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Diversecity For Humanity And Sustainable Growth

Azim A Aziz

ATSA Architects Sdn Bhd, 45 Jalan Tun Mohd Fuad 3, Taman Tun Dr Ismail, 60000 Kuala Lumpur, Malaysia

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ABSTRACT

By 2050 the United Nation predicted 65% - 70% of the population will live in urban areas. By then, the world population will be approximately 9.8 billion people a 33% increase from 8 billion in 2023. However, most of the population growth will come from developing countries such as Africa and South Asia and at the same time, the population of many developed countries will decline. This study seeks to identify the effects of population density in cities in developed and developing countries and the need to design cities to be sustainable based on past, present and future cities' data. Furthermore, large scale new future cities are introduced as a "solutions" to solve ailments besieging present day cities. The objective is to seek a set of guidelines to be considered wherever new cities or its conurbation are being designed.

1. Introduction

Human settlement of a large communities has been around for approximately 5,000 years ever since the establishment of great ancient civilizations such as Uruk in Mesopotamia. It was said that Uruk had a population of 60,000 people. Each emergence of these civilization had ruler or leader, as well as a high priest that had influence the building of these cities and was largely driven by them.

As the emergence of human being from Africa moving in small bands out of the continent some 60,000 and 80,000 years ago, early human began to learn to settle in large numbers to establish a community. Since then, the idea of city living brought by the need to live close to each other for convenience, safety, a sense of community and order.

Over the many millennia, the formation of city living changes. It is due to the nature of the living condition and at that time concentrating along mainly personal beliefs and collective beliefs.

Modern cities grew rapidly after World War II after 1945 with the use of internal combustion engines cars that have changed the way we lived, replacing horse driven carriages within a short time. The relative peace had contributed the sudden surge of growing population. The industrial age of early 1800's had introduced industrial technology that contributed to the better lifestyle and longevity of its people. Many grand urban philosophers in 1900's back by their own personal beliefs

* Corresponding author.

E-mail address: azim@atsa.com.my

like Le Corbusier, Frank Lloyd Wright and Oscar De Myer started their utopian idea of the city of the future in many cases had affected human living conditioning of the urban population.

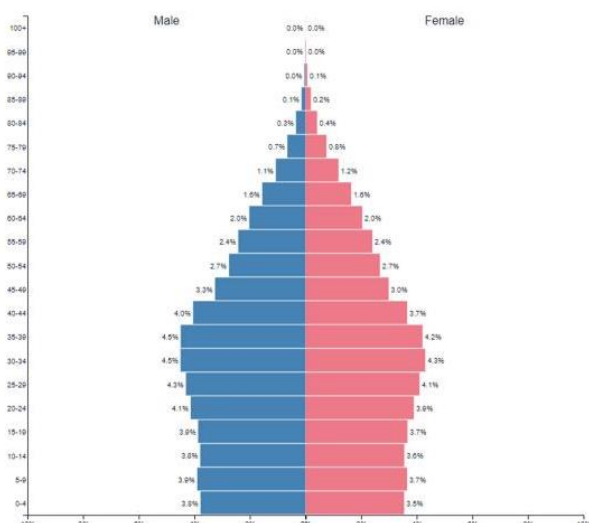
Some cities have become very successful while others have failed miserably. At the same time, many old cities built over the centuries underwent several transformation to include changing needs, improvements in infrastructure and technology.

In addressing the uneven future growth of cities, as well as the decline of established cities, there is very little perfect examples that one can follow and can duplicate elsewhere especially in tropical countries, which has been dependent on cars as their mode of transportation. Many new cities have sprouted out since the end of the World War II and from the history, one can also learn from these new cities and how they have turned out to be. However, many old cities have managed to rejuvenate itself from being cities prioritizing on cars, over building and lack of proper serves to thriving metropolis by identifying the root cause of the problem designing these old cities.

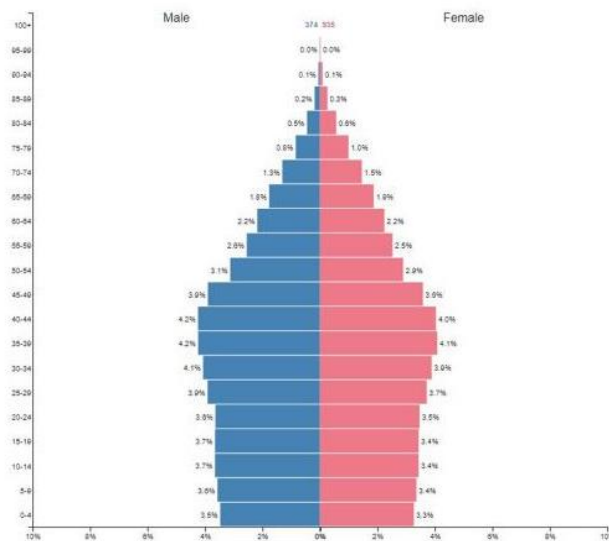
As mentioned, rulers often determine the shape of many early cities on how it would look like for their subjects to live, employing architects and engineers. Since then, these cities had evolved from being small protected settlements to becoming fortress cities or walled cities built for protection of the population from invaders to modern open well connected cities and suburban enclaves that sprouted out from the center of the cities, which does require to be protected. As a result, some have become inefficient through urban sprawl.

5,000 years on, cities are becoming a common place to live to form a community and each country has now cities are only connected by roads. Many of these old cities had evolved but more recently cities are being planned ahead of time, to cater for projected population growth over the coming years with pre-conceived idea of what the city would look like in the coming years. They are normally built in very short time using urban design models that are stated to become a choice place to inhabit. Depending on the particular ambition of the developer or urban designers, the cities are often becoming more thematic rather than actually solving the current future needs of the population, which is more complicated to solve many other issues that had caused many other unintended problems, which includes cultural needs, geography, climate, connectivity, security, sustainability, green spaces, landscaping, affordability, racial mixed, religious needs , amenities, various ages , income disparities, waste management, cars, roads and many more. Many of the modern cities had to deal with uncontrolled urban sprawl, which had been a problem over 70 years.

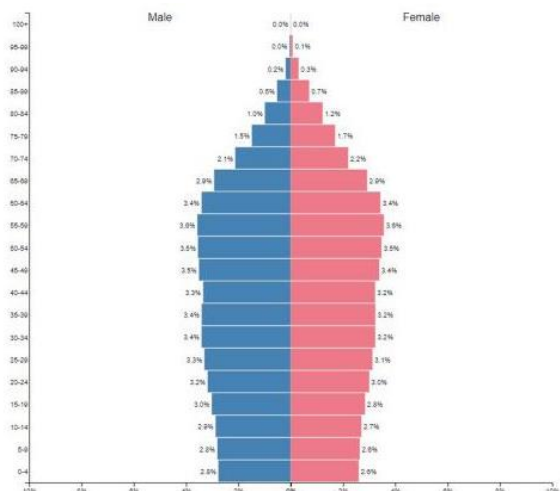
As the topic is wide and as mentioned previously, the future of a diversecity for humanity and sustainable growth depend on cultural needs, climate and various expectations. It is a conscious decision to prepare a paper that have to address the shortcomings population needs and its growth until the end of the century, using the available data. The growth of Kuala Lumpur which was chosen as an example to chart and study the growth of Kuala Lumpur from its established in 1830's. Kuala Lumpur was declared as the capital city of the Federal Malay states in 1896 by the British colonial master. The population of Kuala Lumpur increased from 30,000 in 1900 to 80,000 in 1920 and over 110,000 in 1931. The population of Malaysia is expected to grow from today's population of 36 million people to approximately 42 million by end of this century. Malaysia, a developing country will at one point of time in mid-century 2050, will see its population decline as per many developed countries' main cities throughout the world. Greater Klang Valley which includes Kuala Lumpur will have an increase population of 8 million to 12 million people at the most. It represents approximately 30% of the total population of the whole Malaysia.



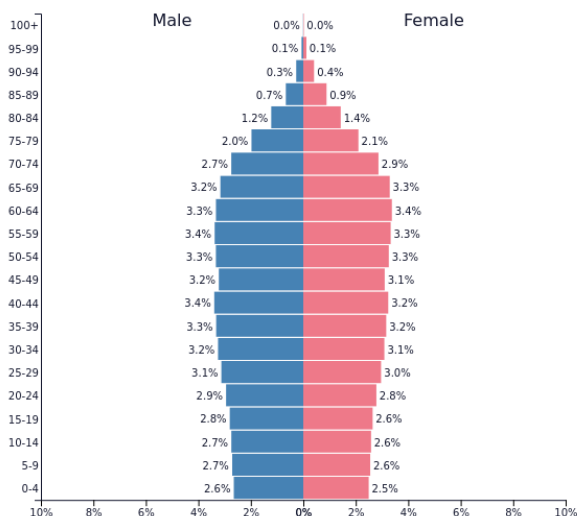
Population Pyramid of Malaysia in 2024
Population is projected at 34 million people



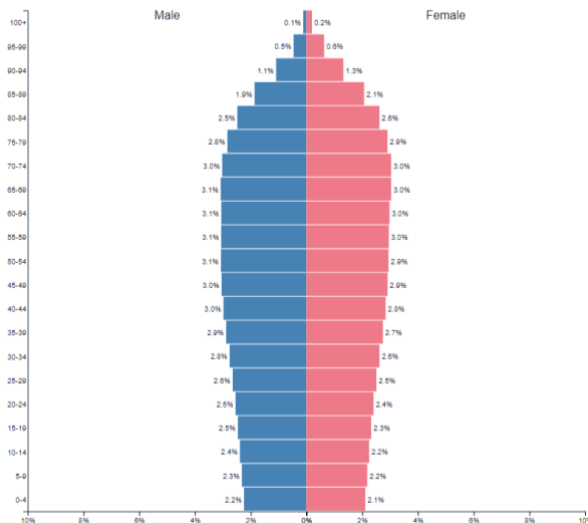
Population Pyramid of Malaysia in 2030 at
36 million people



Population Pyramid of Malaysia in 2050
Population is projected to grow 41 million
people



Population Pyramid of Malaysia in 2057 at
41.82 million people



The Population Growth Pyramid of Malaysia in 2100. The population of Malaysia will start to decline after the year 2057 and at 2100, which is 76 years from now in 2024 will start to decline to 39,474,474 with 30% of the population will be over 60 years old.

