



Climate Finance Landscape Malaysia



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Climate Finance Landscape

Malaysia

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Foreword

As Malaysia navigates the complexities of climate change, the importance of climate finance in driving sustainable development and building resilience has become increasingly critical. With its diverse ecosystems and rapidly growing economy, Malaysia faces significant climate-related challenges, from rising sea levels and increased frequency of extreme weather events to the urgent need for sustainable resource management. Addressing these challenges requires robust financial mechanisms to support effective climate action.

This report, meticulously prepared by the United Cities and Local Governments Asia Pacific (UCLG ASPAC) as the host of the Secretariat of the Global Covenant of Mayors for Climate and Energy (GCoM) in Southeast Asia, provides an in-depth examination of the climate finance landscape in Malaysia. Developed with the support of the GCoM Asia Project, this publication offers valuable insights for policymakers, local governments, and stakeholders across the country. It highlights key opportunities, challenges, and strategies for leveraging financial resources to support climate action.

Malaysia's climate finance landscape is diverse and encompasses various funding mechanisms, from domestic fiscal budgets and private investments to international grants and innovative financial instruments like green bonds and carbon trading. This report offers a comprehensive analysis of these mechanisms, providing practical guidance on navigating the complex financial landscape and optimising available resources to implement effective climate strategies. It emphasises the importance of aligning local actions with national climate goals and fostering collaboration among public and private sectors to drive impactful climate initiatives.

The findings and recommendations in this report underscore the need for strategic investments and informed financial planning. Local governments play a crucial role in implementing climate action plans and achieving national climate commitments. By utilising the insights and strategies presented in this publication, local leaders can make informed decisions that enhance climate resilience, reduce greenhouse gas emissions, and contribute to sustainable urban development.

As you explore the findings of this report, I encourage you to embrace the opportunities it presents and take decisive action to harness climate finance for the benefit of Malaysia's communities and environment. With informed leadership, strategic financial planning, and strong partnerships, Malaysia can successfully address the challenges of climate change and pave the way for a resilient and sustainable future.

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Executive Summary

Climate change poses significant threats globally, including rising temperatures, extreme weather events, sea-level rise, and disruptions to ecosystems and human well-being. Malaysia, with its vulnerability to climate risks, faces challenges in addressing these impacts, which could lead to economic losses and societal disruptions. To mitigate these risks and uphold its commitments to international agreements like the Paris Agreement (PA), Malaysia has outlined ambitious climate action targets and strategies. However, financing climate action remains a critical challenge, both at the national and sub-national levels.

At the national level, Malaysia has committed to reducing greenhouse gas emissions intensity and enhancing climate resilience through various policies and initiatives. Despite that, the availability and accessibility of climate finance sources, both domestic and international, play a crucial role in realising these goals. Understanding the financing landscape, including sources, mechanisms, and accessibility, is essential for effective climate action implementation.

Moreover, climate action at the sub-national level, particularly in cities, is gaining prominence due to its significant contributions to emissions and vulnerability to climate risks. Cities require substantial financial support to implement climate action plans, but accessing climate finance can be challenging. Therefore, bridging the gap between financing needs and realities is crucial to ensure effective climate action implementation at both national and city levels.

This study aims to comprehensively assess Malaysia's climate finance landscape, focusing on three key components:

1. **National environment for climate change response:** Analysing national policies, regulations, and initiatives aimed at addressing climate change.
2. **Financing architecture and accessibility:** Identifying and evaluating sources of climate finance available in Malaysia and assessing their accessibility to sub-national entities.
3. **Assessment of financing needs and realities:** Conducting a comprehensive assessment of financing needs for climate action projects, comparing them with available financial resources.

By achieving these objectives, this study seeks to provide valuable insights to policymakers, stakeholders, and decision-makers, facilitating informed decision-making and strategic planning to support effective climate action implementation across Malaysia.

The institutional framework for climate action in Malaysia is robust, guided by a suite of policies and regulations aimed at addressing climate change and promoting sustainability. The National Steering Committee on Climate Change (NSCCC) oversees operational matters, ensuring coordination and endorsement of climate-related initiatives. Under its purview, the National Steering Committee on National Communication and Biennial Update Report (NSC NC/BUR) coordinates the preparation of national communications and biennial update reports to the United Nations Framework Convention on Climate Change (UNFCCC), facilitated by the Climate Change Division. This institutional

arrangement facilitates a structured approach to addressing climate change at both national and international levels, ensuring alignment with global commitments such as the PA.

Within this framework, Malaysia adopts the Integrated National Financing Framework (INFF) to mobilise various types of financing, both domestic and international, toward achieving sustainable development goals (SDGs) and national priorities outlined in the Twelfth Malaysia Plan. The INFF aligns financing strategies with development priorities, integrating climate financing to advance sustainability and address environmental challenges. Through mechanisms like the Development of Environmental Technology Sector (DETS) and carbon pricing, Malaysia aims to promote sustainable practices and incentivise emission reductions.

To support climate action, Malaysia has updated its Nationally Determined Contribution (NDC), committing to reducing carbon intensity by 45% by 2030 compared to 2005 levels. Various strategies outlined in the Twelfth (12th) Malaysia Plan (12MP) focus on transitioning to renewable energy, promoting sustainable transportation, enhancing water security, and strengthening urban resilience. These strategies, coupled with adaptation measures across key sectors, underscore Malaysia's commitment to addressing climate change holistically.

In terms of financing architecture, Malaysia boasts a diverse range of financial instruments to support climate action initiatives. From domestic fiscal mechanisms to international grants and private investments, Malaysia leverages multiple sources to finance climate projects. The Malaysian Green Technology and Climate Change Corporation (MGTC) serves as the focal point for climate finance management, implementing initiatives such as the Green Technology Financing Scheme (GTFS) and the Low Carbon Cities Framework (LCCF). Additionally, emerging instruments like carbon economic value (CEV) highlight Malaysia's innovative approach to leveraging carbon-related activities to support climate action financing.

The financing landscape for climate action in Malaysia intersects with global efforts, with financing sourced from both domestic and international channels. By tapping into various funding sources and leveraging innovative financing mechanisms, Malaysia aims to bridge the gap between climate financing needs and realities, ensuring the effective implementation of climate action projects across the country.

Overall, Malaysia demonstrates a strong commitment to addressing climate change through a comprehensive institutional framework, strategic policies, and innovative financing mechanisms. By aligning financing strategies with national development priorities and climate objectives, Malaysia aims to achieve sustainable and resilient growth while contributing to global efforts to combat climate change. Through continuous collaboration and strategic investments, Malaysia seeks to build a sustainable future for generations to come.

