



MALAYSIAN
INSTITUTE
OF PLANNERS



INTRODUCTION TO

LOW

CARBON

CITIES

PLANNING

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Vice President Malaysian Institute of Planners

22nd Sept 2020

LOW CARBON CITIES PLANNING



Prepared by:



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Low Carbon Cities

There is no universally applicable definition of a low-carbon city.

DEFINITION OF LOW CARBON CITIES

Cities and towns that pursue a **SYSTEMATIC PROCESS** to achieve ambitious GHG emission reductions

- NLCCM (draft)
MESTECC, 2019

LOW-EMISSION DEVELOPMENT STRATEGIES (LEDS) are generally used to describe forward-looking national economic development plans or strategies that encompass low-emission.

- WORLD BANK,
2014

a community “that **PURSUES A SYSTEMATIC PROCESS** to achieve GHG emission reductions”.

- Word Wildlife Fund

It pursues a step-by-step approach towards **carbon neutrality, urban resilience and energy security, supporting an active green economy and stable green infrastructure.**

- ICLEI and C40 Cities

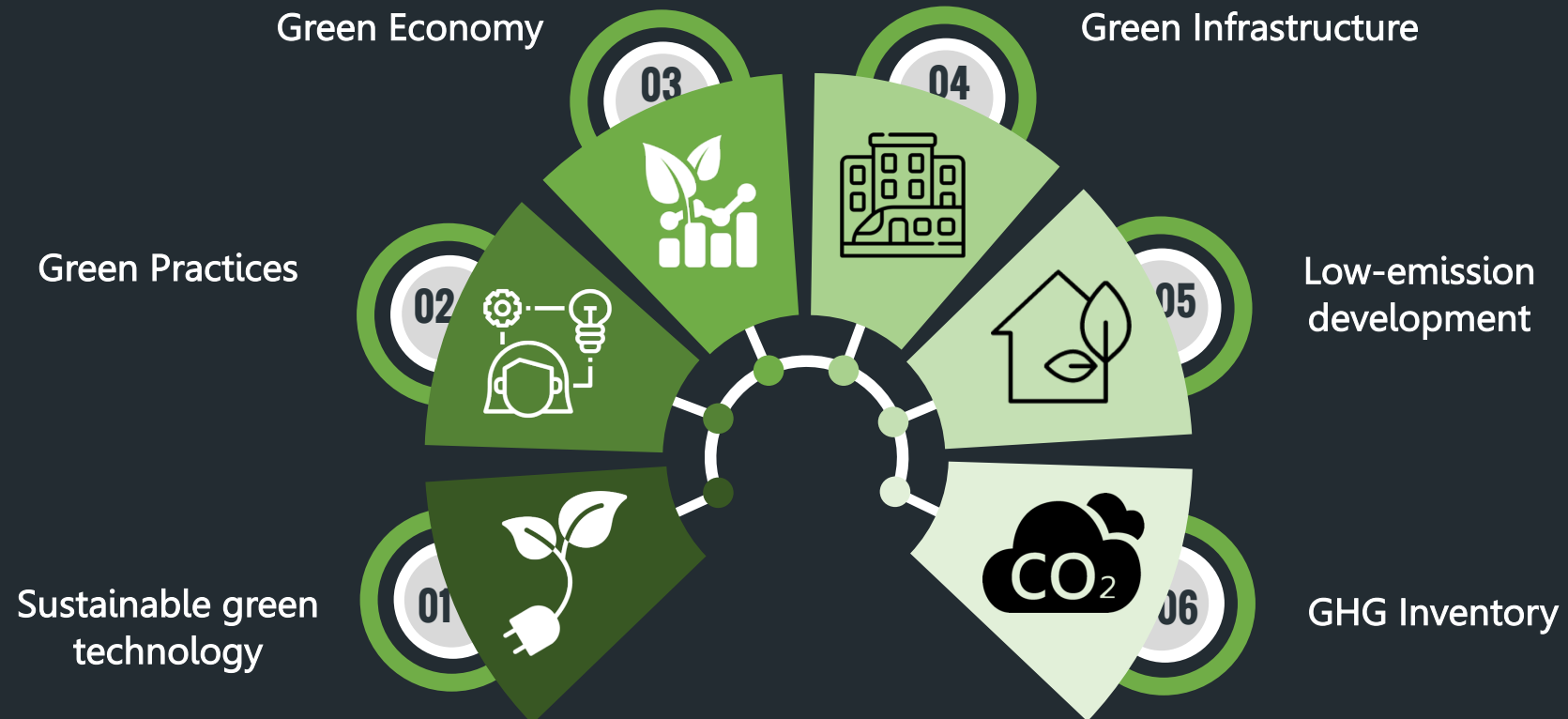
A city’s ability to take effective action on **MITIGATING CLIMATE CHANGE, AND MONITOR PROGRESS**, depends on having access to **GOOD QUALITY DATA** on GHG emissions.

