Green City Initiatives:
For a Sustainable City Development in Kuala Lumpur

City Planning
City Hall Kuala Lumpur
October 2016
Cities

- 2% of the earth’s total land area
- 70% of Carbon Dioxide
- 75% of total resource use
55% of Asians: 2.7 billion people will live in urban areas by 2022

Urban vs. Rural Population Growth in Asia: 1950-2030 (billions of persons)

Kuala Lumpur Population 2010
(Demographic composition)

<table>
<thead>
<tr>
<th>RACE</th>
<th>POPULATION</th>
<th>PERCENTAGES (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malay</td>
<td>679,236</td>
<td>40.56</td>
</tr>
<tr>
<td>Chinese</td>
<td>655,413</td>
<td>39.14</td>
</tr>
<tr>
<td>Indian</td>
<td>156,316</td>
<td>9.33</td>
</tr>
<tr>
<td>Others</td>
<td>9,539</td>
<td>0.57</td>
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<tr>
<td>Other Bumiputera</td>
<td>17,444</td>
<td>1.04</td>
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<tr>
<td>Non-nationality</td>
<td>156,632</td>
<td>9.35</td>
</tr>
<tr>
<td>Total Population</td>
<td>1,674,621</td>
<td>100.00</td>
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</tbody>
</table>
KL Population 1998-2020

- 1980: 919,610
- 1990: 1,262,000
- 2000: 1,423,900
- 2010: 1,674,621
- 2020: 2,200,000
Kuala Lumpur Structure Plan 2020

VISION
Kuala Lumpur to be a World Class City by 2020

World Class BUSINESS Environment
World Class WORKING Environment
World Class LIVING Environment
World Class GOVERNANCE

To enhance the role of Kuala Lumpur as an international commercial and financial centre
To create an efficient and equitable city structure
To enhance the city living environment
To create a distinctive city identity and image
To have an efficient and effective governance
Kuala Lumpur City Plan 2020

Development Thrusts
1. Dynamic World Class Business City
2. Connectivity & Accessibility
3. Sustainable Land Use
4. City Living Environment
5. Protecting & Enhancing the Environment
6. Enhancing Green Network & Blue Corridor
7. Distinctive Image & Identity
8. Green Infrastructure

Strategic Directions

Key Initiatives
24 → 73
Dynamic World Class Business City

<table>
<thead>
<tr>
<th>3 STRATEGIC DIRECTIONS</th>
<th>Strengthening Kuala Lumpur’s Role as a World Class City</th>
<th>Accommodating Economic Growth Spatially</th>
<th>Creating an Innovative City</th>
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<tbody>
<tr>
<td></td>
<td>2. Developing an attractive Retail Clusters</td>
<td>2. Providing Sufficient Commercial Floor Area</td>
<td>2. Encouraging ICT Clusters Through Development Of Cybercities and Cybercentres</td>
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<td></td>
<td>3. Promoting International Urban Tourism</td>
<td>3. Modernising and Integrating the Informal Sector</td>
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<td></td>
<td></td>
<td>4. Enhancing Industrial Areas</td>
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</table>
### Connectivity & Accessibility

<table>
<thead>
<tr>
<th>3 STRATEGIC DIRECTIONS</th>
<th>Building a More Sustainable, Integrated and Environmentally Friendly Transport Infrastructure</th>
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</thead>
<tbody>
<tr>
<td>15 KEY INITIATIVES</td>
<td></td>
</tr>
</tbody>
</table>

1. An integrated Transit Network
2. Extending Urban Rail Network With Regional Rail Network
3. Integrated Transportation Terminal and Park & Ride Facilities
4. Developing Taxi Transformation Plan
5. Establishing Functional Road Hierarchy
6. Giving Priority to Buses

<table>
<thead>
<tr>
<th>Moving Towards Travel Demand Strategies</th>
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</table>