Glossary

ABO	: Asian Bond Online
ADB	: Asian Development Bank
AFOLU	: Agriculture Forestry Land Use
ASEAN	: Association of Southeast Asian Nations
BCX	: Bursa Carbon Exchange
BLT	: Build-Lease-Transfer
BM	: Bursa Malaysia
BNM	: Bank Negara Malaysia
BOO	: Build-Own-Operate
BOT	: Build-Operate-Transfer
BUR	: Biennial Update Report
CAP	: Climate Action Plan
CAPEX	: Capital Expenditure
CEPA	: Communication, Education, Public Awareness
CEV	: Carbon Economic Value
CGPP	: Corporate Green Power Program
CH₄	: Methane
CO₂	: Carbon Dioxide
COP	: Conference of Parties
CSO	: Civil Society Organisation
CSR	: Corporate Social Responsibility
DBFO	: Design-Build-Finance-Operate
DCMF	: Design-Construct-Manage-Finance
DE	: Development Expenditure
DETS	: Development of Environmental Technology Sector
e	: equivalent
EC	: Energy Commission
EEV	: Energy-Efficient Vehicles
EIA	: Environmental Impact Assessment
EoI	: Expressions of Interest
EPC	: Engineering, Procurement, and Construction
ER	: Emission Reduction
ESCO	: Energy Services Companies
ETS	: Emissions Trading System
EV	: Electric Vehicle
FCPF	: Forest Carbon Partnership Facility
FDI	: Foreign Direct Investment
FS	: Feasibility Study
GCF	: Green Climate Fund
GDP	: Gross Domestic Product
GEF	: Global Environment Facility

GeRAK	: Low Carbon City Catalyst Grant
GHG	: Green House Gasses
GITA	: Green Investment Tax Allowance
GITE	: Green Income Tax Exemption
GTFS	: Green Technology Financing Scheme
GTMP	: Green Technology Master Plan
HFC	: Hydrofluorocarbon
ICE	: Internal Combustion Engines
IGEM	: International Greentech and Eco Products Exhibition and Conference Malaysia
INFF	: Integrated National Financing Framework
IPCC	: Intergovernmental Panel on Climate Change
IPPU	: Industrial Processes and Product Use
ISFL	: Initiative for Sustainable Forest Landscapes
JC3	: Joint Committee on Climate Change
JV	: Joint Venture
KAS	: Ministry of Public Sector Accounting
KASA	: Ministry of Environment and Water
KPI	: Key Performance Indicator
LCC2030C	: Low Carbon Cities 2030 Challenge
LCCF	: Low Carbon Cities Framework
LCEG	: Low Carbon Energy Generation Program
LCMB	: Low Carbon Mobility Blueprint
LDCF	: Least Developed Countries Fund
LSS	: Large-Scale Solar Photovoltaic Plant
LSS@MEnTA RI	: LSSPV Bidding Cycle 4
LSS5	: LSS Bidding Round
LT-LEDS	: Long-Term Low Emissions Strategy
LULUCF	: Land Use, Land-use Change and Forestry
M&E	: Monitoring and Evaluation
MDB	: Multilateral Development Bank
MESTECC	: Ministry of Energy, Science, Technology, Environment, and Climate Change
MFF	: Malaysia Forest Fund
MFSI	: <i>Malaysian Sustainable Finance Initiative</i>
MGTC	: Malaysian Green Technology and Climate Change Corporation
MIDA	: Malaysian Investment Development Authority
MOF	: Ministry of Finance
MYCAC	: Malaysia Carbon Action Council
N₂O	: Nitrous Oxide
NC	: National Communication
NCCP	: National Climate Change Policy
NDC	: Nationally Determined Contribution
NEM	: Net-Energy Metering
NF₃	: Nitrogen Trifluoride

NGO	: Non-Government Organisation
NGTP	: National Green Technology Policy
NLCCM	: National Low Carbon Cities Masterplan
NPP-4	: Fourth National Physical Plan
NRECC	: Ministry of Natural Resources, Environment, and Climate Change
NRES	: Ministry of Natural Resources and Environmental Sustainability
NSC	: National Steering Committee
NSCCC	: National Steering Committee on Climate Change
OECD	: Organisation for Economic Cooperation and Development
OPEX	: Operational Expenditure
PA	: Paris Agreement
PEMERKASA	: Program to Empower the People and the Economy
PFC	: Perfluorocarbon
PFI	: Private Finance Initiative
PFP	: Project Finance for Permanence
PFS	: Pre-Feasibility Study
PPF	: Project Preparation Facility
PPP	: Public Private Partnership
RBP	: Result-Based Payment
RCP	: Representative Concentration Pathways
REDD+	: Reducing Emissions from Deforestation and Forest Degradation
RFF	: REDD Plus Finance Framework
RFP	: Request for Proposal
RM	: Ringgit Malaysia
SC	: Securities Commission
SCCF	: Special Climate Change Fund
SDG	: Sustainable Development Goals
SEA	: Southeast Asia
SEDA	: Sustainable Energy Development Authority
SF₆	: Sulphur hexafluoride
SLB	: Sustainability-linked Bonds
SLS	: Sustainability-linked <i>Sukuk</i>
SOE	: State-Owned Enterprise
SRI	: State-Owned Enterprise
TA	: Technical Assistance
TACCC	: Transparency, Accuracy, Consistency, Comparability, and Completeness
TWG	: Technical Working Group
UCLG	: United Cities and Local Governments Asia Pacific
ASPAC	:
UN	: United Nations
UNDP	: United Nations Development Programme
UNEP	: United Nations Environment Programme
UNFCCC	: United Nations Framework Convention on Climate Change
UNIDO	: United Nations Industrial Development Organization
USA	: United States of America

USD : United States Dolar
VCM : Voluntary Carbon Market
WB : World Bank

Table of Contents

Acknowledgements	ii
Foreword	iii
Executive Summary	iv
Glossary	vi
Table of Contents	x
List of Figures	xi
List of Tables	xii
Background	1
Objective	6
National Response to Climate Change	7
The National Steering Committee on Climate Change (NSCCC)	8
The Financing Framework	9
The Commitment	10
Financing Architecture	14
Financing Climate Action in Malaysia	16
Technical Assistance	17
Domestic Fiscal Budget	20
Grants	22
Loans	24
Private Investment	26
Bonds	31
Blended Finance	34
Corporate Social Responsibility	41
Designated Climate Fund	44
Carbon Economic Value	52
Financing Local Climate Action	56
Financing Reality	59
National Fact Sheet	59
The Gap	60
City and Local Government Reality in Climate Finance	63
References	65

List of Figures

Figure 1 Institutional arrangement and thematic working groups under the National Steering Committee on Climate Change (NSCCC)	8
Figure 2 Major Sources of Carbon Dioxide in 2016	12
Figure 3 Financing Schemes Based on The Project Phases	14
Figure 4 Available Financing Sources for Climate Action in Malaysia	16
Figure 5 Financing by The Source	17
Figure 6 Project Preparation Facility (PPF) Mechanisms	18
Figure 7 Steps on Pursuing Climate Finance through PPF	18
Figure 8 Enabling Environment and Necessary Points for Pursuing Climate Finance	19
Figure 9 Grants Mechanism Process in Malaysia	22
Figure 10 Loans Mechanism in Malaysia at A Glance	24
Figure 11 FDI Process and Mechanism at Glance in Malaysia	29
Figure 12 Bonds Acquisition Process in Malaysia	33
Figure 13 The Concept of PPP in Malaysia	38
Figure 14 End-to-end PPP Process in Malaysia	40
Figure 15 CSR Process and Mechanism in Malaysia	43
Figure 16 Key Steps of Pursuing Finance through MGTC	50
Figure 17 Stakeholder Map of The Carbon Economic Value (CEV) Instrument in Malaysia	53
Figure 18 Mechanism of VCM in Malaysia	54
Figure 19 Climate Finance Architecture in Malaysia by Schemes and Sources	55
Figure 20 Accessible Climate Finance Instruments for Local Governments in Malaysia	56
Figure 21 Cost of Climate Action in Malaysia and its Capabilities	59
Figure 22 International Support for Malaysia	59
Figure 23 Gap of The Estimated Cost of 2030 Climate Targets to Domestic Pledged Resources and Existing International Support	60
Figure 24 The Gaps in Conducting Annual Climate Action Compared to The Real Annual Country's Capability	61
Figure 25 Summary of Climate Action Cost for Cities in Malaysia	63

