

KUALA LUMPUR

A Sustainable City

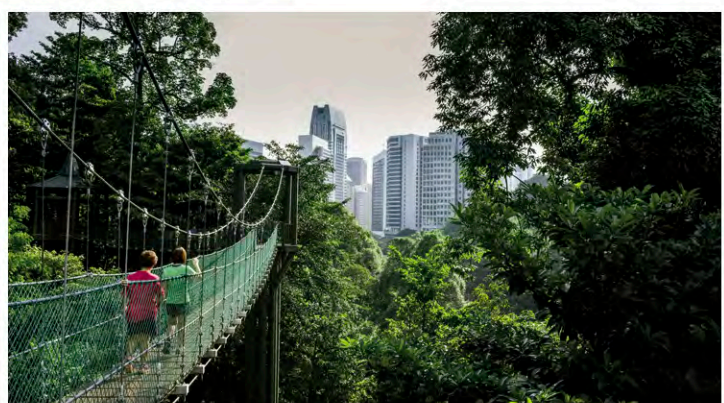
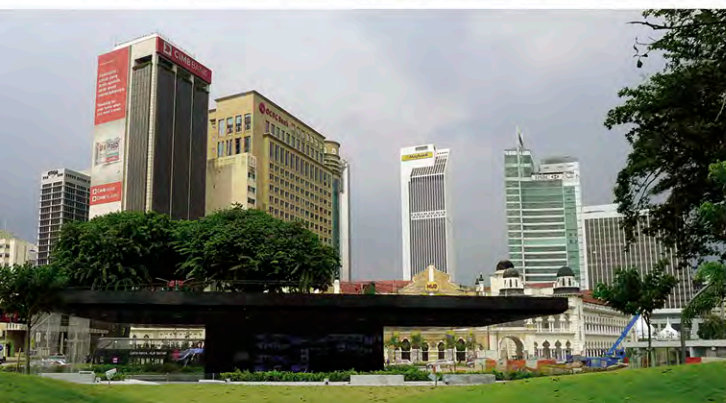
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FOREWORD

Kuala Lumpur, or KL, is Malaysia's capital city and is at the heart of the nation's development. To propel Malaysia into becoming a modern nation by 2020, KL must lead the way not just by accomplishing economic prosperity but also balancing growth with due consideration to society and the environment. Therein lies the crux of a sustainable city. This short account of KL's quest towards modern progress highlights the measures undertaken to address typical urban challenges as well as how to make the city livable and sustainable. We invite you to join us on this important journey.



BACKGROUND

The most commonly accepted definition of Sustainable Development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (Brundtland Commission, United Nations, March 20, 1987). In other words, the actions taken today will have an effect in the future. Whether for better or for worse, that is our choice.

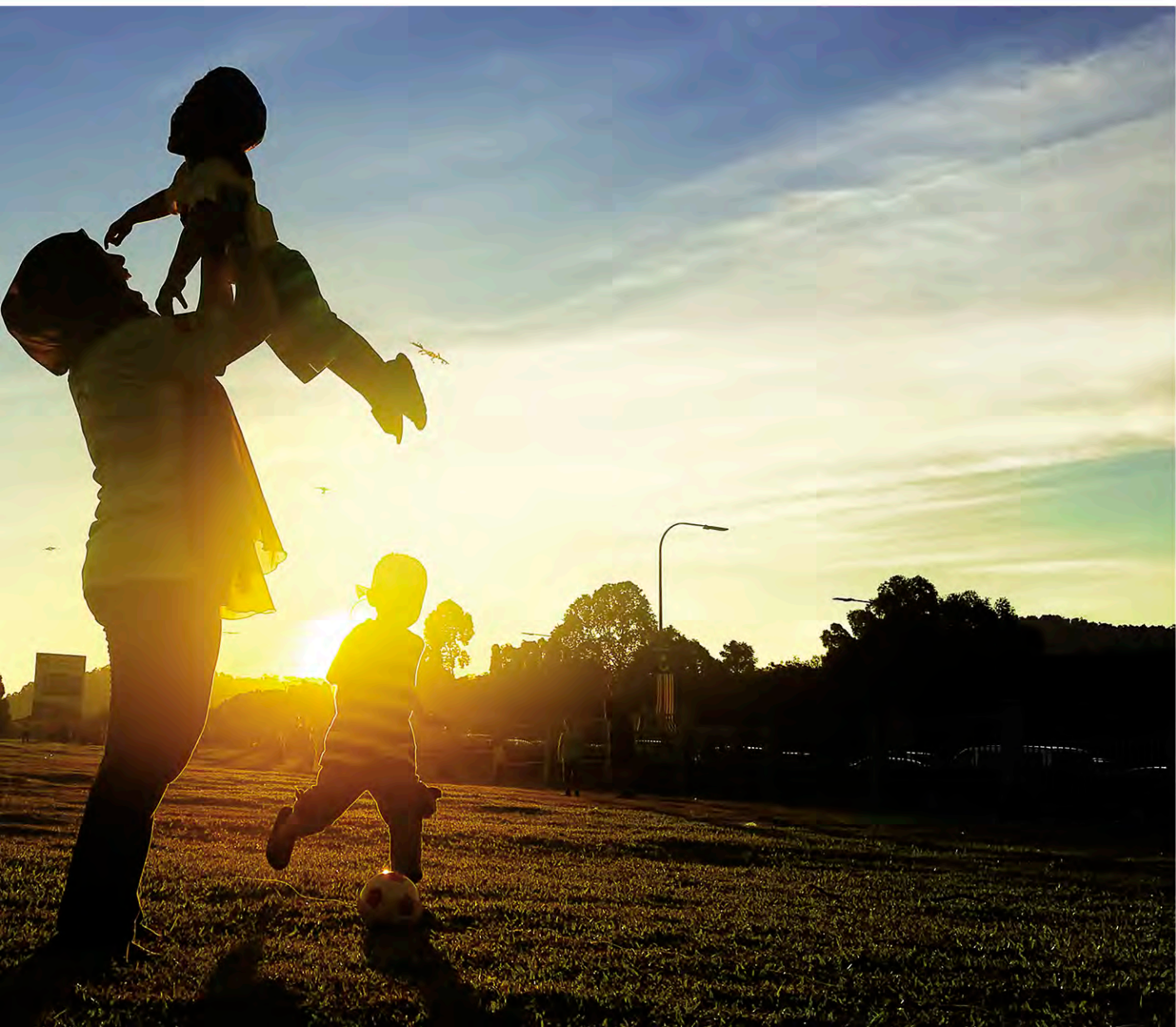
Most cities in the world started off as small communities that grew by attracting people to come and live in them. Today, roughly 58% of the world’s population lives in cities and this percentage is growing. The demands of these inhabitants mean that for cities to be sustainable, they must find ways of managing the so-called “triple-bottom line” – economy, society and environment. These are the precepts of sustainability.