The population of Malaysia is expected to decline after the year 2050's, analyst had predicted that the country's population would be stagnant by the year 2057, 100 years after Malaya/Malaysia gained its independence and age by the year 2100 over 30% of population will be more than 60 years old which will make Malaysia an aging country and will face similar challenges like South Korea and Japan.

The Malaysian population is projected to be 42.24 million people and will decrease to approximately 39.49 million by the year 2100, a 76 years from today. By the year 2050, Kuala Lumpur will also be known as an aging population with 15% of its population will be more than 60 years. The birth rate of Malaysia will also decline to below the natural replacement rate of 2.1 per family. The percent rate in Malaysia in 2024 is currently at 1.05% which is an alarming concern. In the future, the population will not be able to replace itself naturally.

Kuala Lumpur - Historical Population Data

Year	Population	Growth Rate	Year	Population	Growth Rate
1957	317,000	2.92%	1993	2,598,000	7.05%
1958	325,000	2.92%	1994	2,780,000	7.01%
1959	334,000	2.77%	1995	2,975,000	7.01%
1960	344,000	2.99%	1996	3,184,000	7.03%
1961	353,000	2.62%	1997	3,407,000	7.00%
1962	363,000	2.83%	1998	3,646,000	7.01%
1963	373,000	2.75%	1999	3,902,000	7.02%
1964	383,000	2.68%	2000	4,176,000	7.02%
1965	394,000	2.87%	2001	4,318,000	3.40%
1966	405,000	2.79%	2002	4,463,000	3.36%
1967	416,000	2.72%	2003	4,612,000	3.34%
1968	427,000	2.64%	2004	4,767,000	3.36%
1969	439,000	2.81%	2005	4,927,000	3.36%
1970	451,000	2.73%	2006	5,092,000	3.35%
1971	486,000	7.76%	2007	5,263,000	3.36%
1972	525,000	8.02%	2008	5,439,000	3.34%
1973	567,000	8.00%	2009	5,621,000	3.35%
1974	612,000	7.94%	2010	5,810,000	3.36%
1975	661,000	8.01%	2011	6,005,000	3.36%
1976	714,000	8.02%	2012	6,206,000	3.35%
1977	771,000	7.98%	2013	6,414,000	3.35%
1978	833,000	8.04%	2014	6,629,000	3.35%
1979	899,000	7.92%	2015	6,851,000	3.35%
1980	971,000	8.01%	2016	7,081,000	3.36%
1981	1,049,000	8.03%	2017	7,319,000	3.36%
1982	1,133,000	8.01%	2018	7,564,000	3.35%
1983	1,224,000	8.03%	2019	7,780,000	2.86%
1984	1,322,000	8.01%	2020	7,997,000	2.79%
1985	1,427,000	7.94%	2021	8,211,000	2.68%
1986	1,542,000	8.06%	2022	8,420,000	2.55%
1987	1,665,000	7.98%	2023	8,622,000	2.40%
1988	1,798,000	7.99%	2024	8,816,000	2.25%
1989	1,942,000	8.01%	2025	9,000,000	2.09%
1990	2,098,000	8.03%	2030	9,805,000	1.53%
1991	2,266,000	8.01%	2035	10,467,000	1.19%
1992	2,427,000	7.11%	2050	10,715,039	1.20%
		213.95%			138.10%

From the 1957, the year Malaysia gained its Independence

In 67 years from 1957 to 2024, the greater Kuala Lumpur population grew at 317,000 to 8,816,000 million people. By 2050 the population of Greater Kuala Lumpur will be approximately 10.7 million people. The area of Greater Kuala Lumpur includes the parts of the Klang Valley with an area 2,793 square kilometers.

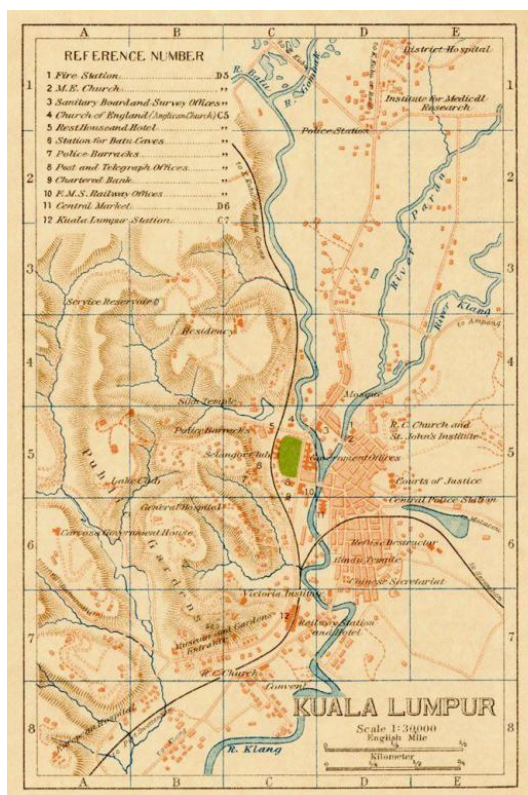
Greater Kuala Lumpur will be considered as a mega city like any other growing mega cities that we can see now. It will face several challenges that need to be addressed now in order for it to be livable and sustainable city that caters for its population mixed. To build a successful sustainable resilience city to accommodate the increase of population of Greater Kuala Lumpur of 2 to 4 million people, great effort in planning has to be planned to suit future growth for the next 30 years to 50 years. It is also an opportunity not to be missed by urban planners and architects, to create a future city designed to cater towards local climate and needs.

There will be challenges in planning a diverse new suburban city to accommodate the rising diverse population catering for diverse expectations of its inhabitants. An increase of the population of Greater Kuala Lumpur in the next 20 years will be an opportunity not to be missed to consider this expectations with the right density and sustainability in mind. It could be a gold standard in city design that others cities can follow. Building a new city in a tropical environment with hot and humid climate is not similar to building a city in a cold or temperate climate countries, like Amsterdam. Climate place a great impact when considering building a conducive city for all of its inhabitants. Cooler climate allows and encourage people to walk or cycle distances to work or far leisure. As listed by Mercer, an American consulting firm specializing human resources consulting, that is also ranks cities for quality of living on a yearly basis, which rank livable cities around the world based on their criteria. Mercer repeatedly rank most of the livable cities in cold and temperate climates such as Zurich (population with an average growth rate of 0.77%), Auckland (population of 1,693,000 growth rate of 1.20%), Copenhagen (population of 1,391,000 an average growth rate of 0.72%), Geneva (population of 639,000 growth rate of 0.95%), Frankfurt (population of 801,000 growth rate of 0.63%), Munich (population of 1,585,000 a growth rate of 0.57%), Vancouver (population of 2,683,000 an increase growth rate of 0.98%), Sydney (population of 5,185,000 an average growth rate of 1.27%) and Dusseldorf (population of 641,000 an average growth rate of 0.16%). Metro Kuala Lumpur (population is at 8,633,000 with an average growth rate of 2.4%), which is very much a growing city with approximately 200,000 new people living in the Metro Kuala Lumpur every year. Most of these cities are from countries that have its population of high net income of more that USD 50,000 per capita or more to over USD 100,000. Many of these cities are old cities that have existed for centuries and has undergone various period of renewal. Due to their esteemed position as developed nation, many of the sustainable requirement were expected from the local authorities. Furthermore, many of these developed cities have reached development maturity with its population growth below 1%, except for Sydney which is growing at 1.27% yearly on average.

