LOW CARBON CITIES AND CLIMATE CHANGE ADAPTATION: THE ISKANDAR EXPERIENCE

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Presentation Outline

- Malaysia: Outlook
- Introduction to Iskandar Malaysia
- What is a Low Carbon Society?
- IRDA: Roles and Responsibilities
- Climate Change Adaptation + Measures
- Essential Mechanisms for Success
In COP15 (2009), Malaysian Prime Minister YAB Dato’ Seri Mohd Najib Tun Abdul Razak, has pledged a voluntary 40% reduction of CO₂ emission intensity by 2020 (base 2005).

Under the Tenth Malaysia Plan (2011-2015): the Government has intensified effort to reduce emission by climate adaptation and mitigation measures.

With this in Focus, We look towards lowering the CO₂ emission intensity in Iskandar Malaysia by 50% by 2025 (base year 2005).

The Tools: (ExSS & Backcasting Model) play an important role in getting the numbers (Facts and Figures) to support in the decision making process when the Local Authorities and Iskandar Regional Development Authority (IRDA) design the Policies & Guidelines towards a Low Carbon Scenario.
2. The Economic Corridors

Established : 2007
Focus Areas:
Agriculture, Manufacturing & Tourism

Established : 2008
Focus Areas:
Oil & Gas, Tourism, Petrochemical, Manufacturing, Education, Agriculture

Established : 2006
Focus Areas:
9 Economic Pillars

Established : 2007
Focus Areas:
Agriculture, Biotech, Tourism & Logistics
2. Background of Iskandar Malaysia (Cont.)

The economy in Iskandar Malaysia may be divided into 3 main sectors:

- primary (agriculture, fishing, forestry/wetlands and mining);
- secondary sector (food processing, basic metal processing, non-metal processing, wood processing); and
- tertiary sector (retail & transport).

The key sectors in the manufacturing sector that drives the Iskandar Malaysia economy are:

- electrical and electronic (E&E);
- chemical and chemical products (petrochemical, plastics, oleo chemicals); and
- food processing sub-sectors.

They contribute 60% of the total value-added in manufacturing.

These key sectors lead to the emergence of supporting or induced sectors such as retail, wholesale, hotels, restaurants and finance.

In manufacturing, the induced sectors include fabricated metal products, non-metallic products and transportation equipment.
3. What is a Low Carbon Society?

1. Carbon minimisation in all sectors.
   • A society that emits GHG only in an amount which can be absorbed by nature.

2. Towards a simpler life style that realise richer quality of life
   • To build a society where value is placed on family or community ties, health, interaction with mother nature and the spirit to improve the quality of life.

3. Coexistence with nature.
   • Importance on harmony and co-existence with nature; and promoting “nature-friendly technologies,” such as utilisation of biomass.
4. IRDA: Roles and Responsibilities

Roles:
- PLAN
- PROMOTE
- FACILITATE

Roles of IRDA:
- Federal and State Government
- Iskandar Malaysia Synergy Partners
- Community
- Investors
IRDA’s strategic roadmap is divided into three (3) developmental phases to realize its vision and objectives.

**Phase 1**
Planning & Foundation Building

**Phase 2**
Strengthening & Growth
- Targeting catalyst investments
- Targeting matured and sustainable investments

**Phase 3**
Sustain & Innovate

Progressive & sustainable investments and economic development
Comprehensive Development Plan 2006-2025

Main document to guide Iskandar Malaysia’s economic, social, environmental planning and management toward the establishment a “sustainable metropolis of international standing”.

