



**UNFCCC COP30 Belem Japan Pavillion side event
12 November 2025 at 1000-1115 am**

**FORUM: SESSION 2-
COP30 Side Event at the Japan Pavilion**

The Role of Universities in Achieving Net-Zero by 2050



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

RESEARCH UNIVERSITIES



Presented by:

Prof. TPr Dr. Ho Chin Siong

Director of UTM Low Carbon Asia Research Centre

Date: 22 October 2025

Time: 11.00-13.00

***Innovating Solutions
Menginovasi Penyelesaian***

Malaysia's Low Carbon Targets



- Malaysia's recent **NDC** aims **45% reduction in carbon intensity (vs 2005) by 2030** (Malaysia Updated NDC, 2021).

**MALAYSIA'S UPDATE OF ITS FIRST
NATIONALLY DETERMINED CONTRIBUTION**

In accordance with paragraph 2(b) of decision 1/CP.19, Malaysia submitted its Intended Nationally Determined Contribution (INDC) to the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat on 27th November 2015. The submitted INDC was registered as Malaysia's Nationally Determined Contribution (NDC), following Malaysia's ratification of the Paris Agreement on 16th November 2016. Malaysia hereby communicates its updated NDC in accordance with paragraph 24 of decision 1/CP.21 to contribute to the implementation and achievement of the goals of the Paris Agreement.

Malaysia intends to reduce its economy-wide carbon intensity¹ (against GDP) of 45% in 2030 compared to 2005 level. The updated NDC includes the following increased ambition:

- (a) The 45% of carbon intensity reduction is unconditional;
- (b) This target is an increase of 10% from the earlier submission; and
- (c) The GHG coverage is expanded to seven (7) greenhouse gases (GHG): Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbon (PFCs), Sulphur hexafluoride (SF₆) and Nitrogen trifluoride (NF₃).

Malaysia's accounting approach will strive for transparency, accuracy, consistency, comparability, and completeness (TACCC), and promotes environmental integrity. Continuous improvement will be undertaken to achieve these requirements.

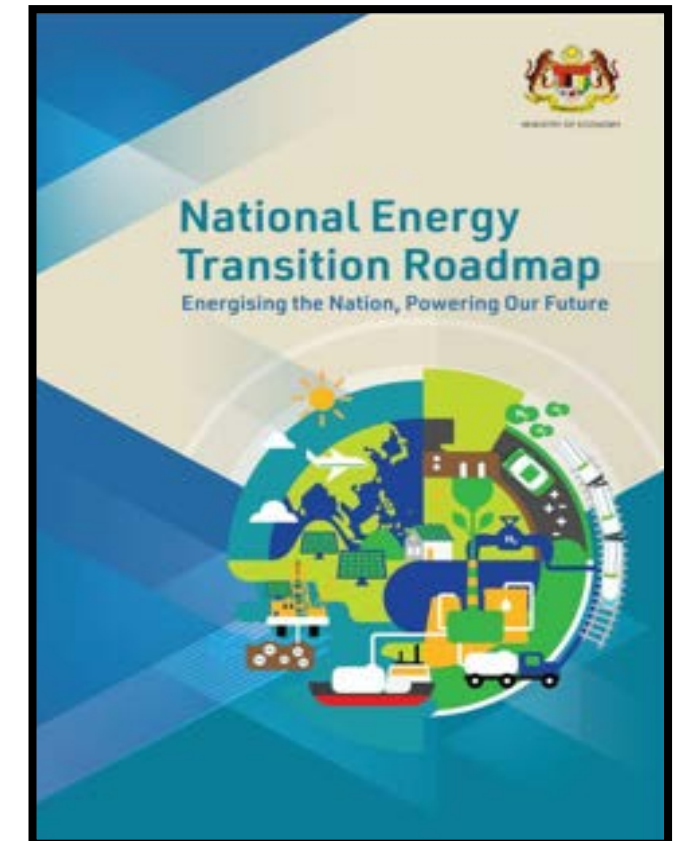
The information for clarity, transparency, and understanding are outlined below and the accompanying information on adaptation is outlined in Annex 1 to this submission.

Further information necessary for clarity, transparency, and understanding (CTU) of Malaysia's NDC

1. Quantified information on the reference point, including, as appropriate, a base year	
a. Reference year(s), base year(s), reference period(s) or other starting point(s);	Base year: 2005
b. Quantifiable information on the reference indicators, their values in the reference year(s), base year(s), reference period(s) or other starting point(s), and, as applicable, in the target year;	Quantification of the reference indicator will be based on national GHG inventory reported in the NC and BTR submissions and may be updated due to the improvements in the GHG inventory.

¹ Carbon intensity throughout the document refers to GHG intensity from all the seven GHGs.

- Malaysia also aims **Net-zero commitment by 2050** (Malaysia NETR, 2023).



These goals **require action beyond government** (e.g., cities, businesses, communities, individuals).

UTM Education: Nurturing Future-Ready Graduates

UTM Green DNA – cultivating sustainable mindsets among students.

- **Low Carbon Campus Initiative** – campus as a living laboratory.
- **Cross-disciplinary learning** on low-carbon and climate solutions.
- Goal: Every graduate contributes to a **low-carbon future**.