List of Tables

Table 1 Climate Change Profile of Malaysia	1
Table 2 Climate Risk Status of Malaysia	2
Table 3 Summary of GHG Emissions Inventory of Malaysia	11
Table 4 Strategies to Meet NDC Target from The Twelfth (12th) Malaysia Plan	13
Table 5 Goals and Strategies Regarding Adaptation from The Twelfth (12th) Malaysia Plan.	13
Table 6 Accessibility Status of Climate Finance for Cities in Malaysia	57
Table 7 Number of Financing Schemes and Its Status in Malaysia	64

Background

Climate change is one of the biggest current threats and is indeed a global crisis. The study stated that the current path of greenhouse gas (GHG) emission has a 100% probability of increasing average global temperature by at least 2°C in 2100 (Clarke L, 2014). There will be more extreme heating days (Wright, Norval and Albers, 2015), the rise of sea level (UN, 2015), and the increase of extreme weather phenomena leading to disasters, such as floods, droughts, typhoons and follow-up disasters such as landslides. (ASEAN, 2021). These occurrences reveal significant vulnerabilities and the exposure of the ecosystem to the current climate variability. It also elaborates on the alteration of ecosystems, disruption of food production and water supply, damage to infrastructure and settlements, morbidity and mortality, and consequences for human mental health and well-being. For countries at all levels of development, these impacts are consistent with a significant lack of preparedness for current climate variability in some sectors (IPCC, 2014).

Malaysia has a land area of approximately 330,345 km² and it is mainly located in two areas which are Southeast Asia's peninsula and north of Borneo Island. The daily mean temperature is around 23 to 32°C. Due to climate change, Malaysia is experiencing a significant temperature increase of 0.19 to 0.3°C per decade depending on the region of the country. By 2050, the temperature could rise by as much as 2.1°C (World Bank and ADB, 2021).

Table 1 Climate Change Profile of Malaysia

Average Annual Rainfall	Average Rainfall Increase to 2075-2099 under RCP 4.5	Average Temperature	Temperature Increase in 2050 under RCP 4.5
3,085.5 mm	6 %	23°C – 32°C	0.3°C – 2.1°C

Source: World Bank and ADB, 2021







In terms of climate risk, Malaysia has high exposure to floods, as highlighted by the INFORM RISK report (European Commission, 2024). National reports from the World Bank in 2021 and Malaysia's biennial report indicate an increasing trend in climate-related hazards. On the other hand, the country has a relatively low risk of drought and epidemics, which are correlated with dengue diseases. Despite having a relatively low vulnerability score, Malaysia still lacks the coping capacity to effectively mitigate these risks.

Table 2 Climate Risk Status of Malaysia

Flood (0-10)	Tropical Cyclone (0-10)	Drought (0-10)	Vulnerability (0-10)	Lack of Coping Capacity (0-10)	Overall INFORM RISK Level (0-10)	Rank (1-191)
6.6 [4.5]	2.9 [1.7]	3.3 [3.2]	3.0 [3.6]	3.2 [4.5]	3.2 [3.8]	111

Source: World Bank and ADB, 2021

The inaction to address climate change will cost Malaysia's economic growth reduced by **20% below expectations by 2050** if global temperatures are held to a 2°C increase. This projection is based on the broader impact of climate change on economies worldwide, where rising temperatures are expected to reduce global wealth significantly by 2050 as crop yields fall, disease spreads, and rising seas heavily threaten coastal cities. The cumulative cost of climate change to Malaysia, without any mitigating policies, is estimated at an average of over **RM400 billion a year** over a period of 100 years. In brief, the economic losses due to climate change in Malaysia are expected to impact various sectors below (World Bank and ADB, 2021; Malaysia Investment Development Authority, 2021; Entezari, Wong, & Ali, 2021; and The Edge Malaysia, 2021);

 Agriculture	The agricultural sector is vulnerable to climate change, with potential decreases in production due to changes in rainfall and temperature.
 Tourism	Climate change can affect tourism, especially in coastal areas at risk from sea-level rise and extreme weather events.
 Urban and Energy	Urban areas may face increased energy demands for cooling due to heat waves, while energy production could be impacted by changes in water availability.
 Natural Resources	Water resources, forests, and ecosystems are likely to be affected, with implications for industries dependent on these resources.
 Coastal Zones	Sea-level rise and increased frequency of storms can lead to loss of land, affecting coastal communities and industries.
 Health	There may be increased healthcare costs due to climate-related diseases and heat stress.

Addressing these serious issues, Malaysia took a measure by joining the global movement called the Paris Agreement (PA). Malaysia signed the PA in April 2016 and ratified it in November 2016. Following that commitment, Malaysia set

ambitious targets for climate action. Based on Malaysia's Biennial Update Report (BUR) and Nationally Determined Contribution (NDC), the country has outlined its climate change strategy as follows (Ministry of Natural Resources, Environment and Climate Change, Malaysia, 2022; Government of Malaysia, 2021; Malaysia Investment Development Authority, 2024; and The Star, 2023):

- **Emission reduction:** Malaysia has committed to reducing its GHG emission intensity by 45% by 2030 relative to the gross domestic product (GDP) emission intensity in 2005. This target is unconditional and represents an increase of 10% from the earlier submission. Beyond that, Malaysia sets its sights on achieving carbon neutrality in 2050 as a part of the 12th Malaysia Plan.
- **GHG coverage:** The GHG coverage has been expanded to include seven greenhouse gases: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbon (PFCs), sulphur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).
- **Transparency and accountability:** Malaysia's accounting approach will strive for transparency, accuracy, consistency, comparability, and completeness (TACCC), and promote environmental integrity.
- **Adaptation strategies:** The implementation of climate change adaptation in Malaysia focuses on the management of water resources and security, coastal resources, agriculture and food supply, urban and infrastructure resilience, public health, forestry and biodiversity, as well as key cross-sectoral adaptation efforts.
- **Long-Term Low Emissions Strategy (LT-LEDS):** Malaysia is formulating an LT-LEDS and the Nationally Determined Contribution (NDC) Roadmap, which will serve as comprehensive guidelines for aspirations towards achieving net-zero emissions as early as 2050.

It is clear to see that Malaysia's commitment to climate action is concrete in its updated targets and long-term strategies, which are designed to balance economic growth with environmental sustainability and resilience against climate change. The nation has undertaken significant efforts to mitigate its GHG emissions and adapt to the impacts of climate change. However, there are also challenges in achieving the goals. The most challenging factors are financing the climate action and forging partnerships to share the vision.

There is also an imperative issue at the sub-national level, particularly at the city level. Climate change indeed has a costly impact on cities' basic services, infrastructure, housing, human livelihood, and health. Cities are at the forefront of climate change actions. By 2050, an estimated 70% of all people will live in cities. Considering urban activities, cities are significant contributors to GHG emissions, with an estimated 75% of global carbon dioxide (CO₂) emissions attributed to cities, primarily due to transportation and buildings, which serve as the largest contributors (UNEP, 2024 and World Bank, 2023).

Being both causes and victims of climate change, cities' roles are critical in providing solutions to climate change. They have a unique opportunity for devolved leadership and transformative initiatives on climate action. Over the past ten years, cities have made progress in measuring their emissions, setting targets, and implementing plans and actions to reduce emissions. Many cities have mainstreamed the SDGs within the heart of urban planning while developing comprehensive, holistic, Paris Agreement-aligned climate action plans (CAPs). These plans include a decarbonisation strategy that incorporates renewable energy; accessible, affordable, safe, and reliable public transport; energy-efficient housing; green spaces and green infrastructures; pedestrianised areas; city farms and local processing facilities; and green waste management. (Economist, 2023). This means today's investments in making cities resilient and inclusive will determine whether most people will be able to access basic services, find jobs, and live with dignity. Through targeted action, the transformation of urban environments can be ensured to have a thriving future for all (World Bank, 2023).