ECONOMY

Cities thrive on vibrancy and bustle which are good indicators of job and investment opportunities. Cities also vie with one another to become successful economies, which places an imperative on competitiveness. Such activities however generate impacts on society and the environment. Sustainability interfaces with economics through the understanding and managing of the social and ecological consequences of economic development.

Economic sustainability therefore not only concerns the management of development actions taken today that may diminish the prospects of future persons to enjoy similar levels of consumption, wealth, or welfare enjoyed by present day persons, but also social and environmental well-being.



SOCIETY

At individuals move into cities they aspire to higher consumption patterns, prosperous lifestyles and a better quality of life. The developing world, in general, wishes to emulate the habits of the developed world, which is mainly in the West. The challenge of creating a more sustainable system worldwide is to be able to raise the quality of life to Western standards for those in the developing world without increasing impacts on the environment and avoiding a social division between the haves and the have-nots.

Thus, a key component in creating a sustainable environment is improving the “livability” factor for all residents at all income levels, all ages and all abilities so that everyone has access to education, healthcare and shelter and that opportunities are evenly distributed across society.

ENVIRONMENT

The third key component of the triple bottom line is environmental conservation and the health of the natural environment, particularly eco-systems and habitats supporting all life. Sustainable policies promote stewardship of the land and water to improve and sustain the quality of human life within the “carrying capacity” of the surrounding eco-systems.

The overall strategy is to balance the relationship between human activity and habitation in cities with the broader ecological systems. A sustainable urban environment must integrate, respect and manage development while being sensitive to environmental systems in order to reduce and eliminate environmental impacts -such as pollution of water, air and habitats.

MEASURING SUSTAINABILITY

Many sustainability strategies use a quantitative basis for the informed management of systems to meet the community's vision of a sustainable future. These "metrics" used for the measurement of sustainability (involving the environmental, social and economic factors) are evolving: they include indicators, benchmarks, audits, sustainability standards and certification systems (such as LEED, GBI and others), indexes and accounting, as well as assessment, appraisals and range of other reporting systems.

Indices for measuring sustainability are applied over a wide range of scales from individual building systems, to neighborhoods and districts, to city and regional areas, to large-scale environmental ecosystems. Some of the best-known and most widely used sustainability measures include corporate sustainability reporting,

Triple Bottom Line accounting, estimates of the quality of life, sustainability governance for individual countries, cities and settings using an Environmental Sustainability Index and Environmental Performance Index.

Measures of carbon footprint, greenhouse gas emissions, gross national product, vehicle miles/kilometers traveled, total amount and percent of open spaces and parks, population and visitor factors, and the amount of culture, arts and educational resources available in a city are but a few of the metrics used to measure sustainability levels.

In 2015, the United Nations established the Sustainable Development Goals (SDGs) with an aim to end poverty, to protect the planet and to ensure that all people enjoy peace and prosperity. In all, 17 Goals build on the successes of the Millennium Development Goals, while including additional areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities. The goals are interconnected so that success for one will involve tackling issues more commonly associated with another. The SDGs provide clear guidelines and targets to tackle the root causes of poverty and make a positive change for both people and planet. These goals, although at first impression do not seem readily applicable to cities, are in fact useful guidelines as to whether a city is on the right track towards a sustainable path.





Kuala Lumpur or KL is the capital city of Malaysia, a thriving nation and one of the most prosperous countries in Southeast Asia. Blessed with an abundance of natural resources, Malaysia has enjoyed steady economic growth and social stability. The country's vision is to be a modern developed nation by 2020, which means a high income population and a robust industrial and knowledge base.

Founded in 1887 at the confluence of two rivers, the Klang River and the Gombak River, KL's historic and economic importance originated from tin ore mining. In 1896, the city became the capital of the Federated Malay States and in 1957 following independence from British colonial rule, the city became recognized as the capital of Malaysia.

Since Malaysia's independence, KL has experienced many political and economic ups and downs common to most major cities. These include social issues, financial crises, falling oil prices, a declining currency and many others. The ability of the city to withstand these challenges and bounce back is a reflection of the resilience of the citizens and the Malaysian culture of becoming stronger post-crises.