UTM Low Carbon Asia
Research Centre (LCARC) –



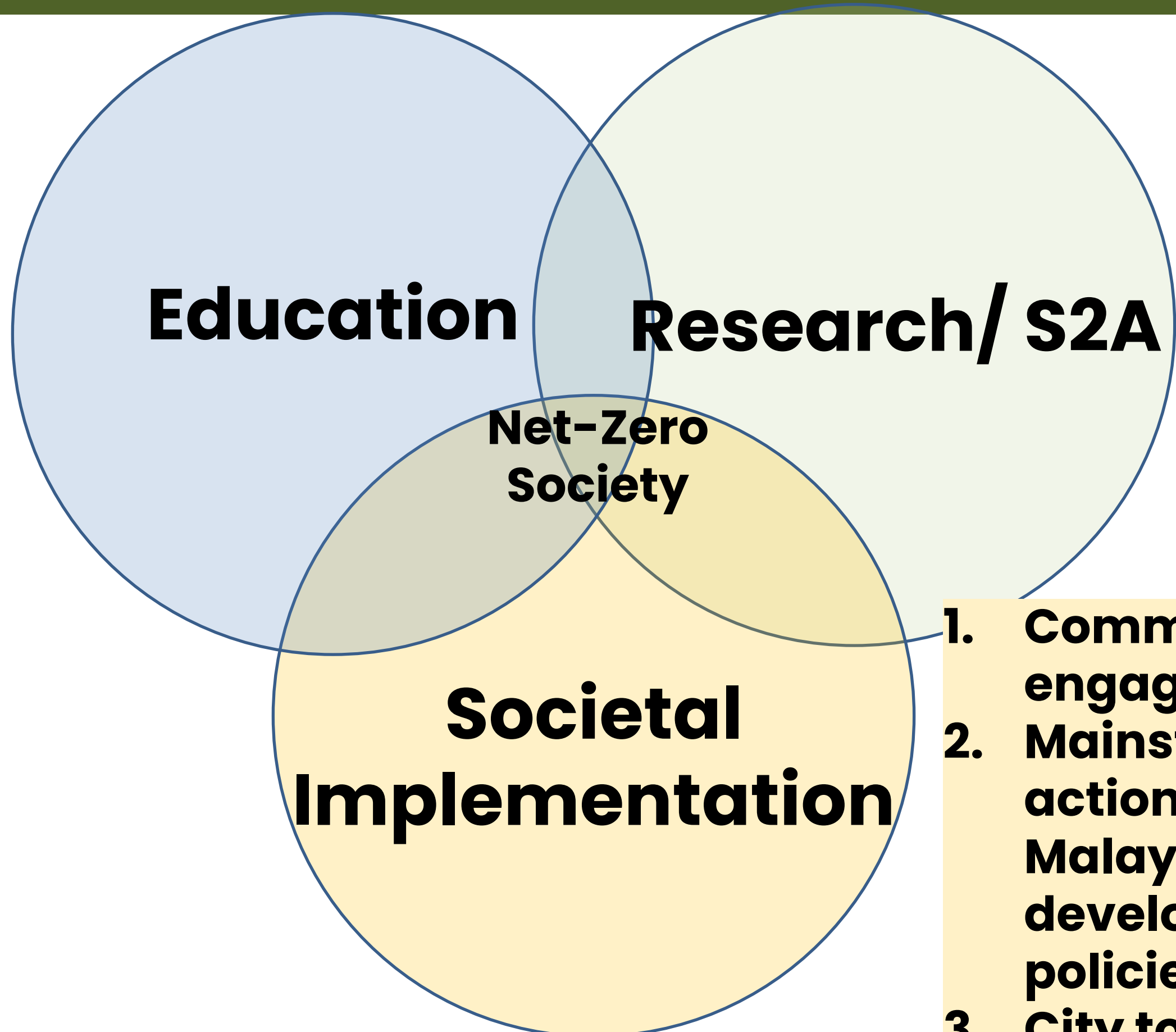
– leading transdisciplinary research. is uniquely positioned, acting as all four key stakeholders in the low-carbon transition: We **bridge the gap** between industry players, **inform and support** policy makers, **collaborate directly** with CSOs and communities, and **foster awareness** among individuals.

Impact: Turning **science into real, scalable decarbonization pathways**



How UTM-LCARC Strengthen Education, Research & Societal Implementation to Accelerate Net-Zero Society

- 1. Capacity Building supervision
- 2. Workshop/ seminar for Policy makers
- 3. University students



- 1. Low Carbon Society Blueprint
- 2. Climate Action Plan

- 1. Community engagement/ FGD
- 2. Mainstreaming of climate action plans into Malaysia's local development planning policies
- 3. City to city collaboration



We believe in
**Science
to Action**
in making
Low Carbon Society
a Reality

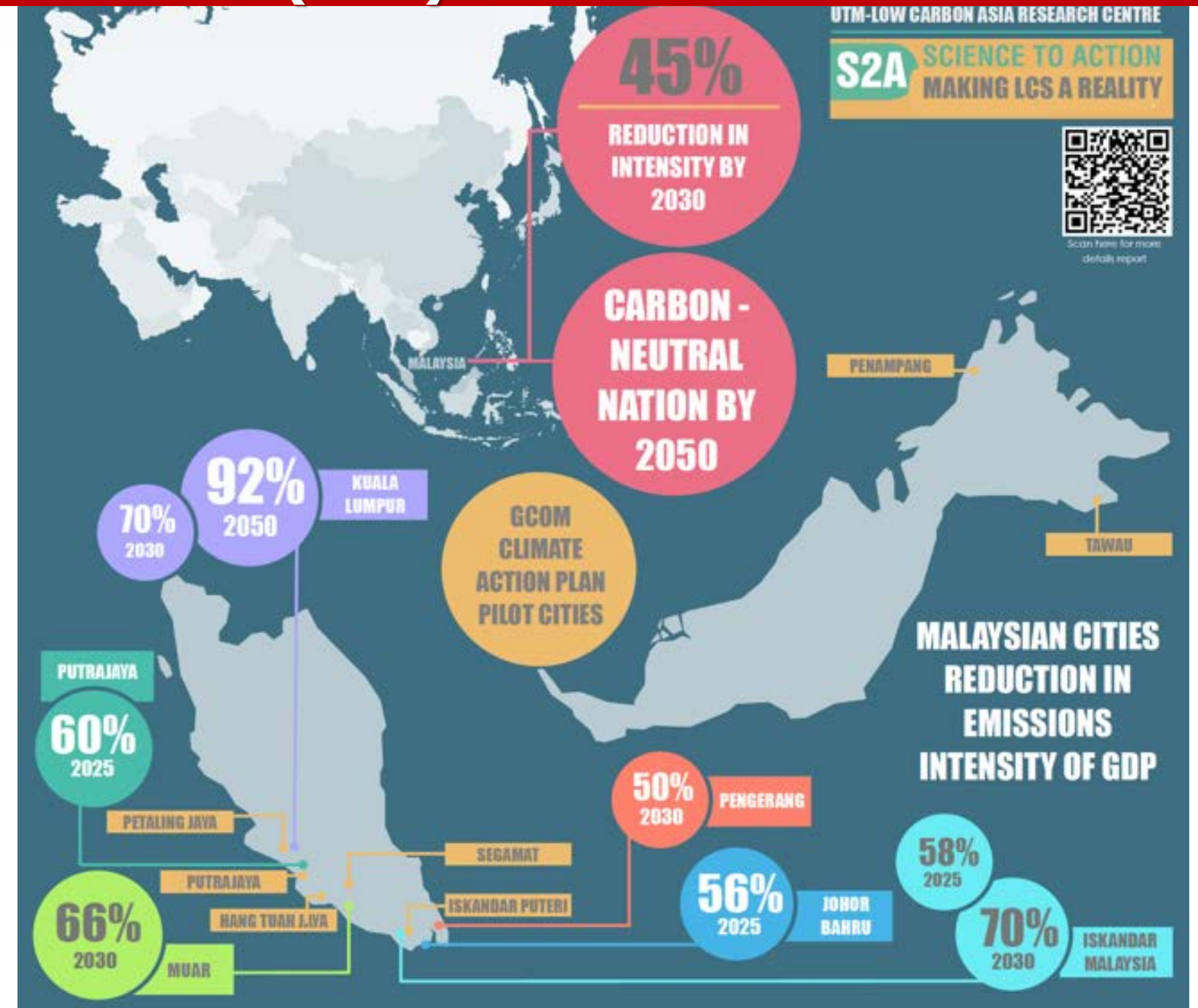
Science
Policy
Action-

Mitigation and Adaptation

1 Capacity Building / Education modules

2 Climate Action Plans / LCS Blueprint

**3 Community engagement
/Mainstreaming CC into Urban Planning
City to City Collaboration**



UTM's Threefold Mission

- Education | Research | Societal Implementation
- UTM integrates sustainability across all three core missions — to accelerate regional and national decarbonization.

