Development of
Low Carbon Scenarios for Asia Regions

# Development and Implementation of Climate Change Action Plan (CCAP) in Asian cities – the Case of Malaysian cities.

## 8th Nov 2016 (Tue) 1300-1430pm,Japan Pavilion

## UNFCCCC COP22 Marrakesh, Morocco

Ho Chin Siong, University of Technology Malaysia

SATREPS
Science and Technology Research Partnership for Sustainable Development Program

# Content of Presentation

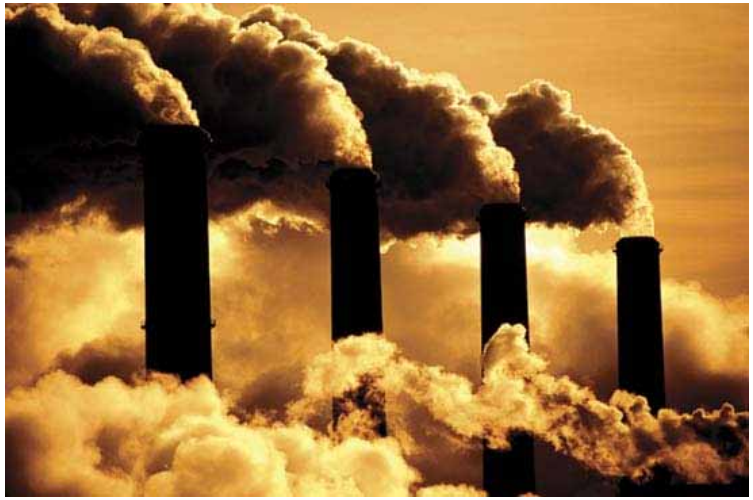
1. Background
2. Low carbon and Sustainable development Approach
3. Co Benefit of LCS policies
4. The case of Iskandar Malaysia and Kuala Lumpur
5. Conclusion and Remarks

# POLICY MAKERS concern
# URBAN PROBLEMS Vs PUBLIC GOODS

## Material and Energy

## Mobility and Green

## Economy/ Engine of Growth



## Social/ People

# ISSUES AND CHALLENGES

**Rapid urbanization and industrialization**

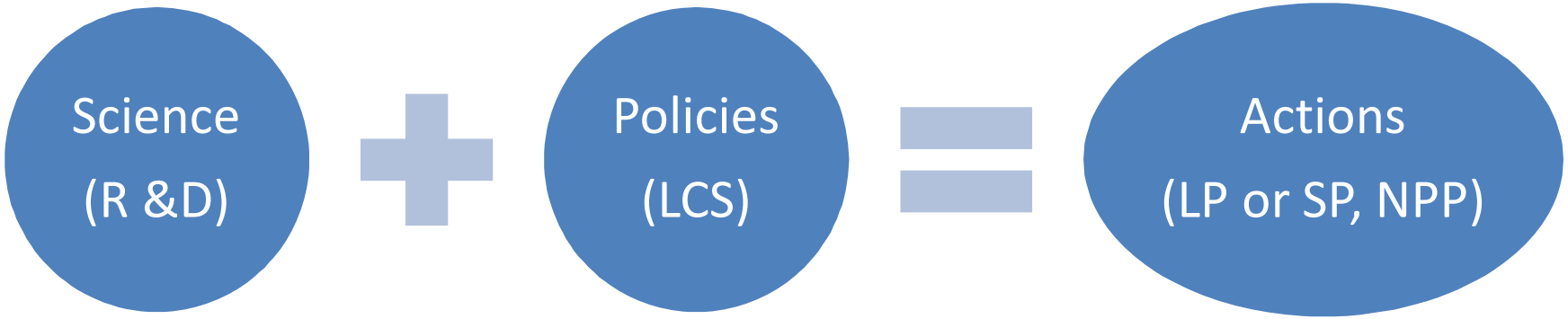
**Relatively high carbon intensity dependence on fossil fuel**


**High Private car ownership**

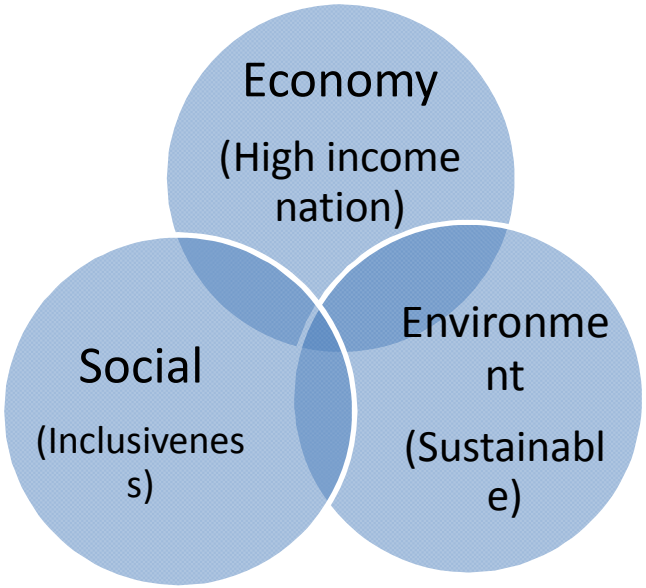
**Low density development and urban sprawl**

