thinkCITY
REJUVENATING THE CITY TOGETHER

# Low Carbon Cities Policy & Urban Planning

## *Potential & Future Prospects*

**Malaysia Low Carbon Cities Conference 2021 | 13th July 2021**

# Low Carbon Cities Policy & Urban Planning – Potential & Future Prospect

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## ABOUT THINK CITY

**We want to make cities people-friendly and resilient by being a catalyst for change in the way cities are planned, curated, developed, and celebrated**

## WE ARE A SOCIAL PURPOSE ORGANISATION DRIVEN BY IMPACT IN MALAYSIA

KHAZANAH NASIONAL

Think City is a special-purpose subsidiary of Khazanah Nasional Berhad, Malaysia's strategic investment arm, formed to work on urban rejuvenation with the goal of creating more people-friendly cities.

## OUR VALUE PROPOSITION

**'Think-and-do tank' with an evidence-based, learning approach**

**A diverse team of experts with deep domain knowledge**

**Breadth and depth of work; we operate on a vast range and scale to achieve sustainable urbanism**

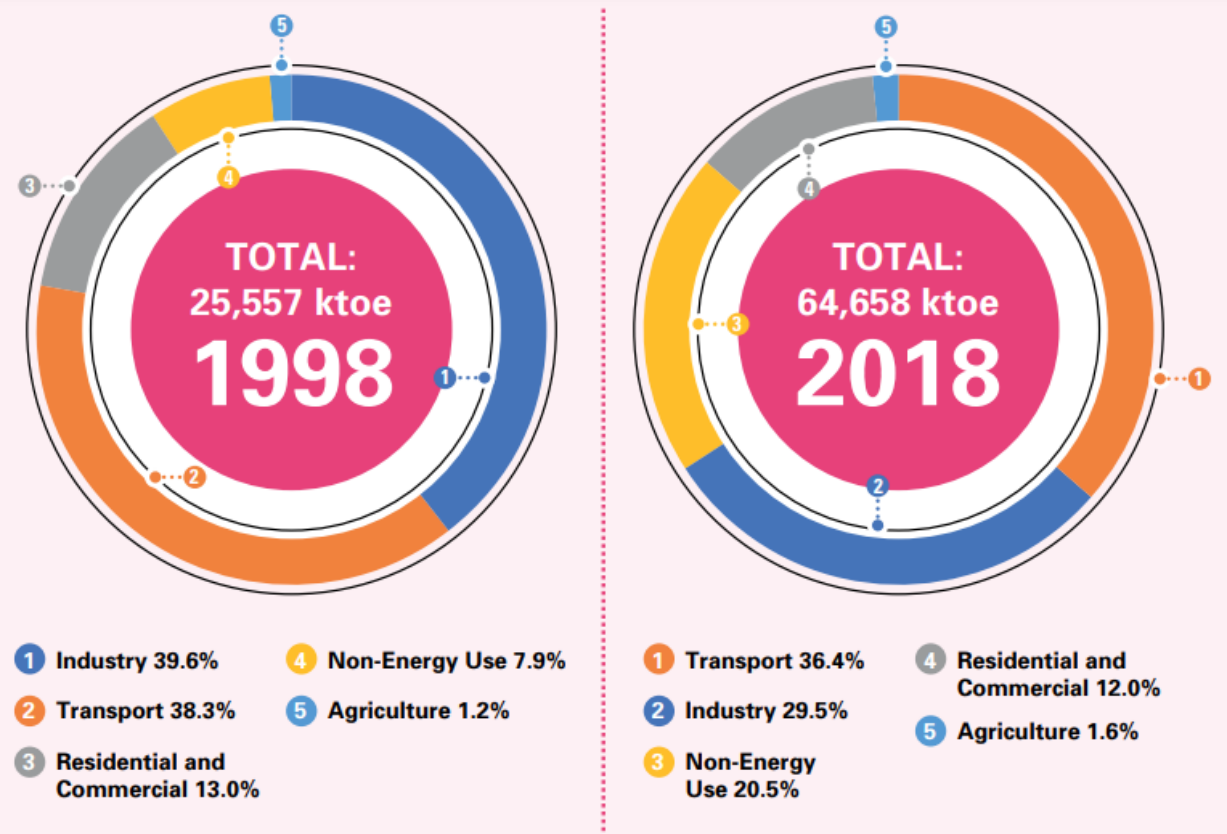
**Proven neutral platform that creates synergies amongst our extensive network of partners**

**Our work spans across several cities and municipalities through multistakeholder partnerships which include past and pipeline projects with the Penang Island, Seberang Perai, Melaka and Ipoh City Council.**