Today KL is a modern city that attracts many multinational companies to set up regional hubs here, taking advantage of affordable premises and labour as well as a central location that allows convenient travel to many countries in Southeast Asia. The city has progressed from its past industries of tin and rubber into other resources like oil & gas while at the same time has become a thriving centre for knowledge-based industries. KL is part of the country's multimedia corridor, an initiative established in 1996 to encourage innovative producers and users of multimedia technology to set up bases in a designated economic zone stretching 750 square km from KL's international airport to the centre of the city.

Another unique characteristic of KL is the mix of ethnic races which co-habit peacefully. KL has a population comprising of Malay or Bumiputera, Chinese and Indians ethnic groups. The city's rich diversity is reflected in the siting of religious buildings side by side such as mosques, churches and temples. As a result of this blend, visitors come to KL to enjoy a multicultural experience in sightseeing and dining, in addition to the attractions of shopping and entertainment.

Malaysia's quest to become a modern developed nation is underpinned by the National Economic Transformation Programme. KL city and the adjoining area of the Klang Valley which makes up Greater KL together are one of 12 National Key Economic Areas of the programme to spearhead development and investment towards the year 2020. The city has a population of 1.79 million but counting the Greater KL and Klang Valley urban agglomeration the total population count is nearly 7.9 million, making this a metropolis-like setting. The government's plan is to attract overseas firms, nurture local talent, improve connectivity and revitalize the city. To date, through the efforts of Invest KL there has been a total foreign investment commitment of US\$2.09 billion and the creation of over 5,000 regional jobs in the city.

But development has come at a cost. The volume of traffic has grown with almost 5 million registered vehicles in the city or 93% of households owning at least one vehicle. Many of the water bodies in KL are heavily polluted from surface run-off and dumping of domestic and commercial waste. Housing has become unaffordable for many and the costs of living continue to increase. Urban sprawl caused by the movement of people to the suburbs has exacerbated the problems of commuting traffic as well as increasing inner city neglect. Furthermore walking and cycling are not easy in KL due to the overwhelming presence of roads and a lack of infrastructure to support non-motorised mobility.



Sustainability for KL
is about addressing
the problems of today
and planning for a
better future.



KUALA LUMPUR

MALAYSIA

Population

1.79 MILLION

Area

243 SQUARE KM

Governance

MAYOR/GOVERNMENT AGENCY

Population density

7,366 PERSONS/SQUARE KM

Sustainable Development Agency

**DEWAN BANDAR RAYA
KUALA LUMPUR**



SUSTAINABILITY INITIATIVES

Based on “Kuala Lumpur Structure Plan 2020” and “Developing Greater Kuala Lumpur/ Klang Valley as an Engine of Economic Growth - The Economic Transformation Programme”

Improving Public Transport Ridership:

Construction of a mass rapid transit system as part of an integrated public transport network to account for at least half of all trips commuting to and from, and within KL.

Greening the City: To increase greenery in the city by planting 100,000 large-coverage trees and to promote outdoor activities to spur greater and more diverse commercial activities within the city centre.

Creating Iconic Places and Attractions:

Leveraging existing attractions and landmarks to celebrate KL’s unique identity and heritage.

Attracting Talent: Building networks of top talent by creating networks for future leaders, expatriates and the Malaysian diaspora.

Establish a World Class Riverfront Area: The River of Life (RoL) project, aims to transform specific areas within KL facing the Klang River into a vibrant waterfront with high economic and commercial value.

CHALLENGES

Urban sprawl is one of the main challenges facing KL as people move out of the city centre into the surrounding suburban areas.

Congestion is causing losses in productivity traffic and increasing the carbon footprint of the city.

Solid waste treatment capacity is being stretched to cope with a growing population.

KL’s population is ageing. By 2030, 15% of the population will be over the age of 65 years.

GDP PER CAPITA

KL: US\$22,079 per capita (2015)
Malaysia: US\$9,502 per capita (2015)

ECONOMIC ANCHOR

Financial Services
Business

UNEMPLOYMENT RATE

3.4% (2017)

AVERAGE PER CAPITA INCOME

US\$10,500 (2014)

ANNUAL TOURISTS 11.63 MILLION (2014)

KL's visitor economy accounts for US\$4.42 billion (2013)

3 Convention Centres
2 Galleries
3 Historic Sites
7 Museums
4 Performing Centres
2 Science Centres
3 Zoos

EDUCATION

Literacy rate 95% with 123 primary/
secondary public schools and 46
universities or tertiary colleges

HEALTH CENTRES

6 public hospitals and 35 private hospitals
9.41 doctors to 10,000 people

MEDIAN HOUSEHOLD INCOME

US\$2,475 (2014)

TRANSPORT RIDERSHIP

Public transport: 21%
Private vehicles: 79%

AUTOMOBILE PER CAPITA

93% ownership per household

RECYCLING

Waste recycled: 49.3 kg /resident/year (2013)

WATER CONSUMPTION

288 liters/day/person

CARBON EMISSIONS PER CAPITA

1.2 tonnes (2010)

RENEWABLE ENERGY

1.7% of total national installed capacity (2016)

SMART GROWTH

Among the notable efforts in encouraging smart growth and urban greening has been the Green Building Index (GBI) Township rating tool that considers sustainability for entire communities, neighbourhoods, or districts, which are smaller than a city scale. KL has led the way in progressing toward green growth with 95 buildings or projects within the city achieving GBI certification of either Design Assessment or Completion and Verification Assessment, or 35% out of the national total of 265. Out of the 95, about 56% are residential buildings, while the remaining 44% are non-residential.

