LoCARNet 8th Annual Meeting
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Climate Change Policies and Roles of Research Communities in Malaysia

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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 awareness
- Enable energy plan,
- Inclusiveness,
- SDG 2030

<table>
<thead>
<tr>
<th></th>
<th>CO2 emission ('000metric tons)</th>
<th>CO2 per capita metric ton</th>
<th>Carbon intensity kg CO2eq/RM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>222,990</td>
<td>9.5</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>(source NC2 2010)</td>
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<tr>
<td>2014</td>
<td>317,626</td>
<td>10.3</td>
<td>0.3137 kg</td>
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<td>(source NC2 2018)</td>
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</tbody>
</table>
Roles of Researcher in Climate change

- **S2A SCIENCE TO ACTION**
  - Methodology, Baseline modelling, Scenario development

- **COMMUNITY ENGAGEMENT**
  - Focus Group discussion and Scoping

- **COMMON REPORTING SYSTEM**
  - Adaptation And Mitigation

- **CLIMATE ACTION PLAN**
  - LCS Blueprint, LCS Action Plan, Roadmap

- **MAINSTREAMING CLIMATE ACTION IN STATUTORY PLANNING**
  - CAP into Development Plan system (Local Plan)

- **IMPLEMENTATION and MONITORING**
  - Education for sustainable development (ESD)
  - CASBEE
  - GAIA awards, Green Protocol reporting
  - Global networks, Media
Selected Climate Action Plans by UTM-LCARC

2009-2018
UTM-LCARC Research Approach

We believe in Science to Action in making Low Carbon Society a Reality.
UTM-LCARC S2A Approach

**Science**
- Baseline Inventory & Scenario Development
- GHG Modelling
- Community / Stakeholder Engagement
- Policy Framework

**Policy-Making**
- Political / Corporate Buy-ins
- Mainstreaming
- Policy Roadmap

**Action**
- Policy Review
- Reporting
- Monitoring
- Tracking

**Pro-Environment**
- Pro-Env.

**Pro-Growth**
- Pro-Growth

**Pro-Poor**
- Pro-Poor
- Pro-Job

**Pro-Job**
Policy Scoping for IMLC SBP 2025

ISKANDAR MALAYSIA VISION: STRONG, SUSTAINABLE METROPOLIS OF INTERNATIONAL STANDING

STRONG

PROSPEROUS, RESILIENT, ROBUST, GLOBALLY COMPETITIVE ECONOMY

- INTEGRATED GREEN TRANSPORTATION
- GREEN INDUSTRY

LOW CARBON URBAN GOVERNANCE

- LOW CARBON LIFESTYLE
- WALKABLE, LIVABLE, SAFE CITY DESIGN

GREEN ECONOMY

GREEN BUILDINGS & CONSTRUCTION

GREEN ENERGY SYSTEMS & RENEWABLE ENERGY

GREEN COMMUNITY

COMMUNITY ENGAGEMENT & CONSENSUS-BUILDING

- SMART URBAN GROWTH
- GREEN & BLUE INFRASTRUCTURE & RURAL RESOURCES

GREEN ENVIRONMENT

LOW CARBON BUILT ENVIRONMENT & SOCIETY

- SUSTAINABLE URBAN GOVERNANCE
- SUSTAINABLE WASTE MANAGEMENT

LOW CARBON BUILT ENVIRONMENT & SOCIETY

- SMART URBAN GROWTH
- GREEN & BLUE INFRASTRUCTURE & RURAL RESOURCES

HEALTHY, GLOBALLY COMPETITIVE, KNOWLEDGEABLE SOCIETY

- SMART URBAN GROWTH
- GREEN & BLUE INFRASTRUCTURE & RURAL RESOURCES

GLOBALLY COMPETITIVE, KNOWLEDGEABLE SOCIETY

SUSTAINABLE

LOW CARBON BUILT ENVIRONMENT & SOCIETY

- SMART URBAN GROWTH
- GREEN & BLUE INFRASTRUCTURE & RURAL RESOURCES

GREEN ECONOMY

INTEGRATED GREEN TRANSPORTATION

GREEN INDUSTRY

GREEN BUILDINGS & CONSTRUCTION

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LOW CARBON BUILT ENVIRONMENT & SOCIETY

- SMART URBAN GROWTH
- GREEN & BLUE INFRASTRUCTURE & RURAL RESOURCES
COP15 Copenhagen (17 Dec 2009) – Malaysia’s “… voluntary GHG reduction up-to-40% by emission intensity of GDP by 2020 compared to 2005 levels”.