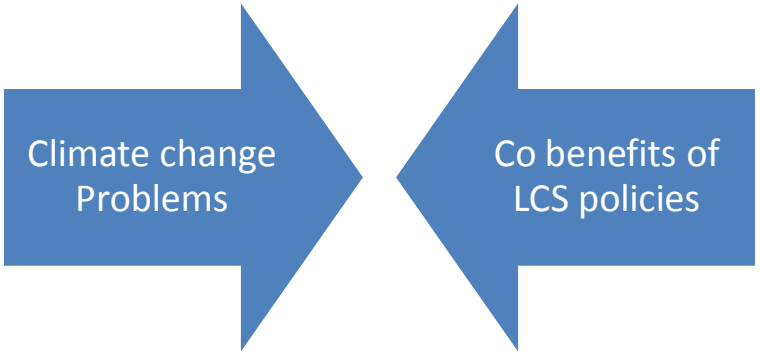
**Low efficiency appliances and low usage of renewable energy.**

# Low carbon sustainable development approach




Key element Sustainable development = PRO GROWTH, PRO JOB , PRO POOR and PRO ENVIRONMENT



# Why Low carbon society and sustainability in Malaysia?

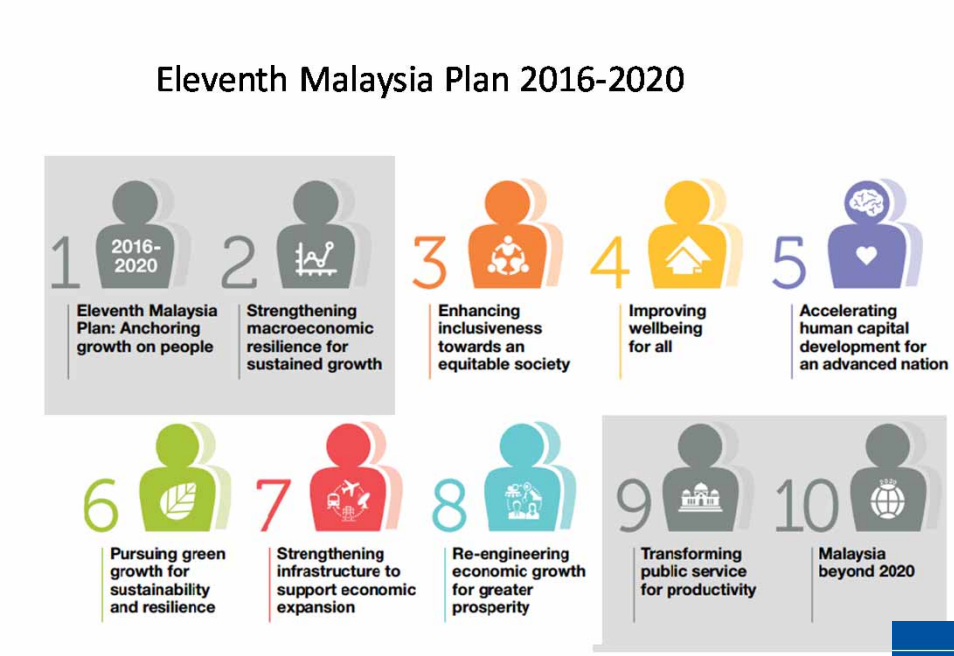
## Rationale

- **National Agenda** 40% CO2 intensity reduction 2020 ( COP15) and 45% by 2030 ( COP21) and SDG 2030
- Climate change and **sustainability policy issues are embedded** in all spatial planning policies ( NPP/ RS/LP)
- Urban planning **enhances sustainable urban structure (** compact city / TOD / SWM/green and blue infrastructure and can promote LCS lifestyle
- **Fulfill roles to reduce vulnerability** on disasters (flood) and promote comfort and safety.

## Why LCS cities?

# ISSUES AND VISION

## CURRENT
## ELEVENTH MALAYSIA PLAN 2016-2020





## Pursuing green growth for sustainability and resilience

- Green growth
- Competitive cities
- Inclusiveness society
- Consumption & Production (SCP)
- Digital nation

Game Changer

### Embarking on green growth

**Why is green growth important for Malaysia?**

Malaysia, like many countries across the world, is grappling with the challenge of balancing a growing population and demand, with a natural environment that is increasingly under stress. In the global context of increasing intensity and frequency of extreme weather events, adopting green growth has now become an imperative for Malaysia. It represents Malaysia's commitment to renew and, indeed, increase its commitment to the environment and long-term sustainability.

**What will success look like?**

A successful green growth trajectory will ensure:

- Detrimental impact of socio-economic activity on environmental systems is reduced;
- Natural capital, including forested areas, biodiversity, and water resources as well as its ecosystems, is valued and sustainably managed;
- Development gains are protected, thus ensuring wellbeing of people across generations; and
- Energy use is efficient and renewable energy is widely used.