DEVELOPMENT STRATEGIES:

- Balanced Development
- Protect and Conserve Nature, Historic and Open Spaces
- TODs
- Promote Infill & Redevelopment
- Enhance Accessibility
- Promote Key Economic Areas as Focal Point For Growth
- Plan & Manage Regional Growth
- Plan for Innovative & Sustainable Infrastructure & Utilities
- Liveable, Walkable Green Cities - Quality and Sustainable Neighbourhoods

Downloadable at www.iskandarmalaysia.com.my
Sustainable Development within Iskandar Malaysia: Integrating 3 main elements

Livability and **Sustainability** are the core essences of the framework and thrust of the Comprehensive Development Plan (CDP)
Low Carbon Cities in Asia: Updates from Iskandar Malaysia

Capacity-Building & Dialogues between Policy-Makers and Researchers: Towards Implementation
On-going region-specific studies:
Communication and feedback of LCS study to the real world
VISION
“Strong Sustainable Metropolis of international standing”

Environmental Theme: Low Carbon Iskandar Malaysia

Environmental Theme: Green Transport

Environmental Theme: Green Energy

Environmental Theme: Green Growth Cluster

Environmental Theme: Healthy Lifestyle

Environmental Theme: Sustainable SWM
IRDA Blueprints that promote LCS
Adaptation and Mitigation Measures

- Integrated Public Transportation
- Environmental Planning
- Mixed Use Development
- Integrated Solid Waste Management
- Green Building Guidelines
- Human Capital
- Renewable Energy & Energy Efficiency
- Drainage & Stormwater Management
- Integrated Land Use
- Shoreline Management
- Area Character Statement
- Low Carbon Society Blueprint
ExSS Model Structure

**Economy:**
- Economic growth level
- Basic industries in the region
- Fiscal policy
- Private investment including FDI
- Technological development
- Consideration of environment

**Energy**
- Technological development
- Availability of energy resource
- Diffusion of renewable energy
- Fuel price
- Power supply policy
- Behavior change
- Awareness of people & business etc

*Related to selection of LC measures.

**Household:**
- Demographic structure
- Sense of value
- Balance of work & life
- Consumption style
- Living style (consumption and time use)
- Education

**Transport & land use:**
- Population distribution
- Share of vehicles**
- Urban/rural development plan**
- Construction of infrastructure**
- Nature conservation area
- Renewal of building stock

**Energy efficiency**

- Related to selection of LC measures.

**Energy demand (DPG)**

- Dispersed power generation (DPG)
- Energy efficiency DPG

**Central power generation (CPG)**

- Energy demand (CPG)
- Fuel share (CPG)
- Transmission loss (CPG)
- Own use (CPG)

**CO₂ emissions**

**CO₂ emission factor**
Potential Mitigation in IM

GHG emissions/reductions (kt-CO2)

- Transport demand management
- Fuel shifting
- Efficiency improvement (buildings)
- Efficiency improvement (transport)
- Efficiency improvement (industry)
- Efficiency improvement (power sector)
- GHG emissions

<table>
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<tr>
<th>Year</th>
<th>Emissions</th>
<th>Energy Sectors</th>
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<td>2005</td>
<td>12552</td>
<td></td>
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<tr>
<td>2025 BaU</td>
<td>45483</td>
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<tr>
<td>2025 CM</td>
<td>19162</td>
<td>5521, 623</td>
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</tbody>
</table>

Emission Reductions

- 262% for Transport demand management
- 52% for Fuel shifting
- 57% for Efficiency improvement (buildings)
- Efficiency improvement (transport) 52%
- Efficiency improvement (industry) 57%
- Efficiency improvement (power sector) 57%

GHG emissions: 12552, 45483, 19162
5. Adaptation and Mitigation Measures

**RESIDENTIAL & COMMERCIAL SECTOR**
- Energy Efficiency (EE) Improvement *(Buildings & equipments)*
- Lowering CO₂ Intensity *(Renewable Energy – Photovoltaic power generation system)*

**TRANSPORTATION (FREIGHT & PASSENGER)**
- Transport Demand Management *(Improvement of Public Transportation Sector)*
- EE Improvement *(Hybrid Vehicles)*
- Lowering CO₂ Intensity *(Renewable Energy- Bio fuel)*