COP18 Doha (2012) - IRDA globally launched its Low Carbon Society Blueprint for Iskandar Malaysia 2025. GOAL: to reduce Iskandar Malaysia’s GHG intensity emission by 58% by 2025; 40% absolute.
Iskandar Malaysia – Potential CO$_2$ Reduction

Table 1: Projected main socio-economic variables

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2025</th>
<th>2025/2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population (1000)</strong></td>
<td>1,353</td>
<td>3,000</td>
<td>2.22</td>
</tr>
<tr>
<td><strong>Household (1000)</strong></td>
<td>303</td>
<td>706</td>
<td>2.33</td>
</tr>
<tr>
<td><strong>GDP (Bill. RM)</strong></td>
<td>35.7</td>
<td>141.4</td>
<td>3.96</td>
</tr>
<tr>
<td><strong>Gross output (Bill. RM)</strong></td>
<td>121.4</td>
<td>438.9</td>
<td>3.61</td>
</tr>
<tr>
<td><strong>Primary industry</strong></td>
<td>1.5</td>
<td>2.4</td>
<td>1.59</td>
</tr>
<tr>
<td><strong>Secondary industry</strong></td>
<td>86.2</td>
<td>274.0</td>
<td>3.18</td>
</tr>
<tr>
<td><strong>Tertiary industry</strong></td>
<td>33.7</td>
<td>162.5</td>
<td>4.82</td>
</tr>
<tr>
<td><strong>Passenger transport demand</strong> (Mill. passenger-km)</td>
<td>9,565</td>
<td>59,524</td>
<td>6.22</td>
</tr>
<tr>
<td><strong>Freight transport demand</strong> (Mill. ton-km)</td>
<td>8,269</td>
<td>26,054</td>
<td>3.15</td>
</tr>
</tbody>
</table>

Figure 1: GHG emissions by sectors

Source: Low Carbon Society Blueprint for Iskandar Malaysia 2025 – Summary for Policymakers (2nd Ed.), 2013, p.1
## LCS Actions for IM by Three Main Themes

<table>
<thead>
<tr>
<th>Action Names</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Green Transportation</td>
<td>GREEN ECONOMY</td>
</tr>
<tr>
<td>Green Industry</td>
<td></td>
</tr>
<tr>
<td>Low Carbon Urban Governance</td>
<td></td>
</tr>
<tr>
<td>Green Buildings &amp; Construction</td>
<td></td>
</tr>
<tr>
<td>Green Energy System &amp; Renewable Energy</td>
<td></td>
</tr>
<tr>
<td>Low Carbon Lifestyle</td>
<td>GREEN COMMUNITY</td>
</tr>
<tr>
<td>Community Engagement &amp; Consensus Building</td>
<td></td>
</tr>
<tr>
<td>Walkable, Safe, Livable City Design</td>
<td>GREEN ENVIRONMENT</td>
</tr>
<tr>
<td>Smart Urban Growth</td>
<td></td>
</tr>
<tr>
<td>Green and Blue Infrastructure &amp; Rural Resources</td>
<td></td>
</tr>
<tr>
<td>Sustainable Waste Management</td>
<td></td>
</tr>
<tr>
<td>Clean Air Environment</td>
<td></td>
</tr>
</tbody>
</table>
LCS Actions for IM – Potential CO₂ Reduction

Source: Low Carbon Society Blueprint for Iskandar Malaysia 2025 – Summary for Policymakers (2nd Ed.), 2013, p.2
Low Carbon Society Blueprint for Iskandar Malaysia 2025

• The LCSBPIM2025 – a guide for policy-makers, businesses, NGOs and others into going green;
• 12 Actions grouped in 3 parts: Green Economy, Green Community, and Green Environment = 281 programmes;
• Each Action contains an analysis, list of programmes and the potential GHG emissions reduction;
• IRDA launched its Low Carbon Society Blueprint for Iskandar Malaysia 2025 on 30 November 2012 at the UNFCCC in Doha, Qatar. GOAL: to reduce Iskandar Malaysia’s GHG intensity emission by 50% by 2025;
• Endorsed by the Prime Minister of Malaysia in Dec 2012;
• 2018: 65 programmes implemented.
• 12.9% GHG intensity reduction in 2017.
Launched on 30 November 2012 at the UNFCCC in Doha, Qatar.

A guide for policy-makers, businesses, NGOs and others into going green.