1. Dispersing Peak-Period Traffic
2. Reducing SOV and Providing Incentives to Road Users
3. Restraining Traffic within City Centre
4. Managing Car Parking
5. Integrated Traffic Information System IT IS
6. Managing Heavy Vehicles

<table>
<thead>
<tr>
<th>Integrating Developments with Pedestrian Connectivity</th>
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</table>

1. Providing a Safe and Comfortable Walking Environment for All Groups of Pedestrian Network Users
2. Improving Pedestrian Connectivity and Accessibility at Key Locations
3. Developing Cycling Routes and Facilities
City Living Environment

Meeting the People’s Need for Housing
1. Planning for Growth and Ensuring Adequate Housing Land
2. Providing Affordable Houses for the Middle Income and younger population in Strategic Location
3. Improving Quality of Existing Public Housing and Providing New Public Housing
4. Providing Housing for Special Groups

Promoting City Living That Will Create a Vibrant and Safe City
1. Encouraging Mixed Use Development within the City Centre
2. Protecting Stable Residential Areas as Established Housing (EH) for the City
3. Retaining Traditional Village and Preserving Their Characters

Providing for Quality Living Spaces
1. Distributing Residential Intensities for Sufficient Housing Provision
2. Adopting Safe Community Guidelines
3. Promoting Sustainable Principles of Neighborhood Planning
4. Providing quality and Sufficient Community Facilities
## Protecting & Enhancing the Environment

### 4 Strategic Directions

<table>
<thead>
<tr>
<th>Protecting Environmentally Sensitive Areas</th>
<th>Enhancing River Value and River Water Quality</th>
<th>Ensuring Safety and Best Use of Contaminated Sites</th>
<th>Improving Urban Environmental Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Preserving Forest and Wildlife Reserves</td>
<td>1. Improving River Water Quality</td>
<td>1. Regulating Use of Former Landfill Sites</td>
<td>1. Managing Noise to Acceptable Level</td>
</tr>
<tr>
<td>2. Protecting Hill Land and Hillsides</td>
<td></td>
<td></td>
<td>2. Improving Air Quality</td>
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<tr>
<td>3. Preserving Lakes and Former Mining Ponds</td>
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</table>

### 7 Key Initiatives

- **Preserving Forest and Wildlife Reserves**
- **Protecting Hill Land and Hillsides**
- **Preserving Lakes and Former Mining Ponds**
- **Improving River Water Quality**
- **Regulating Use of Former Landfill Sites**
- **Managing Noise to Acceptable Level**
- **Improving Air Quality**
Enhancing Green Network & Blue Corridor

### Comprehensive Green Network for Greener Kuala Lumpur

1. Establishing Interconnected Green Network throughout Kuala Lumpur and Increasing the City’s Green Density
2. Protecting Public Open Spaces and Maintaining Recreational Facilities
3. Securing Land for City’s Green Areas
4. Providing Quality and Functional Recreational Facilities

### River Corridor as the City’s Waterfront Zone

1. Enforcing A Riverside Corridor Requirement in Development Applications
2. River as a Blue Connectors for the City
Distinctive Image & Identity

Enhancing and Strengthening City Character and Identity

1. Promoting Good Urban Design for New Developments and Redevelopments
2. Enhancing Character and Quality of Public Spaces
3. Creating Distinctive Urban Skyline between Centres
4. Encouraging Iconic Places and Landmarks Developments

A Vibrant City Centre

1. Reinforce Kuala Lumpur’s Structure Into a Coherent and Legible Pattern
2. Defining Kuala Lumpur’s Capital City Function
3. Improving Physical Environment as Impetus for Regeneration
4. Kampong Bharu Regeneration as a Comprehensive Development Area

Conserving Built and Cultural Heritage

1. Protecting Heritage Zones, Sites and Buildings
2. Managing and Monitoring Heritage Zones and Buildings
3. Conserving Significant Traditional Villages and Intangible Heritage Value

