

# Low Carbon Cities: Malaysia's Experience



**MALAYSIAN  
GREEN TECHNOLOGY AND  
CLIMATE CHANGE CENTRE**

**High Level Seminar on Sustainable Cities**

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[www.mgtc.my](http://www.mgtc.my)

# Outline

1. Malaysian Green Technology and Climate Change Centre
2. Low Carbon Cities
3. 5 Key Low Carbon Elements
4. Approach #1 – Energy Efficiency & Renewable Energy
5. Approach #2 – Water Efficiency & Rainwater Harvesting
6. Approach #3 – Waste As A Resource
7. Approach #4 – Low Carbon & Active Mobility
8. Approach #5 – Urban Greenery & Biodiversity
9. Way Forward

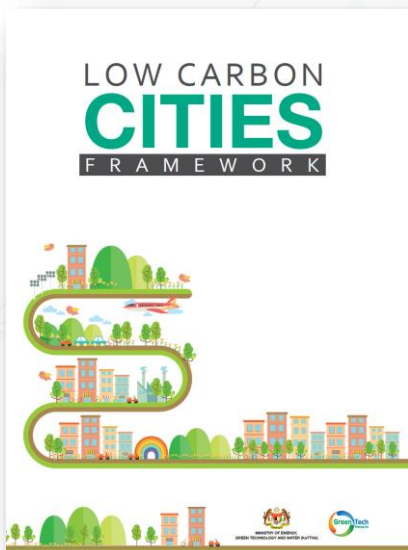
# MALAYSIAN GREEN TECHNOLOGY AND CLIMATE CHANGE CENTRE

The Lead Implementing Agency under the purview of the Ministry of Environment & Water (KASA) to drive the Nation on:

1. **Green Growth**
2. **Climate Change Mitigation**
3. **Climate Resilience & Adaptation**



# LOW CARBON CITIES



## LOW CARBON CITIES FRAMEWORK (LCCF)

V1: 2011 V2: 2017

- Measure GHG Emissions of Cities
- Guide for Local Authorities to transform their cities into low carbon cities
- Capacity building for Local Authority Officers



Launched: 23<sup>rd</sup> July 2019

**200 Low Carbon Zones and 1,000 Low Carbon Partners by 2030**

Local Authorities: 22

Low Carbon Zones / Partners: 10 / 9

Cities that are **CLEANER, COOLER, HEALTHIER & ECONOMICAL** for the residents

Cities that preserve and bring back the **NATURAL URBAN BIODIVERSITY**

Attract **FOREIGN DIRECT INVESTMENT & DOMESTIC DIRECT INVESTMENT** – MNCs and Public Listed Companies

**PLATFORM FOR GOVERNMENT INITIATIVES** – Zero Single Use Plastic, ChargeEV, Net Energy Metering, River Trails, etc.

**CATALYST FOR LOCAL ECONOMIC GROWTH** – Green Jobs, Green Economy, Local SMEs

## 5 KEY LOW CARBON ELEMENTS



Maximize building energy efficiency and increasing adoption of renewable energy



Maximize water efficiency and increase adoption of rainwater harvesting



Reduce the amount of waste that goes to the landfills



Increasing the use of public transport (bus), cycling, walking and other low carbon modes



Maintain or increase the number of trees and green spaces in the city



# ENERGY EFFICIENCY & RENEWABLE ENERGY

5 - 45% Reduction in Consumption



## Passive Design

North-South building orientation and carefully designed building envelope (roof, walls, windows and floors) to minimize unwanted heat gain.