Unfortunately, both cities and national levels encounter challenges in developing and implementing their CAPs. Similar to national-level governments, cities need partnerships to address climate action to accelerate progress in addressing climate change. Cooperation at the national and regional levels as well as with development partners and the private sector which embed cross-sectoral coordination is essential to ramp up the effort to tackle climate change. Climate action also demands substantial financing, and the financial commitment required is undeniably significant. It is an expensive endeavour that necessitates resources for the development and implementation of transformative projects. An illustrative metric to gauge this financial commitment is the cost associated with reducing one ton of carbon dioxide equivalent (CO₂e). On average, the financial outlay required to achieve this reduction is a critical consideration in climate finance discussions. Understanding these costs underscores the financial magnitude and commitment essential for realising tangible impacts in the global endeavour to combat climate change.

In essence, climate finance is not just about allocating funds, it is about investing in a sustainable future. It is a strategic deployment of resources that transcends borders and sectors, reflecting a collective commitment to mitigating climate change's adverse effects and fostering a resilient and sustainable global community.

Climate finance stands as a pivotal force in the global fight against climate change, acting as a catalyst to mobilise resources and confront the multifaceted challenges posed by climate-related issues. On the international stage, climate finance encompasses a diverse array of financial instruments meticulously crafted to bolster both mitigation and adaptation endeavours. Its overarching goal is to fortify the resilience of communities vulnerable to the impacts of climate change, propelling countries toward development pathways characterised by resilience, sustainability, and low-carbon practices.

Within the realm of climate finance, funds can be derived from various sources, including public and private sectors, as well as domestic and international contributors. The funds allocated can be directed towards either mitigation strategies, aiming to reduce GHG emissions, or adaptation efforts, fortifying communities against the impacts of a changing climate. This financial support becomes particularly pivotal in steering countries toward the objectives outlined in international agreements such as the PA and the SDGs.

Therefore, it is imperative to understand deeply the landscape of a country, in particular Malaysia, and its cities in their effort to finance climate action. By understanding comprehensively the financing landscape of climate action, this study believes that it will help optimise the accessible resources for Malaysia and its cities to bring resilient, sustainable, and low-carbon development to the highest resolution.

Objective

The objective of this study is to comprehensively assess the climate finance landscape in Malaysia, focusing on the national response to addressing climate change, the financing architecture based on sources, and its accessibility to the sub-national level. Additionally, the study aims to examine the current status of climate action financing in Malaysia, evaluating both national and city-level needs against the reality of available resources.

Key components of the objective:

1. **National response to climate change:** Analyse the policies, regulations, and initiatives at the national level aimed at addressing climate change and promoting climate action.
2. **Financing architecture and accessibility:** Identify and evaluate the various sources of climate finance available in Malaysia, including domestic and international sources, and assess their accessibility to sub-national entities such as cities and provinces.
3. **Assessment of financing needs and realities:** Conduct a comprehensive assessment of the financing needs for climate action projects at both national and city levels, comparing them with the available financial resources and highlighting any gaps or discrepancies.

By achieving these objectives, the study aims to provide valuable insights into Malaysia's climate finance landscape, facilitating informed decision-making and strategic planning to support the effective implementation of climate action projects across the country.

National Response to Climate Change

According to the Ministry of Environment and Water (2020), Malaysia contributes to greenhouse gas (GHG) emissions due to its significant use of coal and natural gas. However, the use of hydropower has grown in the 21st century, and other potential energy sources such as solar power and biomass are being explored. Moreover, Malaysia's geographic location and low poverty rates mean it has lower risk and vulnerability to natural hazards compared to some of its Southeast Asian neighbours. Nonetheless, the country still suffers high average annual losses due to these hazards.

Addressing these matters, Malaysia's government anticipates the need to adapt in areas such as health and coastal defence and has ratified the Paris Agreement (PA). These commitments underscore Malaysia's serious approach to addressing climate change. Over the years, Malaysia has received financial and capacity-building assistance from the Global Environment Facility, Germany, the United Kingdom and other parties in various areas. Furthermore, the country has also introduced numerous policies to reduce GHG emissions. As a result, Malaysia has aligned climate-related issues in its policies. Currently, Malaysia has enacted 11 policies concerning climate change.

1. 12th Malaysia Plan
2. National Policy on the Environment
3. National Policy on Climate Change
4. National Green Technology Policy
5. National Renewable Energy Policy and Action Plan
6. Policy and Mechanism on National Disaster and Relief Management
7. Green Technology Master plan
8. Low Carbon Cities Framework (LCCF)
9. National Low Carbon Cities Masterplan (NLCCM)
10. Forth National Physical Plan (NPP-4)
11. Green Building Index

The National Steering Committee on Climate Change (NSCCC)

In elaboration with the policies, Malaysia established the National Steering Committee on Climate Change (NSCCC). Operational matters on climate change are guided and endorsed by the NSCCC chaired by the Secretary General of the Ministry of Environment and Water. The coordination for the preparation of national communications (NCs) and biennial update reports (BURs) is undertaken by the National Steering Committee on National Communication and Biennial Update Report (NSC NC/BUR) which reports to the NSCCC.

The secretariat to these Steering Committees is the Climate Change Division of the Ministry of Environment and Water which is also the national focal point for climate change to the United Nations Framework Convention on Climate Change (UNFCCC). Moreover, the technical work of the NCs and BURs is carried out through six Technical Working Groups (TWGs) established under the NSC NC/BUR. Figure 1 shows the institutional arrangement and thematic groupings under the NSCCC to address climate change as well as carry out NC/BUR reporting.

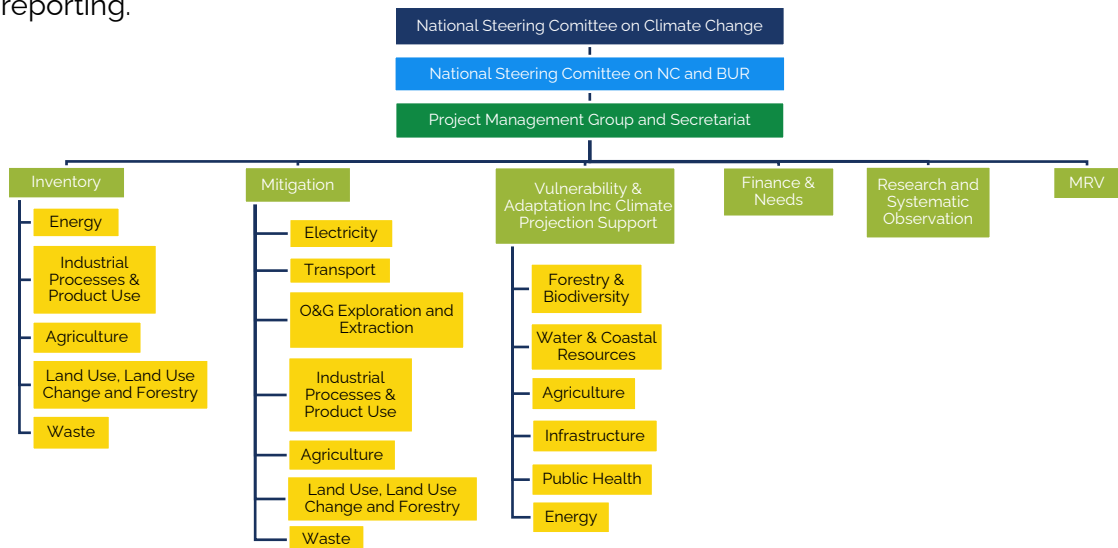


Figure 1 Institutional arrangement and thematic working groups under the National Steering Committee on Climate Change (NSCCC)
Source: Ministry of Environment and Water, 2020

The Financing Framework

Malaysia adopted a financing framework to effectively mobilise resources to fund climate action, the Integrated National Financing Framework (INFF). The INFF serves as a comprehensive strategy to manage and mobilise various types of financing—both domestic and international as well as public and private—towards achieving sustainable development goals (SDGs) and the objectives outlined in the Twelfth Malaysia Plan (2021-2025), particularly in advancing sustainability and addressing climate change. The intersection of INFF with the national plan and climate finance are as follows:

1. Alignment with the SDGs and national planning:

- The INFF aims to bridge the funding gap for SDGs by aligning financing strategies with national development priorities, as reflected in the Twelfth Malaysia Plan.
- Components of the INFF, such as the development of the national SDG Roadmap, financing strategy, and budget tracking tools, are designed to ensure the effective allocation of financial resources to support sustainable development initiatives outlined in the national plan.

