National Institute for Environmental Studies

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Low carbon development actions by Malaysian cities using Science to Action (S2A)approach

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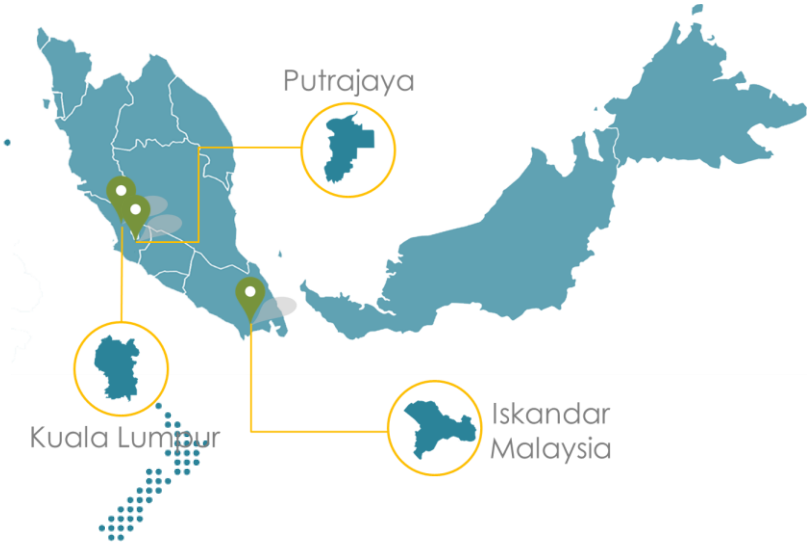
45%
Reduction in GHG Emissions Intensity of GDP by 203

Malaysia

Land Area: 332,000 km²
Population: 28.28 million (2010)
GDP: 247.5 billion USD (2010)

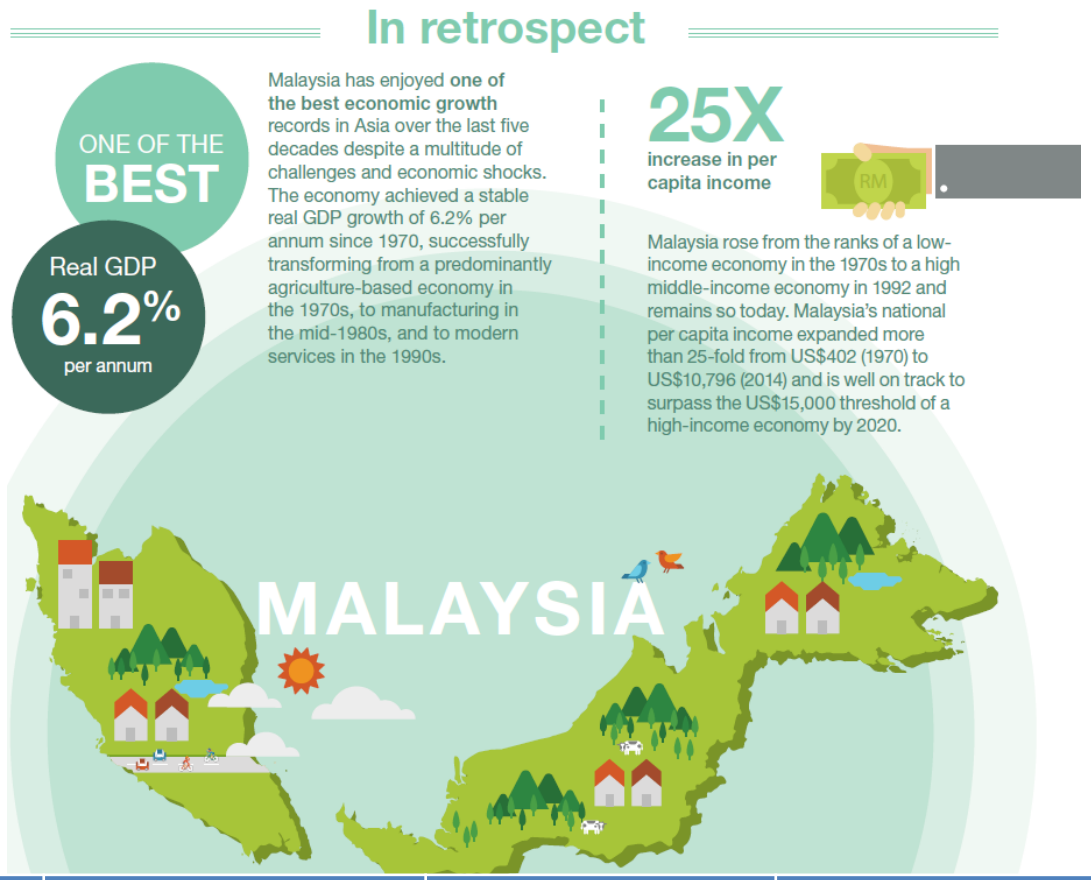


Malaysia- background

Journey realizing Vision 2020- A fully developed nation along all dimensions – economically, politically , socially, psychologically and culturally by 2020.

Themes related to low carbon development

- Digital nation,
- Green growth cities
- Competitive cities
- Promote biodiversity
- Environmental awarenes
- Enable energy plan,
- Inclusiveness,
- Enable energy plan



	CO2 emission ('000metric tons	CO2 per capita metric ton	Carbon intensity Kg / kg oil equiv
1990	56,593	3.1	2.6
2000	216,804	7.7	3.0
2010	295,000	9.2	4.2

Eleventh Malaysia Plan 2016-2020

Green Growth Policy

INVESTING IN COMPETITIVE CITIES- Major Shifts

- **Economic Density**
  - -Increase Density
- **Urban Form**
  - Transit Oriented Development (TOD)
- **Resource usage**
  - - Efficient SWM
- **Housing**
  - -Quality and Affordable
- **Industry Focus**
  - Knowledge Intensive Industries
- **Role of Local authorities**
  - - Strategic drivers of local economy and social development

Shift away from 'grow first and clean up later' development model towards one that is **resilient, low carbon, resource efficient and socially inclusive**.

Why is green growth important for Malaysia?

- Increasing **intensity and frequency of extreme** weather events.
- Malaysia's **commitment to renew and increase its commitment** to the **environment and long-term sustainability**
- Application of **Green Technology ? As Strategic industry**

S2A

SCIENCE TO ACTION

S2A : OUR PRINCIPLES

- **SOCIETY AT THE CORE**
- MRV – **Baseline modelling**
- Decoupling, decarbonising + co-benefits
- Holistic : techno-fixes + people-centric, socially-rooted programs + environmental countermeasures

WE BELIEVE IN

SCIENCE TO ACTION

IN MAKING

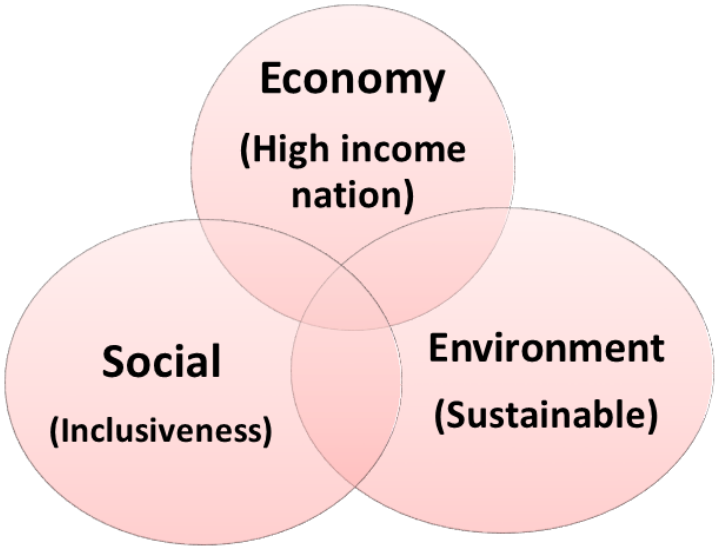
LOW CARBON SOCIETY

A REALITY

Harnessing contribution of Science and Technology Sustainable development approach/ Climate Actions