## Energy Efficient Systems & Fixtures

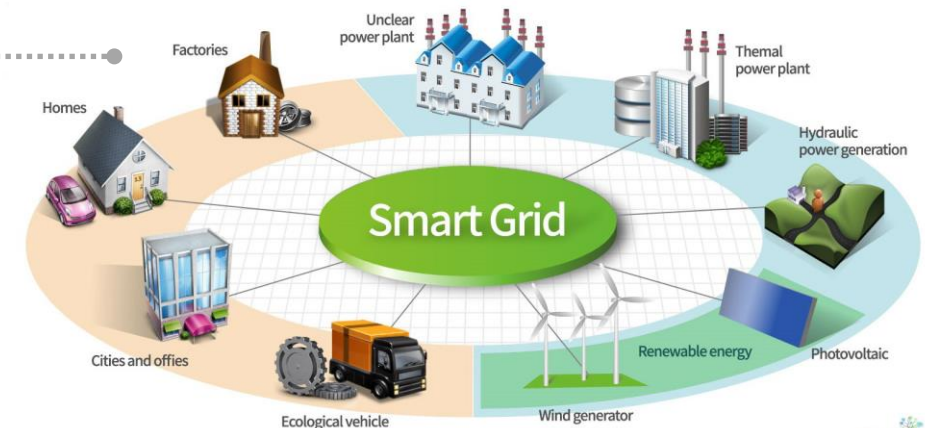
Energy efficient ACMV and lighting such as LED paired with sensors and can optimise energy use.



## Solar PV

Rooftop solar, self consumption

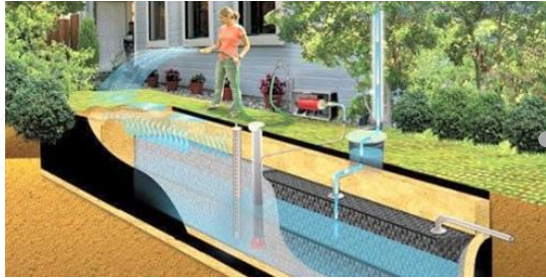
**Smart Grid**  
Manage demand, protect the distribution network, save energy and reduce costs





# WATER EFFICIENCY & RAINWATER HARVESTING

10 - 60% Reduction in Consumption



## Rainwater Harvesting - Home

Reduce consumption of treated water for outdoor and non-human use.



## Greywater Recycling for Industrial Use



## Rainwater Harvesting - City

Using existing infrastructure to capture rainwater that can be used by the city for outdoor cleaning or landscape watering.



## Water Efficient Fittings for Households & Industry





# WASTE AS A RESOURCE

80 - 90% Waste Diverted from Landfill



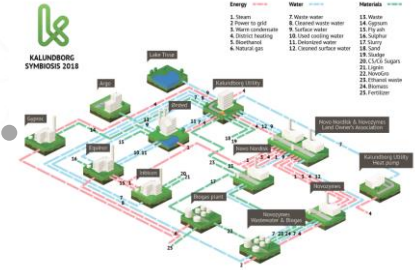
## 3R

Products that reduce waste generation in the first place and if the product has served its primary purpose, it can be reused for another purpose and if it really needs to be thrown, it can be recycled.



## Food Waste for Compost or Biogas

Targeted food waste from specific industry such as F&B or Food Processing industry that can be turned into compost or generate biogas for energy.© Malaysian Green Technology And Climate Change Centre. All Rights Reserved



## Industrial Symbiosis



## Micro Waste to Energy

Local solutions for cities or industries



## Material Recovery Facility

These MRF Centres can recover valuable resources that can be used as a raw material for industry.





# LOW CARBON & ACTIVE MOBILITY

30 - 50% Reduced Air Pollution



## EV Bus & Fleet

Electric busses providing first mile and last mile connectivity within the city.



## Integrated Transport Corridor + SMART Tunnel

Dedicated public transport and active mobility lanes on the surface and underground expressways that can be used for flood mitigation.



## Rail Freight Network

Alternative mode of shipping for goods that is more energy efficient than trucks



# URBAN GREENERY & BIODIVERSITY

40 - 50 % Green Space In The City



## Green Roof

Planting of trees and rooftop gardens on top of buildings.



## Urban Farming

Creating hyper local farms that can directly serves its immediate community.



## Urban Forest

Planting of trees with extensive tree cover in and around the city. Tree cover can also help reduce the urban heat island effect in the city.



## Pocket Parks

Pocket parks can be developed within the city on abandoned land or pieces that are too small for development.