**How will this be achieved?**

Achieving these aspirations requires a fundamental shift away from a 'grow first, clean up later' development model towards one that views resilient, low-carbon, resource-efficient, and socially inclusive development as an upfront investment that will yield future gains over multiple generations to come. This requires fundamental changes across every major dimension including how policy is determined, how institutions are regulated, how responsibilities are shared, and how people value their environment.

# CO2 Modelling /LCS blueprint on the Case study of Iskandar Malaysia

## Project Background


Site: Iskandar Malaysia

(Iskandar Regional Development Authority)

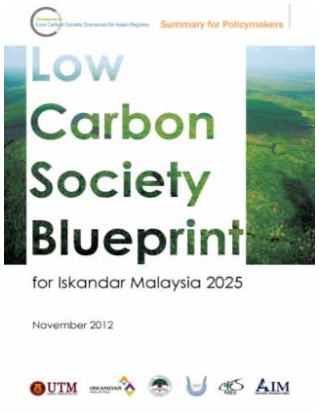
Objective:

i. To draw up **key policies and strategies** in guiding the development of Iskandar Malaysia in **mitigating carbon emission**. *Transforming Iskandar Malaysia into* ***a sustainable low carbon metropolis by adopting green growth strategies/roadmap.***

ii. To respond to the nation's aspiration for **ensuring climate-resilient development for sustainability**.

Target Year: 2025 (2005 – 2025)

# **FROM POLICY BLUEPRINT TO** LOCAL ACTION PLAN


**Present**

**Preliminary Study**
**Year: 2008 - 2009**

Low Carbon City 2025: Sustainable Iskandar Malaysia

**Policy Design**
**Year: 2011 - 2013**

Low Carbon Society Blueprint for Iskandar Malaysia 2025

A Roadmap towards Low Carbon Iskandar Malaysia 2025

Iskandar Malaysia: Actions for a Low Carbon Future

**Implementation**
**Year: 2014-2016**

Low Carbon Society Action Plan for Johor Bahru 2025

Low Carbon Society Action Plan for Johor Bahru Tengah 2025

Low Carbon Society Action Plan for Pasir Gudang 2025

Low Carbon Society Action Plan for Kulai 2025

Low Carbon Society Action Plan for Pontian 2025

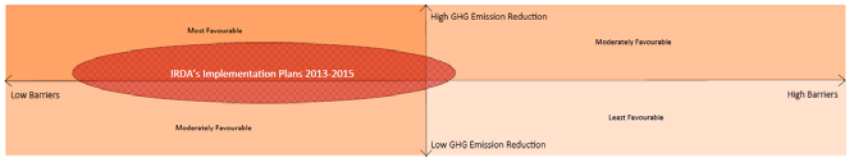

# OUTPUT 2: LCS scenarios for policy development in IM

## How to make the LCS happen in IM

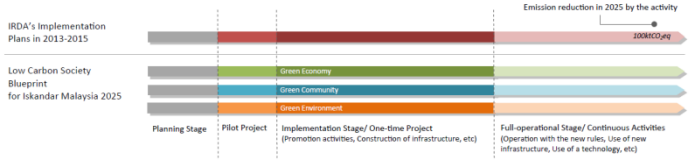
*A Roadmap towards Low Carbon Iskandar Malaysia 2025*

### Rationales for Implementation Phasing

A good roadmap is characterised by well justified phasing of projects. Priority projects would be those that have relatively low barriers but high GHG reduction impacts (see diagram below). Implementation barriers include cost, human capital, institution and legislation framework, societies readiness (stakeholder acceptance) and technology availability.




### Guide to Reading Timeline Diagram

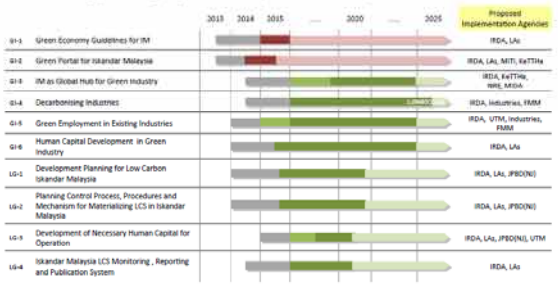



The roadmap comprises of EIGHT (8) implementation sectors demonstrating the implementation plan for TWELVE (12) key policy actions of *Low Carbon Society Blueprint for Iskandar Malaysia 2025* as well as IRDA's Implementation Plans 2013-2015. Each section breaks its policy action(s) into detail strategic plans, their implementation phases and duration and identified potential implementation agencies. These are presented in a series of timeline diagrams.