GREEN SPACE PER CAPITA

86 sq m



IN-DEPTH DESCRIPTION

Kuala Lumpur, Malaysia

SOUTHEAST ASIA'S ECONOMIC HUB

The programme to improve Greater KL under the national plan is a key initiative in delivering Malaysia's vision to drive continued economic growth across the country. The government has set a goal to transform KL into a world-class city by 2020. Specific projects are being implemented to improve KL's world city ranking, ranging from the newly initiated KL-Singapore High Speed Rail project to the city's upcoming revitalization of the commercial areas and urban living spaces. KL's city authorities have also embarked on a City Competitiveness Masterplan, some of which is to leverage on the city's growing workforce, world-class infrastructure and connectivity, competitive cost advantage and attractive tax incentives.

ECONOMIC INITIATIVES

As the economic and business centre of the country, KL is a centre for oil & gas and finance as well as a prime location for regular HQs offering business services. Bursa Malaysia or the Malaysia Stock Exchange is based in the city and forms one of its core economic activities. In 2015, market capitalisation stood at over US\$400 billion. The service sector - comprising finance, insurance, real estate, business services, wholesale and retail trade, restaurants and hotels, transport, storage and communication, utilities, personal services and government services - forms the largest component of employment providing jobs for over 80% of the total workforce. The remainder comes from manufacturing and construction.



KL's plans include:

- **Attracting overseas firms** – Invest KL has helped 64 world-class multinational companies establish their regional HQs in KL since 2011. To support these companies with a capable workforce, an ecosystem is being developed based on a local talent pool and getting skilled Malaysians living abroad to move back.
- **Boosting the tourism industry through iconic places and attractions** – city heritage trails are being enhanced by developing guided pedestrian trails through landmark sites as well as creating pedestrian walkways and an integrated cultural tourism park.
- **Connectivity via a High Speed Rail System** – by 2026, a high-speed rail system connecting KL to Singapore will be completed to enhance commerce and business between the two economic centres of Southeast Asia. The rail connection is also expected to benefit Malaysian cities along the track, providing opportunities for commerce, development and employment.

SUSTAINABILITY INITIATIVES

Eco-mobility

The construction of a mass rapid transit system within Greater KL/Klang Valley will reduce congestion and cater to the region's growing population, which is expected to reach 10 million by 2020. Line 1 of this system extends 51 km from Sungai Buloh in the north to Kajang in the south with the addition of 58 new trains to serve a ridership of 400,000 passengers per day. This will account for at least half of all trips commuting to and from, and within KL. Development is also expected to increase along the MRT lines, enabling the expansion of newer areas, higher pedestrian volume and increased amenities. Line 2 will connect Sungai Buloh, pass through Serdang and end in Putrajaya to serve a corridor of 2.2 million people by 2022.

A fully integrated, barrier-free and accessible pedestrian network is being constructed under the Safe City Concept, which emphasises the use of environmental design and placement of security devices to minimise potential criminal opportunities. So far almost 50 km of walkways have been installed.

Go Green KL Car-Free Morning is held every first and third Sunday of each month with cycling, jogging, walking and skating on major streets of KL's Golden Triangle to promote non-motorised mobility.

Revitalising the River

The River of Life project aims to transform specific areas within KL city facing the Klang River into a vibrant waterfront with high economic and commercial value. The project is divided into three parts:

- River Cleaning - A 110 km stretch of Klang River to be cleaned to raise the water standard to Class IIb recreational standards by 2020.
- River Beautification - The economic viability of the area to be improved, specifically a 10.7km tract along the Klang and Gombak river corridors, together with beautification plans around key landmarks.
- Land Development - Areas adjoining the river corridor will be developed under a master plan to spur economic investment.

In 2016, the water quality levels in the rivers met Class III levels on the way towards meeting the required standards. Part of the river beautification involves a programme to install interceptors, communal grease traps, flood retention ponds, log booms, river water treatment plants and sullage water treatment plants. Four interceptors were constructed in 2016 in the main city area to clean the water before it gets discharged into the river.

Greening the City

The city authorities have embarked on a programme to increase greenery in the city by planting 100,000 large-coverage trees by 2020. To instill civic pride, the private sector is encouraged to sponsor tree-planting and the setting up of local parks. GPS tagging is used on the trees planted to identify their location for future maintenance. To date 135,734 trees have been planted with a 65% increase in urban shading.

CHALLENGES

Low Carbon City

Malaysia has a global commitment to reduce 45% CO₂ emission intensity by 2030 (based on 2005 levels). KL aims to reduce 20% of CO₂ emissions of its activities through its Carbon Management Plan by the year 2022. The plan includes upgrading buildings, changing street lighting to LED and upgrading carbon-free cooling systems in its buildings. The KL Low Carbon Society Blueprint 2030 sets out how the city itself would further reduce its carbon emission by 70% by 2030.

Dealing with Solid Waste

KL is developing an efficient solid waste management system through:

- Encouraging greater implementation of the Reduce, Reuse, Recycle (3R) programme.
- Increasing waste treatment capacity to reduce reliance on landfills.
- Improving the governance of solid waste management and public cleaning services.
- Assessing the potential of new technological developments such as automatic waste collection and the use of deep bins.

In 2015, KL went onto a three-bin sorting system for households with additional collection services set up to collect recyclable materials like metals, paper and plastics.