3 Strategic Directions

11 Key Initiatives
Green Infrastructure

3 STRATEGIC DIRECTIONS

Providing Infrastructure and Utilities to Support Growth of the City

1. Promoting A Coordinated Approach in the Provision of Infrastructure and Utility to Meet Future Requirements
2. Achieving Highest Reliability and Standard in Utility Provision

Mitigating Floods and Managing Stormwater

1. Implementing Kuala Lumpur’s Drainage Master Plan
2. Managing Urban Storm water in A Sustainable Manner

Addressing Climate Change by Encouraging Low Carbon Cities Initiatives

2. Promoting Rain Water Harvesting, Recycling and Water Savings
3. Reducing Waste
### Sustainable Land Use

#### Managing and Guiding Use of Land and Intensity of Development
1. Providing Clear Framework for Future Use of Land and Intensity of Development
2. Regulating Incompatible Land Use and Activities

#### Integrating Transport and Spatial Development
1. Directing New Transit Corridors and Interchange Points to Priority Areas
2. Designating Transit Planning Zones
3. Encouraging Mixed Use Developments

#### Redeveloping Previously Developed Sites and Regenerating Older Areas
1. Regenerating Older Areas
2. Redeveloping Previously Used and Under Utilised Land or Buildings
Smart Cities - Green Initiatives

- Low-Carbon Transport Systems
- Green Industrial Sector
- Green, Resilient Infrastructure
- Green, Resilient Buildings
- Greening of the City
- Energy-Efficient Buildings

Source: Asian Development Bank
The Case for Greening Cities

<table>
<thead>
<tr>
<th>Economic Benefits</th>
<th>Social Benefits</th>
<th>Environmental and Health Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Agglomeration economies i.e. provision of affordable housing near workplace/public transport</td>
<td>• Job creation and employment opportunities</td>
<td>• Reducing pollution and improving public health i.e. non fuel vehicle</td>
</tr>
<tr>
<td>• Lower infrastructure and operating cost – go for public transport, cycling and walking</td>
<td>• Poverty reduction and social equity</td>
<td>• Ecosystem services and risk reduction i.e. Open spaces, parks, vegetation and landscapes help reduce risk exposure to flooding and landslide</td>
</tr>
<tr>
<td>• Reduced congestion cost – fuel and parking fee</td>
<td>• Improvement in quality of life - provision of public parks and tree planting programs</td>
<td>• Implementation of GBI lower energy consumption for buildings</td>
</tr>
<tr>
<td></td>
<td>• Reduced crime rates and improved public safety thru CPTED concept in urban design</td>
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</tr>
</tbody>
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Greening Urban Sectors: KL Initiatives

Transport
- Rail System
- Bicycle lane
- Bus system
- Pedestrian Network

Buildings
- Green Building Index (GBI)
- Energy-efficient Buildings
- Euro 5 NGV for Public Transport

Energy
- Open spaces
- Tree planting
- Vertical green
- Community garden
- Preserving Forest

Environment
- River of Life
- Rain water harvesting

Water
- (Integrated Transport Information System) ITIS

Waste
- Reduce, Reuse, Recycle (3R) program

Infrastructure and Digital Technology
- Reduce, Reuse, Recycle (3R) program
KL Initiatives: Transport

**Rail System**

Mass Rapid Transit (MRT)
- MRT1 – Sg. Buloh-Kajang Line (51 km) – Phase One will become operational by the end of 2016
- MRT2 – Sg. Buloh-Serdang-Putrajaya Line (59.5 km)
- MRT3 – Circle Line

**Light Rapid Transit (LRT)**
- LRT1 – Ampang Line (27 km) – 18.1 km to Putra Heights is under construction
- LRT2 – Kelana Jaya Line (29 km) – 17.4 km to Putra Heights is under construction
- Ridership – 190,000 people per day

**KL Monorail Line**
- 8.6 km
- Ridership – 75,000 people per day
KL Initiatives: Transport

Rail System
Express Rail Link (ERL)
- KLIA Express (57 km) - non-stop airport rail link service
- KLIA Transit (57 km) - commuter rail service
- Ridership 6,200 per day