- ICLEI and C40 Cities

a city that comprises of **SOCIETIES THAT CONSUME SUSTAINABLE GREEN TECHNOLOGY, GREEN PRACTICES AND EMIT RELATIVELY LOW CARBON** or GHG as compared with present day.

- PLANMalaysia,
2010

FEATURES OF LOW CARBON CITIES



Source: NLCCM (draft) MESTECC, 2019; WORLD BANK, 2014; Word Wildlife Fund; ICLEI and C40 Cities; PLANMalaysia, 2010

TYPES OF GREEN HOUSE GASEOUS

Carbon Dioxide

CO₂

53%

Carbon Dioxide (CO₂) are gases released through natural processes such as respiration and volcano eruptions and through human activities such as deforestation, land use changes, and burning fossil fuels

- NASA

Methane

CH₄

15%

Nitrous Oxide

N₂O

Hydro Fluorocarbons

HFCs

Chlorofluorocarbons

CFCs

Water Vapor

H₂O

HFCs (various)

SF₆

CALCULATION OF CARBON EMISSION



ABSOLUTE BASED CALCULATION

Refer to the total quantity of greenhouse gas emissions being emitted.

Calculation based on scale and sector.



50,901.32 tonne CO₂



INTENSITY BASED CALCULATION

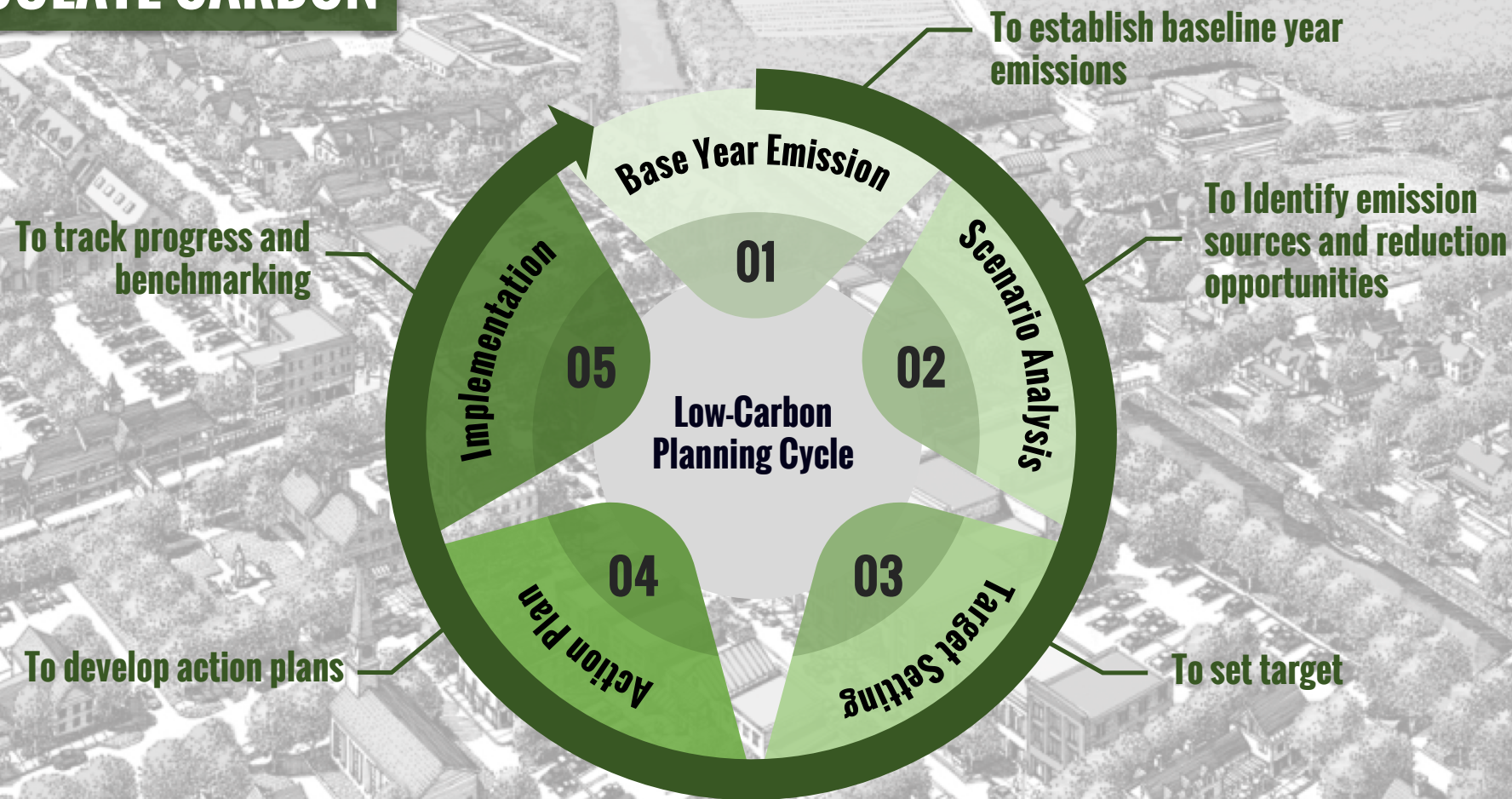
Refer to the volume of emissions per unit of GDP (economic output).



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21-CMP11

Reduction of carbon emission intensity to 45% per GDP by 2030, as compared to 2005 levels.

WHY CALCULATE CARBON



WHY LOW CARBON CITY PLANNING

CITIES CONSUME
75% OF THE
WORLD NATURAL RESOURCES
and account for
80% OF GLOBAL
GREENHOUSE GAS EMISSIONS

- UNITED NATION -

THE MAIN SOURCES OF THE EMISSIONS



Energy (Electricity Consumption),



Mobility (Vehicles)

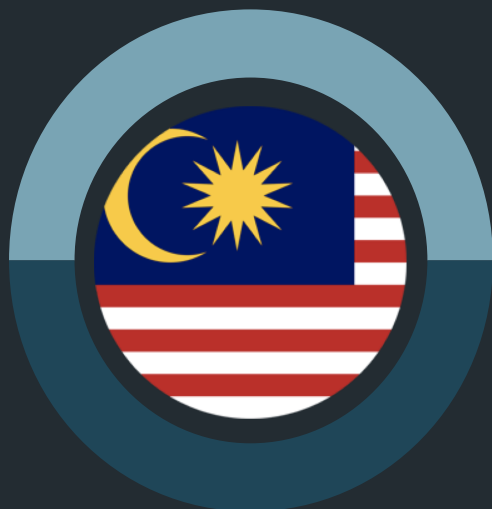


Waste (Municipal Solid Waste That
Ends Up In Landfills)