2. Integration into the Twelfth Malaysia Plan:

- The Twelfth Malaysia Plan emphasises sustainability and resilience, with a dedicated theme focused on advancing sustainability through various approaches.
- Green growth, energy sustainability, and water sector transformation are highlighted as key areas of focus within the plan, aligning with the goals of the INFF to promote sustainable development and address environmental challenges.

3. Climate financing and climate action:

- Climate financing is integral to Malaysia's efforts to combat climate change and achieve its sustainability goals.
- The INFF provides a framework for mobilising climate finance by fostering collaboration between stakeholders, developing financing strategies, and tracking budget allocations for climate-related projects.
- Climate financing initiatives, such as the Project Finance for Permanence (PFP) model, play a crucial role in supporting climate action projects by providing guarantees to investors and ensuring long-term sustainability.

4. Strategic framework for sustainable development:

- The convergence of the INFF, Twelfth Malaysia Plan, and climate financing creates a strategic framework for sustainable development, resilience, and climate action in Malaysia.

- By integrating financing strategies with national development priorities and climate objectives, Malaysia aims to achieve its vision of sustainable and resilient growth while addressing environmental challenges and contributing to global efforts to combat climate change.

In summary, the INFF serves as a guiding framework to align financing strategies with national development priorities, including those outlined in the Twelfth Malaysia Plan, and to mobilise resources effectively towards achieving sustainable development and climate resilience goals in Malaysia (INFF, 2024; Unit Perancang Ekonomi, Jabatan Perdana Menteri, 2021; UNDP, 2018; and Ministry of Economy, 2024).

The Commitment

Malaysia updated its Nationally Determined Contribution (NDC) in July 2021, stating its intention to unconditionally reduce economy-wide carbon intensity (against the gross domestic product (GDP)) by 45% by 2030 compared to 2005 levels. This is the first modification made to its NDCs, which were first submitted in 2015, and it represents a 10% increase in climate ambition (Government of Malaysia, 2021).

In the previous NDC commitment, Malaysia pledged to reduce its greenhouse gas (GHG) emissions intensity of GDP by 35% unconditionally and a further 10% conditional upon receipt of climate finance, technology transfer, and capacity building from developed countries, by 2030 compared to 2005 levels.

To understand what Malaysia has been doing to meet the NDCs so far, one can look at the country's biennial update reports (BUR) to the United Nations Framework Convention on Climate Change (UNFCCC), which is required by the Paris Agreement (PA) signatories. In Malaysia's 4th BUR submitted in 2022 (latest data from 2016), Malaysia emitted 75,488,480 tons of carbon dioxide equivalent (CO₂e) with the land use, land-use change, and forestry (LULUCF) sector removal. The country's emissions mainly came from three main sectors, including energy, waste, and forestry. The agriculture forestry land use sector (AFOLU) has been instrumental in achieving most emissions avoidance. Table 3 further shows the GHG emissions inventory of Malaysia.

Table 3 Summary of GHG Emissions Inventory of Malaysia

Sector		Emissions/Removals (Gg CO ₂ eq.)	GWPs	CO ₂ eq (Gg CO ₂ eq.)	
Energy (Reference Approach)	CO ₂	235,881.971	1	235,881.97	
	CO ₂ (from Fuel Combustion)	222,510.481	1	222,510.48	
Energy (Sectoral Approach)	CO ₂ (from Fugitive Emissions)	1,942.147	1	1,942.15	
	CH ₄	1,037.704	25	25,942.60	
	N ₂ O	4,362	298	1,299.79	
Sub-total				251,695.02	
Industrial Processes and Product Use	CO ₂	20,807.763	1	20,807.76	
	CH ₄	13,523	25	338.08	
	N ₂ O	0.2370000	298	70.70	
	HFC-143a	0.4987728	1,430	713.25	
	HFC-23 (CHF ₃)	0.0029560	14,800	43.75	
	PFC-14 (CF ₄)	0.4889423	7,390	3,613.28	
	PFC-116 (C ₂ F ₆)	0.1090460	12,200	1,330.36	
	PFC-218 (C ₃ F ₈)	0.0036950	8,830	32.63	
	SF ₆	0.0152705	22,800	348.17	
NF ₃	0.0029564	17,200	50.85		
Sub-total				27,348.83	
AFOLU - Agriculture	CO ₂	531.828	1	531.83	
	CH ₄	165.957	25	4,148.93	
	N ₂ O	19.956	298	5,946.96	
Sub-total				10,627.72	
AFOLU - LULUCF (Emissions)	CO ₂	17,753.214	1	17,753.21	
	CH ₄	1.157	25	28.93	
	N ₂ O	0.064	298	19.13	
AFOLU - LULUCF (Removals)	CO ₂	-	259,146.025	1	-259,146.03
Sub-total				-241,344.75	
Waste	CO ₂	31.060	1	31.06	
	CH ₄	1,070.098	25	26,752.45	
	N ₂ O	1.269	298	378.15	
Sub-total				27,161.66	
Total Emissions (Without LULUCF)				316,833.23	
Total Emissions (Without LULUCF emissions part only)				334,634.51	
Total Emissions (With LULUCF)				75,488.48	

Source: Ministry of Natural Resources, Environment and Climate Change, Malaysia, 2022

A comparison between the CO₂ emissions based on the Reference and Sectoral Approaches for the energy sector was undertaken. For 2016, the Reference Approach resulted in emissions of 235,881.97 gigagrams (Gg) of CO₂e, whereas the Sectoral Approach resulted in emissions of 222,510.48 Gg of CO₂ (Table 3). The percentage of difference in CO₂ emissions between both approaches was approximately 5.7%.

In 2016, the energy sector remained the largest contributor to GHG emissions, accounting for 79.4% of the total emissions. This is followed by the industrial processes and product use (IPPU) and the waste sectors, both contributing to

approximately 8.6% of the total emissions respectively. Meanwhile, the agriculture sector contributed the lowest emissions at 3.4% while LULUCF is a net sink.

CO₂ emissions accounted for a total of 263,577 Gg CO₂e in 2016. CO₂ emissions from electricity and heat production were the highest contributor at 103,047 Gg CO₂e (39%), followed by emissions from road transportation at 55,188 Gg CO₂e (21%). Manufacturing industries and construction were the third largest contributor of CO₂ emissions at 23,856 Gg CO₂e (9%) as shown in Figure 2.