Climate Change University Option papers/ Capacity Building / Hands-On Training on Asia Pacific Integrated Modelling with students, Policy makers



National Workshop on ACCSAP Putrajaya May 2025



Petaling Jaya City Council (MBPJ)'s Visit to UTM-LCARC Centre, 19th September 2025

Half-Day Hands-On Training on Asia Pacific Integrated Model (AIM), 15th October 2025

Our Efforts on Research / Science to Action(S2A) are

1) UTM-LCARC had been involved in developing various Low Carbon Society blueprint (LCSBP) for Iskandar Malaysia (Policy into Implementation)

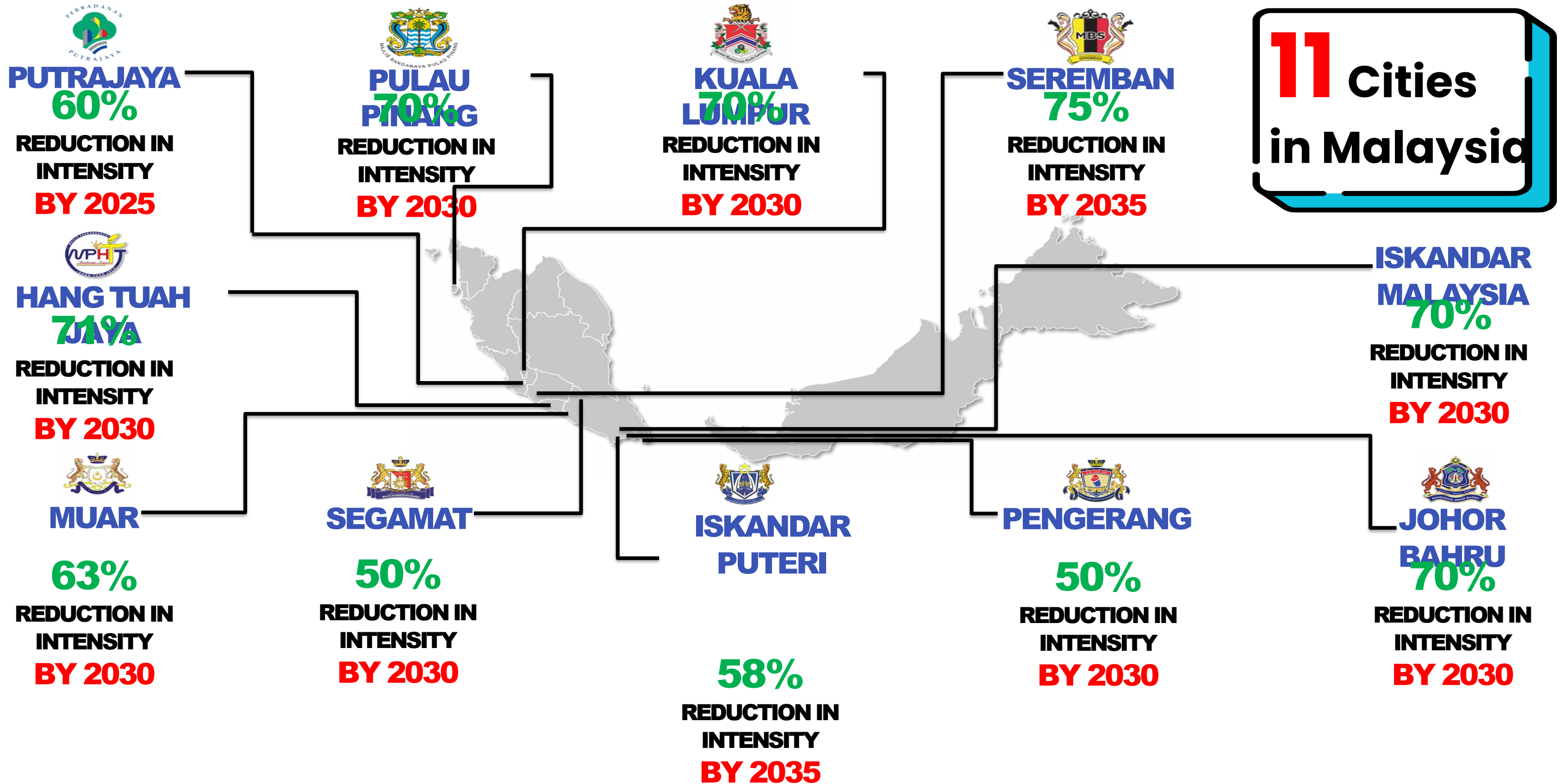


2) UTM-LCARC had been involved in developing **Climate Action Plans (CAP)**, which in each of them include **calculation for GHG emissions and target setting, mitigation measures to reduce the GHG & adaptation measures to reduce climate impacts.**



A **climate action plan** is an **organised effort and strategy by authorities to reduce greenhouse emissions and building community resilience to climate change** in the area, based on operational documents and policies drafted for it.