# Low Carbon Cities Policy & Urban Planning – Potential & Future Prospect

## 1. Challenges of Energy Consumption in Malaysia

**Energy consumption has almost tripled in 30 years in Malaysia**




Source: Malaysia Energy Statistics Handbook, 2020

## Sarawak, W. Kuala Lumpur and Penang

**hold the highest electricity consumption per capita in Malaysia**

| State | Electricity Consumption in 2018 (GWh) | Consumption Per Capita (GWh) |
|---|---|---|
| Selangor | 29,613 | 0.0046 |
| Sarawak | 25,825 | 0.0093 |
| Johor | 18,546 | 0.0049 |
| W. Kuala Lumpur | 15,072 | 0.0084 |
| Penang | 11,862 | 0.0067 |

Source: Performance & Statistical Information on the Malaysian Electricity Supply Industry 2018

**Malaysia's energy mix is highly dependent on fossil fuels. At least 85.2% of energy source for electricity production comes from fossil fuels**

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## 2. Relevance of Nature-based Solutions (NBS) towards Low Carbon Cities

**Nature-based Solutions are actions inspired by natural processes that seek to address the major societal challenges of our time effectively, while simultaneously providing multiple co-benefits such as human wellbeing and biodiversity support.**

### 1. Direct impact of NBS - carbon storage and sequestration

**INDICATORS**

Total carbon removed / stored in vegetation and soil per unit area per unit time (kg/ha/y)

### 2. Indirect impact of NBS - passive cooling

**INDICATORS**

- Avoided greenhouse gas emissions from reduced building energy consumption (t CO2e/y)
- Energy use savings due to NBS implementation
- Monthly mean value of daily maximum temperature
- Heatwave incidence days with temperature >90$^{th}$ percentile

### 3. Co-benefits of NBS - temperature & human comfort

**INDICATORS**

- Human comfort: Universal Thermal Climate Index

Source: Evaluating the Impact of Nature-based Solutions: A Handbook for Practitioners (March, 2021)

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## 3. Penang Nature-Based Climate Adaptation Programme

## MALAYSIA CAN LEAD THE WAY FOR CITIES

**The Penang Nature-Based Climate Adaptation Programme won the Climathon Global Cities Award 2020 having been shortlisted among five other city programmes**

| Miami, USA | Karthoum, Sudan | Dublin, Ireland | **Penang, Malaysia** | Salvador, Brazil |
|---|---|---|---|---|

malay mail — COVID-19

HOME / MALAYSIA

### Penang's nature-based approach to tackling climate change wins Climathon Global Awards

Monday, 03 Feb 2020 02:20 PM MYT
BY OPALYN MOK


A view of one of the decorated backlanes located at Lebuh Pantai in George Town February 3, 2020. — Picture by Sayuti Zainudin

GEORGE TOWN, Feb 3 — Penang's climate adaption programme centred on nature-based solutions has been named the winner of the inaugural Climathon Global Awards under the Cities category.

It was selected for the honour from a pool of more than 100 applications.

Penang state exco Jagdeep Singh Deo, who announced the achievement, said Penang topped the list out of five city finalists with its programme that is a multi-agency collaborative effort.

**JANUARY 2020**

eit Climate-KIC



**SEPTEMBER 2020**

ADAPTATION FUND

**Concept Note of the programme was endorsed by the Adaptation Fund to receive USD 10,000,000 for implementation.**

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## 3. Penang Nature-Based Climate Adaptation Programme

### Expected Outcomes of the Programme

- Reduction of 1.5°C in temperatures in urban areas and 5-7°C in shaded areas 6 to 8 years after completion of the plan
- Reduced impact on public health/ improved understanding of heat-related diseases
- Reduced GDP losses due to flooding
- Reduced vulnerability asymmetries in the community
- Improved community readiness

**All impacts will be assessed**

### 3M Approach

- Measurement
- Management
- Mitigation

### Alignment to the National Low Carbon Cities Masterplan

**KD3 URBAN PLANNING-DRIVEN**

Through mainstreaming of best practices of NBS for Low Carbon Urban Planning and Development

**KD4 COMMUNITY PARTICIPATION**

A focus on building social resilience through NBS practices among vulnerable communities

**KD6 BUILD CAPACITY TO ACT**
**KD 9 DEVELOP CITYWIDE STRATEGIES**

Development of a knowledge management platform to ensure transparency and systematic dissemination of results and best practices to other cities in Malaysia

**KD7 & KD8 DATA COLLECTION & ANALYSIS**

Assessment of impact 6 - 8 years post-completion

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## 4. Challenges & Opportunities for Cities in Malaysia toward Low Carbon Cities Agenda

**Main Challenges**

1. Economic Impact of the pandemic and its recovery
2. Heavy impacts of climate change in Southeast Asia
3. Transportation patterns
4. Energy sources

**Main Opportunities**

1. Opportunities through partnerships
   - Green Finance
   - Carbon Capture & Storage
   - Green Infrastructure
   - Environmental Intelligence
   - Earth Observation
   - Computational Sustainability
2. Great potential in terms of Natural Capital