*Please see "Guide to Reading Timeline Diagram" printed overleaf for clarity >>>*

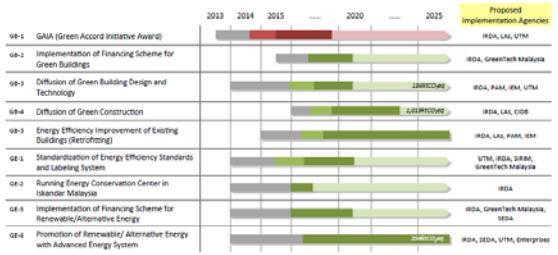
### Green Industry and Low Carbon Governance (GI, LG)

Action 2 "Green Industry" (GI) and Action 3 "Low Carbon Urban Governance" (LG), IRDA's Implementation Plans; Green Economy Guidelines for IM (GI-1) and Green Portal for Iskandar Malaysia (GI-2) are covered. The main contents are establishment of planning and governance system in IRDA, dissemination activities through a website, and low-carbonizing existing industries through mainly energy efficiency improvement and to encourage production of green goods and services required in a low carbon society.



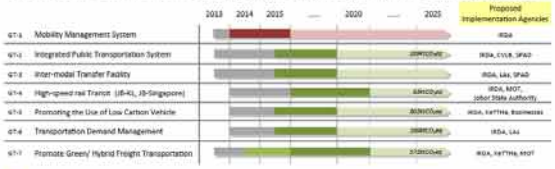

### Green Building and Energy System (GB, GE)

This roadmap describes implementation of Action 4 "Green Building and Construction" (GB) and Action 5 "Green Energy System and Renewable Energy" (GE) with IRDA's implementation plan of GAIA (Green Accord Initiative Award) (GB-1). The roadmap includes implementation of GAIA in IM, establishment of green building design, technology and construction, and its standardization in IM with financial scheme. At the same time, the roadmap covers diffusion of renewable and alternative energies in IM through strengthening financial support scheme for the energies and encouraging public awareness by Energy Conservation Center in Iskandar Malaysia.



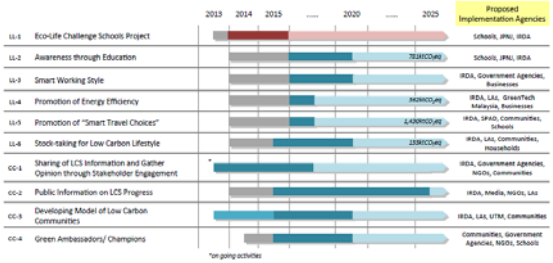

### Green Transportation (GT)

Action 1 "Green Transportation" (GT) and Mobility Management System (GT-1), IRDA's Implementation Plan are covered. The main contents are development of the integrated public transportation system, high-speed rail connection between Johor Bahru (JB)-Kuala Lumpur (KL) and JB-Singapore, development of inter-modal transfer facility and promotion of the use of low carbon passenger vehicle and freight transport.



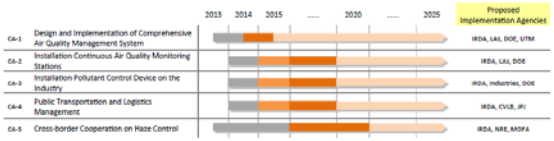

### Green Community (LL, CC)

This roadmap describes implementation of Action 6 "Low Carbon Lifestyle" (LL) and Action 7 "Community Engagement and Consensus Building" (CC) with IRDA's Implementation Plan, Eco-Life Challenge Schools Project (LL-1). Strong connections among people or communities forms an indirect support for direct impact inducing change to low carbon lifestyle.



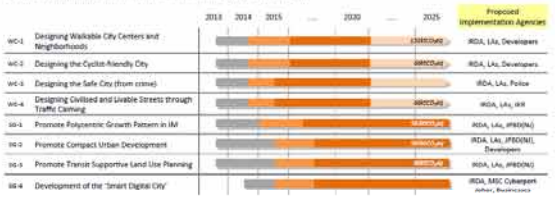

### Clean Air Environment (CA)

Action 12 "Clean Air Environment" (CA) is covered. The main contents are establishment of comprehensive air quality management system, installation of air quality monitoring station and pollutant emission control device in the industry sector. Green passenger and freight transportation are also considered. Cross-border cooperation to avoid regional haze pollution from open biomass burning is tightened.



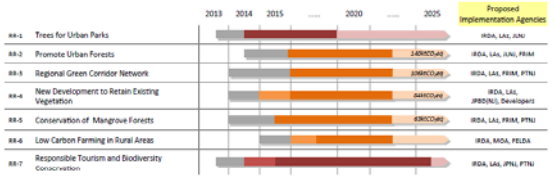

### Green Urban Design (WC, SG)

Action 8 "Walkable, Safe and Livable City Design" (WC) and Action 9 "Smart Urban Growth" (SG) are covered. The main contents for walkable city are establishment of walkable city centers and neighborhoods, cyclist-friendly city, safe city from crime, and civilized and livable streets through traffic calming. The main contents for smart urban growth are promotion of the polycentric growth pattern in IM, compact urban development, transit supportive land use planning and smart digital city.