Science (R&D) + Policies (LCS) = Actions (LP or SP, NPP)

Key Elements of Sustainable Development
= PRO GROWTH, PRO JOB , PRO POOR and PRO ENVIRONMENT



Climate change Problems

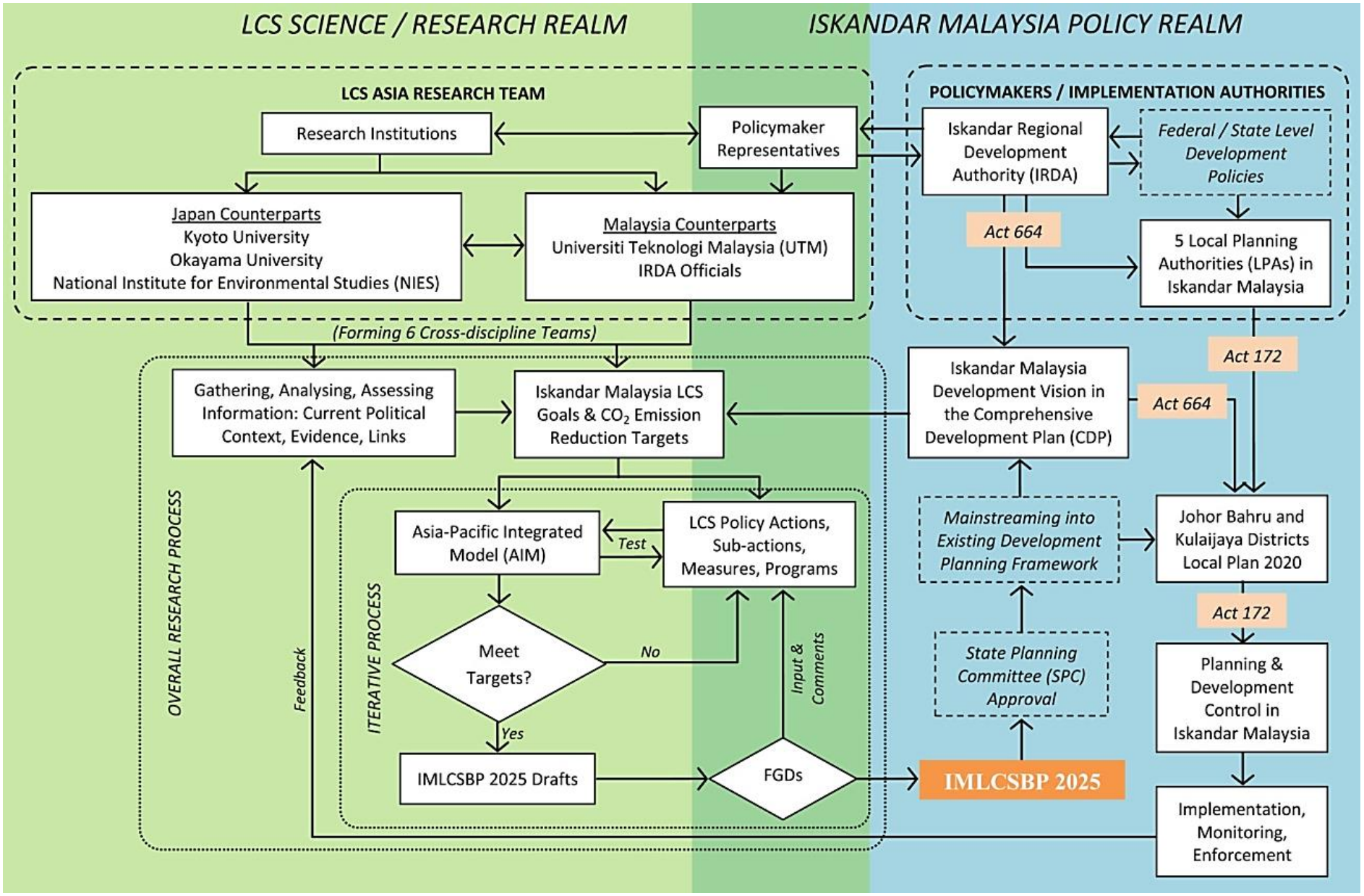
Co-benefits of LCS policies

Promoting resilient, low carbon, resource efficient and socially inclusive development

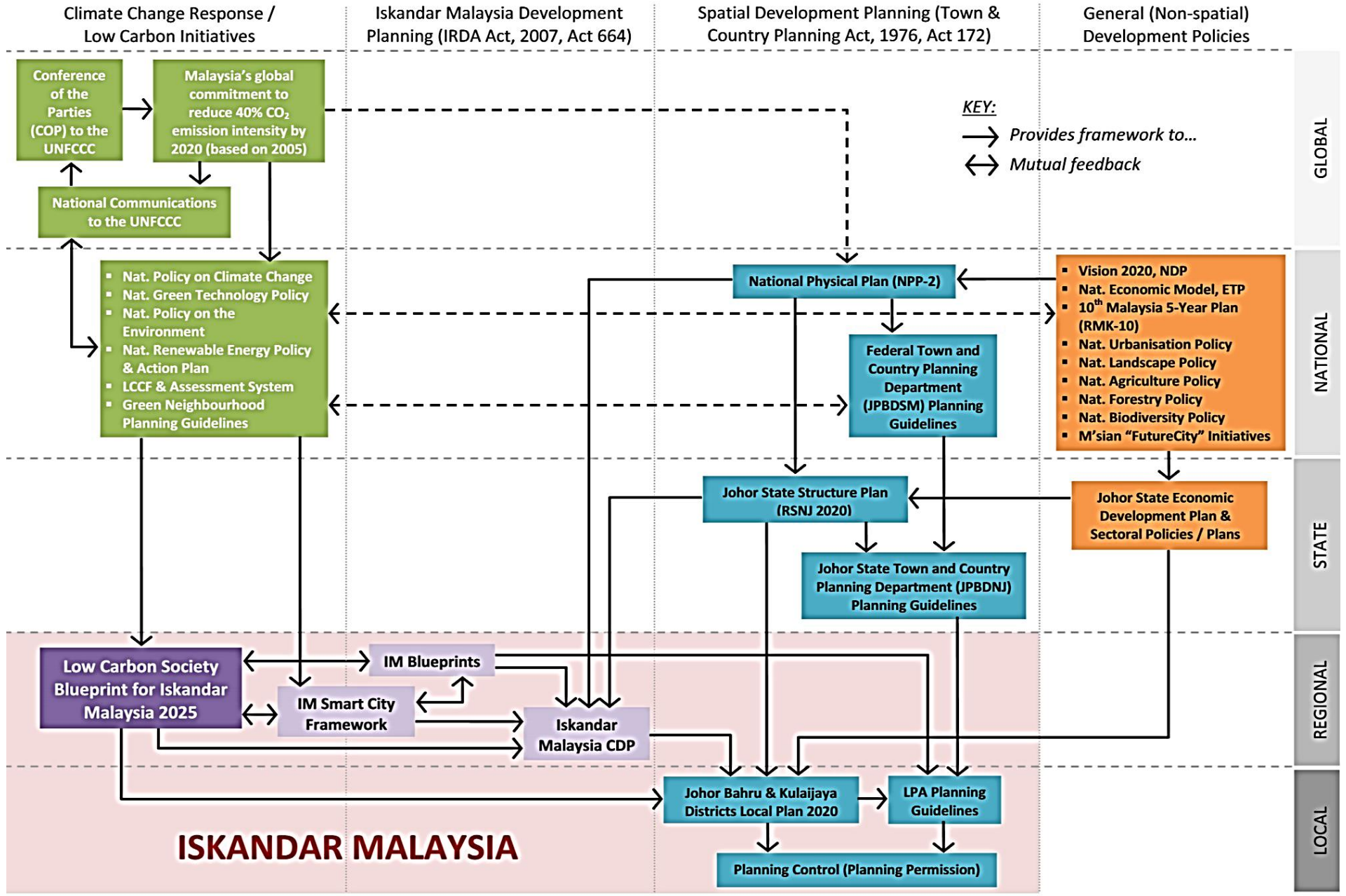
Importance of S2A (SCIENCE to ACTION) for objective and informing green Low carbon policy