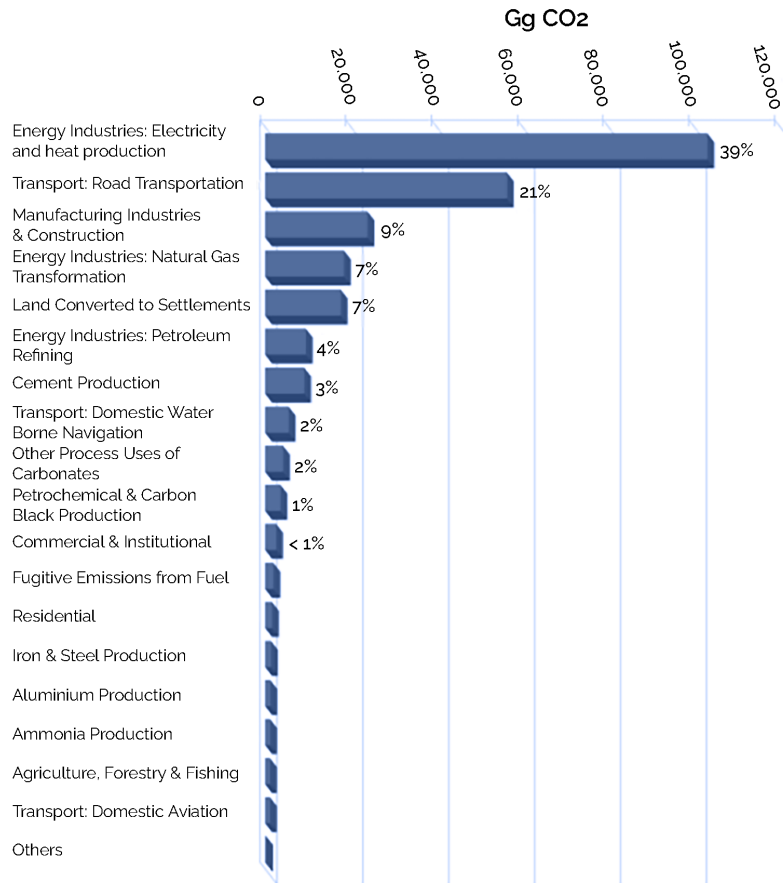


Figure 2 Major Sources of Carbon Dioxide in 2016
Source: Ministry of Environment and Water, 2020

As a developing nation, Malaysia's electricity demand has continuously grown in the past two decades, with the sector still predominantly reliant on fossil fuels. Government incentives have been the most influential factor in the nation's energy mix trend. Several energy policies implemented throughout the past 22 years have seen the shift from natural gas to coal power in power plants, and in more recent years, renewable energy resources. Numerous studies in the past have independently outlined the status of various energy sources in Malaysia. However, they all fell short of providing the GHG emissions calculations in the country's energy sector.

To address these challenges, it is crucial for Malaysia to meet its NDC target. The Twelfth (12th) Malaysia Plan outlines several strategies to achieve this goal (Table 4).

Table 4 Strategies to Meet NDC Target from The Twelfth (12th) Malaysia Plan.

Approach	Key Actions
No Coal Power Plant	<ul style="list-style-type: none"> Renewable energy generation from solar, biomass, and biogas is targeted to increase to 31% of the total installed capacity in the country by 2025.
Carbon Pricing	<ul style="list-style-type: none"> State government authorities and the private sector could leverage the Domestic Emissions Trading Scheme (DETS) to execute carbon credit transactions at the domestic level. Tax may also be levied on GHG emissions in order to encourage polluters to reduce the combustion of fossil fuels.
Developing Electric Vehicle Technology	<ul style="list-style-type: none"> Develop energy-efficient vehicles (EEV) production industry to support environmentally-friendly mobility initiatives. Encourage investments in the production of EVs or their components and infrastructure support, including electric vehicle (EV) charging stations, as well as to drive consumer demand for EV vehicles. Introduce a consumer-focused incentive package to attract investments into the EV ecosystem.
Blue Economic Blueprint	<ul style="list-style-type: none"> Improve ecological fiscal transfer mechanism to support the state government's efforts in conserving the forest areas. Upgrade sanctuaries for endangered wildlife such as tigers, tapirs and elephants for conservation purposes.

Source: Government of Malaysia, 2021

Since the climate action targets encompass both mitigation and adaptation, Malaysia has defined the goals and strategies regarding adaptation as well. These are also outlined in the Malaysia 12th Plan (Table 5).

Table 5 Goals and Strategies Regarding Adaptation from The Twelfth (12th) Malaysia Plan.

Sectors	Goals and Plans
Water Security	Enhance water supply management, promote water conservation and efficiency, develop flood mitigation and early warning systems, and protect water catchment areas
Coastal	Implement integrated coastal zone management, restore and conserve mangroves and coral reefs, conduct vulnerability assessments and mapping, and relocate coastal communities at risk
Agriculture and Food Supply	Promote climate-smart agriculture, diversify crops and livestock, improve irrigation and drainage systems, and strengthen food security and safety
Urban and Infrastructure Resilience	Improve urban planning and design, upgrade and retrofit infrastructure, enhance disaster risk reduction and management, and increase public awareness and participation

Source: (Government of Malaysia, 2021)

Financing Architecture

This chapter explores Malaysia's climate finance landscape, emphasising the importance of understanding the multifaceted financing architecture encompassing diverse instruments and resources. Given the complexity of the financing landscape for climate action, it is crucial to navigate through this intricate web of financial mechanisms. The chapter serves as a comprehensive guide, providing insights into the strategic approaches required to finance climate action initiatives in Malaysia.

To address the challenge of climate financing in Malaysia, a systematic approach is necessary, beginning with outlining the grand design of climate action through project phases (Figure 3). This involves breaking down the overarching climate action plan into manageable stages, each with specific objectives and activities. By delineating each phase of the project, cities in Malaysia can gain a clear understanding of the sequential steps required to achieve their climate goals. Moreover, this structured approach enables cities to identify the most suitable financing schemes tailored to their specific needs and objectives. For instance, early-stage activities such as research and planning may benefit from leveraging domestic resources, such as local budgets and grants facilitated through technical assistance mechanisms (Figure 3).

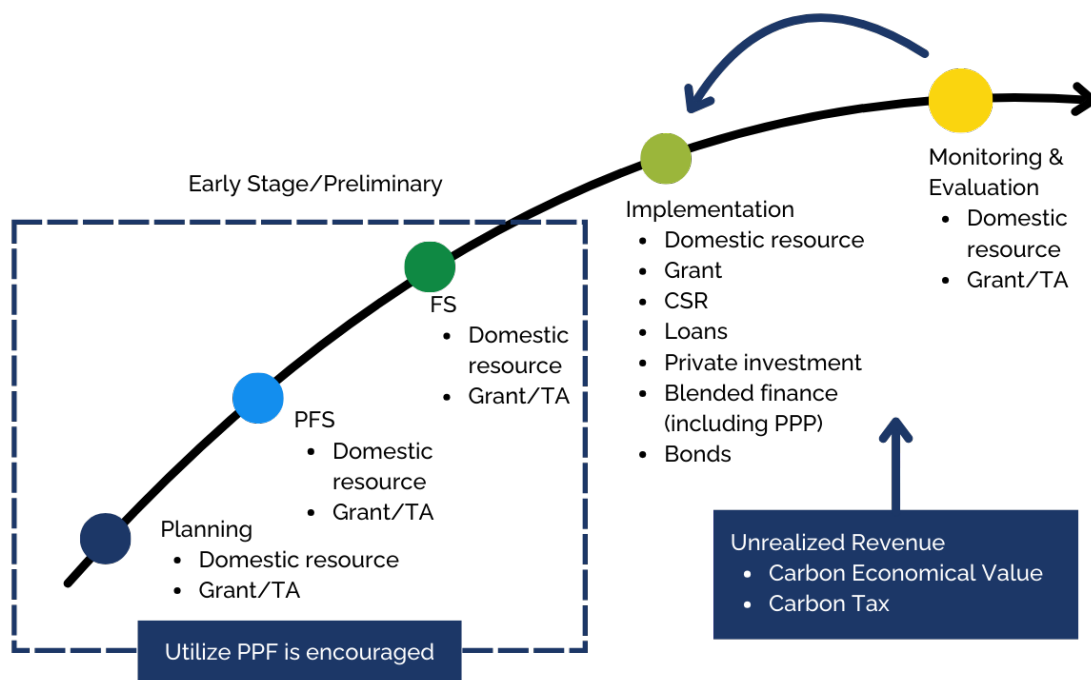


Figure 3 Financing Schemes Based on The Project Phases

As projects progress to the implementation phase in Malaysia, substantial funds are required for both capital expenditures (CAPEX) and operational expenditures (OPEX). Securing CAPEX can be challenging, and while domestic resources and grants may be insufficient, alternative avenues such as municipal bonds and