# WHERE WE ARE NOW & WAY FORWARD

**10<sub>DR</sub> + 7<sub>PC</sub>**

*Low Carbon Zones*

**9<sub>DR</sub> + 4<sub>PC</sub>**

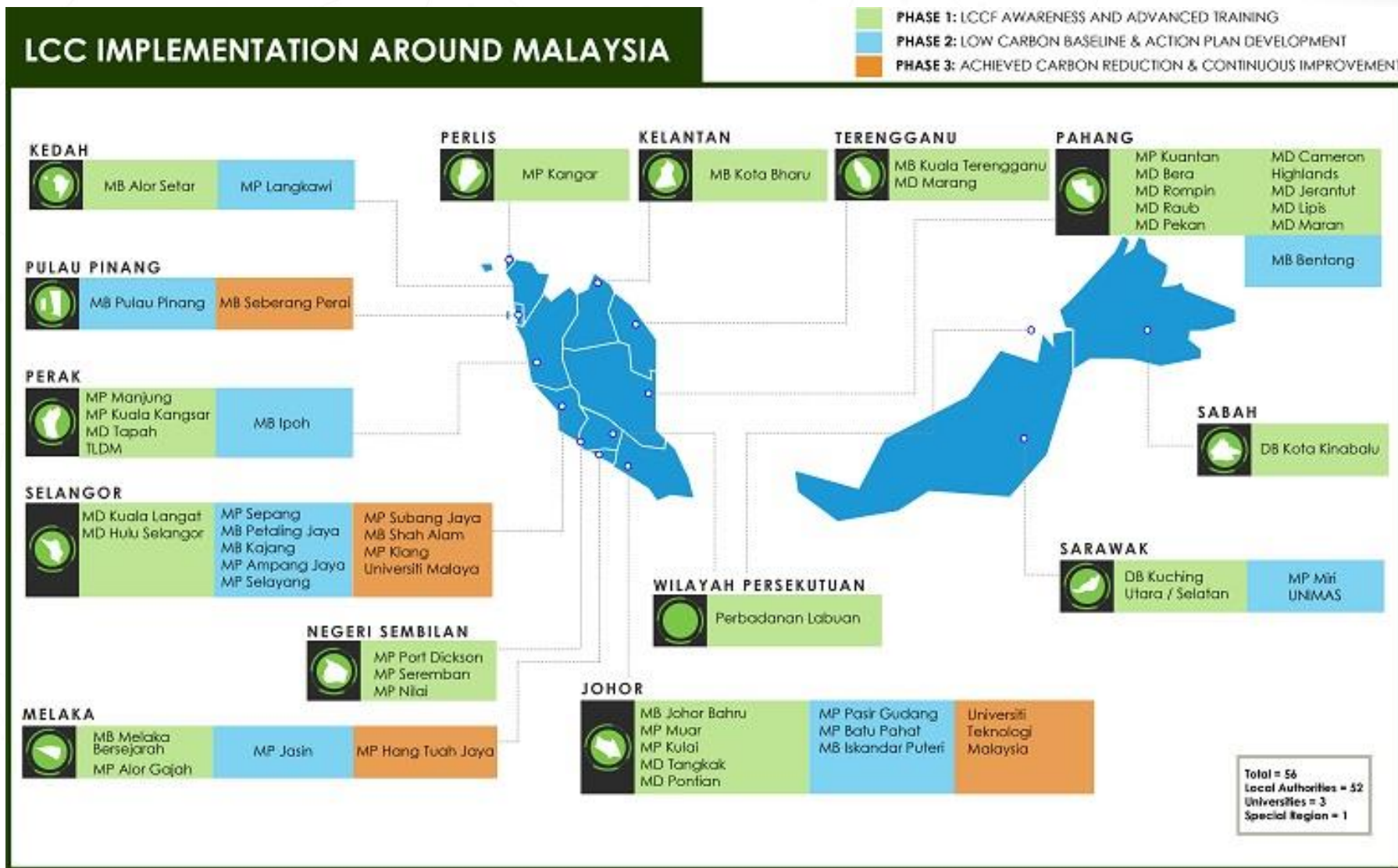
*Low Carbon Partners*

**22<sub>PBTs</sub> + 5<sub>UNIs</sub>**

*PBTs & Universities*

**61,841.71**

*Emissions Reduction (tCO<sub>2</sub>)*





# Thank You

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