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Analyzing Urban Planning Strategies to Mitigate Everchanging Characteristics of Future Asian Cities

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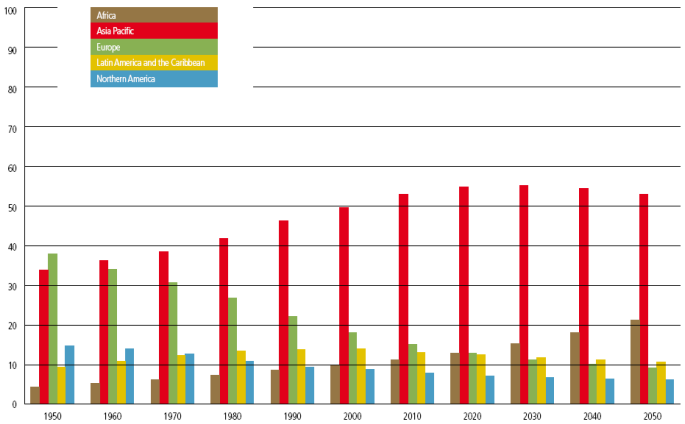
Abstract - Even though the time duration of the Industrial revolution – transition to the mass manufacturing process is said to be between 1760 to 1840 in Britain, continental Europe, and the United States, Asian countries joined the race very late but developed very rapidly to match the pace of growing industrialization demand of the recent times. As more and more countries are rising as emerging economic centers and so as a result global economy is rising, it tries to integrate the economy and cities within the country in need of human resources (manpower) for better production. Subsequently, cities in Asian countries have observed mass migration from rural areas to urban areas for availing of better services, economic gain, and infrastructure facilities at an unprecedented speed. This paper tries to understand such challenges of the everchanging characteristics of today's growing cities of Asian and Pacific sub-regions and assesses unique city planning strategies through various approaches and examples.

***Key Words*:** Cities in the global context, Sustainable Cities, Urban Policy, Planning and Design, Urban Agglomeration, Peri-Urbanization

1. INTRODUCTION

In the early 1970s, during the period of the Cold War, the Vietnam War, and the Oil crises, Japan emerged as a new economic centre after its post-World War II destruction. Following the same trend of export-oriented manufacturing, a few more Asian countries i.e., Hongkong, Singapore, South Korea, and Taiwan, emerged as newly industrialized countries during the same decade (Yeung, 2011). In the next decade of the 1980s, Thailand, Malaysia, Indonesia and Vietnam emerged as new countries of global significance. In the past few decades, China and later on India have evolved as emerging economic centres of the twenty-first century. As more and more countries are rising as emerging economic centres and so as a result global economy is rising, it tries to integrate the economy and cities within the country in need of human resources (manpower) for better production. Inflows of Foreign Direct Investment (FDI) had played a major role in driving Asian growth in the past quarter century. The cities of Asian countries have become economic drivers by contributing maximum to countries' GDP due to the creation of connectivity at a regional, national, and international level and better infrastructure facilities. In most Asian countries, a majority of their GDP has been generated by their cities (Yeung, 2011).

Subsequently, cities in Asian countries have observed mass migration from rural areas to urban areas for availing of better services, economic gain, and infrastructure facilities at an unprecedented speed. Between 1980 and 2010, the region's cities grew by around one billion people. United Nations projections indicate that they will add another one billion by 2040 (UNHABITAT, 2015). As per the report "The State of Asian and Pacific Cities 2015" by UNHABITAT, the below figure demonstrates urban population at mid-year per region for the Asia Pacific and other regions, which indicates that Asia and Pacific's sub-regions are experiencing urban growth at higher rates than overall population growth.



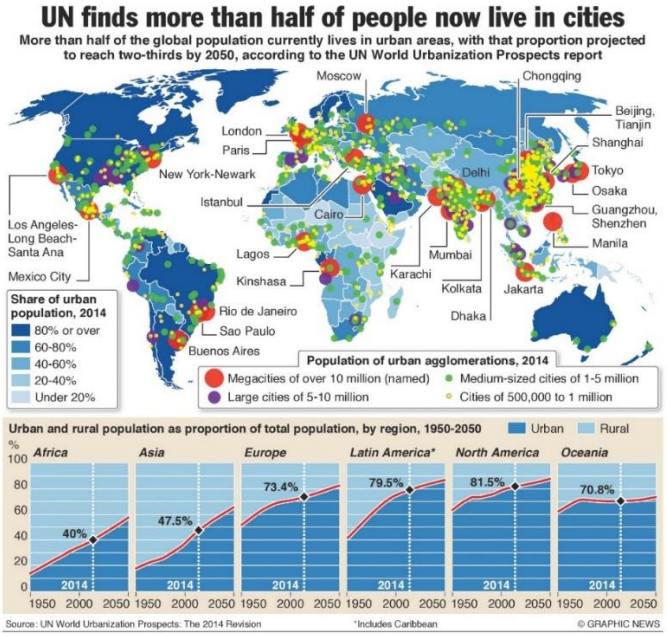
Source: The State of Asian and Pacific Cities 2015: Urban transformations Shifting from quantity to quality | ESCAP (unescap.org)