KTM Komuter
- Port Klang Line (45 km)
- Seremban Line (105 km)
- Ridership 51,200 per day

Tramline in KL City Centre
- Proposed in Urban Design Guideline, KL City Centre
- Total length of 18.5 km
**Bus System**

**Rapid Bus**
- Currently, there are 165 routes which integrates with Klang Valley's Rail Systems
- Providing services to more than 1,000 residential areas in Klang Valley and Selangor, RapidKL operates more than 800 buses daily with a ridership of more than 300,000 passengers per day.

**Go KL City Bus**
- The Go KL City Bus service was introduced in 2012 to improve public transport within city centre
- Go KL is a free bus service which is designed to function as a feeder bus service providing last-mile connectivity integrating other modes of public transport.
- There are four lines:
  - Green Line  : KLCC – Bukit Bintang (14 stops / 45 mins)
  - Purple Line : Pasar Seni – Bukit Bintang (15 stops / 60 mins)
  - Blue Line   : Medan Mara – Bukit Bintang (17 stops / 45 mins)
  - Red Line    : KL Sentral – Jalan Tuanku Abdul Rahman (19 stops / 60 mins)

**Proposed Bus Rapid Transit (BRT)**
- From Pasar Seni to Klang
- Total length of 32 km
KL Initiatives: Transport

**Bicycle Lane**
- 5.5 km dedicated bicycle lane from Dataran Merdeka to Mid Valley
- Proposed dedicated bicycle lanes in city centre:
  - LRT Station Taman Melati to LRT Station Wangsa Maju (2.1 km)
  - Kg. Batu Muda – Taman Metropolitan Batu (2.0 km)

**Pedestrian Network**
- Comprehensive pedestrian network with anti climb fence with landscaping, barrier free and handicapped-friendly
- Completed pedestrian network by year:
  - **2011 (12.60 km)** – Jalan Raja Laut, Jalan P. Ramlee, Jalan Tuanku Abdul Rahman, Jalan Sultan Ismail
  - **2012 (13.37 km)** – Jalan Raja Laut – Jalan Ipoh, Jalan Ampang – Jalan Sultan Ismail, Jalan Bukit Bintang, Jalan Raja Chulan, Jalan Tung Shin, Jalan Pudu
  - **2013 (12.80 km)** – Part of Jalan Ipoh, Jalan Pahang, Jalan Tun Razak, Jalan Raja Muda Abdul Aziz, Jalan Dr. Latiff, Jalan Binjai, Persiarian KLCC, Jalan Kia Peng, Jalan Tun Razak, Persiarian Stonor, Jalan Dang Wangi, Jalan Conlay, Jalan Khoo Teik Ee, Jalan Melati, Jalan Horley, Jalan Pahang Barat
  - **2014 (12.70 km)** – Jalan Sultan Ismail, Changkat Raja Chulan, Changkat Bukit Bintang, Jalan Hang Jebat, Jalan Imbi, Jalan San Peng
KL Initiatives: Buildings

Green Building Index (GBI)

• Designed to save energy and resources, recycle materials and minimise the emission of toxic substances throughout its life cycle.
• As of April 2015, the numbers of GBI Certified Buildings in Kuala Lumpur is 105 which include residential and non-residential buildings.

Source: greenbuildingindex.org
KL Initiatives: Energy

**Energy-efficient Buildings**
- Greenhouse gas emissions from buildings could be reduced by integrating affordable designs to maximise energy efficiency and minimise waste.
- Energy-efficient building is one of the criteria needed to be a Certified GBI Building.
- Currently, there are 105 Certified GBI Buildings in Kuala Lumpur.