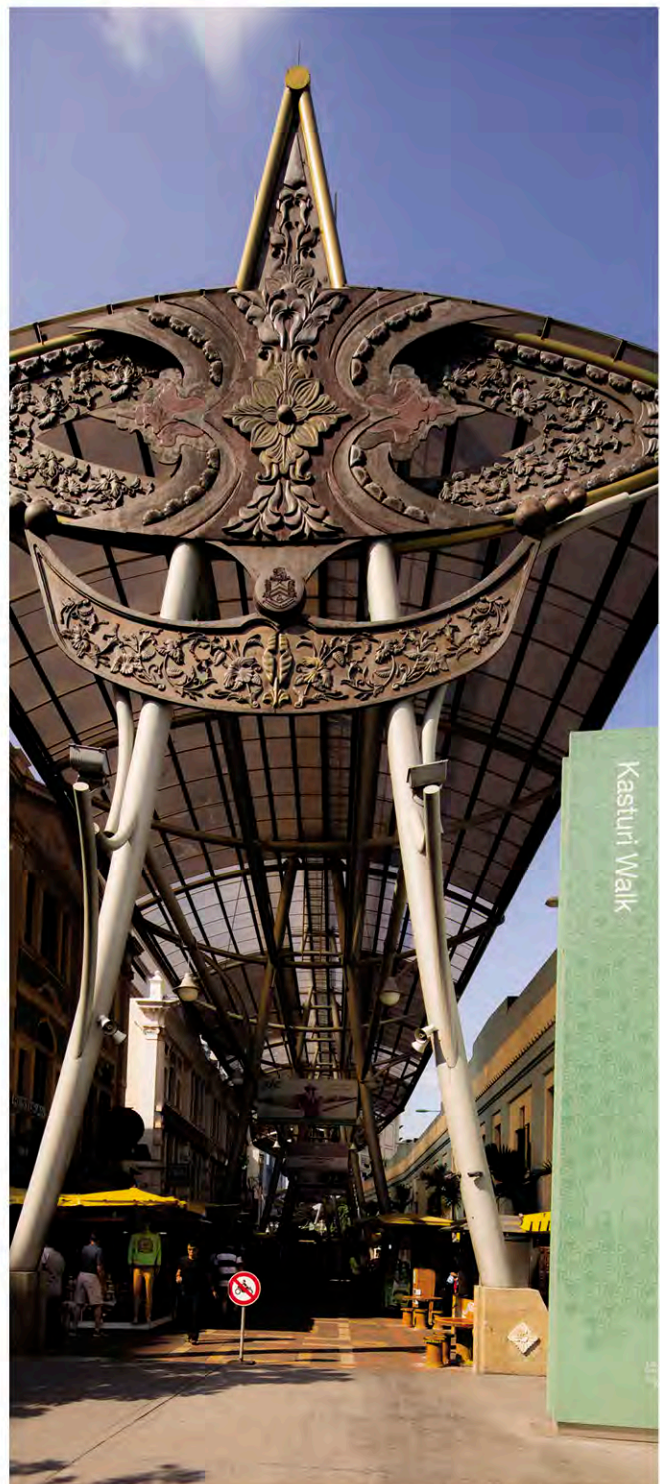
UNIQUE SUSTAINABILITY INITIATIVES

BUILDING ON INTELLECTUAL CAPITAL

To serve the growing presence of multinational companies in KL, the city has established its own pool of home-grown talent and human resources. Understanding employer needs is crucial. In 2016, over 1,200 government funded scholarships were provided to allow graduate scholars the opportunity to work for multinationals or established Malaysia companies. Returning nationals are also being encouraged. In 2016, almost 400 highly qualified professionals were identified to add to KL's talent pool.

The Greater KL region is part of the Multimedia Super Corridor program launched in 1996 to transform the country into a modern state by 2020, with the adoption of a knowledge-based society framework. The Multimedia Super Corridor zone covers an area of approximately 750 square km from the Petronas Twin Towers to the Kuala Lumpur International Airport, and includes the towns of Putrajaya and Cyberjaya. Multinational companies are attracted to set up business in the zone through tax breaks and access to facilities such as high-speed Internet access as well as proximity to the international airport. There are two ICT focused universities in KL, the Multimedia University and the University of Computer Science and Engineering.

Another area that KL is nurturing is its expertise in Islamic Finance. The International Centre for Education in Islamic Finance is located in the city and is also home to the Research Academy for Islamic Finance and the Islamic Banking and Finance Institute of Malaysia. The complementary functions of these three institutes are helping to drive the country's leadership in the field of Islamic finance.



RIVERFRONT/WATERFRONT RESTORATION & DEVELOPMENT

Kuala Lumpur's River of Life (RoL) project seeks to transform the Klang and Gombak rivers into vibrant waterfronts with full completion expected in 2020. There are three major components to the RoL project — river cleaning; river master planning and beautification; and river development. The RoL project aims to transform the Klang and Gombak rivers into vibrant and bustling waterfronts with a total area of 781 hectares and 63 hectares of water bodies. Of the total budget, about 75% has been allocated to clean up the river, and the rest for landscaping.

The RoL project was launched in 2012 and headed by the government in collaboration with the private sector. It is one of the government's high impact initiatives to bring Malaysia to developed country status by 2020. For the RoL project alone, it is estimated that by 2020 it will deliver affordable housing for more than 35,000 new residents, one million square m of commercial space and over 27,000 new employment opportunities. It will also raise the public transportation usage within the master plan area from 15% to 60% per cent and reduce traffic demand by 15% by 2020. The project is set to bring the community 'back' to the river through a total transformation into a vibrant waterfront with high economic and commercial value, rejuvenating the city's river and re-connecting it to the surrounding urban fabric.