EVIDENCE based	• Science provide evidence and objective based result for Policy making
OPTIMAL CHOICE	• Scenario based research help better understanding – Baseline modelling
PARTICIPATORY	• Science facilitates Consensus Building / FGD identifying local issues
INTERDISPLINARY	• Highly technical issues needs interdisciplinary approach.

IMLCSBP2025 : Science to Action



IMLCSBP2025 : Policy Context



CASE STUDY 1 -ISKANDAR MALAYSIA ECONOMIC CORRIDOR

ISKANDAR MALAYSIA™

FLAGSHIP A

JOHOR BAHRU CITY CENTRE

- Central Business District (CBD) as heritage and cultural city
- Customs, Immigration and Quarantine Complex (CIQ)
- Johor – Singapore Causeway

FLAGSHIP B

NUSAJAYA

- Kota Iskandar
- EduCity
- Medical Park
- International Destination Resort
- Southern Industrial & Logistics Clusters (SiLC)
- Puteri Harbour

FLAGSHIP C

WESTERN GATE DEVELOPMENT

- Port of Tanjung Pelepas (PTP)
- Tanjung Bin Power Plant
- 2nd Link Access to Singapore
- RAMSAR World Heritage Park
- Tanjung Piai – Southernmost Tip of Mainland Asia
- Maritime Centre

FLAGSHIP D

EASTERN GATE DEVELOPMENT

- Tanjung Langsat Industrial Complex
- Johor Port
- Tanjung Langsat Port
- Pasir Gudang Industrial Park

FLAGSHIP E

SENAI-SKUDAI

- Senai Airport City
- Senai High-Tech Park
- Sedenak Industrial Park
- MSC Cyberport City
- Johor Technology Park
- University Technology Malaysia (UTM)

BASELINE/ POLICY DOCUMENTATION : IMLCSBP2025 : TBL/ ACTION THEMES

MEASUREMENT / MODELLING/ BASELINE

IMLCS ACTIONS : Potential CO_2 Reduction

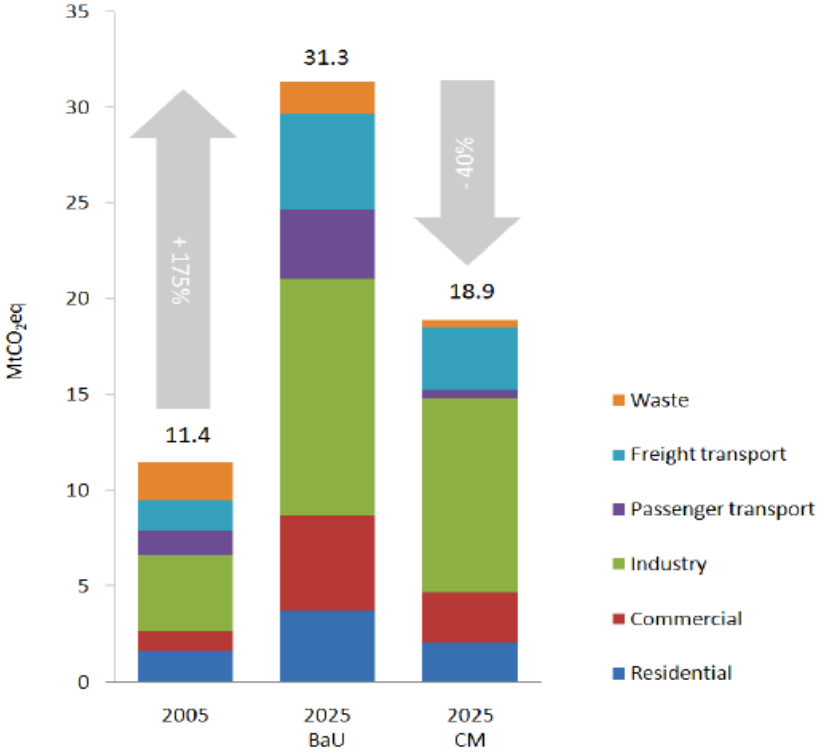
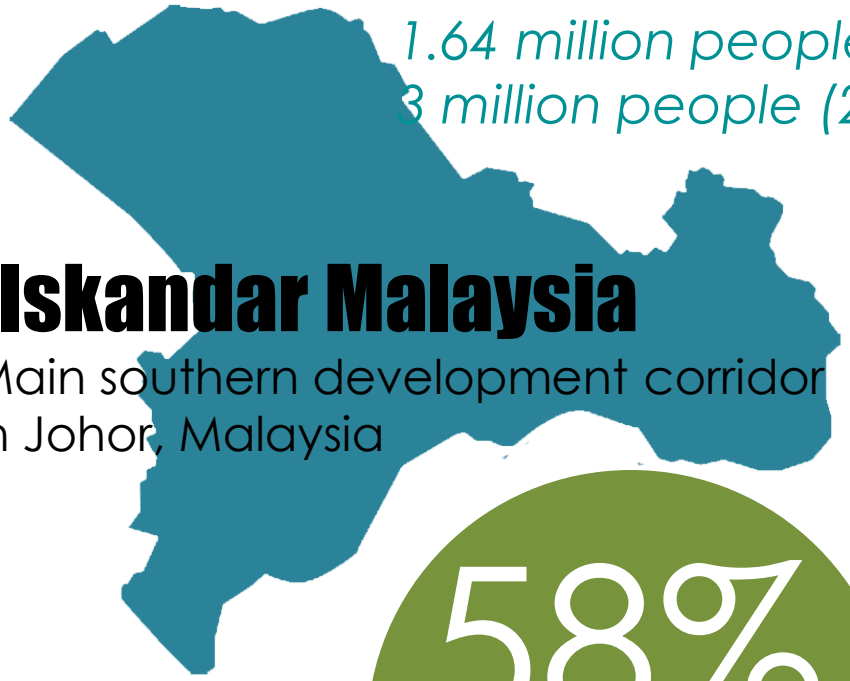