Figure 1: Urban Population at mid-year per region

2. URBANIZATION SCENARIO OF THE ASIA PACIFIC REGION

According to figures demonstrated in the UN's World Urbanization Prospects report 2014, more than half of the global population currently lives in urban areas. That proportion is projected to reach two-thirds by 2050 (Nations, 2014). The image below demonstrates that even though the percentage share of the urban

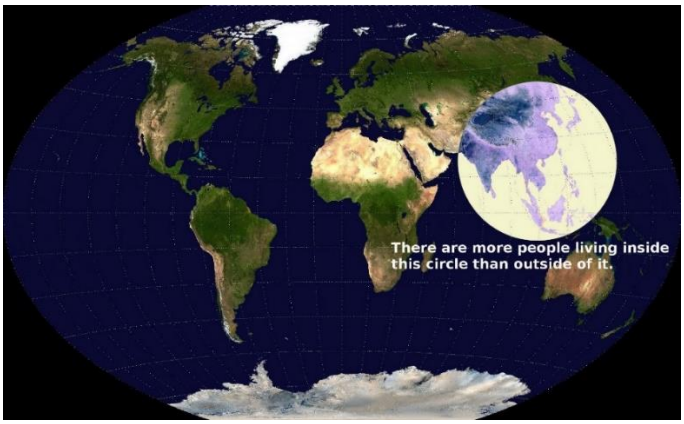
population of Asian cities is less compared to other European countries, the concentration of megacities and large cities is numerous in the Asia Pacific region.



Source: wup2014-highlights.Pdf (un.org)

Figure 2: Population of Urban Agglomeration, 2014

In reference to the figure demonstrated above, a very interesting demonstration of the concentration of the world's population in a thematic way had been prepared by Valerie Pieris in 2012, which highlights that in Asian countries more people are living than in the other part of the world.



Source: zI_xNP4G6-EFUcikxQcPxnX32abtVfifD2TbK5ajW1w.jpg (2048×1252) (redd.it)

Figure 3: Concentration of Urban Population in the world

In this era of rapid globalization and sound economic development, cities of Asian countries have undergone a dramatic physical transformation. Such an urbanization process has created massive urban pressure on cities of Asia and Pacific sub-regions, which has not been envisaged, witnessed, or addressed by any other countries before the last quarter of a century. The concepts of future cities or global cities or world cities are not unknown or unexplored. Various literature and experimentations on the global economy and city planning began to accumulate on subjects such as Rethinking Asian Cities and Urbanization (Yeung, 2011), 21st Century Asian Cities (Dahiya, 2012), Future Cities (Emily Moir, 2014), The future of Asian & Pacific Cities (United, 2020), Cities of Tomorrow (European Union, 2011), Solutions for Asian Cities (Council, 2010) predominantly in the last decade and so.

Asian cities have inevitably developed in the last two decades to enhance their competitiveness and world fame. Many Asian cities have been engaged in a process to make themselves known to the world, strategically targeting potential investors and visitors (Yeung, 2011). Unfortunately, the efforts made by different cities in Asian countries have been proved inefficient or lagging to deal with the massive pressure of urbanization due to the lack of exposure and limited financial capabilities of the Urban Local Bodies (ULBs). Hence, existing theories of city planning are proven to be inefficient to such everchanging physical characteristics of today's growing cities of Asian and Pacific sub-regions.