Phase 1, which is the river beautification at Precinct 7, reached 85% completion in 2016. When the project is finished in 2019, it is hoped that RoL can be on par with other world-renowned river transformation projects like Cheongyecheon in Seoul.

ARTS CULTURE & TOURISM

Kuala Lumpur is one of Asia's most attractive city destinations for tourism due to its central regional location and convenient access by air. Many travellers come to KL to take advantage of the tropical climate, the multicultural experience and abundance of retail shops. The KL Tourism Board aims to strengthen the city's standing as a tourism hub through the development of culture, heritage & places of interest and offering nature & adventure activities in the city vicinity.

KL's 2025 goal of becoming a world-class cultural and heritage city will be accomplished through creating food tourism products to position KL as a culinary centre, developing heritage and cultural trails, revitalizing cultural enclaves, developing a vibrant cultural events and arts scene, improving the concept of museums and restoring and preserving heritage buildings and cultural practices. KL's rich history is unique for its racial diversity and the ability to blend these different cultures and traditions together within one city.

The presence of a number of parks and gardens together with natural attractions is another opportunity for KL to establish itself as a nature and eco-adventure destination. KL aims to develop its city parks as distinct offerings with signature events and rehabilitate city green spaces and nature habitats as well as building eco-adventure clusters and offerings. Of particular interest is the potential to link the landmark River of Life development project with water-based adventure sports, cycling paths and picnic areas.

In order to achieve this strategy, the KL Tourism Board has identified nine enablers namely, governance, standards, industry collaboration, human capital, travel agents and tour operators, infrastructure, transport and accessibility, connectivity and security. Three heritage trails through landmark sites like Dataran Merdeka, Medan Pasar and Central Market have been built since 2013 attracting over 31,000 visitors in that year.



KL'S ACHIEVEMENTS TOWARDS BECOMING SUSTAINABLE CITY

KL has become one of the most dynamic cities in the region. But in order for it to maintain economic stability it must adapt to its changing economic, demographic, and climactic conditions. The city's vision statement is taken from the National Transformation Plan i.e. to make the city region "into a world-class metropolis that will boast top standards in every area from business infrastructure to liveability".

Key sustainability issues that KL must address include:

- Urban environment;
- Social equity;
- Economic growth;
- Suburban sprawl; and
- Disaster preparedness.



URBAN ENVIRONMENT

KL's urban environment is facing stresses though the loss of natural ecosystems making way for development. Green belt areas have been assigned in the city vicinity but the number of buildings is increasing, encroaching on these areas. With the focus on cities and climate change, retaining these green areas is KL's natural advantage leveraging on the tropical climate.

The city's carrying capacity is also being stretched to accommodate a growing population. Even with movement to the suburbs, inner city population numbers are increasing, due to new migrants meaning that utilities such as water supplies, power, solid waste removal and sewage need to be maintained or added, even with the government's efforts to encourage more recycling and conservation of water and electricity.

KL has a high reliance on cars. Without proper street planning, the city will end up in gridlock. There is an added impact not just on carbon emissions from fuel used by the vehicles but also on air quality. Other cities have shifted towards mass public transit (for economies of scale in mobility), encouragement of non-motorized forms of transport (i.e. cycling) and planning for transit-oriented development.

Water quality is becoming an issue as well. Cities worldwide draw on water resources for sustenance. KL's water bodies are heavily polluted and pose a challenge for the water authorities to attain good water quality standards. The River of Life initiative is an example of the government's endeavours to protect urban water but despite the installation of treatment facilities, more should be done in the public arena to educate KL's citizens to stop dumping and littering.

SOCIAL EQUITY

KL's multicultural society has traditionally retained a sense of harmony fostered over generations of racial and religious acceptance. However, a few notable paradigm shifts such as urban migration, an ageing population and living costs are acting as fissures in the existing society.

- Urban migration has the widest impact. It has affected the family unit causing stresses in the social fabric of communities, as well as burdening cities with the added requirement of catering to a growing population of migrant workers.
- By 2030, one in every six KL citizens will be over 65. This suggests the need for healthcare and social welfare provisions for the ageing population. From an infrastructure perspective, the requirement for buildings and transit facilities should be designed with elderly users in mind.
- KL has traditionally been an affordable city with the costs of living within the means of the general population. However, a weakening currency has affected the affordability of goods and local housing costs have escalated affecting the lower income population. The disparity between the wealthy and the poor has grown significantly over the years.

ECONOMIC GROWTH

Economic transformation of KL is imperative to its sustainable development. Overseas companies favour KL for its prime location, modern facilities and vibrancy. They also look out for housing opportunities for bring in expatriate workers and provision of quality education and healthcare for their families. For the local population, there are opportunities to excel in education, work behaviour and innovation. There are many sectors where such opportunities exist such as the financial technology sector, green technologies, tourism and Islamic finance, where the city has comparative advantages to others.