12 Actions grouped into 3 Themes → 281 Programmes.

Each Action contains an analysis, list of programmes and potential reduction of GHG emission

2018: 60 programmes implemented and completed;

2017: 12.9% GHG intensity reduction.
LCS Mainstreamed into the Iskandar Malaysia Comprehensive Development Plan-2 (CDP-ii)

Iskandar Malaysia CDP-ii is a statutory plan prepared under Parliamentary Act No. 664

Iskandar Malaysia Circle of Sustainability: LCS as one of the CDP-ii’s three main pillars
Mainstreaming Climate Action Plans

Planning Considerations

Planning Conditions

Planning Enforcement

Planning Control
- Planning Considerations
- Planning Conditions

Low Carbon Society Blueprint

Structure Plan

Local Plan

Spatial Planning

Climate Policymaking

LCD Process

Mainstreaming

Feedback
IMELC objectives are: (a) to educate both students, parents and teachers on low-carbon issues and ideas; and (b) to share the tools with which LCS is developing in Iskandar Malaysia.

IMELC2018 attracted participations from 403 schools and recorded the involvement of 40,000 students within the Iskandar Malaysia.

Some of the significant achievements of Eco-Life Challenge initiatives from the committed schools are as follows:

- The total carbon reduction by participating schools in IMELC 2018 is **590,662.64kgCO₂**;
- RM174,925.14 electricity bills and RM32,923.82 water bills were saved and RM58,664.55 was collected from recycling.
- Therefore, a **total of RM266,513.51** was saved and earned by the participating schools in IMELC 2018.
CASBEE is an assessment framework built upon the concept of environmental efficiency or eco-efficiency; evaluating Built Environment Efficiency (BEE) that takes into account the level of quality within the target built environment, while accounting for environmental load outside the target built environment.

CASBEE Iskandar will be the guiding manual for local authorities, developers and business enterprises in developing green cities, neighbourhood and buildings. It is currently being used as an assessment tool for Iskandar Malaysia’s Green Accord Initiative Award (GAIA) certification. Takes account of UN’s 17 Goals.

NEW CASBEE Assessment and Certification for selected buildings - Nong Chik Mosque (NCM) and Johor Port

- The project was funded by the Johor State Government via Johor State Investment Centre (JSIC) as per Surat Terima Tawaran JSIC/14/94/Bil.2 (30)-2(A)
- The objective of the project was to conduct assessment and certification for green buildings with using the Comprehensive Assessment System for Built Environment Efficiency (CASBEE).
- This is another successful showcase for knowledge and technology transfer from Japan to Johor.
- It also increases investors trust and interest to invest in Johor with having this international standard tool.
• In 2018, IRDA carried out a Low Carbon Society Stocktaking Exercise with assistance from the Low Carbon Asia Research Centre, Universiti Teknologi Malaysia, to review the implementation progress of the LCS programmes in Iskandar Malaysia.

• There are 202 out of 281 LCS programmes that are ‘On-going’ by IM. It is followed by ‘Completed’ with 60 programmes and ‘Not started’ with only 19 programmes. The highest number of ‘On-going’ programmes contribute to 72 percent of the assigned LCS programmes for IM. This shows that IM is continuously implementing the LCS programmes for IM.
Iskandar Malaysia Greenhouse Gas (GHG) Inventory 2017

- Iskandar Malaysia has completed 6 stages of the Low Carbon Development Cycle (2011-2016: Research/Science to 58% targeted reduction by 2025 to programme implementation). **Stage 6** of the cycle – **Tracking Performance of Implemented Low Carbon Society programmes** → Iskandar Malaysia Greenhouse Gas Inventory 2017.
- Emission intensity per GDP in 2017 is 0.2164 kilo tonnes of carbon dioxide per million ringgit Malaysia (ktCO2/RM Million), which marks a **12.9%** reduction compared with 2010 emission intensity of 0.2483 ktCO2/RM Million.
Green Accord Initiative Award (GAIA)

Recognition of organisations, companies & businesses operating within Iskandar Malaysia that have contributed towards the adoption of sustainable design, planning, retrofitting, and operation in the built environment.

