

United Nations Climate Change



Bottom-up Approach of Regional Non-state Actors toward Updating NDCs in Post-GST"

NSAs and local government policy and action for carbon neutrality – the case of Malaysia cities

Date and Time: Friday, 01 Dec 2023 18:30—20:00 (90 minutes) SE Room 8, UNFCCC COP28, Dubai





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UTM-Low Carbon Asia Research Centre Faculty of Built Environment and Surveying Universiti Teknologi Malaysia Johor Bahru, Malaysia Pledge of Voluntary 40% reduction of CO₂ emission **Government Policy Directions**

Background

intensity by 2020 to 45% emission intensity by 2030 and now carbon neutral nation by 2050

Asian and Malaysia cities : Key Challenges



Size: 330,803 km²

Population: 32 .7mil. (2021) | 1.32%pa growth rate GDP: RM1.5 tril. or USD359bil (2021) 5% p.a growth rate Issues

- Rapid urbanization and industrialization (7%pa)
- Relatively high carbon intensity dependence
- on fossil fuel (80%^)
- High private car ownership (15% public)
- Low density development and urban sprawl
- Low efficiency appliances and Renewable energy

- National Policy on the Environment
- National Green Technology Policy
- > National Policy on Climate Change 2010
- Renewable Energy Act 2010
- > SEDA Act 2010
- Green Neighborhood Planning Guidelines
- Low Carbon Cities Framework and Assessment Malaysia Smart City Framework 2018
- National Low Carbon Cities Masterplan 2022
- National Energy Policy 2022- 2040
- > National Energy Transition Roadmap 2023



Collaborative efforts among Federal, state and local governments as well as the private sector and CSOs will be intensified to support the transition to a low-carbon nation

To address climate change across all GHG emitting sectors, namely energy, transport, IPPU, waste management, agriculture, forestry and land use.

Malaysia's commitment to the Paris Agreement of the UNFCCC to reduce up to 45% GHG emissions intensity to GDP by 2030 based on emissions intensity in 2005, the focus will be on developing enabling instruments for climate action, including carbon pricing.

Promoting green and resilient cities and townships, enhancing green mobility and augmenting the consumption of low carbon energy as well as expanding the green market and GGP.

COUNTRY		TREND	2018 EMISSIONS	AS PERCENT OF GLOBAL	PER CAPITA
China	China is one of the top GHG emitters. It accounts for 27.79% of global emissions. In 2018, it emitted 13,739.79 million tonnes. It has had one of the biggest increases in GHG emissions – 250% since 1990.	1972	13,739.79 million tonnes of GHG	27.8%	9.71 tonnes of GHG
United States of America	United States of America is one of the top GHG emitters. It accounts for 12.74% of global emissions. In 2018, it emitted 6,297.62 million tonnes. It is one of the countries with the highest per capita GHG emissions – 19.27 tonnes.		6,297.62 million tonnes of GHG	12.7%	19.27 tonnes of GHG
India	India is one of the top GHG emitters. It accounts for 7.32% of global emissions. In 2018, it emitted 3,619.80 million tonnes.	1870	3,619.80 million tonnes of GHG	7.3%	2.67 tonnes of GHG
Japan	Japan is one of the top GHG emitters. It accounts for 2.57% of global emissions. In 2018, it emitted 1,270.21 million tonnes.	~~~	1,270.21 million tonnes of GHG	2.6%	9.99 tonnes of GHG
Malaysia	Malaysia has had one of the biggest increases in GHG emissions – 253% since 1990.		324.31 million tonnes of GHG	0.7%	10.12 tonnes of GHG