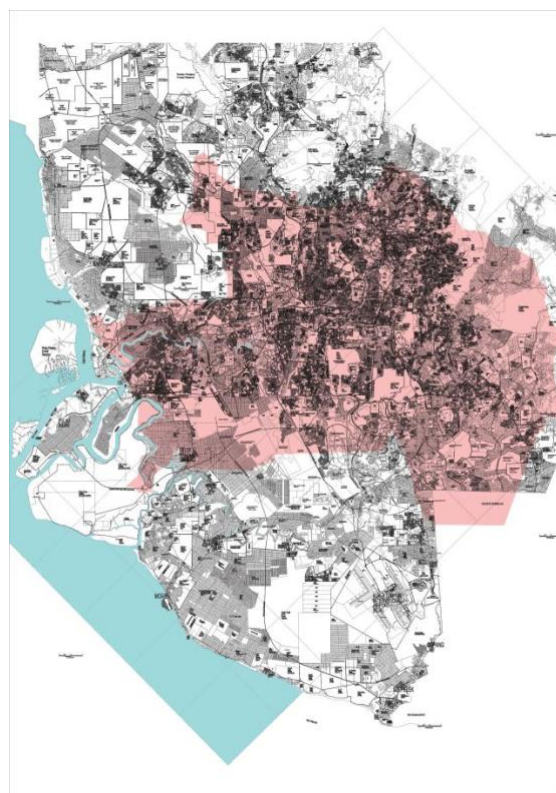
Malaysia net income is approximately USD 13,000 per capita. The current population of Metro Kuala Lumpur is at 8,622,000 people with a density of 2,708km². The total area 5,194.72 per square kilometer. In companion the population density of Singapore and island state, with and area of 715km² has a density of 8,276.58 per square kilometer. These cities are ranked using various criteria based on the expectations of expatriates when living overseas conducted by Mercer.

2. Methodology

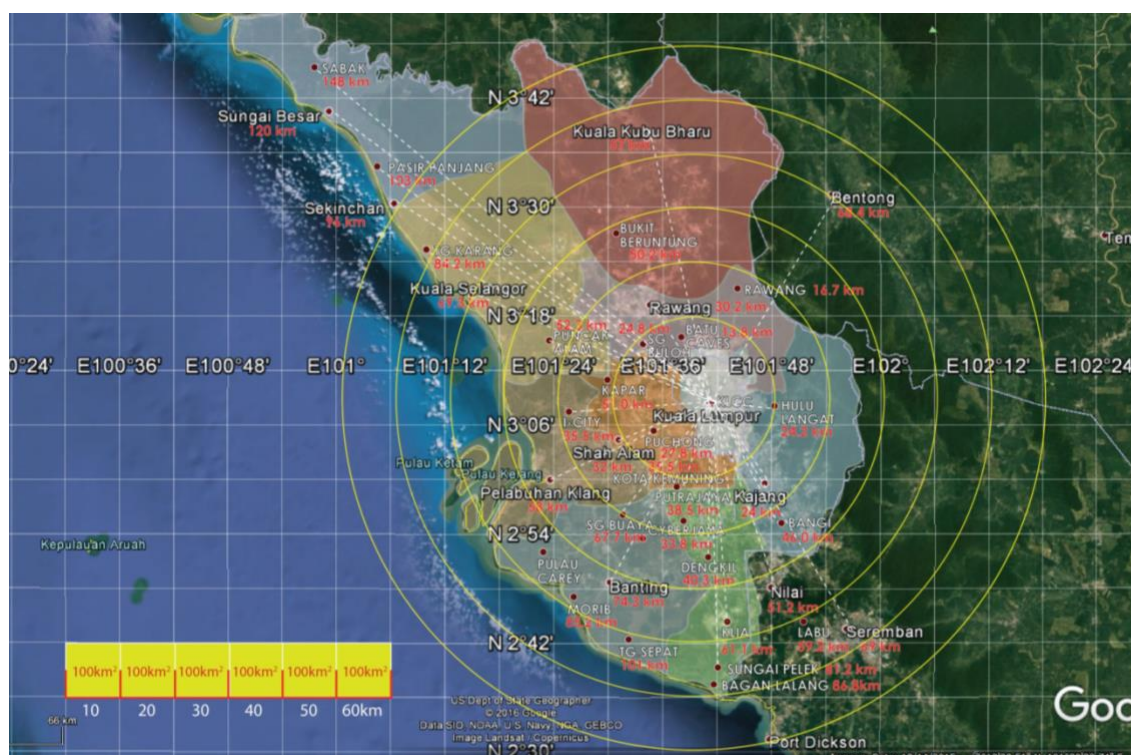
In pursuit to meet the purpose of this paper or future discourse, we must establish the correlation between top cities' density, governance, income level or wealth and its sustainability plan. These are some of the stated criteria that can effect a particular city plan in making a city sustainable. A descriptive comparison review on examples of cities is to determine various interventions that are needed to ensure that cities are resilience enough to counter constant changes. All cities around the world are different and may not have a fixed matrix set of criteria, similar to the more established research groups like Mercer. They have been the gold standard for international to measure companies, the liveability of a particular city, which includes its density and sustainability. To understand its anatomy will help to address various issues pertaining to density, sustainability and other elements that make up a city that was mentioned in the introduction. There is a need to categorize these cities accordingly to increase its liveability. Bench marking of the findings with other consulting groups like Mercer will help to establish a set of criteria for the consideration by designers. However, consulting groups are addressing some of the criteria that are based on a western style perspective and western construct for expats. Other factors from the eastern perspective or cultural values plays a less important role in categorizing the cities level of liveability and thus, its sustainability.



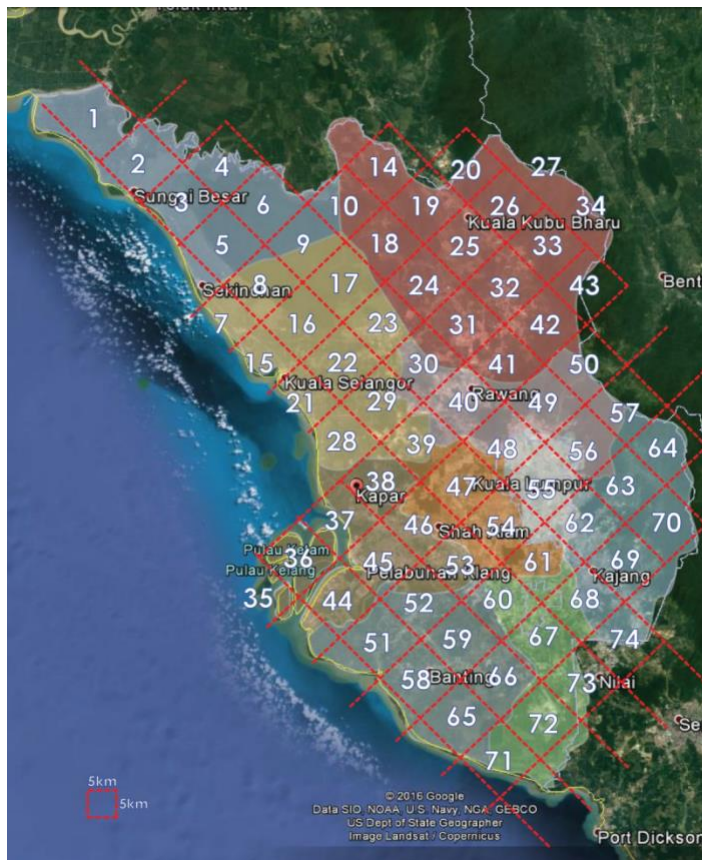
Kuala Lumpur 1890 the estimated of Kuala Lumpur/Selangor was around 30,000-60,000 people



Kuala Lumpur/Klang Valley 2024. Encompassing an area of 8,276.58 square kilometer. The density is about the population of greater Klang Valley in 2024 is at 34 million



Map of Greater Kuala Lumpur / Klang Valley



KL to Seremban
KL to KLIA
KL to Klang

=53min (63.9km)
=40min (54.8km)
=33min (33.5km)

KL to Banting
KL to Nilai
KL to Rawang

=59min (67.4km)
=40min (46.2km)
=33min (31.5km)

Conceptual land demarcation of Greater Kuala Lumpur

A) 74 x 100 square km =

7,400 square km

247 acres x 7,400 = 1,827,800

x 30 people / acres

= up to 54,834,000 people

Hypothetically, if 30 people density
per acre, can lived in an area

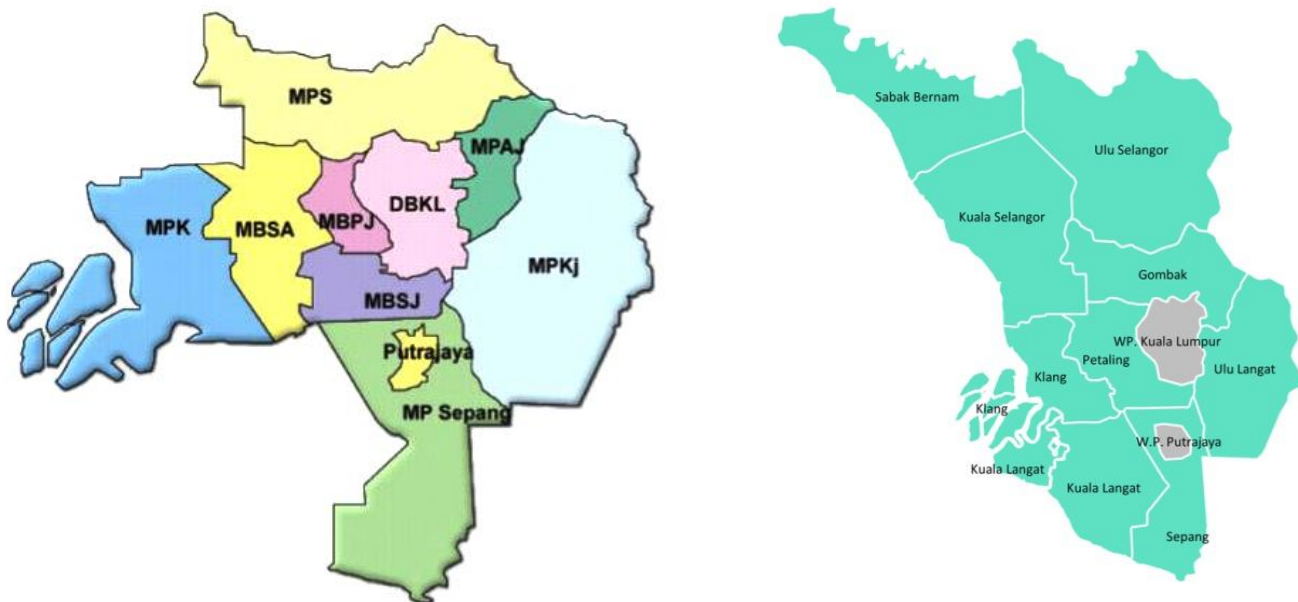


Map of Carey Island, Metro Kuala Lumpur



Map of Dengkil, Metro Kuala Lumpur. Large scale development of 12,000 acres to house an estimate of 500,000 people. Walkability, public transit and connectivity roads to the rest of the Greater Kuala Lumpur

Greater KL/KV is composed of 10 local Authorities approximately 8,276 square kilometer



This paper was conducted using a quantitative research approach, employing available data and information to derive an analysis to reach a form to suggest practical results and reach a conclusion.