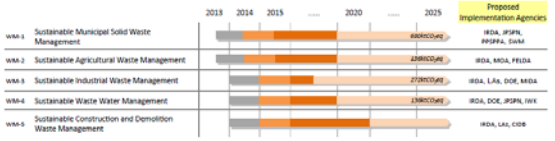

### Green and Blue Infrastructure, and Responsible Tourism (RR)

This roadmap describes implementation of Action 10 "Green and Blue Infrastructure and Rural Resources" (RR) with IRDA's Implementation Plans; Trees for Urban Parks (RR-1) and Responsible Tourism and Biodiversity Conservation (RR-7). The main contribution of this roadmap to emission reduction is enhancement of carbon sink by forests, including conservation of natural forests, such as mangrove forests, and tree planting in urban area.

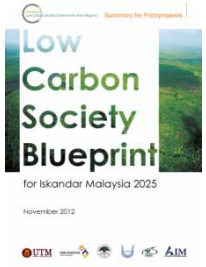



### Sustainable Waste Management (WM)

This roadmap covers Action 11 "Sustainable Waste Management" (WM) that includes five sub-actions which cover waste from five different sectors - municipal (household and commercial), agriculture, industry, waste water, and construction and demolition. IRDA implementation plan of *Nafas Baru* Pasir Gudang will become the platform for promoting Sustainable Municipal Solid Waste Management through pilot project of waste separation at source and also focusing on upgrading of landfill management.



# **ACCELERATING** THE IMPLEMENTATION




Iskandar Malaysia

*A Strong Sustainable Metropolis of International Standing*

Johor Bahru

Johor Bahru Tengah

Kulai

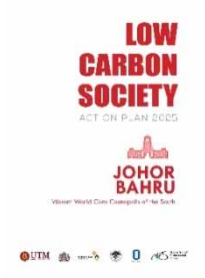
Pasir Gudang

Pontian

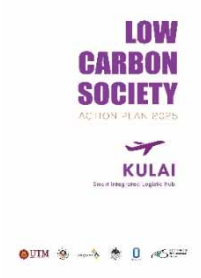




*(Jeram Batu, Serkat & Sg. Karang Sub-districts)*










*Vibrant World Class Cosmopolis of the South*

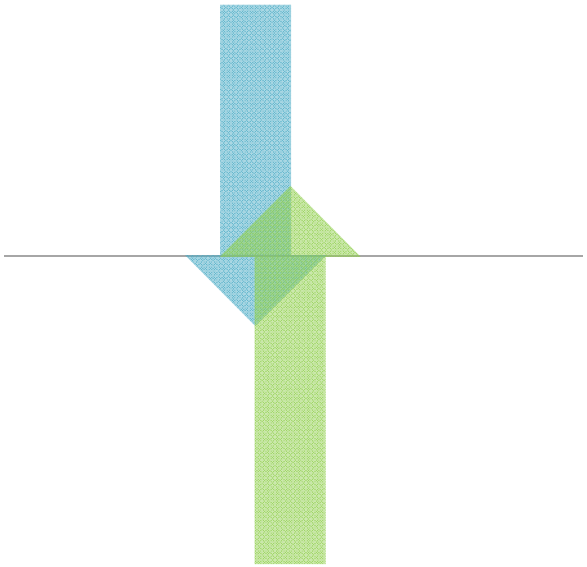
*Green Livable City & Creative Innovation Belt*

*Smart Integrated Logistic Hub*

*Green & Clean Industrial City*

*Clean Energy and Agro-Biodiversity Hub*

- **Direction, Guide and Policy**



1) Detailed Local Actions
2) Priority and Preference
3) Accurate Data through Survey
4) Choose Implementable Measures on the Ground
5) Pioneering Activities through Pilot Projects

# OUTPUT 4: Organizational Arrangement

## UTM-Low Carbon Research Centre

## RCE Iskandar


UNITED NATIONS UNIVERSITY

UTM-LOW CARBON ASIA RESEARCH CENTRE

**LCS Research & Training Hub in Asian Region**


PARLIMEN MALAYSIA
UNITED NATIONS
CLIMATE CHANGE CONFERENCE
KEMPEN 3R & PENGKOMPOSAN SISA MAKANAN DI FELDA TAIB ANDAK
IKHARDAN MALAYSIA
ECO-LIFE
CHALLENGE 2012
"FutureCity" Initiative
Cabinet Office
UTM
SUSTAINABLE LOW CARBON SCHOOLS EXHIBITION 2013
United Nations
Climate Change Conference 2012
COP18/CMP8
UNIVERSITI TEKNOLOGI MALAYSIA
SYMPOSIUM ON LOW CARBON ASIA RESEARCH PROJECT
&

PM and MB Johor launched the Low Carbon Action Plans on Dec 15 2015 during Meeting of Authority in Putrajaya