Figure 1: GHG emissions by sectors

	Action Names	Themes
1	Integrated Green Transportation	GREEN ECONOMY
2	Green Industry	
3	Low Carbon Urban Governance	
4	Green Buildings & Construction	
5	Green Energy System & Renewable Energy	
6	Low Carbon Lifestyle	GREEN COMMUNITY
7	Community Engagement & Consensus Building	
8	Walkable, Safe, Livable City Design	GREEN ENVIRONMENT
9	Smart Urban Growth	
10	Green and Blue Infrastructure & Rural Resources	
11	Sustainable Waste Management	
12	Clean Air Environment	

2,216 km²
1.64 million people (2010)
3 million people (2025)



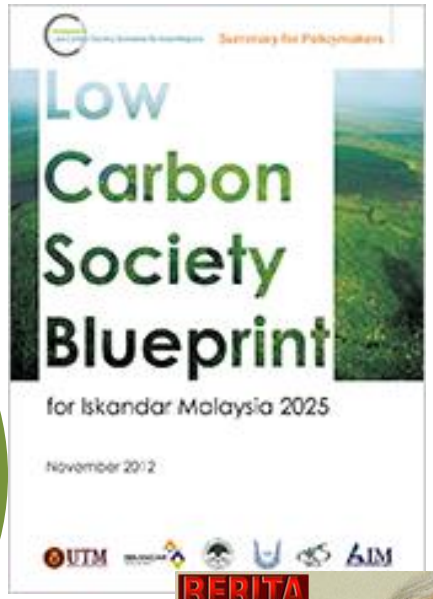
Iskandar Malaysia

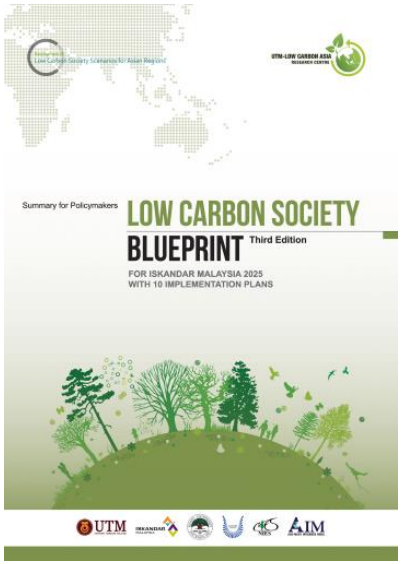
Main southern development corridor in Johor, Malaysia

58%
Reduction in GHG Emissions Intensity of GDP by 2025

12 Actions

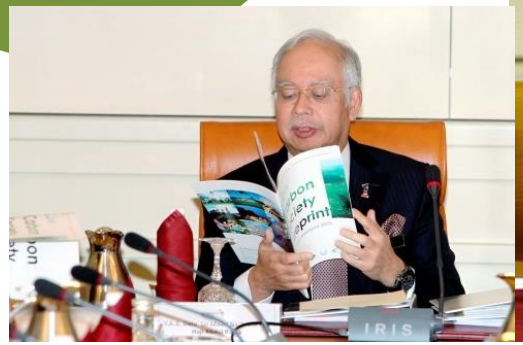
281 Programs

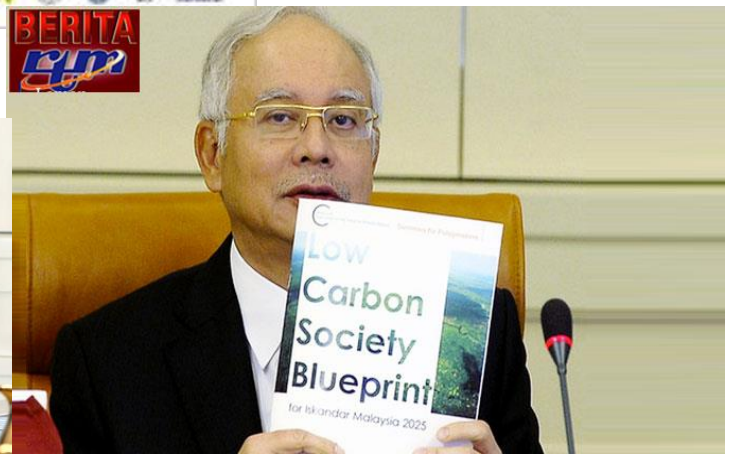




DOHA 2012
UN CLIMATE CHANGE CONFERENCE
COP18|CMP8

United Nations Climate Change Conference





IMPLEMENTATION AT LOCAL LEVEL

Iskandar Malaysia LCS Blueprint 2025

Iskandar Malaysia

(5 Local Authorities)

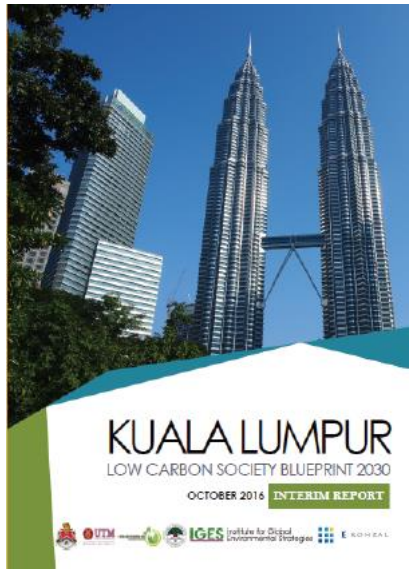
Iskandar Malaysia

main southern development corridor in Johor, Malaysia

Kuala Lumpur – Capital city of Malaysia

242 km²
1.67 million people (2010)
2.49 million people (2030)