GHG EMISSION PROJECTIONS FOR SELECTED MALAYSIAN CITIES USING EXSS



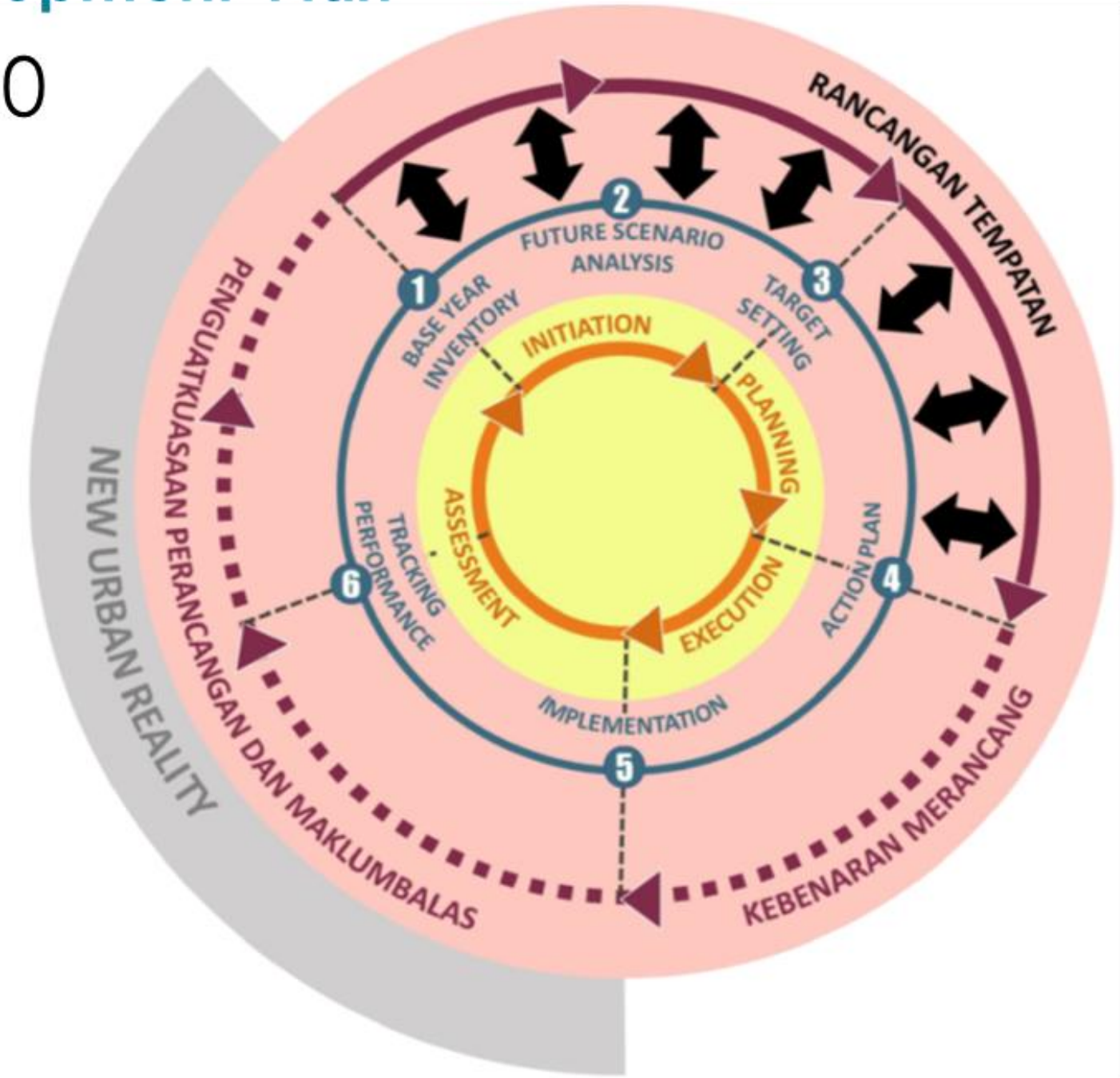
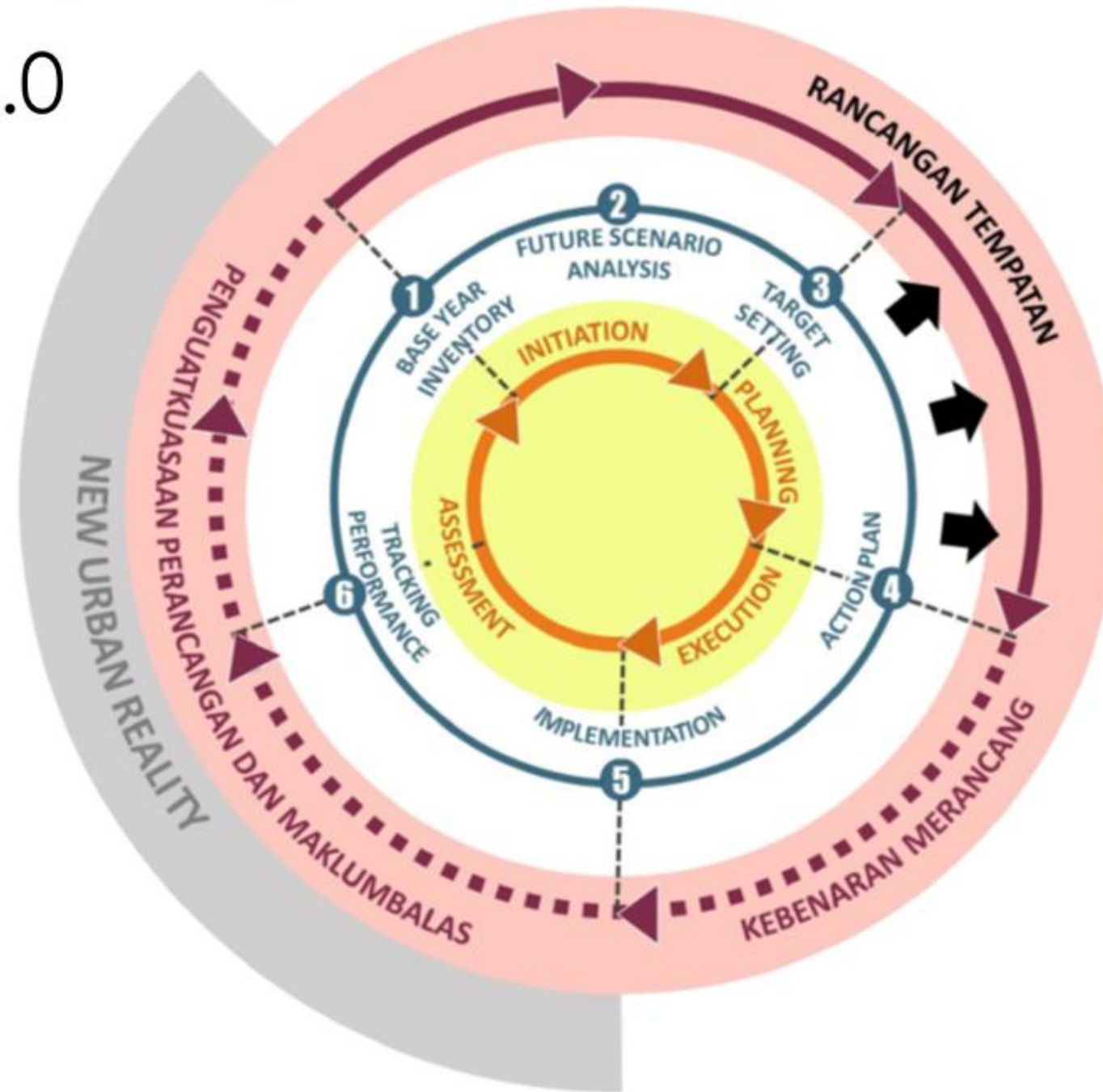
3) UTM-LCARC had been actively pushing for the mainstreaming of climate action plans into Malaysia's local development planning policies.