The data used is available for the public and the source of the information is readily available. The method used is to prepare for a form of an approach to address its diversity and sustainability in the next 30 years, 50 years and till the end of this century in the year 2100. Greater Kuala Lumpur will be used as a reference point as it will be the largest city in Malaysia with the highest population. Greater Kuala Lumpur is expected to grow approximately another 2 million more inhabitants that will trigger an opportunity to design future city that address its diversity and sustainability. It is envisaged that the new approach will act as a catalyst for Kuala Lumpur that will influence the other surrounding areas to follow the approach. Reference to the current trend of the 15 minutes city will also be compared as it is currently the trend in making a city more walkable and sustainable. The idea of building 15 minutes city was “derived” from historical ideas about proximity and walkability. It was inspired by Carlos Moreno, a professor at Sorbonne University in Paris, Mayor Anne Hidalgo implemented in part of Paris a number of cities are experimenting the idea of 15 minutes city some part of the world with variationing to suit its context.

Another approach that has grown influence moving towards into a more inclusive sustainable urbanism design using the principles of the charter of the urbanism. First introduced in 1999 with the view of “disinvestment in centre cities” the spread of places sprawl increasing separation by race and income environmental deterioration loss of agricultural lands and wilderness and the erosion of society’s built heritage. “The CNU “...stand for the restoration of existing urban centers and towns within coherent metropolitan regions, the reconfigurations of sprawling suburbs into communities of real neighbourhoods and diverse districts, the conservation of natural environment and the preservation of our build legacy.”

Further to benchmarking on the overall long term sustainability will be based using Mercer’s evaluation categories for international acceptance, as well as Malaysian Urban Indicators (MURNInet) to localize the requirements to suit the local need and expectation. Kuala Lumpur can be divided into 3 zones over the Greater Kuala Lumpur. There are the inner Kuala Lumpur, the original footprint of Kuala Lumpur which was founded in 1850’s and outer Kuala Lumpur which

was established after independence in 1957 and the growing urban sprawl that began in the 1970's which was continued to grow until today and is now known as the Klang Valley, encompassing an area approximately 5,195 km². The Kuala Lumpur area is 243km² with a population of 2,163,000. The Greater Kuala Lumpur has a population of approximately 8,816,000.00. By 2050, the population of Greater Kuala Lumpur will be approximately 10,000,000 people, an increase of 2,000,000 in a period of less than 30 years. However, the composition of the population living in Kuala Lumpur over 60 years old will be approximately 25%-30% or 3,000,000 people.

The methodology to be used to address the main theme of the paper to address the diversity for humanity and sustainable growth and the chosen sub-theme of the density and sustainable growth one must explore the trends that are influence the direction of how future cities will be planned for new cities as well as existing townships are. Cities must be planned with consideration in following factors to be liveable city and to plan future cities to reduce the effects of the urban sprawl. Greater Kuala Lumpur for better known will be used as an example to how to address some issues that will affect its growth (density) and its sustainable growth of the future. Many aspects of the future cities will render the current approach of city planning absolute. To rethink how city township and its people will engage with the city difficulty.

Diversity of the future of Malaysia and much of the world's humanity with sustainable growth will be very much depended on many factors that will change the population mixed, technology and the health of the society. This include the much talk about climate change temperature that the world population can reduce carbon emission to levels of 1990's and to meet the Paris climate change accord. Many countries various carbon emission levels by mid-century 2050.

The issues are:

1. Population growth

The world's population growth have been growing rapidly since the age of discovery in the 15th century. The age of discovery by human's ability to traverse the vast oceans had contributed to the diversity of society that began in civilized Europe to part of the world that was previously unknown. The sudden burst of technology, curiosity science and the need to seek wealth, had altered several parts of the world. This advent change the world for ever. The population of the world which includes Malaysia grew tremendously after World War II as the world became more peaceful and opportunity arose with technology.

2. Population decline and aging population

In 2024, Malaysia's population is at 34,672 million with 14.5% of the population is 65 years and above. With urbanization and rural migration to urban centers, cities were formed and growth with the lifestyle. Today's the fertility rate of Malaysia couples is 1.6 child per couple and rapidly declining. Some analysis are predicting that the percentage birth rate will continue to decline further even with some government intervention.

3. The New urbanism Charter

The new urbanism charter established by group of Architects/Urbanist to be concerned with the "placelessness of modern suburbs" the decline of central cities, "separation of communities" and environmental damage caused by development.

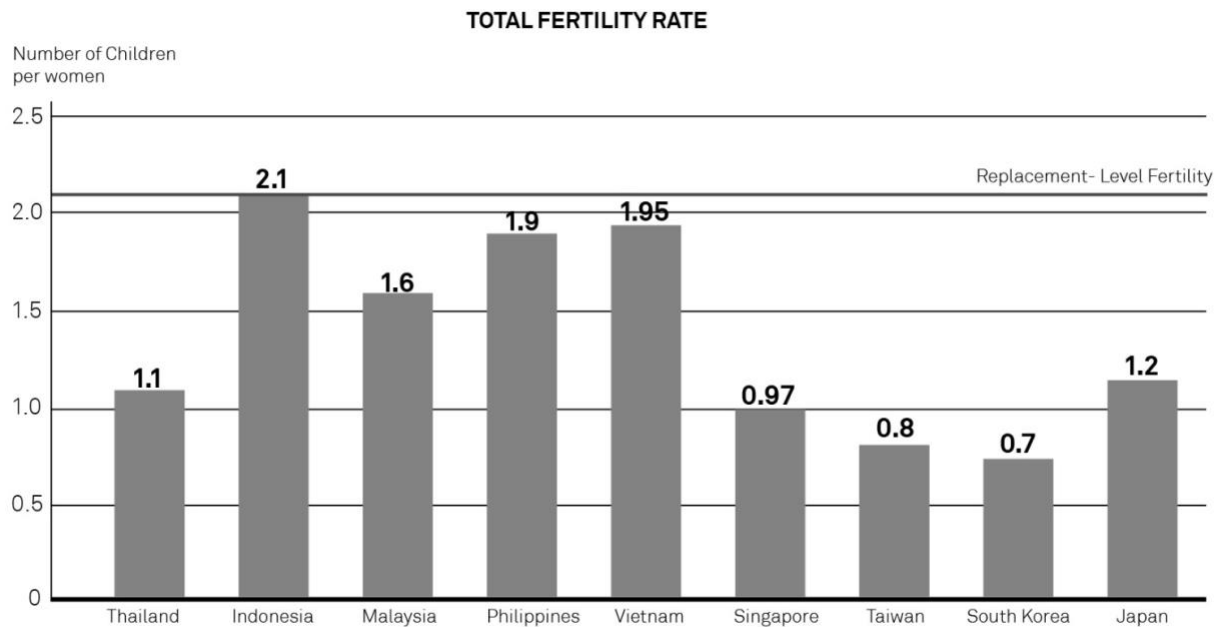
4. With T20, M40 and B40 urbanization

T20, M40 and B40 are the percentage classification of the population that make up the population urbanization, where population from rural areas migrating to urban centers to seek work and more women are getting educated and are working, are some of the causes of declining population. The size of the family quickly becoming small, not only in Malaysia, but most developed country, including countries in Asia are experiencing rapid population.