POSITIONING MALAYSIA IN THE GLOBAL CLIMATE SCENE

Current Climate Change Efforts of in Malaysia

Twelfth Malaysia
Plan 2021-2025

(2021) Updated NDC

<i>Initial National</i> <i>Communication</i> (NC1) was presented to the United Nations Framework Convention on Climate Change (UNFCCC).		N C 20 (M v v g e e b 2	National Policy on Climate Change is formulated in 2009. (COP15 Copenhagen) Malaysia is aspired to voluntarily cut down 40% greenhouse gas (GHG) emissions intensity of GDP by 2020 as compared to 2005 level.		(COP21 Paris, 2015) Submitted 1 st NDC to the UNFCCC Malaysia intends to reduce the GHG emissions intensity of GDP up to 45% by 2030 relative to the emissions intensity of GDP in 2005.		The unconditional NDC target is increased from 35% to 45%, up by 10% from the Intended NDC target made in 2015. It encompasses an expansion of the scope of greenhouse gases (GHG) to seven types compared to only three previously,	(Tentative 2024) Submission of 1 st Biennial Transparency Report (BTR) and National Inventory Report (NIR) (Tentative 2025) Updated NDC to the UNFCCC	
2000	National Biofuel Policy 2006 Five-Fuel Diversification Policy 2001	National Renewab Energy Policy ar Action Plan (201 Second Comm	2010 ble nd l0) d National nunication C2)(2011)	Sustainable Development Goals (SDGs) (2015)		20 Green Technology Master Plan Malaysia (2017) Third National Communication (NC3)(2018)	20 2023 COP 25 Madrid 2019 (COP 26 Glasgow 2021)	National Energy Transition Roadmap	2030
	•	Lo ^v Fra	ow Carbon Cities ramework (2011)	Sendai Framework for Disaster Risk Reduction 2015- 2030 (2015)		(COP 24 Katowice, 2018) The Paris 'Rulebook' (ETF)	(2020) National Low Carbon Cities Masterplan (2021 launched)	On-going: Climate Change Act, National Adaptation Plan, National Mitigation Plan, NDC Roadmap	

Shared Prosperity Vision 2030 (SPV 2030)

UTM Low Carbon Asia research centre – GCOM, PNNL USA, MoEJ, JICA/ JST, IGES and NIES, Japanese Universities and Malaysian Cities



Importance of S2A (SCIENCE to ACTION) for objective and informing green Low carbon policy

EVIDENCE based	 Science provide evidence and objective based result for Policy making
OPTIMAL CHOICE	 Scenario based research help better understanding – Baseline modelling
PARTICIPATORY	 Science facilitates Consensus Building / FGD identifying local issues
INTERDISPLINARY	 Highly technical issues needs interdisciplinary approach.

EXAMPLE 1 ISKANDAR MALAYSIA'S – SATREPS PROJECT FUNDED BY JICA/JST JAPAN

Science-based Climate Policies and Action Plans



EXAMPLE 2 : Global Covenant of Mayors (GCOM) Malaysian Pilot cities

GCOM MALAYSIAN PILOT CITIES - TAKING CLIMATE ACTIONS



CLIMATE SCIENCE TO ACTION FOR SELECTED MALAYSIAN CITIES



Many big cities in Malaysia have Climate Action Plans



2009-2020

STOCKTAKING BASELINE EMISSIONS INVENTORY (CIRIS) For 4 Malaysian Pilot cities





POTENTIAL EMISSION REDUCTION BY 2030 for GCOM Malaysian 4 Pilot cities

CITIES	POPULATION	EMISSION REDUCTION (ktCO ₂ eq)	REDUCTION IN ABSOLUTE GHG EMISSION (%)	
SEGAMAT	211,300	595	46	
ISKANDAR PUTERI	682,527	2,718	41	
PETALING JAYA	771,687	1,650	33	
PUTRAJAYA	134,391	474	33	
TOTAL	1,799,905	5,437		

COMMON MITIGATION AND ADAPTATION MEASURES For 4 GCOM Malaysian pilot cities

MITIGATION								ADAPTATION			
CITIES	SUSTAINABLE ENERGY		TRANSPORTATION		COMMUNITY ACTION		CLIMATE RISK				
	Renewabl e Energy	Energy Efficiency	Active Mobility	Public Transport	Community Engagemen t	Waste and Lifestyle	Flood	Dengu e	Drought/ Heat Wave		
SEGAMAT	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		
ISKANDAR PUTERI	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		
PETALING JAYA	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		
PUTRAJAYA	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		
		A transition					CCMB)	LUANGKAN 1.2 MINIT			

CLIMATE ACTION PLAN 2030 for Malaysian GCOM pilot cities





- 1. Enhancing Sustainable Buildings and Construction
- 2. Changing to "Car-lite Future" and Sustainable Logistics Transportation
- 3. Safeguarding Existing Biodiversity
- 4.Strengthening Community Participation in Low Carbon Initiatives
- **5.Climate Resilience**