# Johor Bahru Low Carbon Society in the Making *(2015 Flashback)*

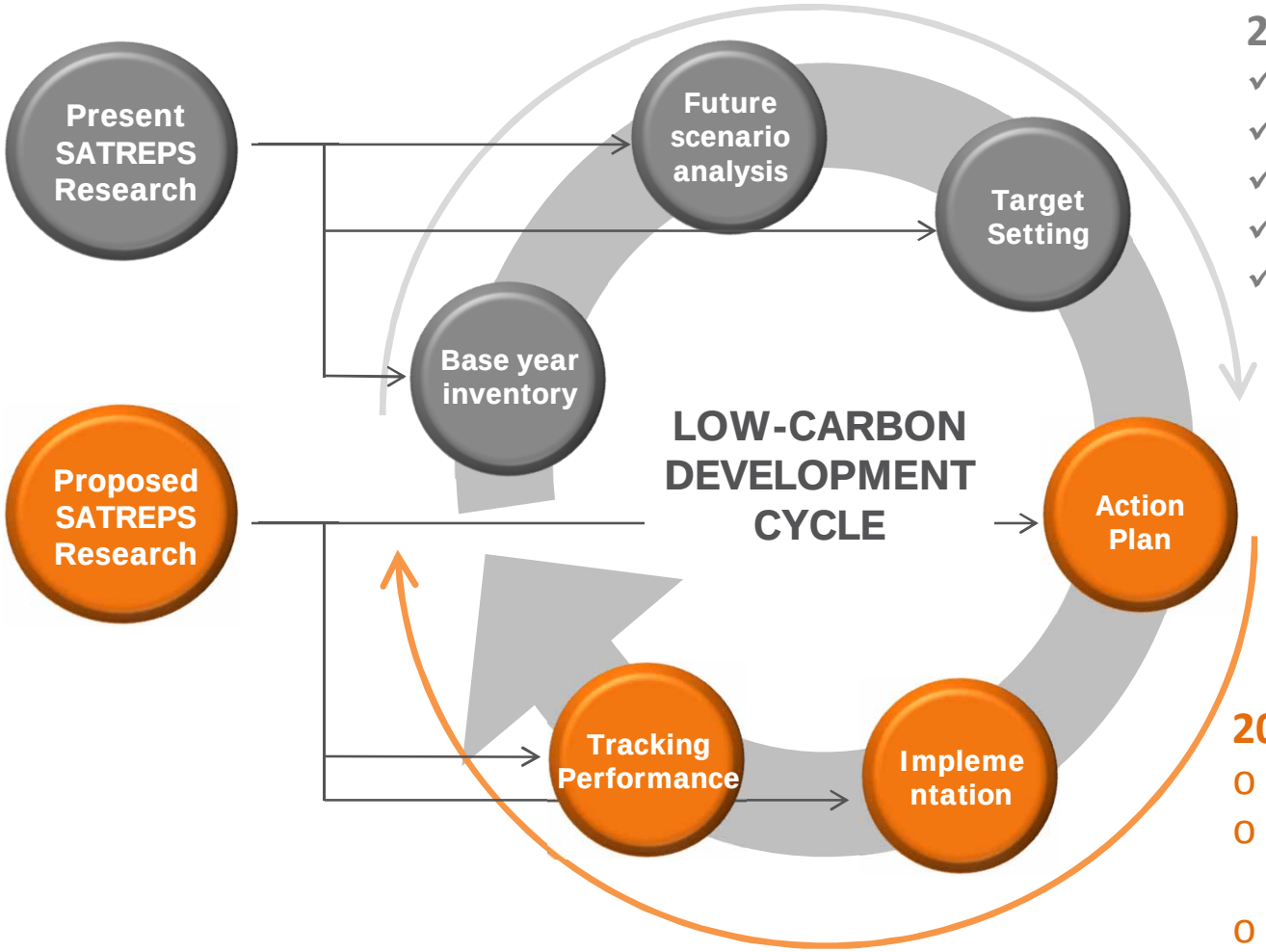

Low Carbon Action Plans for 5 local authorities in Iskandar Malaysia @ COP 21, Paris
Placing 5 LAs of Iskandar Malaysia in world agenda
*By CE IRDA on behalf of MB Johor – 7 Dec 2015*

# The 5 local authorities in Iskandar region - Low Carbon Society in the Making

Low Carbon Action Plans for 5 local authorities in Iskandar Malaysia @ Kota Iskandar Officially Handed Over to Datuk Bandar and YDPs of 5LAs/PBTs