Source: BP Statistical Review of World Energy 2019

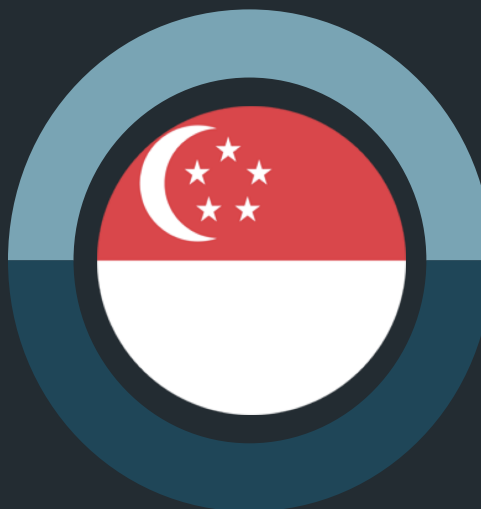
EMISSION LEVEL

Malaysia



8.13 mt/capita (2014)
Ranked 33rd emitter in the
world rank (2016)

Singapore



10.31 mt/capita (2014)
Ranked 20th contributor in
the world rank (2016)

Indonesia



1.82 mt/capita (2014)
Ranked 113th emitter in the
world rank (2016)

Source: Carbon Dioxide Information Analysis Center, Environmental Sciences Division, Oak Ridge National Laboratory, Tennessee, United States.



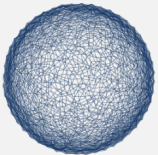
Commitment

Malaysia, State and Local Commitments

MALAYSIA COMMITMENT EMISSION OF INTENSITY CARBON



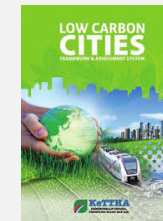
2009



COP15 COPENHAGEN
UN CLIMATE CHANGE CONFERENCE 2009

COP 15, Copenhagen –
mengurangkan **40%** pembebasan
karbon dalam KDNK pada 2020
berasaskan nilai pembebasan karbon
dalam KDNK pada 2005.

2011



KERANGKA BANDAR
RENDAH KARBON (LCCF)
DI LANCARKAN

2015



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21-CMP11

COP 21, Paris – Pengurangan
karbon **45%** menjelang 2030




2014

MALAYSIA umum pengurangan
33% pembebasan karbon,
United Nation Climate
Summit, NEW YORK 2014



2016

Senarai Semak
LCCF DI
Perkenalkan

2017



COP23 | FIJI
UN CLIMATE CHANGE CONFERENCE
BONN 2017-18

2019

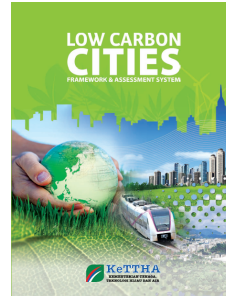
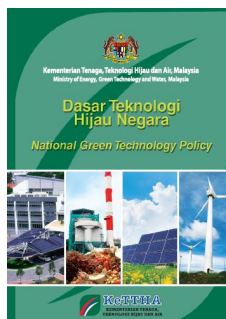
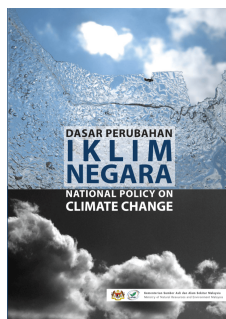
GTALCC – GREEN
TECHNOLOGY
APPLICATION FOR
LOW CARBON
CITIES



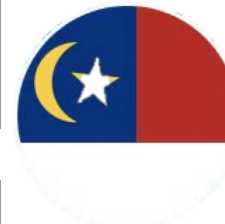
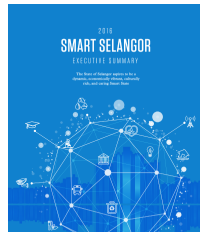
GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