SUBURBAN SPRAWL

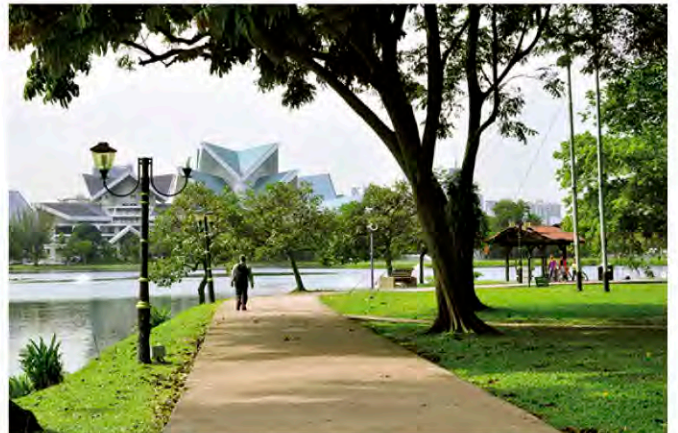
KL has experienced a significant growth in population which cannot be contained within its urban confines. This has resulted in the movement of people away from the urban core and to the suburbs and the lesser populated outlying towns. There are resulting stresses caused by this like traffic congestion along arterial roadways leading into the city during rush hours. Furthermore, successive townships or housing estates have been built with little consideration for connections between facilities. Efficient bus routing has been hindered so commuters have no choice but to use cars to travel along the main artery roads, even for short trips.

To address this issue, investment in public transportation networks has increased but better integration between different lines that form the networks is needed as is accessibility to stations. Better planning of the lines to serve major population centres, sufficient parking bays and improved integration with land use patterns to align rail lines with important activity centres are also key.

DISASTER PREPAREDNESS

Malaysia is fortunate in that the country does not experience major natural disasters such as earthquakes. However the main natural disaster likely to impact not just the nation but the entire globe is that of climate change. This will have catastrophic effects as violent and calamitous events like typhoons, severe rainstorms, and droughts will become common occurrences while sea levels will be raised in certain parts of the world. The inevitability of these changes is marked, as scientists have now gathered substantive evidence linking the burning of fossil fuels with rising CO2 levels, which indirectly are responsible for these changes in climatic patterns.

Ultimately cities like KL must be climate-proofed, which will entail designing buildings and other infrastructure to be climate resilient in the future particularly focusing on water security, higher temperatures and risk of climate-related vector borne diseases like malaria and dengue.



LESSONS LEARNT FROM OTHER CITIES

In 2012, AECOM conducted a desk top survey of existing city sustainability and environmental performance indices and programs to generate a list of global cities to compare sustainable initiatives. Sustainability indices and programs available on the internet, including sustainable cities programs, liveable cities programs, and indices of economic sustainability as well as measures of economic activity and growth and environmental impacts were reviewed.

The aim was to identify a list of cities with successful sustainability strategies. As existing rating systems use a range of different metrics for ranking a city, focusing on different aspects of sustainability such as environmental factors, community livability, economic drivers, transportation systems, etc., this makes direct comparison difficult so the study deliberately avoided attempting to collate and rationalize metrics, but instead to identify cities for review.

For cities to achieve economic viability there are two major criteria: resource availability and economic drivers. Resource availability impacts political stability and public security (water and energy are prerequisites for any settlement to be successfully established). In resource-rich cities, the economy is driven by strategic investment in key industries and supporting factors such as education, healthcare and available housing for the workforce. High standards of quality of life, through investment in environmental protection and provision of space for enjoyment and leisure as well as for commercial purpose, attract talented workforces.

But often these are not in balance as environmental quality (air, water, waste etc.) is compromised for economic development. Cities that have managed to strike such a balance can be counted as successful.

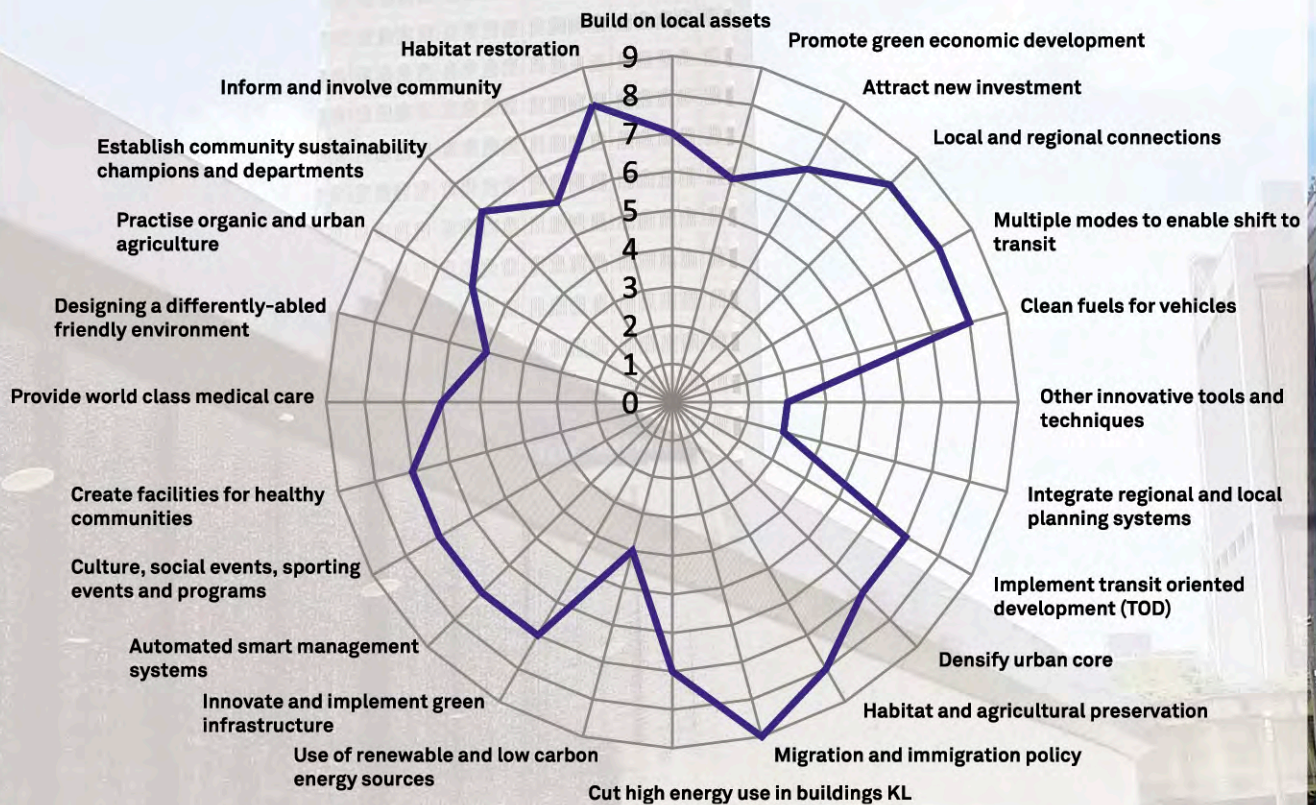
The following table summarises the lessons learnt for developing sustainable city models.