6 THEMES 56 PLANNED ACTIONS

THEMES

PLANNED

ACTIONS

PETALING JAYA

- **1. Renewable Sources and Energy Efficiency**
- 2. Sustainable Urban Planning and Building Regulations
- 3. Pedestrian First and Green Transportation
- 4. Green Space Planning and Management
- 5.Social Sustainability and Empowered Communities
- **6. Disaster Risk Reduction Management**

PUTRAJAYA

1. Energy

- 2. Urban Planning and Building Regulations
- 3. Mobility
- 4.Blue and Green
- 5.Community
- **6.Climate Resilience**

EXAMPLE : PUTRAJAYA CITY as a case BASELINE EMISSIONS INVENTORY (CIRIS)



Processes and Product Uses

ond ord

Agricul Forestry Other I

The total GHG emissions of Putrajaya identified from the year 2021 baseline emissions inventory to be 1.44 mil tCO_2eq . Based on the emission profile, the emission per capita for Putrajaya is 10.69 tCO_2eq .

The proportion of total emissions contributed by each of the three sectors is depicted. Transportation makes up the largest portion of the GHG emissions for Putrajaya, which is 48% (690 tCO_2eq), followed by Stationary Energy (43%) and Waste (9%).



Scope 1 Scope 2 Scope 3

Industrial Processe:

Apprendite Sources and non CO2 emission sources

Product Use

Livestack

Land

EXAMPLE : PUTRAJAYA CITY as a case PLANNED ACTIONS for theme Energy and Urban Planning

	PUTR	AJ	AYA			
	THEME 1: ENERGY		=9°	THEME 2: URBAN PLANNING AND BUILDING REGULATIONS		
Renewable Energy			Urban Design			
B1 1 2	Collaborate with relevant agencies for promoting solar energy system (PV) and solar thermal system on buildings in Putrajaya Carry out a pilot project of floating solar farm on the lake Energy Efficiency Implement an online energy monitoring system	 Adopt and implement Safe City practices to promote active mobility and use of public transport Protect cultural identity, precincts character and sense of place through sustainable urban design practices (TOD, compact development) 				
13	Adopt Energy Efficiency Infrastructures and Facilities (Energy			Building		
B2	tag Street Light, Sensor on Site Facilities, Centralised ctronic Bulletin Board) tall energy efficiency (EE) equipment and smart meters for assets and commercial buildings		Incorpo in Deve Promo Natura Expano Promo	orate the Latest Green Building Design and Certification elopment Control te Adoption of Passive Architecture in New Buildings via l Ventilation, Shading and Lighting d the Adoption of Rainwater Harvesting System and te Periodical Maintenance of It		

EXAMPLE : PUTRAJAYA CITY as a case

PLANNED ACTIONS for Mobility and theme 4 Blue and Green

PUTRAJAYA



THEME 3 : MOBILITY



THEME 4: BLUE AND GREEN

Active Mobility

- Promote Pedestrian and Cycling as mode choice in home to work's travel in Putrajaya
- T2 Maintain Comfortable & Safe Pedestrian Networks
- Rebrand Existing Car Free Day Event into Monthly Active Mobility Program

Public Transport

- T4 Promote a shift from private vehicles to public transport
- Provide more environmentally friendly public bus services by using clean and green fuel

Mobility Technology

- Install digital display board for real time information on public transport
- Promote sharing green economy and the future of personal mobility (e.g partnering with EV Car Sharing Companies)

Planting and Green Spaces

- Promote vertical gardens and green roofs in commercial buildings, schools and government buildings
- Conduct Tree Planting Campaign in Putrajaya in line with 100 Million Tree-Planting Campaign 2020-2025 **F2**
- Conduct Continuous Monitoring and Updating on Existing Tree **E3** Inventory
- E4 Conduct Continuous Enhancement of Urban Biodiversity
- Promote Nature-Based Solution (NBS) to protect, restore and E5
- manage natural and semi-natural ecosystems

Water Bodies

- E6 Enhance Putrajaya Lake Awareness Programme
- **E7** Monitor and Protect Lake Water Quality

PLANNED ACTIONS for the theme Community and Resilience



THEME 5: COMMUNITY



PUTRAJAYA

THEME 6: CLIMATE RESILIENCE

Community Engagement

S1 Transform existing Residents' Association, Local Businesses and Industries into Low Carbon communities