COP 23, BONN
Malaysia lapor komitmen masih
“on track” untuk mencapai
komitmen COP21

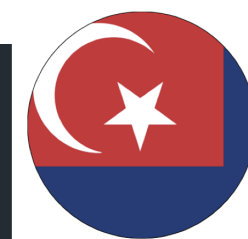
COMMITMENTS BY MALAYSIA AND STATES



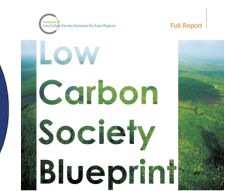
Selangor



Melaka



Johor



COMMITMENTS AT LOCAL LEVEL

MAJLIS BANDARAYA SHAH ALAM



ADVANTAGES OF LOW CARBON CITY PLANNING



**MITIGATE
CLIMATE
CHANGE**

ENV COM



**OPTIMUM
USE OF
ENERGY**

ENV COM



**ACHIEVE
SUSTAINABLE
ECONOMY**

EC



**EFFICIENT AND
SYSTEMATIC
MANAGEMENT
STRUCTURE**

COM



**IMRPROVE
ECONOMIC
STATUS**

ENV COM



**IMPROVE
QUALITY OF
LIFE**

ENV EC COM

ENV

Environment

COM

Community

EC

Economy



Low Carbon Cities Framework

Low Carbon Cities Framework (LCCF) aims to provide guidance for Local Authorities, universities and any other regions on how to transform their cities into low carbon cities.

VARIOUS TYPES OF CARBON ASSESSMENT TOOLS

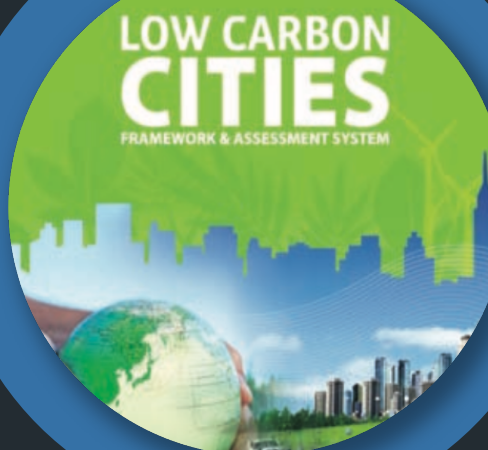


| | LCCFTrack | LCCF Checklist | GBI | GreenRE | MyCrest | Green PASS | PH JKR | SUSDEX | MY GHI | Melaka Green Seal | CASBEE Iskandar | |
|----------------------------------|--|--|-----------------------|--------------------------|---|--------------------------------|-----------------------|--|-------------------------|--|--|--|
| Date of Establishment | 2011 | 2014 | 2009 | 2013 | 2016 | 2012 | 2012 | 2010 | 2014 | 2014 | 2016 | |
| Developed by | MESTECC | MESTECC | PAM and ACEM | REHDA | CIDB | CIDB | JKR | Sime Darby Property | UTM LLM | Melaka Green Development Organization (MGDO) | Iskandar Malaysia (IRDA) | |
| Certification Process | Voluntary | Voluntary | Voluntary | Voluntary | Mandatory for JKR new projects worth 50 million and above | Voluntary | Voluntary | Mandatory for all Sime Darby development project | Voluntary | Voluntary | For urban development, City and Building | |
| Nature of Assessment | Performance Based | Design Based | Design Based | Design based | Design and Performance Based | Performance Based | Design Based | Design Based | Design Based | Design Based | Performance Based | |
| Assessment Design & Construction | Design Construction, Operation and Maintenance | Design Construction, Operation and Maintenance | Design & construction | Construction & Operation | Refurbishment and Demolition | Construction and Operation | Design & Construction | Design and Construction | Design and Construction | Design & Construction | Design & Construction | |
| Mode of Assessment | Calculation of CO ₂ | Criteria Checklist | Criteria Checklist | Criteria Checklist | Criteria Checklist Calculation of CO ₂ | Calculation of CO ₂ | Criteria Checklist | Criteria Checklist | Criteria Checklist | Criteria Checklist | Scoring System Criteria Checklist | |
| Building Type | Township | Township | Building | Building | Building | Building | Building | Township | Highway | Building | Building and Township | |