5. The push towards 15 min city and transit oriented development

6. Mercer's rating for the worldwide city ranking

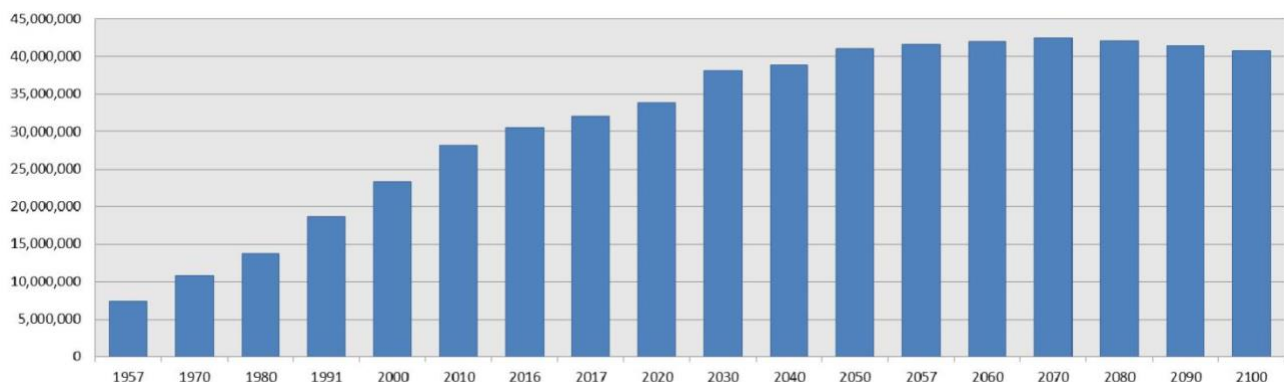
7. Other planned used



Rank	City	Country	Metro Population	Total Population
1	Vienna	Austria	2,890,577	9.042 million
2	Zurich	Switzerland	1,432,000	8.776 million
3	Auckland	New Zealand	1,673,000	5.124 million
4	Copenhagen	Denmark	1,391,000	5.903 million
5	Geneva	Switzerland	1,037,407	8,851,431
6	Frankfurt	Germany	791,000	84.7 million
7	Munich	Germany	6,200,000	84.7 million
8	Vancouver	Canada	2,683,000	40.77 million
9	Sydney	Australia	5,185,000	56,821,557
10	Dusseldorf	Germany	640,000	84.7 million
11	The Hague	Netherlands	2,620,000	17.7 million
12	Wellington	New Zealand	527,800	5,338,900

13	Bern	Switzerland	437,000	8,851,431
14	Basel	Switzerland	575,000	8,851,431
15	Amsterdam	Netherlands	2,480,000	17,671,125
16	Luxembourg	Luxembourg	672,050	672,050
20	Melbourne	Australia	5,207,145	26,665,558
29	Singapore	Singapore	6,081,000	6,081,000
45	London	United kingdom	9,748,000	67.85 million
50	Tokyo	Japan	40,000,000	12 million
81	Seoul	South Korea	26,000,000	51,741,963
84	Abu Dhabi	United Arab Emirates	1,567,000	9,591,853
86	Kuala Lumpur	Malaysia	8,816,000	34 million
107	Johor Bahru	Malaysia	1,086,000	34 million
109	Shanghai	China	29,211,000	1.43 million
112	Bandar Seri Begawan	Brunei Darusalam	82,437	455,858
241	Khartoum	Sudan	6,542,000	49,358,228

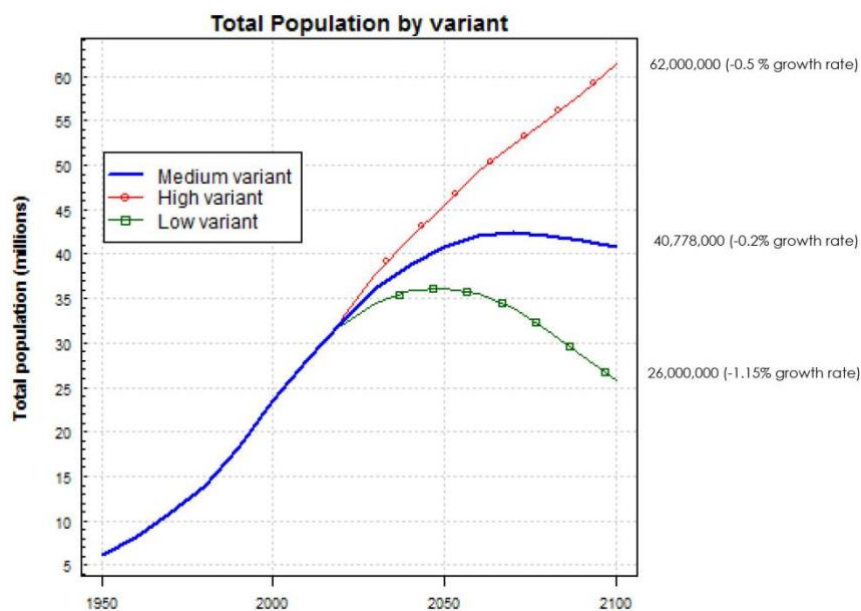
Quality of Living Rankings by Mercer - 2023 City Rankings



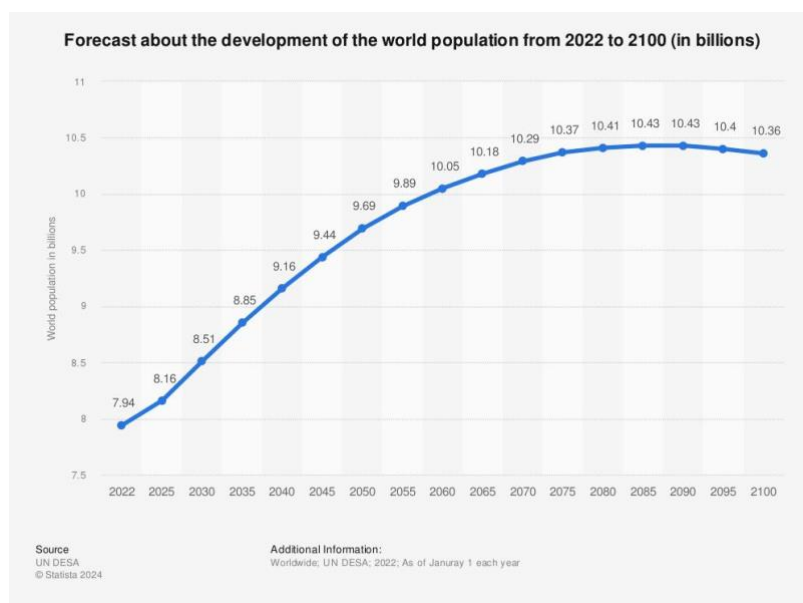
Malaysia population from 1957 to 2100, based on data projection by Department of Statistics, Malaysia and UN Department of Economic and Social Affairs

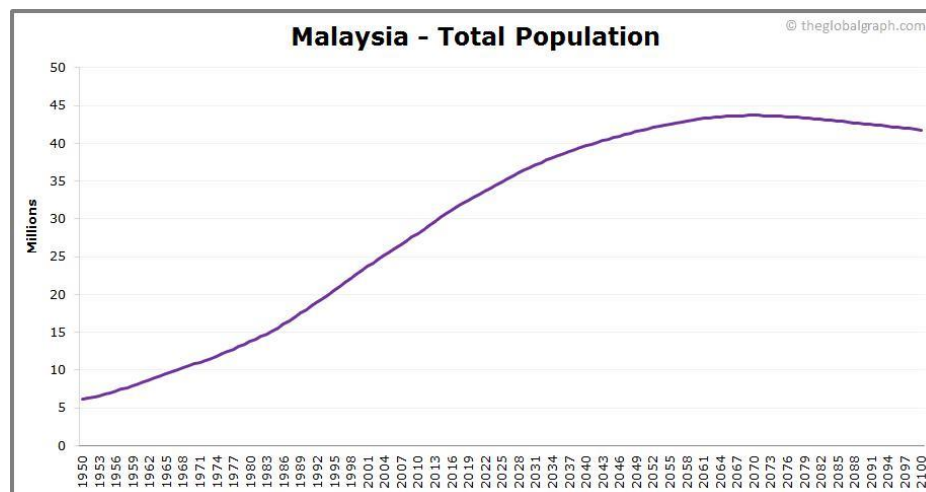
YEARS	1957	1970	1980	1991	2000	2010	2016	2017	2020	2030	2040	2050	2057	2060	2070	2080	2090	2100
Malaysia	7,393,000	10,860,000	13,772,000	18,709,000	23,420,000	28,119,000	30,572,442	32,049,700	33,782,400	38,062,200	38,852,000	41,100,000	41,690,000	41,995,000	42,418,000	42,059,000	41,437,000	40,778,000

Malaysia population from 1957 to 2100

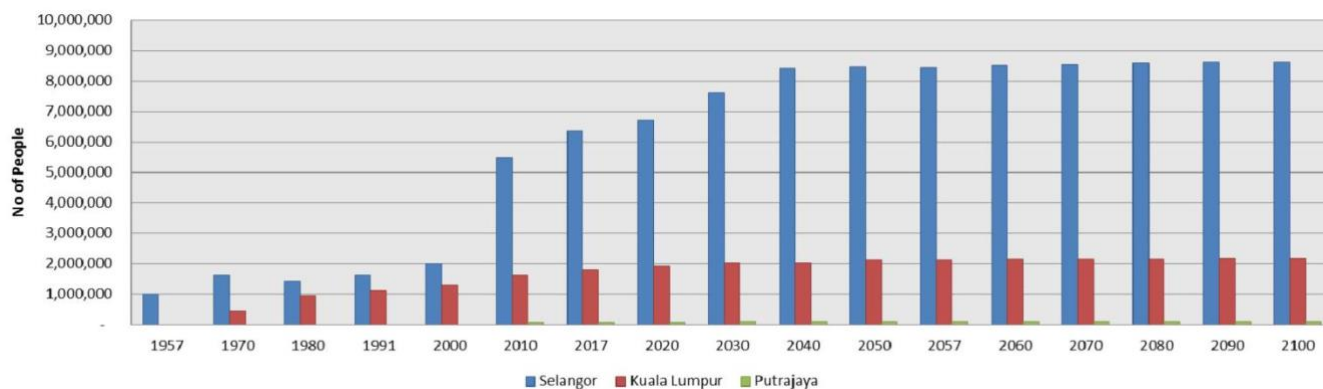


Graph of the Malaysian population from years 1950 to 2100, with the low variant stands at 26 million, 41 million (medium variant) and up to 62 million (high variant) in the year 2100 (UN Department of Economic and Social