Theme	Lessons learnt	Implementation
Promoting sustainable economic development	1. Build on local assets	Set up focused towns within the city e.g. R&D towns, tourist towns, and university towns
	2. Promote green economic development	Establish green business programs and green home schemes
	3. Attract new investment	Ensure family-friendliness through high quality of life and subsidies for education
Shifting to sustainable transport	4. Local and regional connections	Develop flexible and accessible transit systems
	5. Multiple modes to enable shift to transit	Encourage pedestrianisation as well as alternative and non-motorised transport modes connected to transit hubs
	6. Clean fuels for vehicles	Shift to CNG/LPG/Biofuels
	7. Other innovative tools and techniques	Examples: smart road, congestion pricing, swipe cards, mobile phone applications and passenger systems, corporation shuttle programs, and car sharing

Theme	Lessons learnt	Implementation
Implementing smart growth planning	8. Integrate regional and local planning systems	Regional scale planning to coordinate land use planning and transportation improvements
	9. Implement transit oriented development (TOD)	Concentrate high intensity development within short walking distance to transport centres
	10. Densify urban core	Increase mixed use development at key locations in city along transit lines, major growth corridors and arterial streets
	11. Habitat and agricultural preservation	Preserve areas for natural habitats, open space, recreation and agricultural uses - coordinated with urban development policies
	12. Migration and immigration policy	Encourage diverse and multi-cultural city populated by dynamic workforce
Shifting to clean energy	13. Cut high energy use in buildings	Establish government building requirements for new buildings and retrofitting with incentives for energy efficient appliances supported by energy audits
	14. Use of renewable and low carbon energy sources	Examples: wind, solar, geothermal, tidal, bio-fuel, hydro-power and waste to energy
Creating sustainable infrastructure	15. Innovate and implement green infrastructure	Examples: water recycling, rainwater harvesting, waste segregation, waste pricing, composting, district heating
Employing smart technologies	16. Automated smart management systems	Examples: networks, sensors, electronics integrated with computerised control and communication systems and databases
Creating liveable	17. Culture, social events, sporting events and programs	Set up vibrant communities where people want to participate e.g. family friendly, green, open spaces, multi-cultural venues
Encouraging healthy communities	18. Create facilities for healthy communities	Set up sports fields, gyms, playgrounds, cycle paths, and walkways
	19. Provide world class medical care	Provide comprehensive medical facilities as well as childcare and elderly care programmes
	20. Designing a differently-abled friendly environment	Provide universal access for physically challenged, children and elderly
	21. Practise organic and urban agriculture	Examples: farmers' markets, home grown produce, community gardening and organic farms
Promoting leadership and public awareness	22. Establish community sustainability champions and departments	Promote strong leadership and political will; identify green champions
	23. Inform and involve community	Examples: public campaigns, advertising and corporate campaigns
Preserving environmental habitat and open spaces	24. Habitat restoration	Designate restricted areas for repopulating flora and fauna; set up genome banks

HOW DOES KL SCORE

A rating of KL against these parameters is presented below.



As can be seen, KL lacks in:

- Other innovative tools and techniques
- Integrate regional and local planning systems
- The use of renewable energy
- Providing world class medical care
- Designing a differently-abled friendly environment
- Keeping the community informed
- Promoting green economic development
- Urban agriculture

OVERVIEW

Kuala Lumpur is one of Southeast Asia's fast developing cities. The city is on a path towards becoming a modern world-class city by its stated target date of 2020. To get there though requires due consideration not just to economic factors but also to the social and environmental impacts on the city.

One of the key challenge to the city is suburban sprawl as people move out of the city centre into the surrounding suburban areas. Traffic congestion is causing losses in productivity and increasing the carbon footprint of the city. Inner city concerns furthermore include infrastructure maintenance and addition of new infrastructure. In addition, there are social stresses like affordable housing and ageing populations.

However KL is on a trajectory towards a more sustainable outlook as it invests in a mass transit network to encourage more people to use public transport. The city has undertaken greening initiatives and a substantial effort is being made towards improving the river waterfront and water quality.

KL is also becoming an attractive place for investment by multinational companies due to the effort being put in to nurture local workforce talent and create livable conditions for all.