OVERVIEW OF LOW CARBON CITIES FRAMEWORK



DEVELOPER



LCCF VERSION 1
Date Launch : **SEPTEMBER 2011**





LCCF VERSION 2
Date Launch : **October 2017**

Serves as a guide to uses on pertinent areas (elements) that contributes to the reduction of GHG emission. It comprises 4 key elements, 15 criteria and 41 sub-criteria. This information would help the user identify areas in which they could target an overall carbon reduction.

FRAMEWORK

PART 01

[illegible]



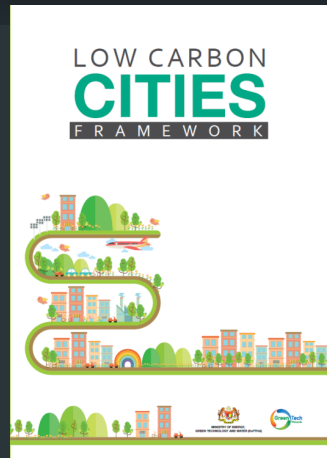
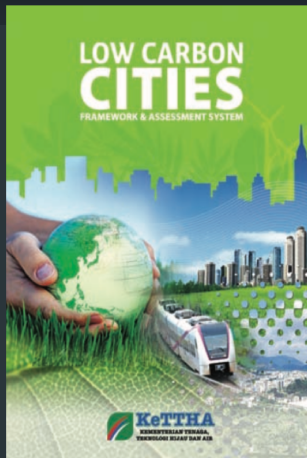
Login to your account

Forgot your password?
no worries, click [here](#) to reset your password.

PART 02

ASSESSMENT SYSTEM

An in built carbon calculator will help a user determine their current baseline. The user will then apply the various strategies recommended in the framework to achieve a reduction level



PART ONE: FRAMEWORK

4

Elements

15

Performance
Criteria

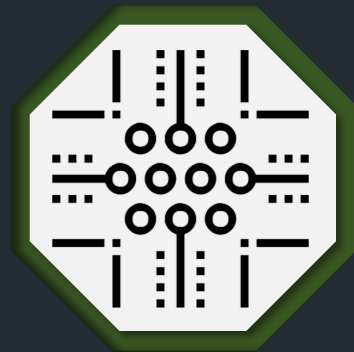
41

Sub
Criteria

ELEMENTS



UE Urban
Environment



UI Urban
Infrastructure



UT Urban
Transportation



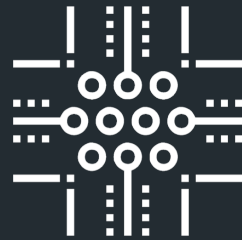
B Building

PERFORMANCE CRITERIA



UE Urban Environment

- UE 1 - Site selection
- UE 2 - Urban form
- UE 3 - Urban greenery & environmental quality



UI Urban Infrastructure

- UI 1 - Infrastructure provision
- UI 2 - Waste
- UI 3 - Energy
- UI 4 - Waste management



UT Urban Transportation

- UT 1 - Reduction use of private transportation on urban road network
- UT 2 - Increase in public transport
- UT 3 - Mode shift from private to public transport and non-motorised transport
- UT 4 - Use of low carbon transport
- UT 5 - Improvement to level of service of road links and junctions
- UT 6 - Utilization of transit oriented development approach



B Building

- B 1 - Sustainable energy management system
- B 2 - Low carbon building

PART TWO: ASSESSMENT SYSTEM

LCCF CHECKLIST
LOW CARBON CITIES FRAMEWORK AND ASSESSMENT SYSTEM (LCCF)