Stand alone – Decarbonize existing development plan

Integrate Climate Action plan into Development Plan

RT 2.0

RT 3.0



Spatial Planning
 Climate Policy Making
 Low Carbon Development Process
 Mainstreaming (one-way)
 Mainstreaming (two-way)

Example I: Mainstreaming of Muar Climate Action Plan into Muar District Local Plan 2030



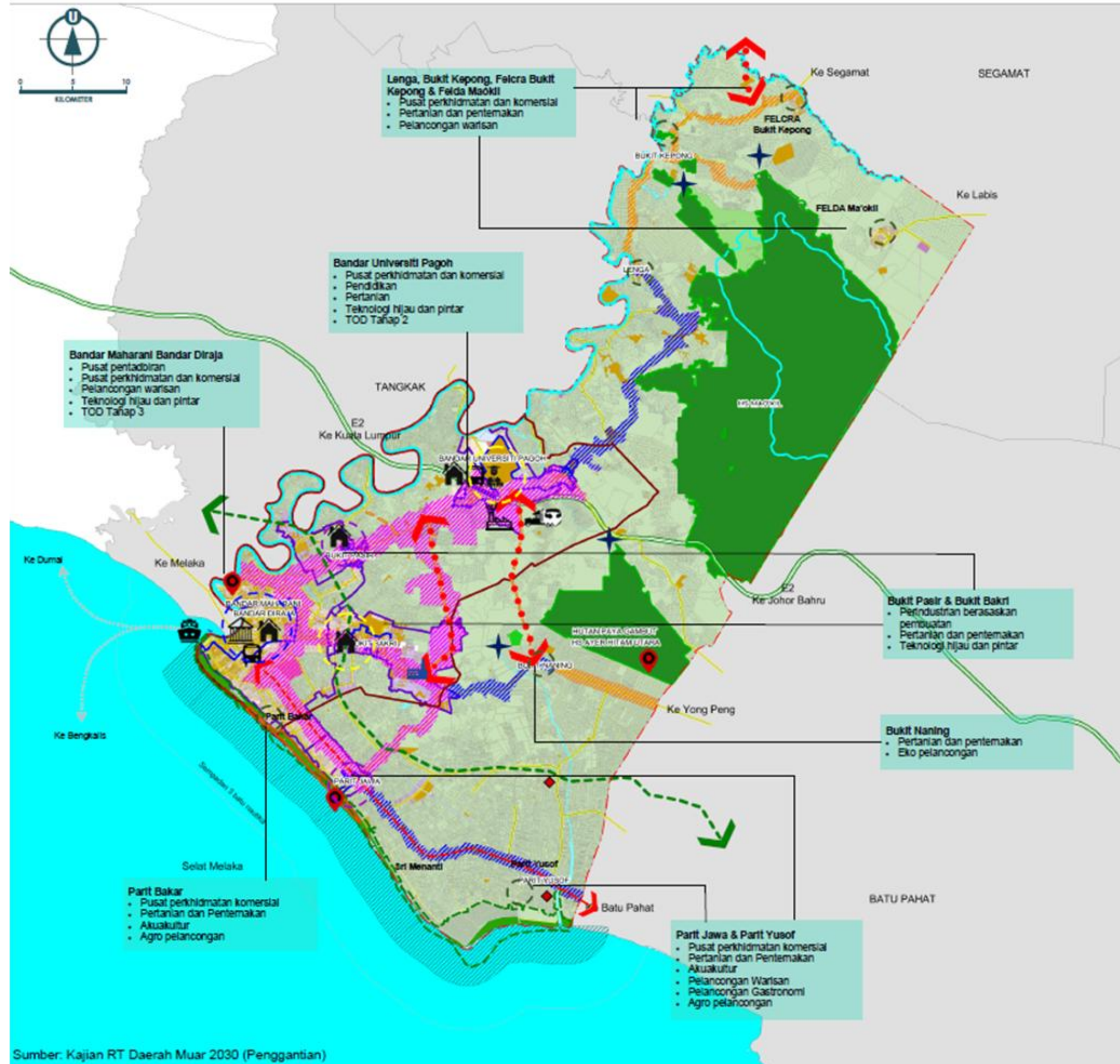
LOW CARBON PROPOSALS IN MUAR DISTRICT LOCAL PLAN:

13 MAIN SECTORS

58 PROPOSALS

Population and Socioeconomy <i>1 Proposal</i>	Land Use, Physical Characteristics and Urban Settlement <i>6 Proposals</i>	Commercial and Services <i>3 Proposals</i>	Industrial <i>5 Proposals</i>	Tourism <i>6 Proposals</i>	Agriculture and Fisheries <i>4 Proposals</i>
City Center, Heritage Conservation, Urban Design and Landscape <i>3 Proposals</i>	Environment, Natural Resource Management, Forestry and Geohazards <i>3 Proposals</i>	Housing <i>9 Proposals</i>	Institutions, Community Facilities and Open Spaces <i>2 Proposals</i>	Rural and Outskirts Settlement <i>2 Proposals</i>	Transportation and Communication Network <i>8 Proposals</i>
Infrastructure and Utilities <i>6 Proposals</i>					

MUAR DISTRICT LOCAL PLAN 2030: OVERALL SPATIAL CONCEPT



Rajah 3.28
Konsep Pembangunan RT Daerah Muar 2030
(Penggantian)



- PETUNJUK:**
- HIERARKI PETEMPATAN**
- Pusat Wilayah Negeri
 - Pusat Separa Wilayah Negeri
 - Pusat Petempatan Utama
 - Pusat Petempatan Kecil
- KAWASAN FOKUS PEMBANGUNAN**
- Kawasan tepu bina
 - Koridor Perbandaran Utama
 - Koridor Perbandaran Sekunder
 - Koridor Perbandaran Tertier
 - Zon Promosi Pembangunan
 - Cadangan sempadan UGB
 - Sempadan bandar
 - Muar Furniture Park 2.0
 - Free Industrial Zone (FIZ)
 - Hab Pendidikan Tinggi Pagoh
 - Pusat Pentadbiran Baharu
 - Skim Perumahan Mampu Milik dan Mampu Blaya
- KAWASAN PENGEKALAN DAN PEMELIHARAAN**
- HSK sedia ada
 - Badan air
 - Cadangan Empangan Meda
 - Kawasan berhutan sedia ada
 - Cadangan hutan warta
- KAWASAN TERKAWAL**
- Pertanian
 - Zon penampungan 20 meter HSK
 - Zon penampungan 50 meter Sg Muar
 - Taman Kekal Pengeluaran Makanan (TKPM)
 - Zon Pengeluaran Makanan (ZPM)
 - Zon Industri Akuakultur (ZIA)
 - Eko pelancongan
 - Agro pelancongan
- SISTEM RANGKAIAN DAN PERHUBUNGAN**
- Jalan sedia ada
 - Lebuhraya sedia ada
 - Cadangan jalan baru
 - Cadangan Lebuhraya Pantai Barat
 - Cadangan naik taraf Lebuhraya Pesisir Pantai
 - Terminal Kenderaan Berat
 - Terminal Feri
 - Terminal Pengangkutan Awam Bersepadu
- LAIN-LAIN PETUNJUK**
- Sempadan Negeri
 - Sempadan Daerah