*By MB Johor – 25 Feb 2016*

# (The importance of Implementation and Monitoring)




**2011 - 2016**

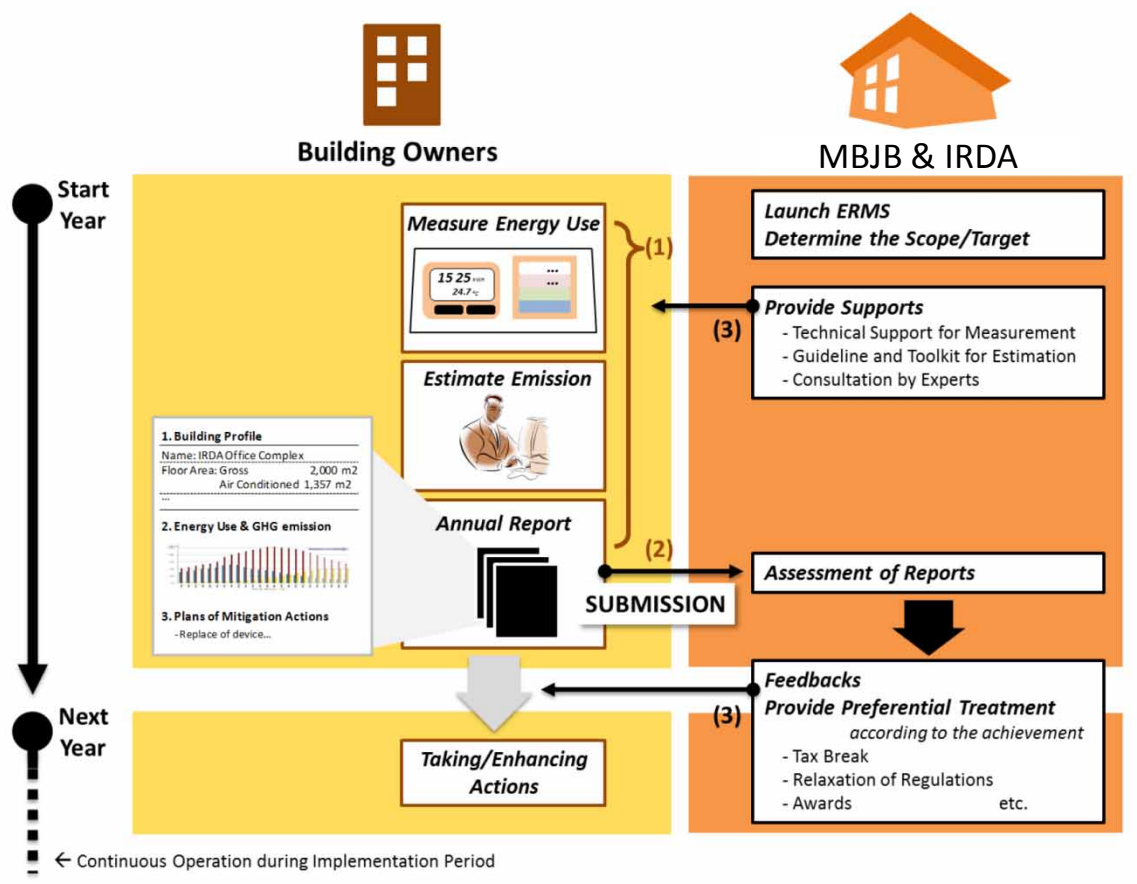
- ✓ LCS baseline study
- ✓ LCS scenario development
- ✓ GHG modelling
- ✓ LCS policy design
- ✓ IM (regional) level action plan

**2016 - 2021**

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

# Example of Inventory
# Building energy reporting system
# - Low Carbon Society Johor Bahru 2025

## BERMS (Building Energy Reporting and Monitoring System)




(1) The proposed system requests building owners to measure their energy consumption, estimate emissions and create action plans for mitigation.
(2) Building owners submit reports summarizing their energy usage, emissions and actions to the authorities annually.
(3) IRDA and/or 5LAs assess(s) the achievements of actions, provide(s) feedbacks and supports to encourage building owners to take actions.