MALAYSIAN GREEN TECHNOLOGY CORPORATION
 No. 12, Jalan 7/10, Persiaran Tunku, Seksyen 9,
 43650 Bandar Baru Bangi, Selangor Darul Ehsan
 Tel: (603) 8921 8800 Fax: (603) 8921 8802
 Website: www.greentechmalaysia.my Email: info@greentechmalaysia.my

PART 1: PROJECT INFORMATION

SECTION A: GENERAL INFORMATION

Applicant Category: ☐ Developer ☐ Local Authority ☐ Consultant ☐ Others (Please specify) _____

Organisation: _____
 Registration No.: _____
 Officer Incharge: _____
 Designation: _____
 Address: _____
 Telephone: _____
 Fax: _____
 Signature: _____
 Company stamp: _____

SECTION B: PROJECT INFORMATION

Project Name: _____
 Address: _____
 Post Code: _____
 State: _____
 Development Type (Industry/residential/commercial etc.): _____
 Site Size (ha or apts): _____

For office use only

Checked by: _____
 Designation: _____
 Signature: _____ Date: _____

Approved by: _____
 Designation: _____
 Signature: _____ Date: _____

SECTION C: LCCF CRITERIA

Approach: ☐ City Based (mitigating all the criteria as stated within the LCCF) ☐ One System (mitigating one criterion or not all the criteria in the LCCF)

SECTION C (i): Urban Environment

UE 1 Site Selection
 1-1 Development within Define Urban Portlet
 1-2 Infill Development
 1-3 Development within Transit Nodes and Corridor
 1-4 Brownfield and Greyfield Redevelopment
 1-5 Hill Slope Development

UE 2 Urban Form
 2-1 Mixed-Use Development
 2-2 Compact Development
 2-3 Road and Parking
 2-4 Comprehensive Pedestrian Network
 2-5 Comprehensive Cycling Network
 2-6 Urban Heat Island (UHI) Effect

UE 3 Urban Greenery and Environmental Quality
 3-1 Preserve Natural Ecology, Water Body and Biodiversity
 3-2 Green Open Space
 3-3 Number of Trees

SECTION C (ii): Building

B1 Low Carbon Buildings
 1-1 Operational Energy Emissions
 1-2 Operational Water Emissions
 1-3 Emission Abatement through Retrofitting
 1-4 Building Orientation

B2 Community Services
 2-1 Shared Facilities and Utilities within Building

SECTION C (iii): Urban Transport

UT1 Shift of Transport Mode
 1-1 Single occupancy Vehicle (SOV) Dependency
 UT2 Green Transport Infrastructure
 2-1 Public Transport
 2-2 Walking and Cycling
 UT3 Clean Vehicles
 3-1 Low Carbon Public Transport
 3-2 Low Carbon Private Transport

UT4 Traffic Management
 4-1 Vehicle Speed Management
 4-2 Traffic Congestion and Traffic Flow Management

SECTION C (iv): Urban Infrastructure

UI1 Infrastructure Provision
 1-1 Land Take for Infrastructure and Utility Services
 1-2 Earthwork Management
 1-3 Urban Storm Water Management and Flood Mitigation

UI2 Waste
 2-1 Construction and Industrial Waste Management
 2-2 Household Solid Waste Management

UI3 Energy
 3-1 Energy Optimisation
 3-2 Renewable Energy
 3-3 Side-Wide District Cooling System