**INDUSTRY & POWER SECTOR**
- EE Improvement — *(Improvement in Operations & Equipment, Promotion of Technology Transfer)*
- Lowering CO₂ Intensity *(Increase share of Natural Gas Usage)*
Low Carbon Cities Policy Package

Buildings
- Environmental performance standard and evaluation of buildings
- Adjustment of tax rate of fixed asset tax
- Low interest loans to investment to energy efficient buildings
- Environmental performance standard of equipments
- Environmental labeling
- Education and information service
- Green purchasing policy
- Subsidy to introduce photovoltaic power generation system

Transport & Land
- Urban planning
- Transport planning
- Tax rate adjustment to fixed asset
- Investment to public transport
- Environmental performance standard of vehicles
- Tax rate adjustment to energy efficient vehicles
- Promotion of bio fuel
- Incentive to introduce energy efficient equipments & buildings
- Incentive to introduce renewable energy
- Lowering CO₂ intensity
- Controlling urban growth & choice of transport mode

Industry
- Subsidy to investment to energy efficient equipments
- Promotion of technology transfer
- Transport demand control

Mitigation of GHG emissions from Iskandar Malaysia
To achieve Low Carbon Society status by 2025, what do we need to do together?

**IRDA’s Proposed Actions:**

- Action 1: Walkable/Liveable/Compact City
- Action 2: Green & Blue Network/Infrastructure
- Action 3: Low Carbon Lifestyle
- Action 4: A Green Economy
- Action 5: Integrated Transportation
- Action 6: Energy-efficient buildings
- Action 7: Land Use Planning
- Action 8: Efficient Energy Systems & Renewable Energy
Action 1: Transformation of Johor Bahru City

14th Oct 2010

SG. SEGGET REHABILITATION PROJECT
Before

Conceptual Design Proposal

JB City Center after the Segget River Rehabilitations Projects
Environmental Planning Blueprint:
7 Thematic Areas; 66 Initiatives

Environmental Thematic Areas

EPB Thematic Area 1: Biodiversity and Habitat Management

EPB Thematic Area 2: Climate Change Management

EPB Thematic Area 3: Air Quality Management

EPB Thematic Area 4: River Water Quality Management

EPB Thematic Area 5: Geo-Terrain, Soil & Groundwater Management

EPB Thematic Area 6: Green Economy

EPB Thematic Area 7: Environmental Governance
EPB Initiatives

Strategy 1: Enhance and Improves Biodiversity & Habitat Management

- Establishment - Biodiversity Council & Biodiversity Centre
- Formulate Integrated Management Plans for Ramsar sites – completion end 2011
- Enact a Biodiversity Regulation To Strengthen Biodiversity & Habitat Areas In Iskandar Malaysia.
- Establish a Continuous Habitat Corridor linking Tg Piai-Sg Pulai-Mount Pulai.
- Promote “Wise Use Concept” in areas near the 3 Ramsar sites.
- Conduct A River Basin EIA For Sg Pulai
EPB Initiatives

Strategy 2: Actions on Climate Change

- Prepare Integrated Climate Change Action Plan (now under LCSIM)
- Phase Out The Use Of Diesel Public Buses By Replacing Or Retrofitting To CNG Buses
- Implement A Carbon Offsetting Programme For The Incoming And Outgoing Flights At The Senai Airport
- Establish a GHG Inventory Database in IM (LCSIM)
- Mainstream Climate Change Management in Development Planning (LCSIM)
EPB Initiatives

Strategy 3: Green Economy

- **Formulate A Green Investment Policy For IM**
- Promote a Green Product Hub for green industries.
- Designate a Green Technology Park for Research & Development
- Promote Tax Incentives For Green Building And Green Homes
- Allocation for Free Public Parking For Hybrid Cars
- **Formulate A Green Purchasing Policy For All The Purchases Made By IRDA And Local Authorities**
EPB Initiatives