70%
Reduction in GHG Emissions Intensity of GDP by 2030



Kuala Lumpur

national capital of Malaysia

CO2 EMISSION of KUALA LUMPUR

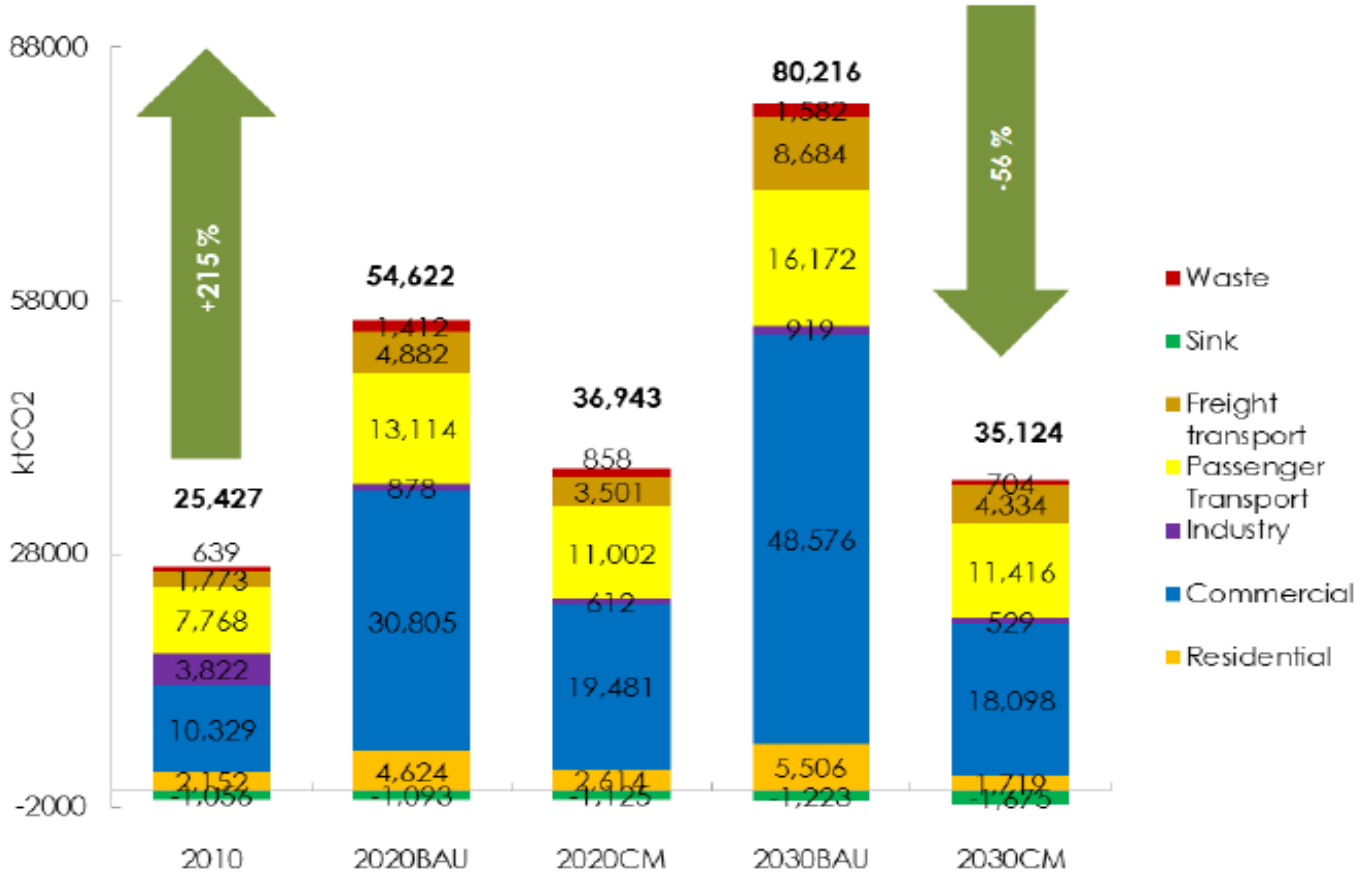
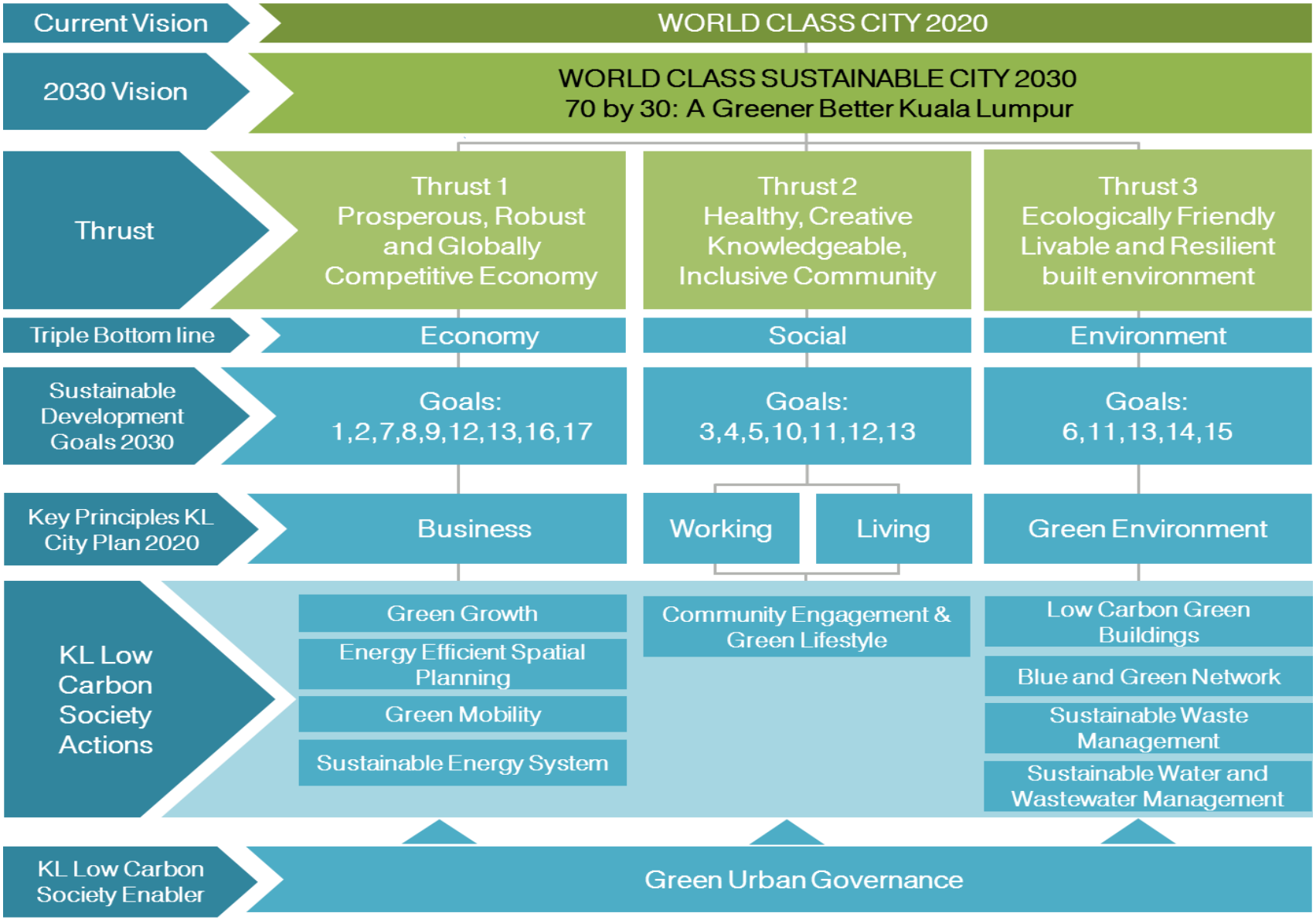