UI4 Water Management
 4-1 Efficient Water Management

LCCFTRACI

GreenTech Malaysia

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LCCF Checklist

CRITERIA BASED
- TO SHOW COMMITMENT

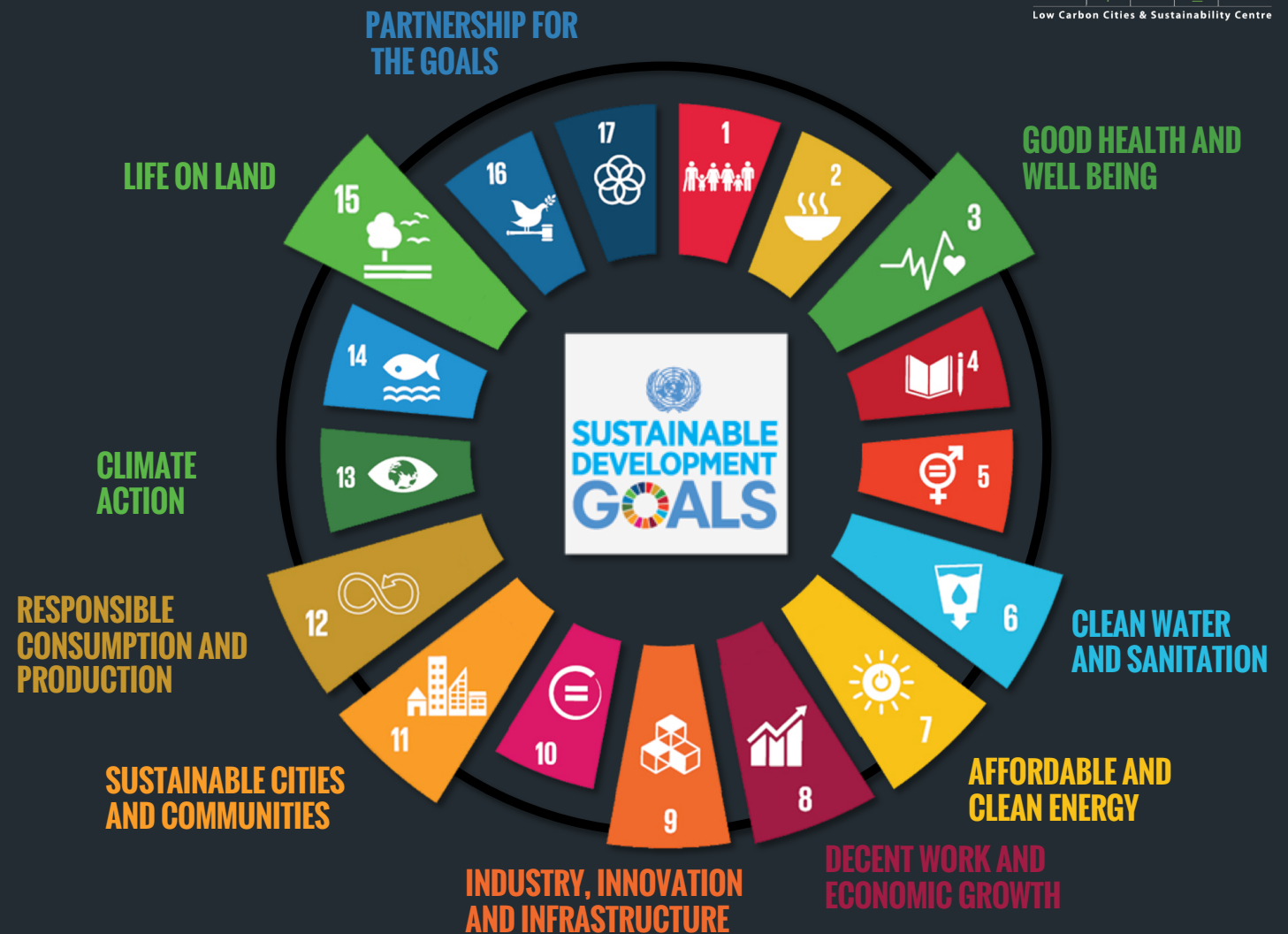
LCCF Track

PERFORMANCE BASED
- TO MEASURE CARBON EMISSION

LCCF DELIVERING SDG GOALS



LCCF DELIVERING TEN (10) SDG GOALS



*Thank
you*

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