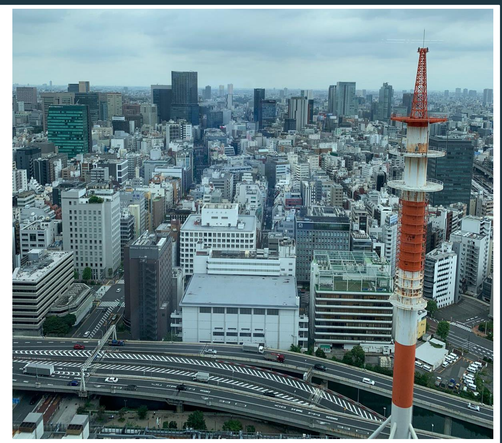

Fig.3: Minami Tomizawa, 2021. Marunouchi near Tokyo station with the Tokyo Tower in view. [5]

Making Tokyo a Highly Disaster-Resistant City [6]

Areas with close-set wooden houses tend to experience more damages in the event of earthquakes due to outbreaks of fire; inadequate roads, parks, and other urban infrastructure. These areas are underdeveloped as compared other areas of Tokyo.

The objective of the Urban Development Plan for Disaster-Resistance, developed in 1995 and revisited in 2010, was to improve the underdeveloped areas, ensure the safety of evacuees and prevent large urban fires from spreading. The strategies are:

1. Designation of new fire resistance regulation zones.
2. Community earthquake risk assessment study.
3. Anti-liquefaction measures for buildings.
4. Designation of evacuation areas and evacuation routes.
5. Promoting the seismic resistance of buildings.
6. Using urban development as an opportunity to promote the creation of a disaster-resilient city.

Limitations/Challenges/Lessons Learned

Limitations/Challenges

- It was difficult to gather data.
- Latest information about Tokyo was yet to be officially translated by the TMG so they may not have been captured.

Lessons Learned/"Take aways"

- Tokyo is beautiful and sustainability conscious with well-laid out strategies to tackle climate crisis and make the city disaster-resistant.
- There are long-term policies and initiatives that are in place to address the challenges facing the city.
- The TMG is well-organized and seems accountable to the people.

Acknowledgements

This poster is an assignment for PHE 546: Urban and Community Health taught by Moriah McSharry McGrath, Ph.D. Appreciation to Minami Tomizawa for sharing insights about her home and city, Tokyo.

References

1. Tokyo Metropolitan Government. Creating a Sustainable City December. 2020.
2. United Nations. The World's Cities in 2016: Data Booklet. 2016
3. Wikiwand. The Bombing of Tokyo. 1947 U.S. military survey showing bomb-damaged areas of Tokyo. https://www.wikiwand.com/en/Bombing_of_Tokyo
4. Tomizawa, 2021. Tokyo station. [4]
5. Minami Tomizawa, 2021. Marunouchi near Tokyo station with the Tokyo Tower in view
6. Tokyo Metropolitan Government. Making Tokyo a Highly Disaster-Resistant City. 2015.