Figure 0.11 GHG emission by end-use sector

Kuala Lumpur Low Carbon Society Blueprint 2030

FRAMEWORK OF KL LCSSBP 2030



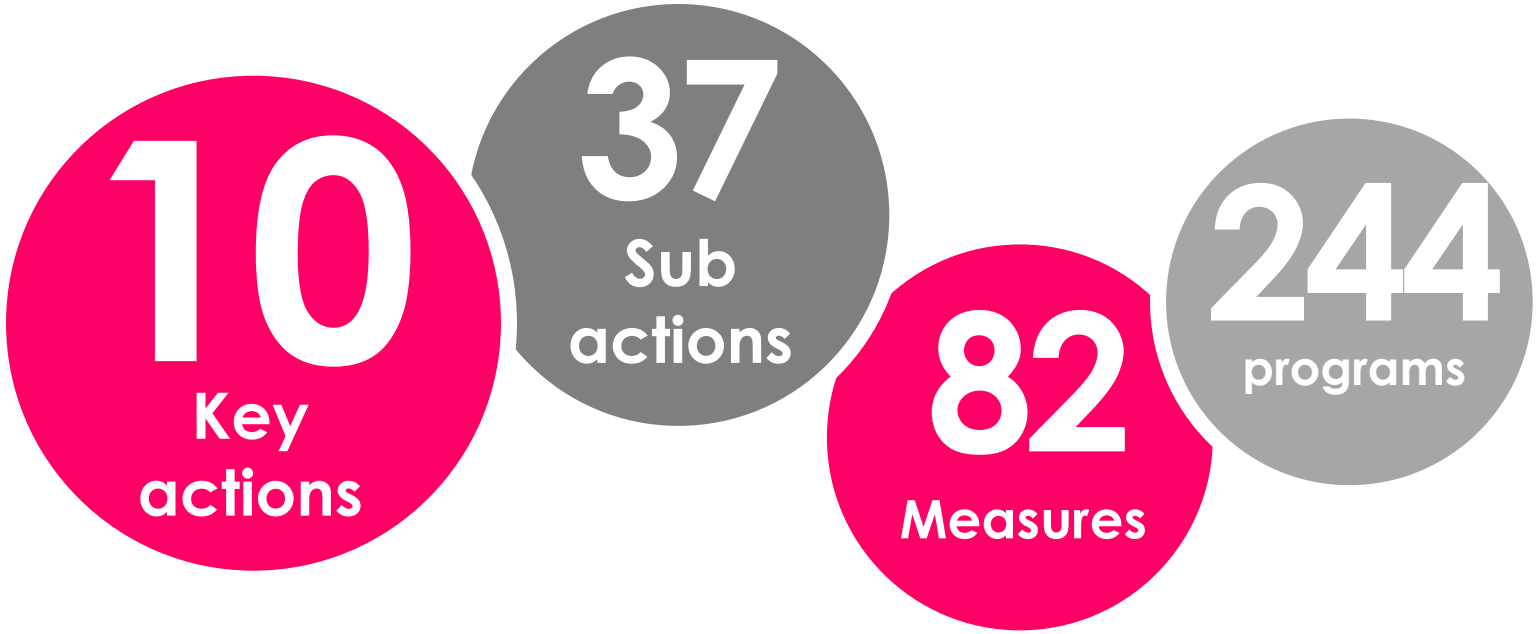
Kuala Lumpur Low Carbon Society Blueprint 2030

WORK BREAKDOWN STRUCTURE

ACTIONS	Key policy actions needed to achieve the final goal of the plan
SUB-ACTIONS	Sub-actions needed to produce policy outcomes that jointly lead to the achievement of a key policy action
MEASURES	Measures that are more detailed breakdown and interpretation of sub-actions into strategies with a clearer implementation dimension
PROGRAMS	Programs – specific activities, deliverables from which resource requirements, budget, implementation agencies and duration may be identified or estimated

Kuala Lumpur Low Carbon Society Blueprint 2030

ROAD TO ACHIEVING 70 BY 30



Final Draft
KL LCSBP2030

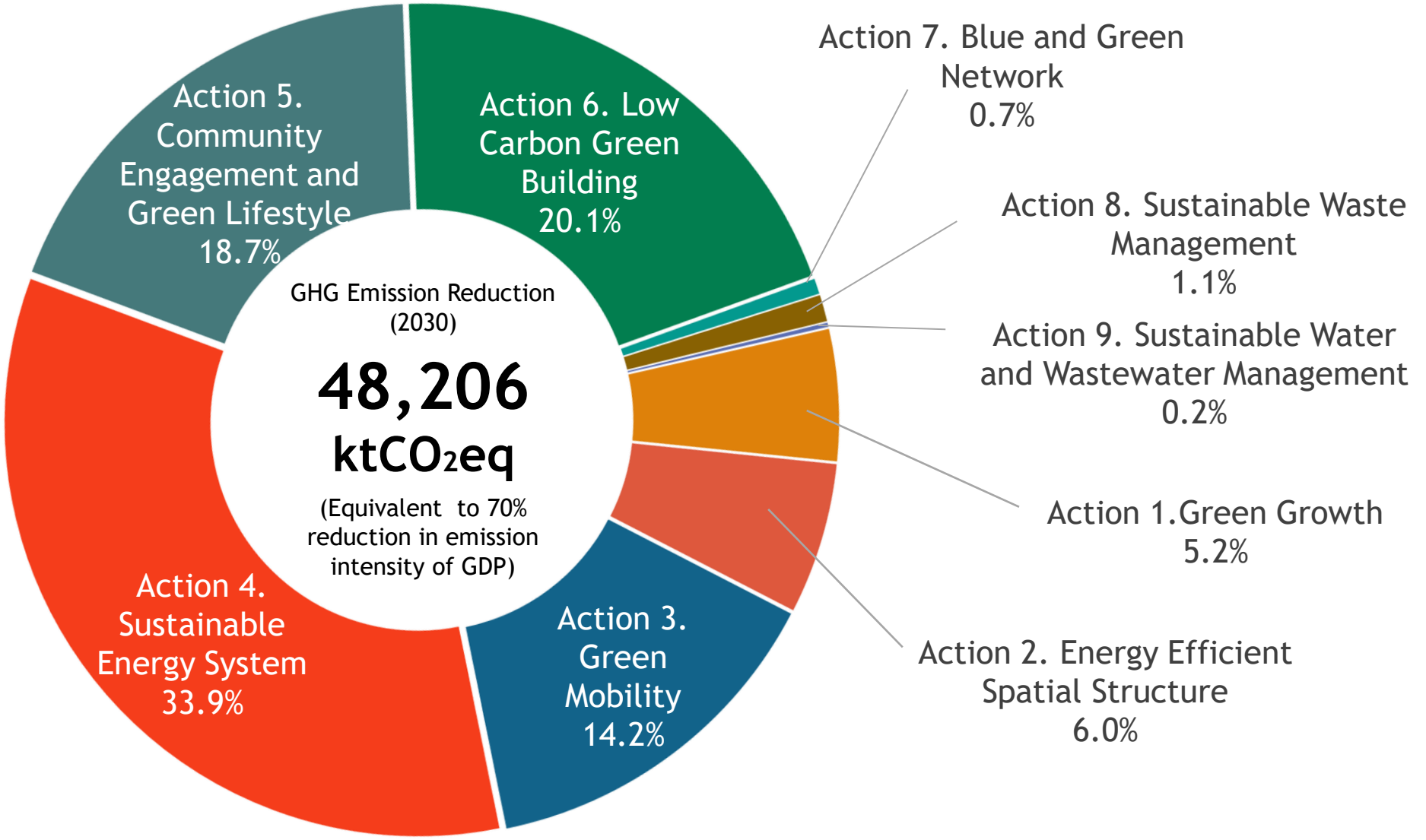
Date:
August 2017

70 by 30

KL can reduce its carbon emission intensity by as much as 70% by 2030

Kuala Lumpur Low Carbon Society Blueprint 2030

EMISSION REDUCTION CONTRIBUTION BY ACTION



Kuala Lumpur Low Carbon Society Blueprint 2030

EMISSION REDUCTION CONTRIBUTION BY ACTION

Thrusts	Actions	Reduction ($ktCO_2eq$)	Share (%)*
Economy (59%)	Action 1 Green Growth (GG)	2,502	5.2
	Action 2 Energy Efficient Spatial Structure (SS)	2,872	6.0
	Action 3 Green Mobility (GM)	6,868	14.2
	Action 4 Sustainable Energy System (SE)	16,327	33.9
Social (19%)	Action 5 Community Engagement and Green Lifestyle (CE)	9,015	18.7
Environment (22%)	Action 6 Low Carbon Green Building (GB)	9,673	20.1
	Action 7 Blue and Green Network (BG)	316	0.7
	Action 8 Sustainable Waste Management (WM)	527	1.1
	Action 9 Sustainable Water and Wastewater Management (WW)	105	0.2
Enabler	Action 10 Green Urban Governance (UG)	0	-
	Total	**48,206**	**100**