Sumber: Kajian RT Daerah Muar 2030 (Penggantian)

Other Examples : Mainstreaming of Johor Bahru Climate Action Plan into Johor Bahru District

Local Plan 2035, Iskandar Puteri Local Plan 2035 and HangTuah Jaya Local Plan 2035

**ISKANDAR PUTERI LOCAL PLAN 2035
INCORPORATED ONE SPECIAL
CHAPTER FOR MANAGEMENT OF LOW
CARBON CITY**



3 OBJECTIVES

Identify the current carbon footprint of Iskandar Puteri City and establish a baseline for future reference

Setting a target to reduce Iskandar Puteri City's carbon emissions by 2035 towards achieving carbon neutral status by 2050

Provide spatial solutions to identify proposed programs to improve energy efficiency and reduce carbon emissions in Iskandar Puteri City in line with

**JOHOR BAHRU LOCAL PLAN 2035
INCORPORATED ONE SPECIAL
CHAPTER FOR SMART AND LOW
CARBON CITY**



4 DIMENSIONS

DIMENSION 1:
Greenhouse Gas Emissions

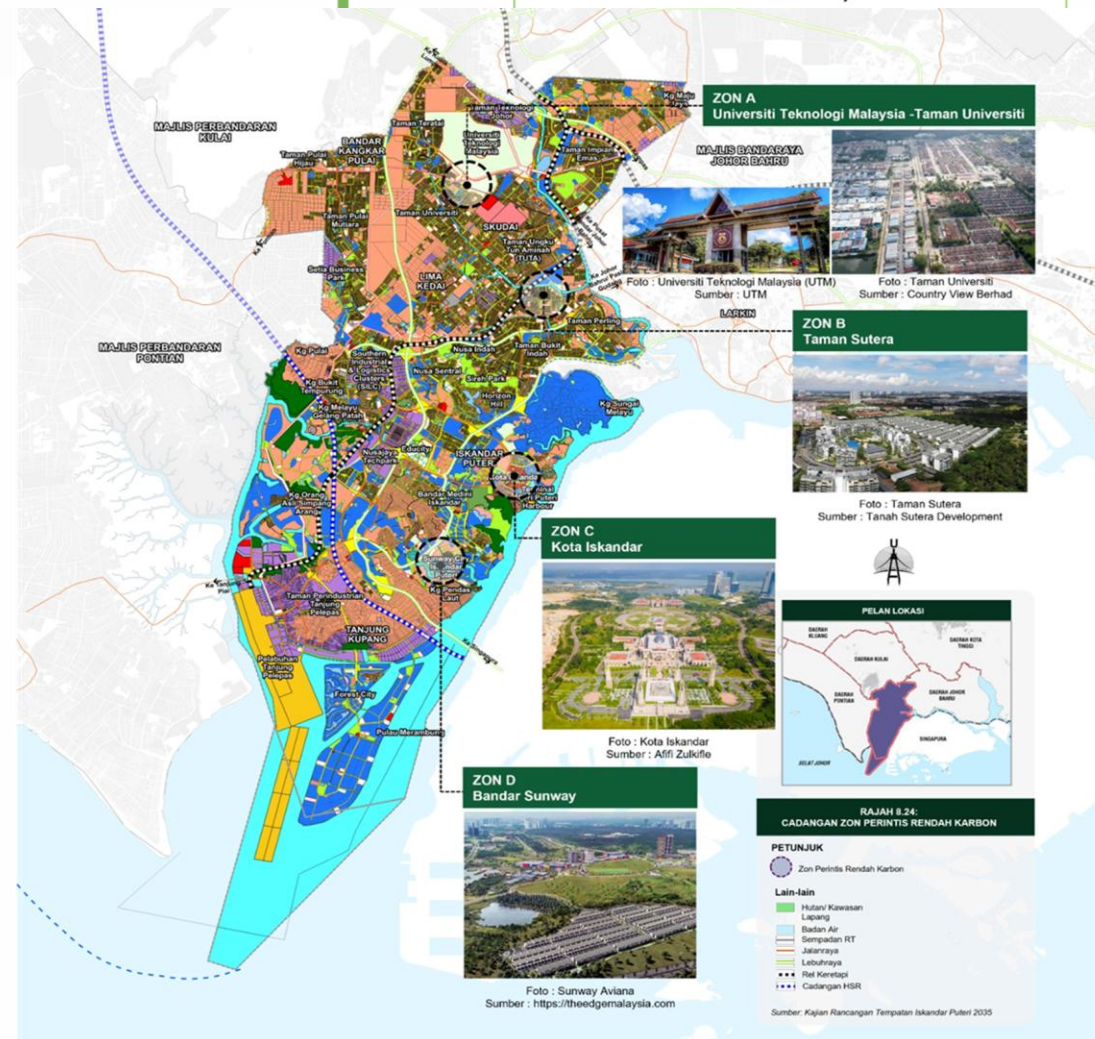
DIMENSION 2:
Land Use Land Cover Change

DIMENSION 3:
Community

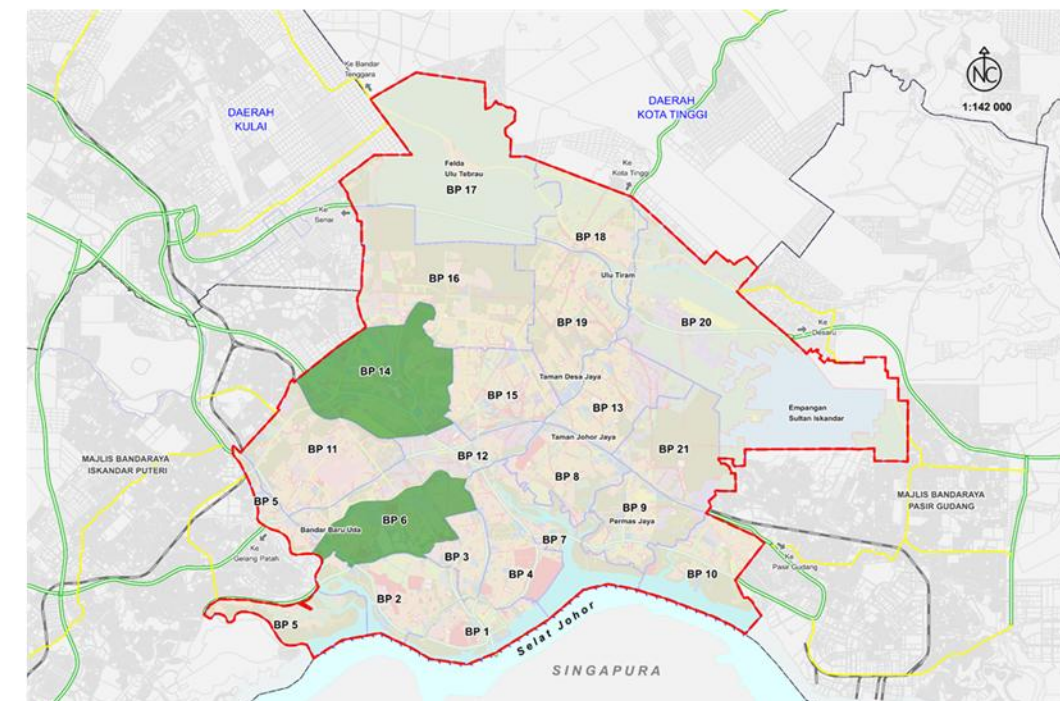
DIMENSION 4:
Smart City as LCS Solution

**ISKANDAR PUTERI LOCAL
PLAN 2035**

**LOW CARBON
DEVELOPMENT PILOT ZONE
(ZON PERINTIS)**



**JOHOR BAHRU LOCAL PLAN 2035
LOW CARBON DEVELOPMENT PILOT ZONES
(ZON PERINTIS)**



LARKIN



**BANDAR DATO' ONN/
SETIA TROPIKA**





UTM's Guiding Visions:

UTM's Tagline:

Innovating Sustainable Solutions

UTM's Motto:

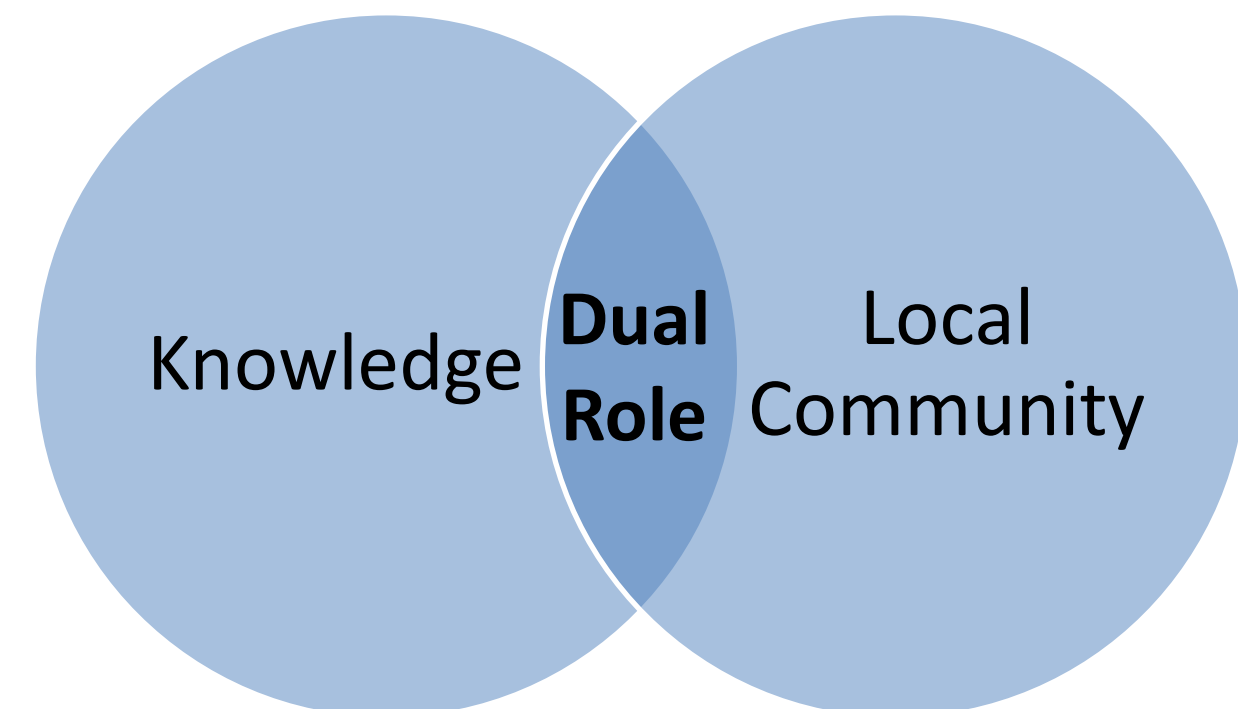
"In the Name of God for Mankind"

UTM's Dual Roles:

UTM sees itself not only as a centre of learning but as a living partner to society.

Our dual role:

- Hub of Knowledge
- Hub of Local Community



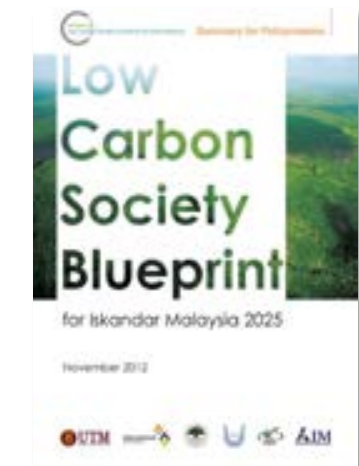
UTM as a Hub of Knowledge

- UTM-Low Carbon Asia Research Center (UTM-LCARC) advance **frontier research and innovation** in sustainability and low-carbon technologies.
- UTM-LCARC also unites **experts in engineering, energy, and policy.**

Example of projects:

Iskandar Malaysia Low Carbon Society Blueprint & Kuala Lumpur Low Carbon Society Blueprint 2030

Goal: Shaping city and regional policies.