# **CASBEE** : PILOT PROJECT

**CASBEE Japan**

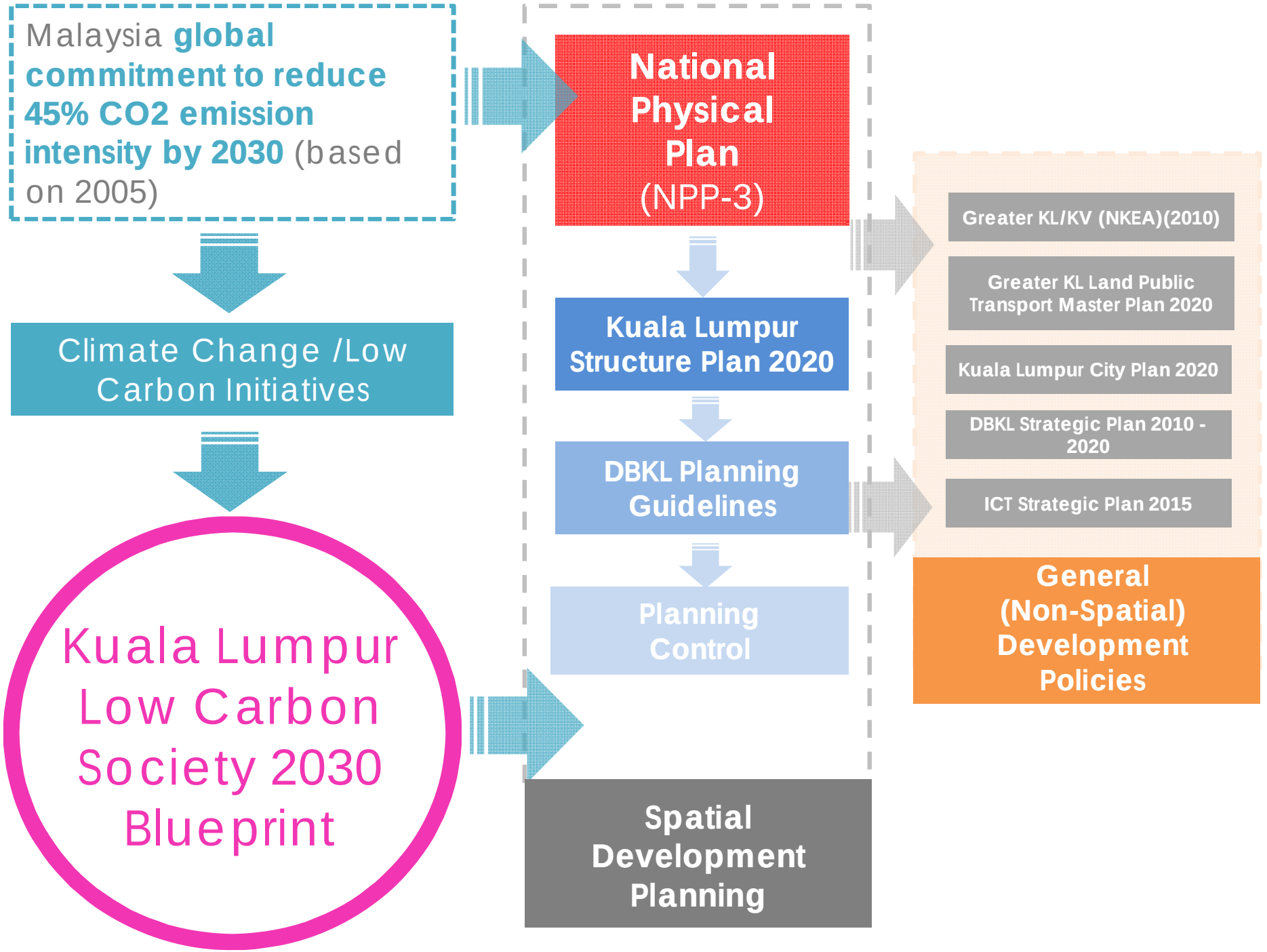
Adaptation / Customisation

Assessment criteria

**CASBEE Iskandar**

**Local Context**

- Climate
- Socio-cultural
- Technology
- Governance



Malaysia **global commitment to reduce 45% CO2 emission intensity by 2030** (based on 2005)
Climate Change /Low Carbon Initiatives
Kuala Lumpur Low Carbon Society 2030 Blueprint
National Physical Plan (NPP-3)
Kuala Lumpur Structure Plan 2020
DBKL Planning Guidelines
Planning Control
Spatial Development Planning
Greater KL/KV (NKEA)(2010)
Greater KL Land Public Transport Master Plan 2020
Kuala Lumpur City Plan 2020
DBKL Strategic Plan 2010 - 2020
ICT Strategic Plan 2015
General (Non-Spatial) Development Policies

# **Framework** of KL LCS 2030


KL LCSBP 2030 framework towards achieving World Class Sustainable City 2020.

# Concluding remarks

1. **CCAP must also make cities** be competitive and be the engine of growth. We should aims at **decoupling CO2 reduction and economic growth..**

2. Effective implementation of low carbon measures **at city level** needs **multi disciplinary professional input and multi stakeholders and buy in.**

3. Low carbon measures has to **relate to local co benefits ( safety, income generation or increase in property value, health improvement, better air quality, saving from commuting, stronger community engagement and interaction)**

4. S2A ( Science to Action) paradigm can facilitates the formulation and implementation of **science-based policies** for low-carbon development in the Asian region order to realise a **sustainable future based on a stabilised climate**.

5. A **network and collaboration of researchers such as LoCARNet/ LCS R net** are important to reflect research findings into actual policies to achieve low-carbon growth.

6. **Needs close collaboration between Researchers and Policy makers** will **continue to seek knowledge for more effective climate action plan** due to knowledge gaps exists.

# Malaysia on track for sustainable development

- **UN2030 Agenda – Priority for people economy**
- Malaysia **reaffirms its commitment** to meet UN 2030 Agenda for Sustainable development
- **Inclusiveness and sustainable development** has long been the heart of Malaysia transformation from **developing economy to achieving high income status by 2020**

United Nations Sustainable Development Summit 2015
**25 – 27 September 2015, New York**

Malaysia on track to become high-income nation by 2020: 29 SEPTEMBER 2015
: http://www.nst.com.my/news/2015


List of 17 Sustainable Development Goals (SDGs)
2030 by United Nations (UN)

Thank You Terima Kasih 谢谢 धन्यवाद ありがとう

*Thank you for your attention!*

ho@utm.my


REGIONAL CENTRE OF EXPERTISE
ON EDUCATION FOR
SUSTAINABLE DEVELOPMENT

ACKNOWLEDGED BY

UNITED NATIONS
UNIVERSITY

RCE ESD (Regional Centre of Expertise on Education for Sustainable Development) **RCE Iskandar**

UTM-LOW CARBON ASIA
RESEARCH CENTRE