OUTCOME FROM Focus Group Discussion 1

PROJECT EVALUATION THROUGH FGD

To improve list

Traffic congestion

Public transportation & connectivity

Cleanliness and pollution

Management and maintenance of spaces & facilities (e.g. Park, roads)

OUTCOME FROM FGD 2

PROJECT EVALUATION THROUGH FGD

During **FGD2**, every potential project for the development of LCS for Kuala Lumpur was evaluated based on three (3) main criteria:

i) **Significance** (Weightage – 40%)
ii) **Suitability** (Weightage – 20%)
iii) **Feasibility** (Weightage – 40%)

Programs	Significance Institutional Vision/Policy Direction			Suitability Long Geography setting/socio-cultural context			Feasibility Finance/Human Capital/ Local Technology/Material		
	L	M	H	L	M	H	L	M	H
CE6 Promote the adoption of rainwater harvesting system		●				●	●		
CE7 Promote the adoption of photovoltaic panel			●			●		●	

Criteria	Significance (40%)			Suitability (20%)			Feasibility (40%)		
Level	Low	Medium	High	Low	Medium	High	Low	Medium	High
Score	1	2	3	1	2	3	1	2	3

OUTCOME FROM FGD 3

ROADMAP OF KL LCSBP 2030

Responsible KLCH Dept. :

KLCH department with primary responsibility for initiating, coordinating, liaising with relevant external agencies, monitoring, and/or approving implementation of programs

Partners:

Technology providers, funding agencies or entities, and relevant government agencies with approving authority for, and/or statutory duty of regulating, facilitating and overseeing implementation of programs

Implementers:

Agencies, entities and/or parties that implement, or are needed to implement, programs due to the statutory duty, ownership rights, institutional responsibility, and/or effective serving of communal interests

OUTCOME FROM FGD 3

ROADMAP OF KL LCSBP 2030

EXAMPLE

Programs	2015-2020	2021-2025	2026-2030	Responsible KLCH Dept.	Partners	Implementers
Measure 3.1.1 Promote Walking and Cycling on Short to Medium Trips						
GM 1 Provision of bicycle facilities				City Planning Dept., and Infrastructure Planning Dept.	SPAD, JKJR, Cycling KL	KLCH (Civil Engineering & Urban Transportation Dept.), KL residents association, surrounding LA's
GM 2 Pedestrian and cycling priority at crossings				City Planning Dept., and Infrastructure Planning Dept.	JKR	Enforcement Dept, PDRM

Weighted Scores High Medium Low

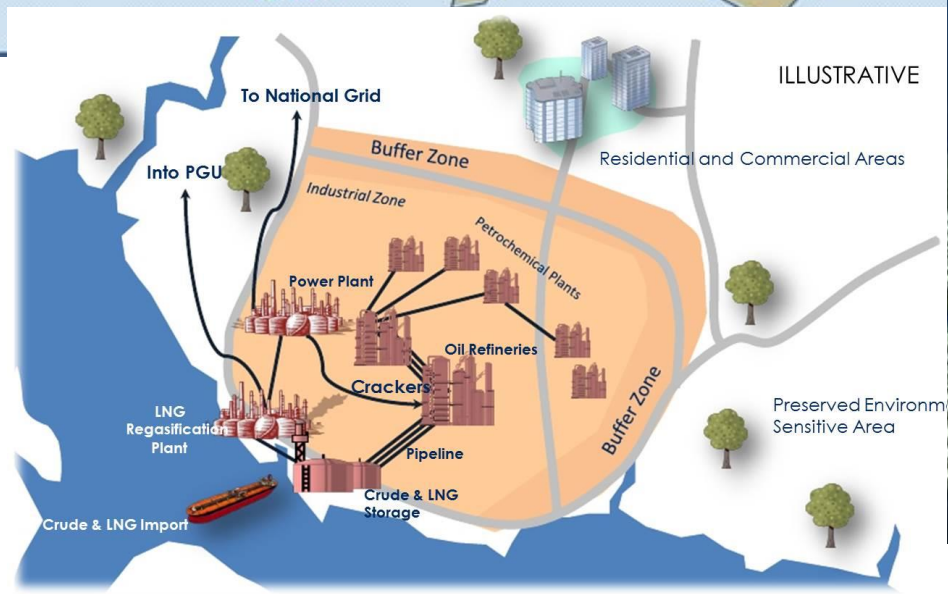
Case study of
Pengerang as East Johor Economic Corridor

Why Pengerang? **Strategic location** at the south-east tip of Peninsular Malaysia…

Strategic Location

- Access to existing major **international shipping lanes**.
  Middle East – Singapore – China
- Proximity to an existing major trading hub; **Adjacent to Singapore**
- **Deep water of -24m** enables VLCCs and ULCCs
- **Very few Environmentally Sensitive Areas** (ESAs) which are easily preserved
- Low negative socioeconomic impact
- **Relatively unpopulated** leading to minimal population relocation
- **Safe and sheltered harbour**
- No breakwater required with sufficient seagoing passage for VLCCs and ULCCs
- Availability of sufficient development land
- **A single candidate plot in excess of 20,000 acres**

PENGERANG LOW CARBON SOCIETY BLUEPRINT 2030



BACKGROUND OF PENGERANG
PLCSBP 2030

The PLCSBP 2030 will cover **5 Mukim** of the **Kota Tinggi District**: Sedili Kechil, Tanjung Surat, Pantai Timur, Pengerang and Johor Lama.

Total area = 128,830 hectares (1288.83 km^2)

PBT Pengerang
Population (2010) = 86,632
Population (2020) = 128,467
(RTDKT2020)