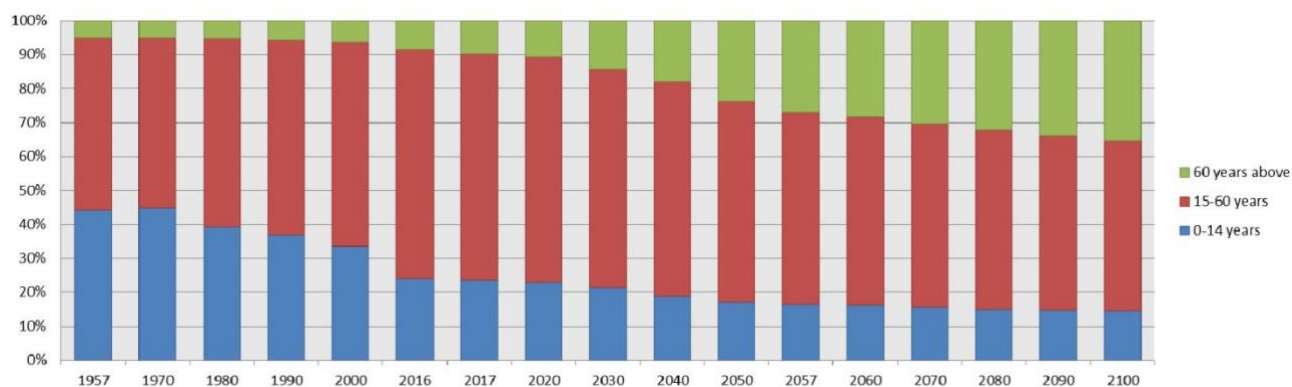
Greater Kuala Lumpur Population 1957 - 2100



Population of Greater Kuala Lumpur from 1957 to 2100

YEARS	1957	1970	1980	1991	2000	2010	2017	2020	2030	2040	2050	2057	2060	2070	2080	2090	2100
S'gor	1,012,929	1,625,620	1,426,250	1,642,771	2,009,893	5,502,100	6,380,800	6,715,600	7,620,400	8,406,800	8,465,648	8,454,732	8,516,442	8,559,024	8,593,260	8,619,040	8,636,278
KL	0	451,810	937,817	1,145,342	1,297,526	1,627,172	1,791,300	1,910,700	2,034,700	2,122,100	2,136,955	2,134,528	2,149,777	2,160,526	2,169,168	2,175,676	2,180,027
P'jaya	0	0	0	0	0	73,400	86,900	94,600	105,900	112,100	112,436	112,563	112,661	112,774	112,774	112,774	112,774
TOTAL	1,012,929	2,077,430	2,364,067	2,788,113	3,307,419	7,202,672	8,259,000	8,720,900	9,761,000	10,641,000	10,715,039	10,701,823	10,778,880	10,832,324	10,875,202	10,907,490	10,929,079

Population of Greater Kuala Lumpur from 1957 to 2100



Malaysian age groups from 1957 to 2100

YEARS	1957	1970	1980	1990	2000	2016	2017	2020	2030	2040	2050	2057	2060	2070	2080	2090	2100
0-14 years (%)	44.2	45.0	39.2	37.0	33.6	24.1	23.7	23	22	19	17	16.4	16.2	15.5	15	14.8	14.7
15-60 years (%)	50.8	50.0	55.6	57.4	60.1	67.6	66.5	66	65	63	59	56.6	55.5	54.2	53	51.3	50.1
60 years above (%)	5.0	5.0	5.2	5.6	6.3	8.3	9.8	11	15	18	24	27	28.3	30.3	32	33.9	35.2

Malaysian age groups from 1957 to 2100

Mercer - Quality of living 2020 criteria and factors

Reports evaluate these factors:

Housing
Climate and physical conditions
Pollution
Disease and sanitation
Medical facilities
Education facilities
Infrastructure

Physical remoteness
Political violence and repression
Political and social environment
Crime
Communications
Cultural and recreation facilities
Availability of goods and services

The Quality of Living Index encompasses 39 different factors within the following 10 categories:

Political and social environment
Economic environment
Socio-cultural environment
Medical and health considerations
Schools and education

Public services and transport
Recreation
Consumer goods
Housing
Natural environment

List of Indicators of Malaysian Urban Indicators (MURNInet)

For sustainable living

Sector	Focus	Indicator
Population	Total number of population in a city or town is proportionate with its carrying capacity of its infrastructure, social facilities, economy and environment	Urbanization rate Population density Population growth rate Median age
Housing	Adequate housing to support the increase in population and satisfy individual needs.	Average household size Housing price to income ratio Housing rental ratio against income Individual floor space ratio (measure overcrowding) Percentages of non-selling housing stock (overhang issues).
Economy	Eradication of poverty, increase the productivity of urban areas, increase employment opportunities to promote the further continuous growth of urban areas	Unemployment rate Job growth rate Labor growth rate Poverty level Income distribution
Utility and Infrastructure	Water supply, electricity and telecommunication supplies that is efficient and adequate to ensure the health and well-being of residents.	Daily water consumption rate of every population Water loss Percentage of flooding area Total daily garbage collection Percentage of houses services by centralized sewerage
Public Facilities	Availability of adequate public and recreational facilities by the authorities need to be in line with population growth.	Doctors and population ratio Total public open space per 1000 population Number of primary school children per teacher Number of kindergarten per total population number of civic. Halls per total population
Environment	Sustainable environment concept to be based on the balance between development and environment.	Percentage of financial budget for Environmental Management Number of Asthma Cases per 10, 000 population Percentage of budget allocation for landscape program River Water Quality Index Percentage of area that received waste disposal services Percentage of solid waste that has been recycling Number of cases reported on noise complaint cases Number of waterborne and food disease per 10,000 population Air Quality Index
Sociology and Social Impact	Saw from the quality of life aspect (peaceful, safety, health and cleanliness, without pollution).	Percentage of the population involved in community program The level of health quality service Crime

		index per 10,000 population Ratio of juvenile case per 1,000 population Ratio of arrests due to social ills per 1,000 population Divorce rate per 1,000 population
Land use	Land use that is planned and implemented within the carrying capacity of the respective area.	Percentage of C.F.O Approvals Percentage of land for public facilities Percentage of residential floor space area in the city centre.
Tourism and Heritage	Tourism and heritage element need proper and adequate maintenance for sustainable.	Percentage of maintenance expenditure heritage elements and urban Beautification Percentage of attraction area
Transportation	Sustainable transportation characteristics are safety, comfort and efficient from the aspect of economy and power usage while minimizing environmental pollution.	Percentage of public bus users The quality level of public bus services Percentage of expenditure to increase accessibility system. Percentage of single occupancy vehicles that enter the city centre during peak hours. Ratio of road accident cases per 10,000
Management and Finance	Sustainable Local Authority is an organization that can adjust and adapt for the long term.	Local authority capita income revenue Tax Rate collected Cash flow ratio as compared to emoluments Development expenditure per capita Administration and professional officers ratio Percentage of expenditure as compared to overall revenue.

Source: Federal Department of Town and Country Planning of Peninsular Malaysia (2004)

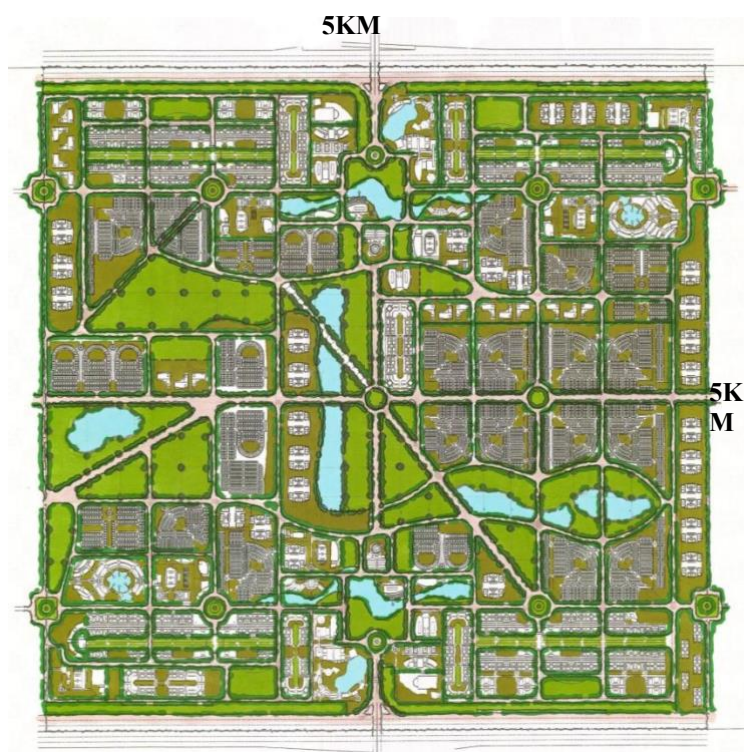
3. Results

Once established, important recommendations can be made to planners and architects in making broad performance decisions before designing new cities or embarking on urban renewal projects. From the data and future on the population growth of Kuala Lumpur, the Mercer's International evaluation categories and Malaysian Urban Indicators (MURNInet) to suit the local needs and expectation for developing sustainable city for the future, we can learn from our past and also other cities throughout the world. Malaysia population will cease the growth in year 2067 and Metro Kuala Lumpur population will projected to be approximately 10-12 million people.