Strategy 4: Environmental Governance

- Publish an Annual State of the Environment Report
- Encourage The Preparation Of Green Plans By All Major Developments
- Encourage Corporate Environmental Reporting By All Major Developments
- Implement A Green Accord Initiative Award (GAIA) For The Private Sector To Encourage Corporate Commitments To The Environment.
- Strengthen existing governance to Support And Facilitate Environmental Management & Initiatives In Iskandar Malaysia
Action 4: Green Economy Framework

**GREEN PROJECTS**
- Renewable Energy
- Green Transportation
- 3R
- Green Buildings/homes
- Forestry
- Eco-Tourism
- Green Logistics

**GREEN INVESTMENTS**
- Government Budgets
- Stimulus packages
- Green Loans
- Private VC Funding

**GREEN PRODUCTS**
- GHG reduction
- Water Conservation
- Clean air
- Waste reduction

**GREEN CONSUMPTION**
- Green Purchasing
- Eco Labelling
- Shopping

**RESOURCES**

**ISKANDAR MALAYSIA**
- Economically Sustainable
- Socially Sustainable
- Environmentally Sustainable
Action 6: Renewable Energy & Energy Efficiency: 3 Strategies & 17 Initiatives

1. Ensure Energy Efficiency in Key Sectors
   - Codes and standards:
     - Green building index
     - Street lighting
     - Education programmes
     - Campaigns (labeling, types of appliances that save energy, good habits)
     - Benchmarking
     - Operation & maintenance

2. Promote & Support the Development of Renewable Resources
   - IM’s own FIT incentives:
     - Solar farms
     - Rooftop solar PV
     - Mini-hydro
     - MSW
     - Agricultural wastes
     - Liquid wastes

3. Ensure Energy Efficient in Infrastructure; and Integrated Design
   - District cooling and ice-storage
   - Co-generation
   - GIS for spatial planning
   - Transport design and policy
   - Integrated design and renovation (clusters)
Inaugurate The Iskandar Declaration On The Environment And Obtain Signatures From Key Stakeholders In Iskandar Malaysia To Formally Declare Their Commitment To Environmental Sustainability.

Priority: High
Lead Agency: IRDA
Supporting Agencies: All Stakeholders in IM
EPB: Environmental Governance

Low Carbon Green Growth Institute
Korea’s GGGI; UNESCAP (Busan); KeTTHA’s LCGGA
ARNLCD

‘Greening Iskandar Malaysia’ Campaign
26 million trees; green & blue spaces; green corridors/species movement

LCSIM Consensus-Building
IRDA’s Sustainability Development
Awareness-Raising & Public Involvement; Charrettes/FGDs/Village Appraisals
Adaptation Measures

- Decarbonising Planning: Implementation through Village Appraisals – local industries, aquaculture
- Community involvement and consensus-building: grassroots understanding of CC and GW and LCS
- Energy self-sufficient villages
- Mangrove protection & replanting
- Land preparation through EMB
- Designing of compact cities
- Green and blue landscapes
- Rainwater harvesting
- Championing renewable resources
CC Adaptation: Some recommendations

1. Establish a GHG Inventory Database in IM
2. Expand The Network Of Air Quality Stations in IM
3. Establish an Air Emission Inventory System in IM
4. Prepare a Climate Change Blueprint to collate all the information from the various blueprints.
5. Phase out the use of diesel public buses by either replacing or retrofitting to CNG buses.
CC Adaptation: Some more, *cont’d*

1. Publish an Annual State of the Environment Report in IM.

2. The Preparation Of Green Plans By All Major Developments In IM To Promote Private Sector Environmental Stewardship.

3. Encourage Corporate Environmental Reporting By All Major Developments In IM To Promote Private Sector Environmental Stewardship.

4. Implement A Green Accord Initiative Award *(GAIA)* For The Private Sector To Encourage Corporate Commitments To The Environment.
6. Conclusion:
Essential Mechanisms for Success to CC Adaptation

- Government: Political Will & Commitment
- Funding
- Sustainable Metropolis of International Standing
- Capacity-Building
- Awareness-Raising & Public Involvement
Thank You

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