SCOPE OF PLCSBP 2030

1.DECARBONISING PIPC INDUSTRIES

2.GREEN PORT MANAGEMENT & LOGISTICS

3.SMART AGRICULTURE

4.GREEN MOBILITY

5.SUSTAINABLE ENERGY SYSTEM

6.LOW CARBON GREEN URBAN SETTLEMENTS

7.GREEN NETWORK

8.SUSTAINABLE WASTE MANAGEMENT

9.LOW CARBON SMART COMMUNITY

10.GREEN URBAN GOVERNANCE

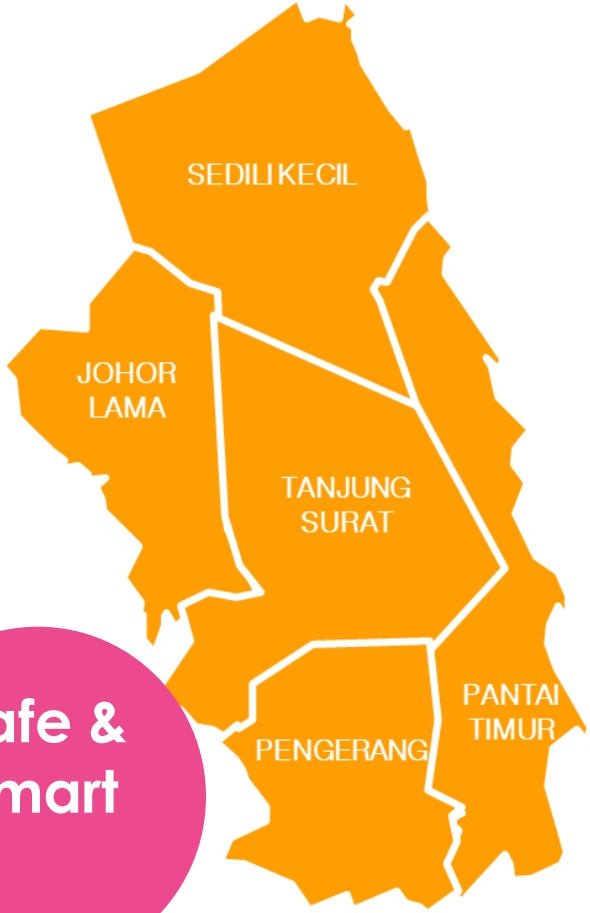
1st FOCUS GROUP DISCUSSION

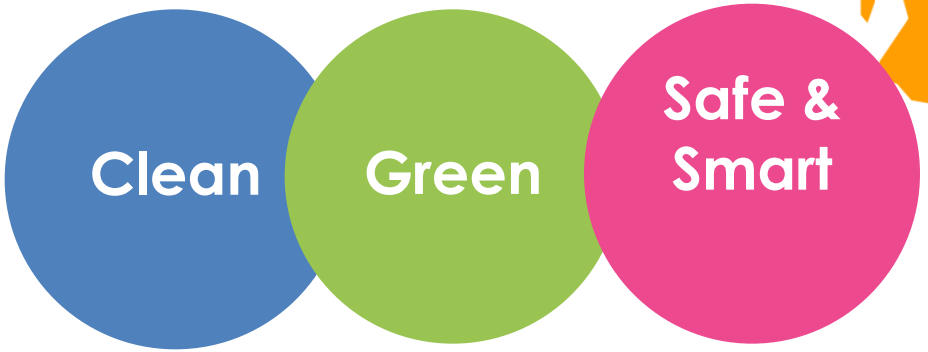
PROPOSED FGD1 MAIN COMPONENTS:

Proposed Tagline For PLCSBP 2030

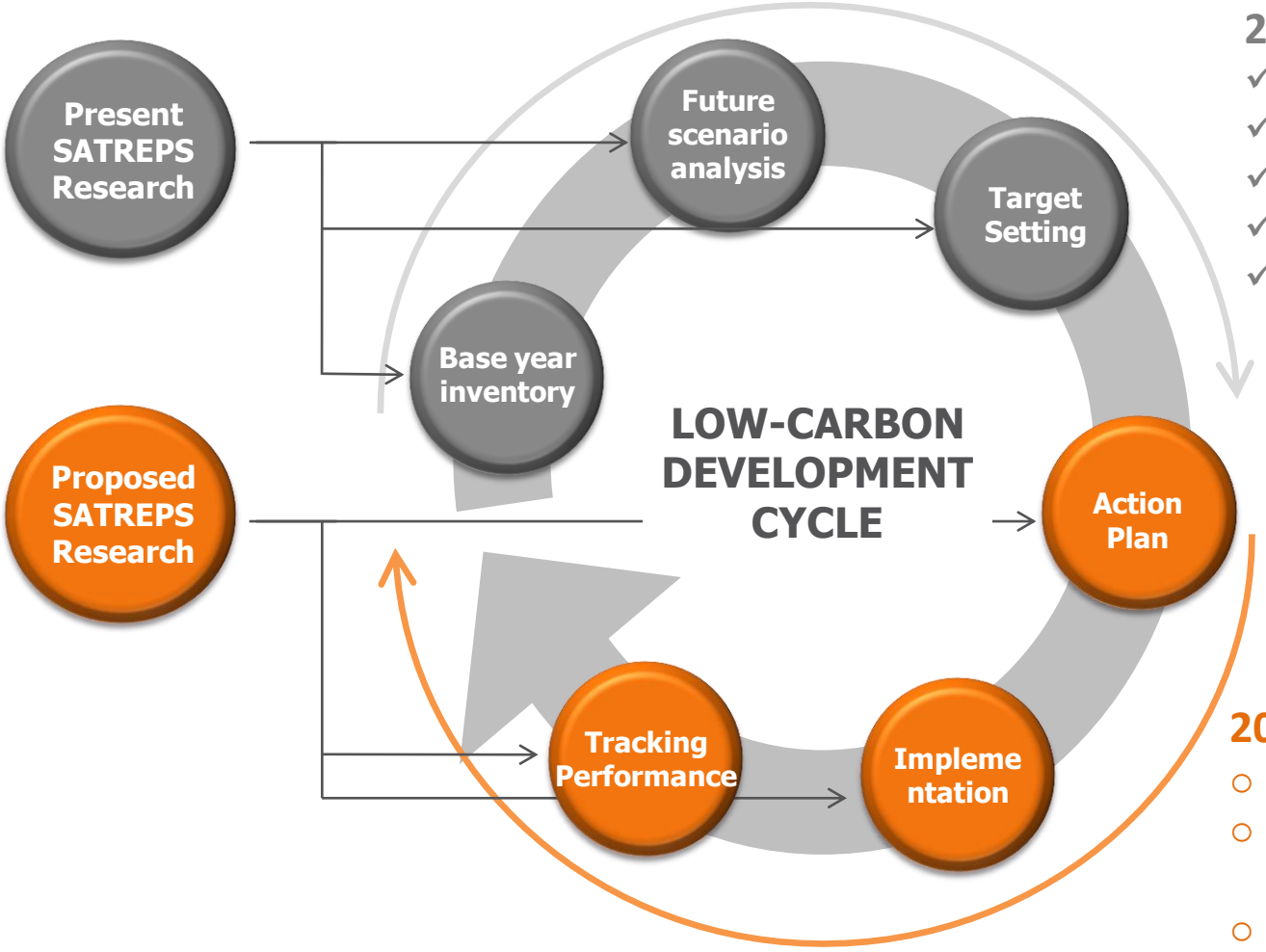
54 by 30:

PENGERANG CAN REDUCE ITS CARBON INTENSITY 54% BY 2030





THE IMPORTANCE OF IMPLEMENTATION AND MONITORING



2011 - 2016

- ✓ LCS baseline study
- ✓ LCS scenario development
- ✓ GHG modelling
- ✓ LCS policy design
- ✓ IM (regional) level action plan

2016 - 2021

- ○ City level detailed action plan
- ○ Sectorial specific strategic mitigation
- ○ Adaptation
- ○ Carbon monitoring

FINDINGS

The findings showed that there is a **concrete and practical steps for low carbon transformation**.

Low carbon and resilient development initiatives can be strategically **integrated with the existing development agenda** to further promote urban sustainability.

"Science to Action" (S2A) is the way forward towards creating low carbon futures, i.e. ensuring good, ***scientifically grounded and community-rooted*** **LCS policies are** ***materially acted upon***, yielding real cuts in GHG emissions with simultaneous ***socioeconomic co-benefits*** for the *people.*

Consideration are

- existing **policy direction, geographical setting, political cultural, socio-economic, financial capacity** and human capital are essential for **climate change plan formulation.**

Thank you for your attention!

Thank You Terima Kasih 谢谢 धन्यवाद ありがとう