From the graph Greater Kuala Lumpur has more than 30,000 acres yet to be developed in an area of 50km² from the center of Kuala Lumpur. It is safe to say that there are enough available space to fit the projected increase of population with a density of 86 people per acre.



Quality of life indicators



Conceptual layout planning of Future Township of a 5km x 5km grid

25 sq km = 6,177.6 acres

@ 30 density x 6,177.6

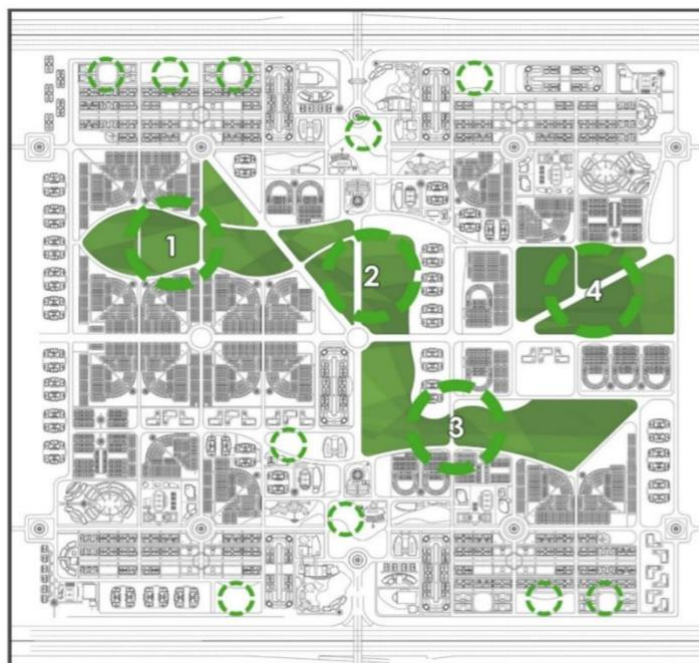
185,328 people / 4 people
=46,332 units

@ 60 density x 6,177.6

370,656 people / 4 per unit
=92,664 units

@100 density x 6,177.6

617,760 people / 4 per unit
=154,440 units



Green Area

Parks are complex elements of a city. They can serve scores of different uses, may be specialized in their function, or can simply provide visual appeal for residents. However they work, they act to define the shape and feel of a city and its neighborhoods.

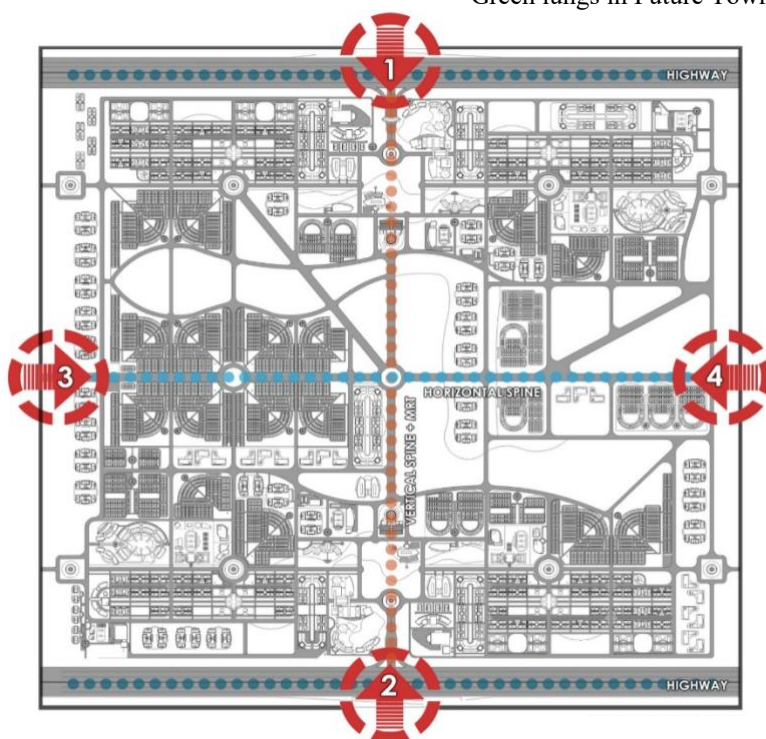


Green Parks



Green Pocket

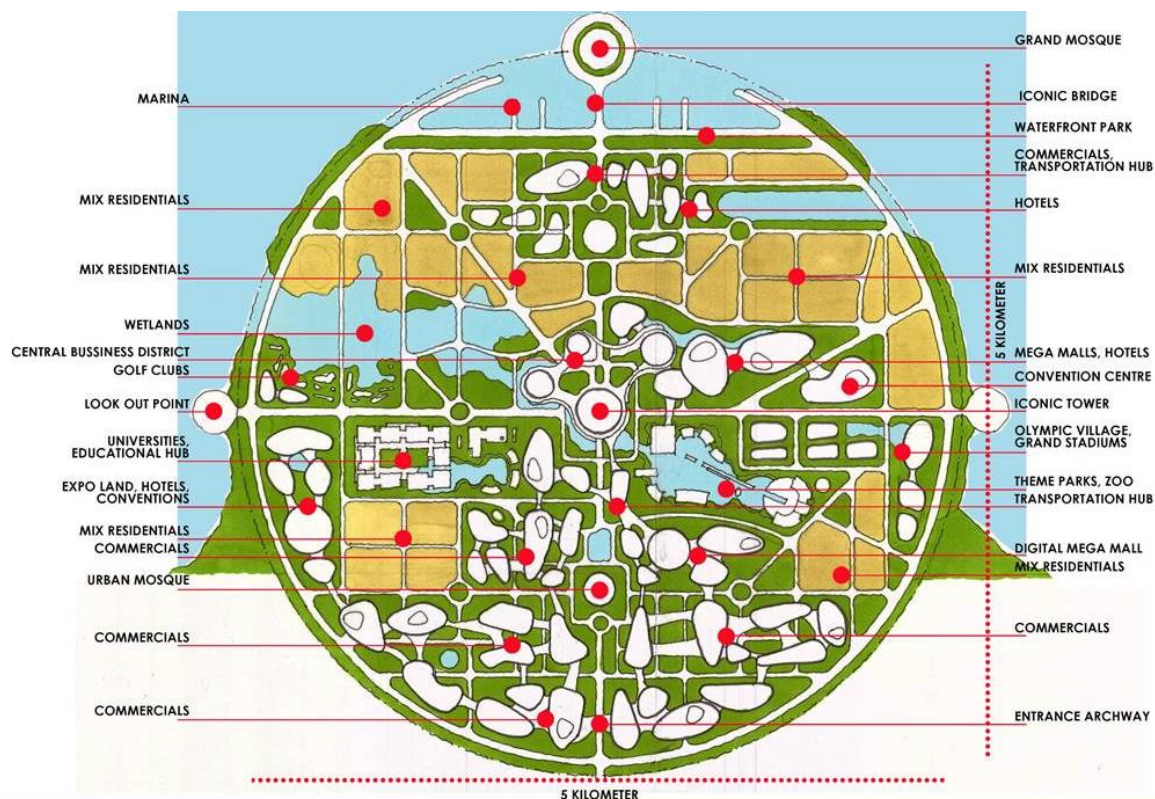
Green lungs in Future Township



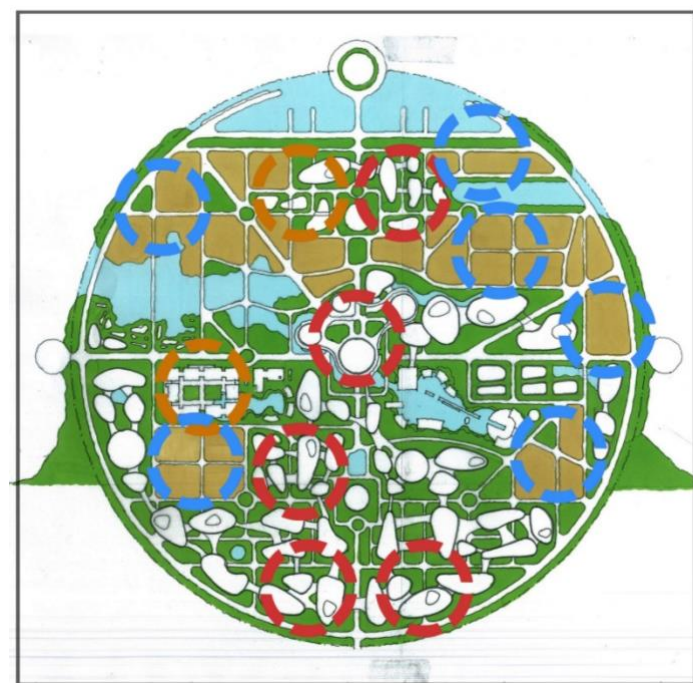
Green Area

Parks are complex elements of a city. They can serve scores of different uses, may be specialized in their function, or can simply provide visual appeal for residents. However they work, they act to define the shape and feel of a city and its neighborhoods.