Strengthen Putrajaya Urban Farming Program (Program

S2 Pertanian Bandar 'PUF') by increasing participation and involvement of residents

Waste and Lifestyle

Further

S3 Expand Food Waste Composting Programme for the purpose of Community Farming

Expand Waste-to-Wealth program (e.g.,

- **I6** CAREton@Putrajaya) by collaborating with other private companies
- **S4** Enhance community awareness on 3R, Proper Disposal and Illegal Dumping
- **17** Cultivate Recycling Behaviour of the Public through FIKS (Fasiliti Inovasi Kitar Semula)

Dengue

- **D1** Improve Enforcement by PJC to inspect potential mosquito breeding sites (constructions sites and residential neighbourhoods)
- **D2** Raise community awareness and participation on prevention of dengue by more effective step by step guide such as B-break, L-lift, O-overturn, C-change, K-keep

Severe Wind

- **D3** Identify potential spots and frequency of downed trees at housing and commercial areas
- D4 Improve tree selection and landscape design to reduce the impact of wind

Drought

- **D5** Expand and improve monitoring systems through social media or other communication platforms to reduce outdoors activities due to heat wave
- **D6** Introduce programs or initiatives to reduce water consumption in commercial and residential areas

Flood

- **D7** Improve maintenance of drainage system in Putrajaya
- **D8** Improve early warning systems through Multi-Hazard Platforms such as social media, newspaper, public announcement and other applications

EXAMPLE 3 : KL LCSBP 2030- KL to lead other Malaysian



KUALA LUMPUR – NET ZERO EMISSION BY 2050 – GUIDED BY SCIENCE (ASIA-PACIFIC INTEGRATED MODEL)





WANGSA MAJU CARBON NEUTRAL GROWTH CENTRE

Develop the Wangsa Maju Growth Centre into a **thriving**, **prosperous**, **carbon neutral urban precinct**, serving **as a pioneer showcase** that is **up-scalable** to other Kuala Lumpur Strategic Zones for a progressive transformation of Kuala Lumpur into a **carbon neutral city by 2050**.



WANGSA MAJU CARBON NUETRAL GROWTH CENTRE - 20 PROJECTS LOCATIONS BY SECTOR -(ENERGY, WASTE, GREEN MOBILITY and COMMUNITY SECTORS)



Community and Private sector empowerment are vital to ensure inclusiveness and effective project implementation

COMMONWEALTH ASSOCIATION OF PLANNERS (CAP) AWARD 2023 WANGSA MAJU CNGC PLAN WITH 20 PROPOSED PROJ<u>ECTS</u>









CAP AWARDS 2023

COMMONWEALTH ASSOCIATION OF PLANNERS



WANGSA MAJU CNGC – EXPANDING PARTNERSHIP With Tokyo Metropolitan Government– T2KL LCS

Tokyo Metropolitan Government to Kuala Lumpur Low Carbon System)



T2KLLCS AND WANGSA MAJU CNGC – CELEBRATING A SUCCESSFUL PARTNERSHIP at C40 CITIES BLOOMBERG AWARD AT New York 2022







Addis Ababa Amsterdam Beijing Dhaka North Freetown Irvine Lima Lisbon Metropolitan Area of Guadalajara New York Pune Guezon City Guito Renca Rio de Janeiro São Paulo Seattle Seoul Tokyo-Kuala Lumpur Wuhan

Congratulations to the 2022 C40 Cities Bloomberg Philanthropies Awards Finalists #UnitedInAction 19 Oct 2022 – The C40 Cities Bloomberg Philanthropies Awards showcase the best of local climate leadership in Climate action -United to build a climate movement Category

CONCLUSION

- 1. UTM LCARC has completed more than 20 CAP for Malaysian cites with list of **policies and planned actions from evidence-based information**
- 2. Good scientific research is cornerstone to effective implementation of effective stocktaking and implementation of LCS policies.
- 3. Important for **benchmarking Malaysian cities** with other cities by **localizing and exploring possible good practices and gaps**;
- 4. Stocktaking from CAP preparation can local/State government as well as NRECC (Federal government) can strengthen outcomes of NDC and GST.
- 5. Cities may collaborate with International agencies to fund joint researches and Good practice climate actions measures are essential to developing countries to accelerate the transformation

UTM-LCARC PARTNERS



THANK YOU!

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