ASEAN Climate Change Strategic Action Plan 2025-2030 (ACCSAP)

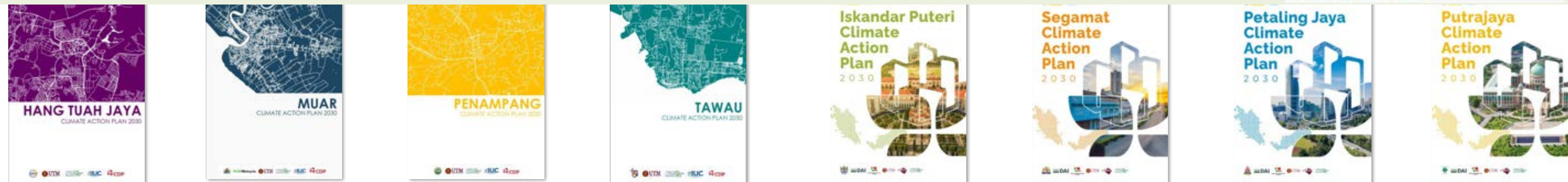
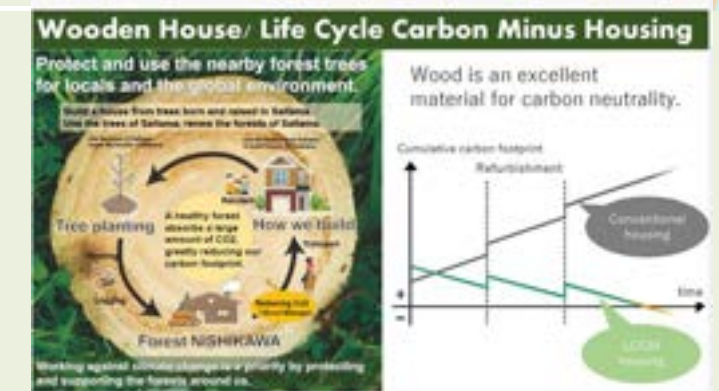
Description: It is a regional framework to accelerate climate action across Southeast Asia. UTM LCARC is a part of team of ASEAN Working Group Think Tank that helps in strengthening coordination and implementation of climate change mitigation and adaptation strategies in Malaysia.



Global Covenant of Mayors (GCoM) Pilot Cities – Climate Action Plans for 8 cities

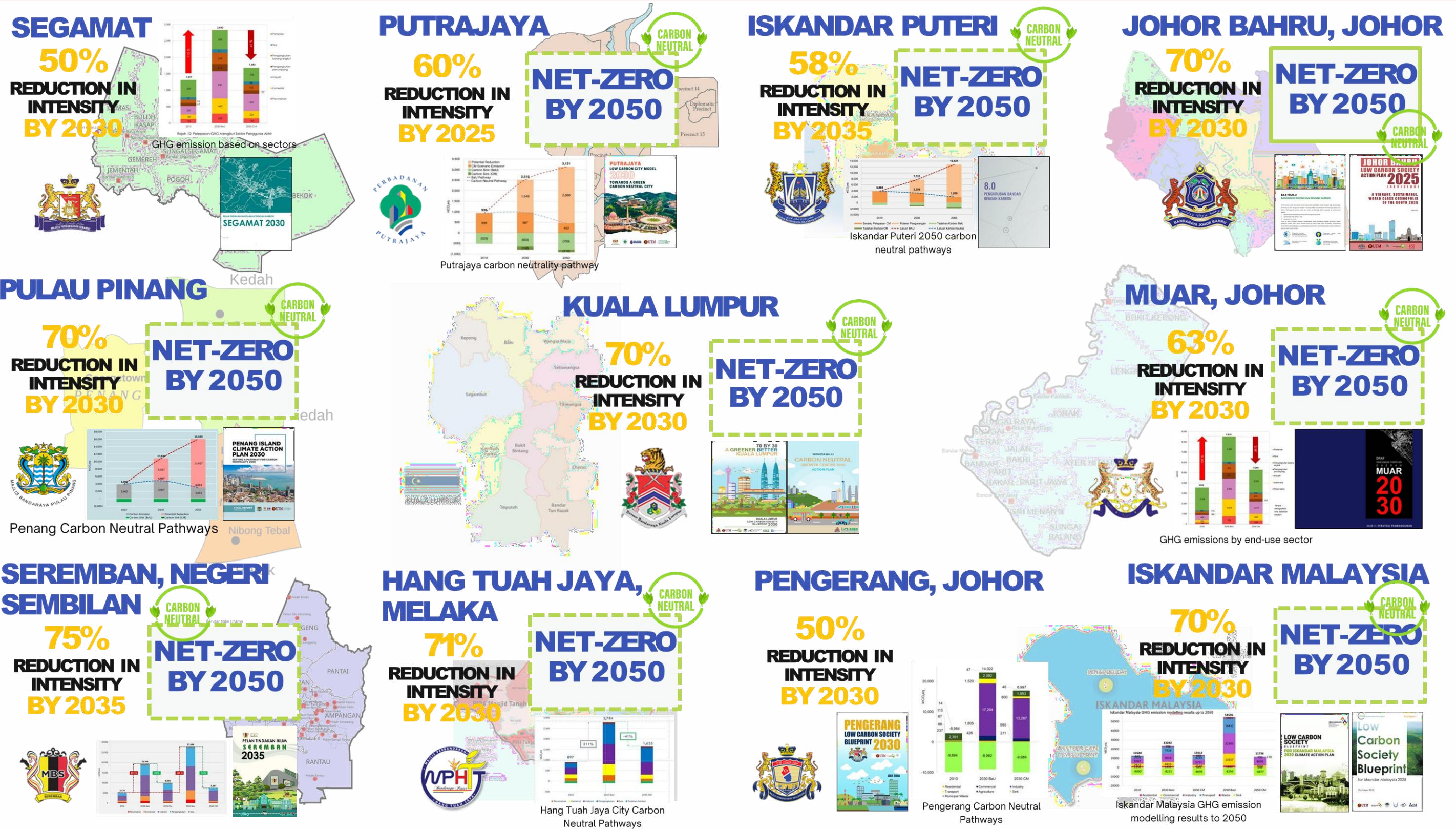
Main Goal: Turning research into real-world solutions for decarbonization.

City to City Collaboration eg Saitama city and JSC Johor on Timber learning centre



UTM as a Hub of Local Community

- Working hand in hand with **city councils, industries, and citizens.**
- Collaborations with **more than 11 cities / Local authorities** to prepare **LCS Blueprints and Climate Action Plans** in Malaysia
- Working on **community / schools programs** via Local agenda 21 on carbon footprint awareness and green living.
- Working with industries – matching industries need (e.g., **Takasago timber construction , AEON on renewal energy and recycling activities**)
- **Impact:** Empowering communities to act for sustainability.



Strengthening the Dual Role

To strengthen the dual role, UTM is to:



- Foster co-creation platforms between students, researchers, and communities.



- Demonstrate solutions through green buildings (CASBEE), sustainable mobility, and circular systems.



- Transform campuses into living laboratories for low-carbon innovation.

Outcome: Universities as true agents of transformation.

Conclusion

By connecting academic excellence with societal relevance and by innovating solutions in the name of God for mankind, UTM exemplifies how universities can transform knowledge into hope, and research into real change for communities and the planet.

OUR PARTNERSHIPS:

Sponsors:



Research Partners:



Clients:



Research Alliances:



Innovating Solutions



Thank You



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