Connectivity in Future Township



Detailed layout planning of future township



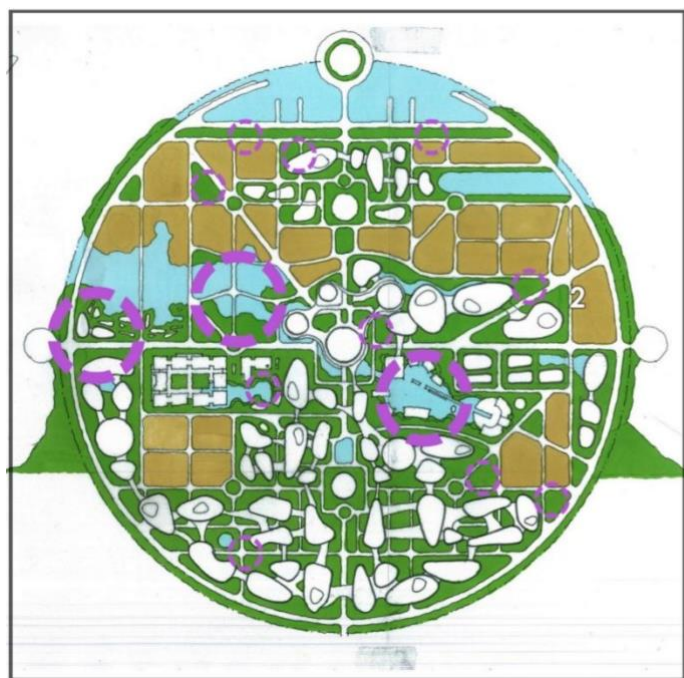
- commercial
- residential
- institutional
- recreational

Major components of future township

LIVE + WORK + PLAY + LEARN

A thoughtful mixed-use sustainable community where a neighborhood market, restaurants, retail shops and a walk-to-work office community are combined with residential living and public gathering areas creating an "Urban Village" where people will live, work, play & learn.

The idea is to be a self-sufficient and sustainable urban habitat where on a good day and maybe even a good week, the car may not need to leave the garage for the purpose of going to work or for enjoying sports and/or recreational events in residence social life.



GREEN AREA

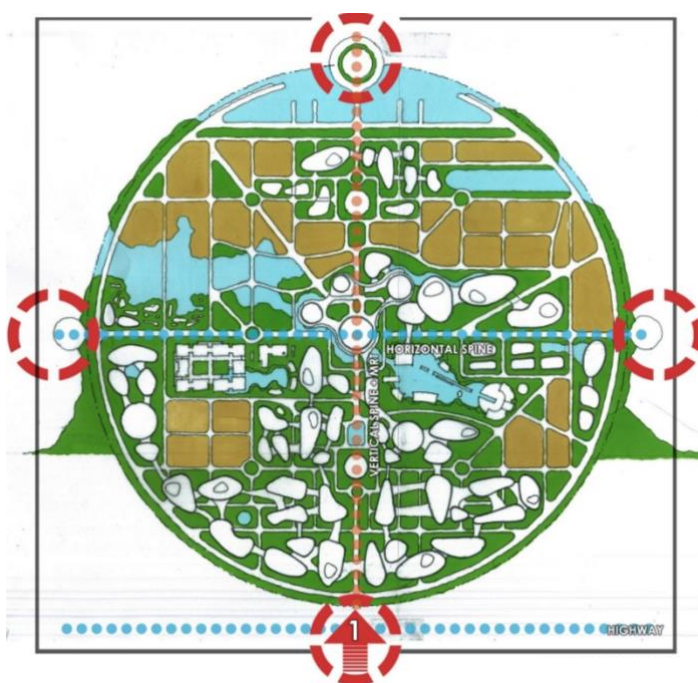
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Green Parks

Green Pocket

Location of green parks /pockets in future township

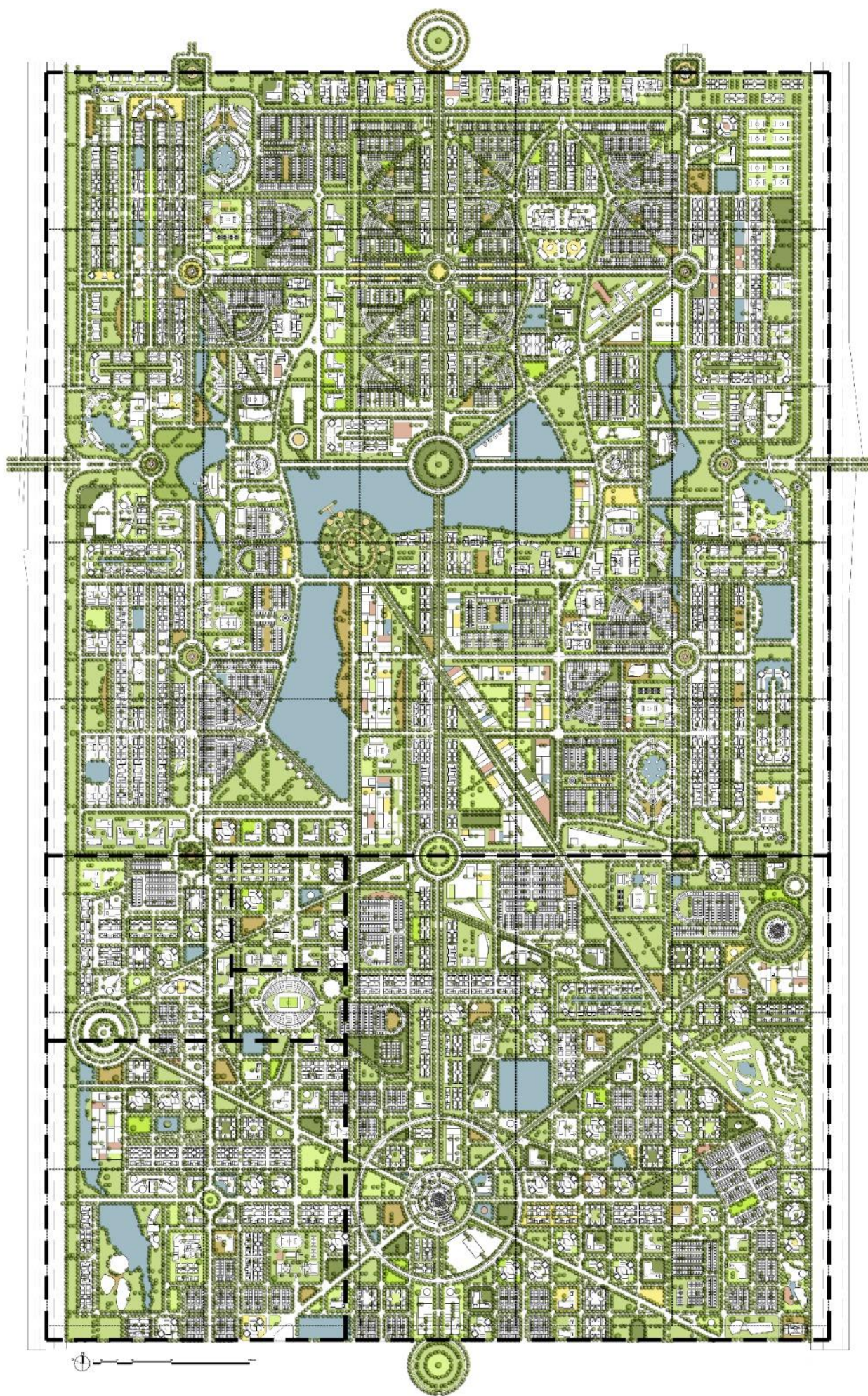


CONNECTIVITY

This masterplan was designed in grid form, with a main spine of movement. All residents will have easy access to local centres, schools, open space and commercial areas.

This grid form will allow a better connection and more sustainable organisation than more conventionally located edge of town extension

Connectivity in future township



4. Conclusions

This research may conclude that there is need to continuously collect data to share knowledge for designing future cities. This can be done via a portal that is accessible to all. There are currently many examples of sustainable oriented cities which has been planned or are currently being planned. Many of the successful cities which implemented such policy are well coordinated with meeting its objectives a must. Planning sustainable cities with proper or adequate density must be carried out with condition. Educating the people or the population and the local authorities must be in sync. The developers have also be mindful in making the overall objective successful. Each development by the different developers must complement with each other. For efficiency, development should be contiguous ad not developed on ad-hoc basis. Future development should be planned with the people or pedestrian in mind and taking into account our hot and humid climate. Transportation must be implemented to do away the priority of cars as the main mode of transportation. Gradual building up of reliable, comfortable, safe and convenient of public transportation should be continuously implement and built to increase connectivity. Yearly review must be conducted and all shortcomings must be addressed. Updated policies and indicators must be reviewed each year. Public and private investment must be made to uphold sustainability and reduce population.