public-private partnerships (PPP) emerge as recommended approaches. Municipal bonds offer a means of financing CAPEX, although careful navigation of national policies and contexts is necessary. PPPs, on the other hand, provide a collaborative financing scheme that shares risks and benefits from both public and private perspectives. Additionally, adopting blended financing systems can further bolster investments, pooling resources for more ambitious climate actions.

Addressing OPEX requires sustained funding mechanisms, with PPPs remaining a viable option in Malaysia. Moreover, emerging financing schemes like carbon economic value (CEV) present opportunities for unrealised revenue in climate action. By quantifying GHG emissions and engaging in carbon trading, cities can potentially finance OPEX over time, contingent upon observed reductions in emissions. However, navigating the complexities of carbon markets requires diligence, as the verification process may extend over a considerable timeframe. Aligning financing schemes with national-level policies is essential to pre-empt conflicts and ensure seamless implementation of climate action initiatives in Malaysia.

In the context of climate action projects in Malaysia, monitoring and evaluation (M&E) serve as critical components for ensuring effectiveness and success. This phase acts as a control mechanism, allowing the opportunity to assess progress, identify challenges, and make informed decisions based on real-time data and insights. Financing for M&E activities primarily relies on domestic resources, highlighting the importance of allocating adequate financial resources within the national budget. However, external grants can provide valuable supplementary funding to bolster M&E efforts, ensuring comprehensive data collection, analysis, and reporting throughout the project lifecycle. Leveraging a combination of domestic resources and external grants strengthens Malaysia's capacity to effectively monitor and evaluate climate action initiatives, facilitating evidence-based decision-making and continuous improvement.

Financing Climate Action in Malaysia



Figure 4 Available Financing Sources for Climate Action in Malaysia

This study reveals a dynamic climate financing landscape in Malaysia characterised by a variety of financial instruments. Through an examination of regulations, studies, and discussions held across multiple events, this study finds that nine out of ten financial instruments have been well-established in practice. These instruments serve as the backbone of Malaysia's efforts to address climate change, offering diverse avenues for mobilising funds and implementing climate initiatives. Malaysia has a strong commitment to financing climate action, shown through the robust "climate finance manager" in the Ministry of Natural Resources and Environmental Sustainability (NRES) called Malaysian Green Technology and Climate Change Corporation (MGTC) as a designated climate finance agency at the domestic level.

Among these established instruments, one notable addition is the emergence of a new financing instrument known as carbon economic value (CEV) (Figure 4). While the main framework for this instrument has been established, the finer details of its implementation are still in the early stages. This indicates a growing recognition of the economic value inherent in carbon-related activities and the potential for leveraging this value to support climate action initiatives.

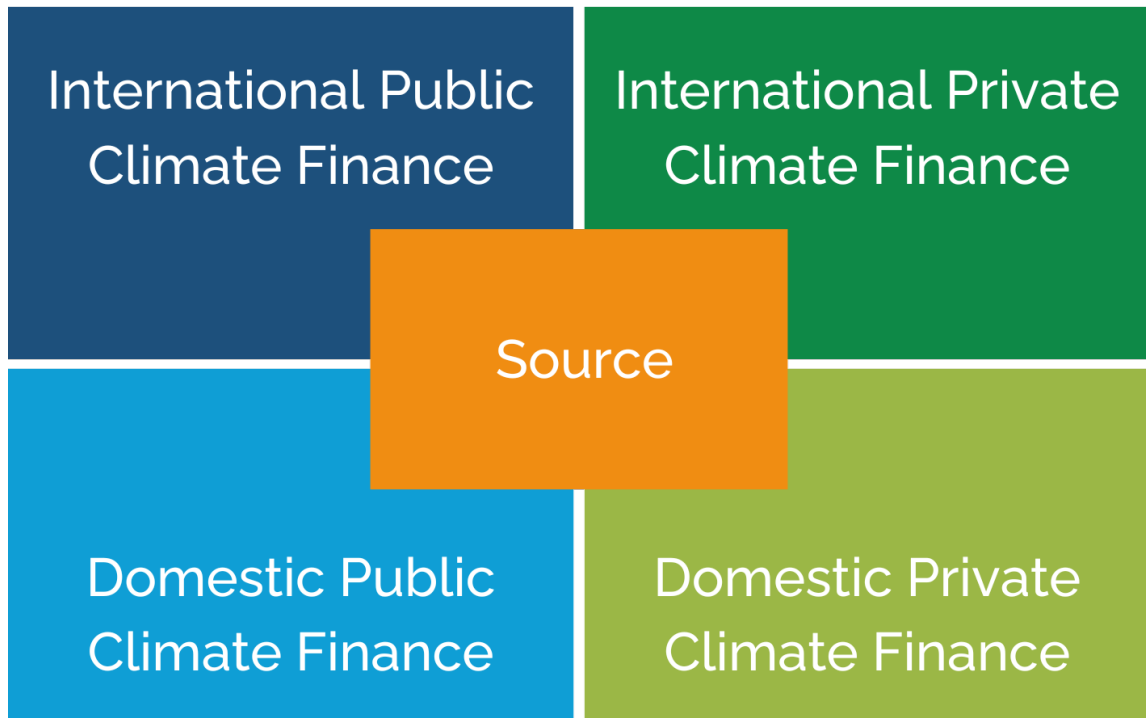


Figure 5 Financing by The Source
Source: UNFCCC, 2022

Moreover, drawing from a study on climate finance in Southeast Asia (SEA) (UNFCCC, 2022), it becomes apparent that financing for climate action in SEA, including Malaysia, is sourced from four main categories: domestic and international, each of which intersects with either public or private sources (Figure 5).

Technical Assistance

Technical assistance (TA) is a type of financing where the proposing party does not receive direct funds. Instead, there will be no disbursement directly to the government side as the proposing party. The funder will give the funds to the technical team that will support any activity in the proposing party. The form of TA can be; (1) a team that will conduct any necessary studies for the proposing party, or (2) expert/s that will assist any activity/ies in the project. The proposing party must understand that TA has a limited timeline. Therefore, establishing a knowledge transfer system is essential to increase the proposing party's capacity. This approach will benefit the proposing party in terms of capacity building as well as possessing any advanced study.

Currently, several TAs are available in preparing the project called the Project Preparation Facility (PPF). In Indonesia under the radar of the United Cities and Local Governments Asia Pacific (UCLG ASPAC), the Global Covenant of Mayors for Climate & Energy (GCoM) SEA secretariat, there are at least three PPFs available to help the government in increasing the capacity in project preparation. The preliminary/early stage of the project starts from strategic planning, pre-feasibility study (PFS), to feasibility study (PFS). To access financing through PPFs, cities are required to develop proposals or Expressions of Interest (EoI). PPFs

typically offer forms or templates for project proposals. This study has identified at least three PPF frameworks available for cities to pursue their climate projects, as illustrated below.