**Euro 5 NGV for Public Transport**
- Use of cleaner Euro 5 NGV for Go KL City Buses reduce the greenhouse gas emissions.
KL Initiatives: Environment

Open Spaces
- An integrated park system will be created to include parks of all sizes, landscaped boulevards and paths and public open spaces, where different open spaces in the city are connected through green trails.
- DBKL through initiative in Urban Design Guidelines will create Green Pedestrian Walkways connecting Perdana Botanical Garden with Merdeka Square, Petaling Street, Bukit Bintang and KLCC.
- As of December 2014, there are 2266.65 hectares of public open spaces in Kuala Lumpur with 997.09 hectares have been gazetted.

Tree Planting Programme
- DBKL aims to plant 30,000 trees around Kuala Lumpur per year, or 100,000 trees by 2020, to achieve the goal of Greener KL to provide 14m² per person for Kuala Lumpur citizens.
- In 2014, DBKL has planted 39,636 trees. Between 2011 and 2014, 135,734 trees have been planted which is well exceeded the target for 2020.

Vertical Green
- DBKL aims to employ creative landscaping methods including dense rooftop greening and vertical landscaping. DBKL will extend its current tree planting initiatives from 30,000 trees to 100,000 trees.
- Through rooftop greening, 150,000 square meters of unused rooftops in KL city can be leveraged to increase green space that can generate up to 20 percent of additional green space.
KL Initiatives: Environment

Community Garden
• DBKL through Local Agenda 21 has been promoting and implementing community garden in Kuala Lumpur involving Residents Associations as well as private sectors.
• Currently, there are 2 Community Gardens that have been implemented in KL which is Taman Herba LA21 KL Sg. Midah and PPR Air Panas

Preserving Forest
• Hutan Simpan Bukit Nanas (10.5 hectares) – Gazetted as Wildlife and Bird Sanctuary in 1934
• Hutan Simpan Bukit Sungai Puteh – Gazetted as Wildlife Reserve in 1932
• Hutan Simpan Bukit Sungai Besi (42.29 hectares)
• Hutan Simpan Bukit Lagong Tambahan (2.10 hectares)
KL Initiatives: Water

**River of Life**
- Master planning and beautification works that will be carried out along a 10.7km stretch along the Klang and Gombak river corridor
- River cleaning project aims to clean and improve the 110km stretch along the Klang River basin from current Class III-V to Class IIB by 2020
- Cleaning and beautification works will spur economic investments into the areas immediately surrounding the river corridor

**Rainwater Harvesting**
- Rain water is harvested to help conserve water in the building and to reduce the use of treated water from the utility that can be applied to the cooling system condenser as well as being used to water the landscape and for general cleaning purposes.
KL Initiatives: Waste

Reduce, Reuse, Recycle (3R) Program

• Greater KL/KV will face major solid waste management (SWM) problems given current practices as solid waste generation per day in Greater KL/KV is expected to grow from 10kton to 17kton by 2020. Current limited sanitised landfills capacity, low recycling rates of 11%, lack of proper system for disposal of construction and demolition waste (C&D) need to be addressed

• Greater KL/KV EPP recommends the enhancement of the Reduce, Reuse, Recycle (3R) implementation by creating a recycling ecosystem to stimulate waste disposal reduction and to target a recycling rate of 40% by 2020 from current target of 22%.

• In 2014, out of 629.98 kilotons solid waste that been collected by Alam Flora, only 0.1 kiloton were recycled.
Integrated Transport Information System (ITIS)

- A comprehensive traffic information system developed to monitor traffic flow and analyse the data on road conditions in the Klang Valley to provide useful traffic information to road users.

- A total of 1,200 CCTV’s being used to better manage traffic as well as for crime prevention.

- ITIS covers 45 main road corridors within the Klang Valley that includes the Inner Ring Road (Jalan Raja Chulan), the Middle Ring Road 1 (Jalan Tun Razak), the Middle Ring Road 2, and major radials such as Federal Highway Route 2, Jalan Ampang, Jalan Sentul, KL-Seremban expressway etc. In total, there will be over 200 kms of roads which will be monitored.
Slope Hazard And Risk Map Kuala Lumpur (KLSIS)
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Thank You