**GAIA is a soft Incentive to give marketability and reputation!**

GAIA Eligible Recipient (Category Industry)
Kerry Ingredient (M) Sdn Bhd

Special Mention in GAIA 2018/2019
1. Seri Austin Sales Gallery & Office (Commercial)
2. The Seed, Tanah Sutera (Township)
3. Merlin Entertainment Studio (Industry)
Iskandar Malaysia LCS SBP Comes Full Cycle

**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
- Implementation of LCS programs
- Performance tracking
- GHG monitoring
- Review & refinement
## Example Implementation Roadmap

### Action 5

**COMMUNITY ENGAGEMENT AND GREEN LIFESTYLE**

<table>
<thead>
<tr>
<th>Programs</th>
<th>2015-2020</th>
<th>2021-2025</th>
<th>2026-2030</th>
<th>Responsible KLCH Department</th>
<th>Key Partners</th>
<th>Implementers</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 1 Survey sustainable consumption practice</td>
<td></td>
<td></td>
<td></td>
<td>Health &amp; Environment Dept.</td>
<td>KLCH (Branch Services Dept., Information Management Dept., JPWPKL, HEIs)</td>
<td>KLCH (Housing Management &amp; Community Development Dept., Local research and higher learning institutions, NGOs, Resident’s assoc.)</td>
</tr>
<tr>
<td>CE 2 Stimulate sustainable consumption practice</td>
<td></td>
<td></td>
<td></td>
<td>Health &amp; Environment Dept.</td>
<td>KLCH (Housing Management &amp; Community Development Dept., Branch Services Dept.)</td>
<td>LA21KL, NGOs, Resident’s assoc.</td>
</tr>
</tbody>
</table>
2030 Implementation Roadmap

**Responsible local authority Dept.:**
KLCH department with primary responsibility for initiating, coordinating, liaising with relevant external agencies, monitoring, and/or approving implementation of programs

**Key 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 their statutory duty, ownership rights, institutional responsibility, and/or effective serving of communal interests
Iskandar Malaysia LCSBP Comes Full Cycle
Low Carbon Publications

- * Preliminary Study: Brochure Low Carbon City 2025 Sustainable Iskandar Malaysia
- * Low Carbon Society Blueprint for Iskandar Malaysia 2025 - Summary for Policymakers
- * LCSBPIM2025 Full Report
- * A Roadmap towards Low Carbon Iskandar Malaysia 2025
- * Iskandar Malaysia: Actions for a Low Carbon Future
- * Low Carbon Society Brochures for 5 Local Authorities
- * Low Carbon Society Action Plan 2025 for 5 Local Authorities in Iskandar Malaysia (Johor Bahru, Johor Bahru Tengah, Pasir Gudang, Kulai & Pontian)
- * IMELC
- * Green Economy Guidelines
- * Iskandar Malaysia Greenhouse Gas Inventory 2015
- * CASBEE Manuals
- * PESISIR
- * Iskandar Malaysia Greenhouse Gas Inventory 2016
- * GAIA Award
- * LCS Report Card 2017
City Climate Action Impacts (some KL examples)
Malaysian LCS at COP 24
Global Covenant of Mayors for Climate and Energy (GCoM) is a global coalition of city leaders dedicated to reducing their greenhouse gas (GHG) emissions, make their communities more resilient to climate change, and regularly report their progress publicly. The coalition comprises more than 9,500 cities across 6 continents and 127 countries.

In March 2019, IRDA co-hosted the inaugural GCoM event held at the Doubletree by Hilton Hotel, Johor Bahru. The event started the 1 of 4 training modules on the preparation of Climate Action Plans for cities in Malaysia. DBKL-CityNet hosted Module 2. Module 3 will be hosted by Penampang District, Sabah (18-20 July) and Module 4 in Oct in Penang.
Accelerating Climate Actions in Malaysian Cities (towards 2030 and beyond)

COP 15 National Target: 40% Reduction*

COP 21 National Target: 45% Reduction*

*All reduction targets are in terms of GHG emissions intensity of GDP

UTM-LCARC S2A


Tawau CAP (GCoM CRF)

Penampang CAP (GCoM CRF)

Ipoh (GCoM CRF)

Kampung Bahru CAP (GCoM CRF)

Muar CAP (GCoM CRF)

RTD Muar 2030 (Target: 65% Reduction*)

PLC SBP 2030 (Target: 50% Reduction*)

KL LCSBP 2030 (Target: 70% Reduction*)

PG C 2025 (Target: 60% Reduction*)

LCSBP-IM 2025 & 5LAs LCSAP (Target: 58% Reduction*)
CONCLUSION

1) Use S2A methodology is important for objective and informed decision making to combat climate change.
2) Promote Stakeholder involvement - Community engagement with local authorities, NGOs and Business communities
3) Prepare relevant documents for planning (CAP) and implementation and monitoring
4) Mainstreaming CAP into statutory development plans
5) Promote local and global climate action network
6) Carry out capacity building and research & publication activities
Thank you for your attention!

Thank You Terima Kasih 谢谢 धन्यवाद ありがとう