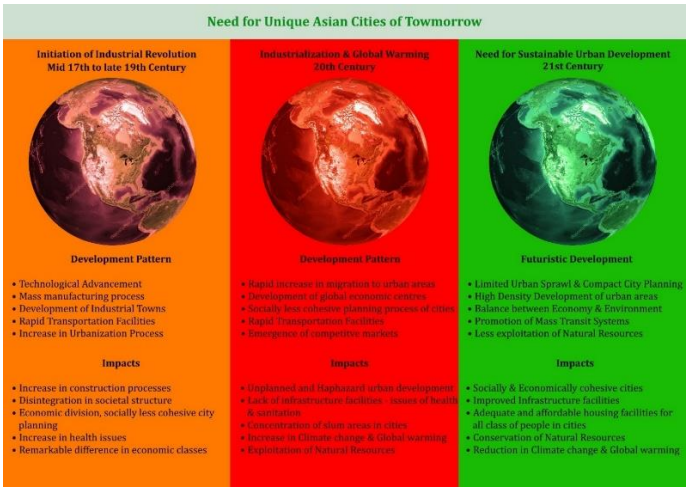
This has led to various problems such as uncontrolled and haphazard development of peri-urban areas of cities, the imbalance between densities in different city areas leading to inadequate infrastructure facilities, exploitation of natural resources, synchronization between land uses, and hence uncontrolled and unplanned traffic movements within the cities. Such deficiencies in planning approaches contribute to various global-level issues such as climate change, heat island effects within the city areas, poor health and sanitation, lack of affordable housing, inadequate food supply, etc. To deal with such challenges of the everchanging characteristics of today's growing cities of Asian and Pacific sub-regions, unique city planning strategies shall be required.

3. UNIQUE ASIAN CITIES OF TOMORROW

In this context, the unique Asian cities of tomorrow shall address both the aspects of balanced economic growth and controlled urban settlements with limited urban sprawl and good quality of the environment around such developments. Such cities shall incorporate high energy-efficient technologies, maximum use of renewable resources, mechanisms to reduce carbon emissions, implementation of new land management tools and techniques to control urban sprawl and minimized land consumption by densification of existing developed areas and compact city planning, conservation of green field areas and natural resources (Coopers).

In essence, the unique Asian cities of tomorrow shall have to adopt an integrated approach to planning and sustainable development by incorporating economic,

environmental, territorial, and social dimensions. The key attributes of such an integrated approach for unique Asian city planning for tomorrow can be demonstrated as shown in the figure below;



Source: Developed by the Author

Figure 4: Key attributes to unique Asian City Planning for Tomorrow

As shown in figure 4, the Asian cities, megacities, metro cities, and metropolitan cities of the 20th Century are growing at an unprecedented speed and hence facing lots of challenges due to rapid urbanization. Some glimpses of such challenges can be seen in the figure below.

Major Challenges faced by Asian Cities in the 21st Century

Traffic Congestions

Photo Courtesy: How Cities Are Trying to Avert Gridlock After Coronavirus Lockdowns - The New York Times (nytimes.com)

Air Pollutions

Photo Courtesy: Delhi Chokes After Air Quality Slips Under 'Severe' Category; Respiratory Distress Cases Witness Massive Jump | India.com

Informal Slum Settlements

Photo Courtesy: Slums Can Inspire the Future of Cities. Here's Why. (dormakaba.com)

Water Logging – Inadequate drainage

Photo Courtesy: Rising sea levels put Southeast Asia's coastal cities at risk - Asia Property Awards

Poor Health Infrastructure

Inadequate Food Supply facilities

Photo Courtesy: The poor still miss out on healthcare in Vietnam Environmental News, updated 24 hours - english.tinmoitruong.vn

Photo Courtesy: UN: Asia's cities face mounting food challenge | Food News | Al Jazeera

Poor Housing - Lack of Affordable Housing

Photo Courtesy: Reforming housing for the poor in the Philippines | East Asia Forum

Lack of Sanitation facilities

Photo Courtesy: Sanitation problems in Mumbai at catastrophic proportions | ORF (orfonline.org)

Figure 5: Challenges faced by Asian Cities in the 20th Century

To deal with such challenges, Asian cities of the 20th Century shall have to understand the unique characteristics of cities and respond to respective cities growing needs with a more sustainable planning approach (Amin, 1992). Cities are growing micro-organisms with diverse geographical, ecological, and environmental attributes and hence, each city demands different approaches to deal with the growing demand for urbanization and sustainable uses of natural resources, which shall help to build unique Asian cities of tomorrow for the 21st century.

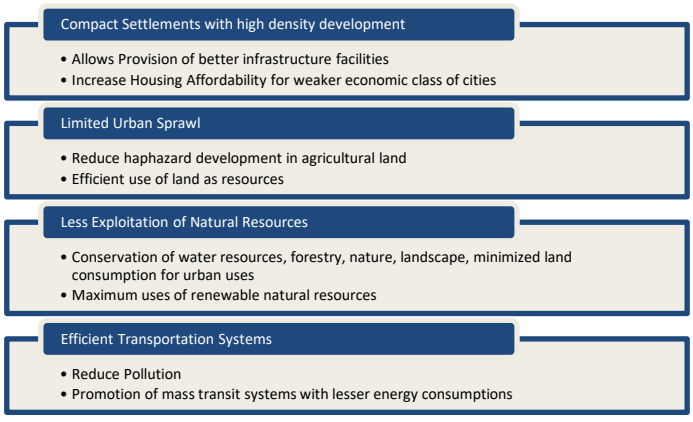


Figure 6: Broad framework of concerns for different planning approaches can be adopted for the unique Asian cities of tomorrow

A broad framework of concerns for different planning approaches that can be adopted is illustrated as shown in the figure above. Such a broad framework shall be explored in detail for each parameter considering the complex geographical, ecological, and environmental considerations for a specific city.

In this era of the 21st century, to deal with the issues of sustainable development of tomorrow's city by creating a balance between economic development and controlled urban settlements with limited urban sprawl and good quality of the environment around such developments, Asian cities have taken various initiatives in different cities.

To discuss a few examples of cities targeting achieving less exploitation of natural resources and hence gradually shifting their energy production systems to more clean and green technologies, Singapore, Vietnam, Indonesia, and the Philippines are a few names who have been very active in leading in energy production through renewable sources. Singapore initiated power generation from using fuel oil and shifted to the use of natural gas in 2000. In recent times, it has increased its dependency on power generation through solar deployment by 7 times and thus generating 444 MW during the 1st quarter of the 21st century. Similarly, Vietnam has the largest amount of installed renewable energy capacity of about 24,519 MW out of which 25% is being generated through Hydroelectric power. By 2025, Vietnam has planned to extend this capacity to 13 GW in total and out of which 70% share shall be through solar and hydro. Apart from this, the government is targeting for additional 17% of power generation through wind and 11% shall be through biopower (Zhenjiang & Puteri). Indonesia and the Philippines are focusing on geothermal power and other renewable sources like hydro, solar, and wind to double their energy production from renewable resources. Another classic example of the use of renewable sources is Songdo of South Korea. The entire city has been developed as a green field development with the prime objective of developing it as an International Business District. All the buildings and streets of the city have been connected through technology which gathers data on traffic flows and energy use. The city has 40% of land which are green spaces and the entire city runs on renewable energy sources, which include solar, wind power, and energy generated by processed human waste (Zhenjiang & Puteri).

The concepts of efficient transportation planning, limited urban sprawl, and compact settlements with high-density development have also been explored by different cities as well as literature and research on the subject have also been undertaken by different researchers, urban planners, practitioners, and policymakers from last one decade. As per David Dodman and United Nations Population Fund (UNFPA) (Dodman, 2009), it is estimated that the total population of cities in 'developing' countries will double between 2000 and 2030, but their built-up areas will triple (from approximately 200,000km2 to approximately 600,000 km2). In this context, the Executive Director of the United Nations Centre for Human Settlements (UN-Habitat) has mentioned that cities are "responsible for 75 percent of global energy consumption and 80 percent of greenhouse gas emissions" (UNHABITAT, 2015); while on the contrary, the Clinton Foundation suggests that cities contribute "approximately 75 percent of all heat-trapping greenhouse gas emissions to our atmosphere, while only comprising 2 percent of land mass". The below figure demonstrates how some Asian cities have taken up challenges to re-densify their cities to meet today's challenges.

Figure 7: Re-densification of existing cities has been adopted by Asian Cities

This phenomenon has also been supported by Norman in 2006, who found that low-density suburban development is 2.0-2.5 times more energy and greenhouse gas intensive than high-density urban core development on a per capita basis (Change, 2019). To understand this through an example, New York City has much lower per capita emissions than the United States as a whole i.e., 7.1 tonnes of CO2 equivalent per person in 2005, compared to a national average of 23.9 tonnes of CO2 equivalent per person in 2004.

4. CONCLUSIONS

As a result, dense urban settlements can be viewed as enabling lifestyles that reduce per capita greenhouse gas emissions by concentrating services, which reduces travel time, improves public transportation network provision, and the size constraints on residential dwellings imposed by land scarcity and high cost. Because there is no "one-size-fits-all" solution for today's ever-changing cities, Jabareen has proposed seven sustainable urban form design concepts and uses for unique cities of the future – compactness, sustainable transportation, density, mixed land uses, diversity, passive solar design, and green.

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BIOGRAPHIES

Chintan Patel has completed a Bachelor of Architecture from Indubhai Parekh School of Architecture, Rajkot with First Class and a Master's of Planning (Industrial Area Planning and Management) from CEPT University with first class. He has a total of 12 years of experience. For the past 7 years, he is actively working as an academician and a researcher in the field of Physical Planning and Architecture.