 <p>City Climate Finance Gap Fund</p>	<ul style="list-style-type: none"> • Open all year • No Deadline 	<p>Cover only Preliminary Phase: Strategic Planning to Pre-Feasibility Study</p>	<p>Financing through Technical Assistance</p>	<p>Simple proposal/brief proposal namely EoI needed as an application</p>
	<ul style="list-style-type: none"> • Open from Q1 – Q3 • Deadline usually 31 October every year 	<p>Cover only Preliminary Phase: Strategic Planning to Feasibility Study</p>	<p>Financing through Technical Assistance</p>	<p>Simple proposal but a little longer with more explanation needed as an application</p>
 <p>Mitigation Action Facility</p>	<ul style="list-style-type: none"> • Open usually from Q4 - Q1 next year • Deadline in Q1 	<p>Cover beyond the preliminary phase</p>	<p>Financing through Technical Assistance and beyond including financial cooperation</p>	<p>More complex and comprehensive proposal needed as an application</p>

Figure 6 Project Preparation Facility (PPF) Mechanisms

These three PPFs offer cities flexibility in selecting the most suitable option based on their specific needs. Our study strongly encourages cities to delve deeper into understanding these mechanisms. However, it is also recommended that cities seek assistance from development partners to explore and comprehend the nuances of each PPF to identify which PPF aligns best with their requirements (Figure 7). Development partners play a crucial role in facilitating access to these financing facilities, from matchmaking with PPFs, to enhancing the value of proposals.



Figure 7 Steps on Pursuing Climate Finance through PPF

In pursuing climate finance through these facilities, the focus should be on developing a robust application. Figure 7 outlines the process involved in accessing this financing facility. It is recommended that the proposing party collaborate closely with development partners to create a comprehensive application. This entails extracting ideas and translating them into a well-articulated application. Subsequently, intensive discussions between the city and

development partners are essential to ensure that the application addresses all enabling environment and imperative points, as detailed in Figure 8. Following the review process with development partners, the finalised document should be submitted within the specified submission period.



Figure 8 Enabling Environment and Necessary Points for Pursuing Climate Finance

The proposing party should be aware that the application preparation process requires considerable time and effort. This study finds that the best practice for application preparation typically spans approximately three months. Furthermore, the application process within the PPF itself also entails a significant timeframe. The application process may take up to six months until TA is provided to the proposing party. Therefore, it is crucial for cities to allocate sufficient time and designate a person in charge to oversee and engage actively throughout the process. Maintaining continuity with the person in charge is essential to prevent any miscommunication or disruptions. Additionally, the appointed person should demonstrate proactive involvement and possess expertise in the relevant field to facilitate smooth communication and coordination.

Domestic Fiscal Budget

Financing climate action in Malaysia may come from the domestic fiscal budget. The fiscal budget will be attached to the planned programme listed in the national or regional planning programme. Depending on the administrative level, this funding can come from the national and/or local government budgets.

National Budget

In Malaysia, the national budget and expenditure play a pivotal role in financing development programmes and projects across diverse sectors, reflecting the government's commitment to economic growth, infrastructure development, and social welfare. Over the years, there has been a significant increase in budget allocations, with record amounts earmarked for development expenditure. For instance, in 2023, Malaysia allocated a record RM95 billion for development, followed by a substantial increase to RM393.8 billion in 2024. These allocations cover a wide range of areas, including infrastructure development, asset repair and maintenance, economic reform, inclusivity, and sustainability, reflecting the government's multifaceted approach to national development (Ministry of Finance, 2022; Ministry of Finance, 2023; Malaysia Madani, 2024; and Ministry of Finance, 2024).

The Ministry of Finance (MOF) serves as the central coordinating body responsible for budget planning and allocation processes. This involves assessing national priorities, sectoral needs, and economic goals to determine budget allocations. Funds are sourced from various revenue streams, including taxes, grants, and borrowings. Once allocated, the implementation of development projects is carried out through collaboration between relevant ministries, agencies, and contractors. Government agencies regulate and oversee the utilisation of budget allocations to ensure compliance with project objectives and fiscal regulations. Contractors and suppliers execute development projects according to specified plans and timelines, while local communities directly benefit from the outcomes, such as improved infrastructure and services.

Furthermore, Malaysia has also committed funds towards climate change adaptation and mitigation efforts, aligning with its Nationally Determined Contributions (NDCs) and resiliency targets. Until 2030, Malaysia has pledged approximately USD 453.26 million for mitigation and adaptation actions (Ministry of Natural Resources, Environment and Climate Change, Malaysia, 2022). Annually based on the budget of the Ministry of National Resources, Environment, and Climate Change (NRECC) as well as the SDGs Budget for SDG 12, 14, and 15, the budget for climate action in Malaysia reaches around 5.12% of the national fiscal budget (The Malaysian Reserve, 2024; Malaysia Madani, 2024; and Ministry of Finance, 2024). The Ministry of National Resources, Environment, and Climate Change (NRECC) oversees the budget for climate action, ensuring that allocations are aligned with national climate policies and priorities. This underscores Malaysia's commitment to addressing climate change challenges while promoting sustainable development and resilience across the country (Mahadi & Joshi, 2023).

Local Government Budget

The local government budget and expenditure in Malaysia play a crucial role in financing development programmes and projects at the community level, focusing on infrastructure, social services, and environmental sustainability. Local governments, represented by local councils (Majlis Perbandaran), are responsible for managing budgets, planning allocations, and implementing projects within their jurisdictions. The budget planning process involves assessing community needs and priorities, collaborating with relevant departments, and soliciting public input through consultations.

Budget allocations for local development programmes/projects consist of both development expenditure (DEVEX) and operational expenditure (OPEX). DEVEX funds are directed towards infrastructure projects, public facilities, and community development initiatives, such as road construction, water supply, sanitation, schools, and healthcare facilities. On the other hand, OPEX covers administrative costs, salaries, maintenance, and service delivery to ensure the smooth functioning of local government services.

Local governments follow financial regulations and guidelines in budgeting and implementing projects, including hiring contractors, monitoring progress, and ensuring quality. Key stakeholders involved in the process include local councils, community leaders, residents, and state and federal governments, who coordinate funding and support for local development initiatives.

In addition to traditional development projects, local governments can also allocate funds for climate action initiatives, such as renewable energy, energy efficiency, waste management, and green spaces. These investments contribute to mitigating climate change impacts and promoting environmental resilience at the local level.

The transfer of funds from the national level to local governments is a critical aspect of financing local development. For example, in the 2024 budget, the development expenditure (DE) allocation for the Twelfth (12th) Malaysia Plan (12MP) is estimated at RM 400 billion, reflecting the government's commitment to financing development activities across the country. This funding supports infrastructure development, public facilities, and community well-being, with local councils playing a central role in budget planning, allocation, and implementation (Government of Malaysia, 2021).

Overall, the local government budget and expenditure in Malaysia reflect a commitment to equitable development, community well-being, and environmental sustainability, with collaboration among stakeholders essential for successful implementation and positive outcomes for local communities (Ministry of Finance, 2024; Malaysia Madani, 2024; and Ministry of Finance, 2024).

Grants

Grants offer essential financial support for climate action projects. Based on the Organisation for Economic Co-operation and Development (OECD) database, Malaysia has received financing of more than USD 230 million in grants up to 2021 from all international stakeholders for conducting climate action in both mitigation and adaptation. In Malaysia, the national and the local government can act as a proposing party to acquire grants. In pursuing the grants for financing climate action, there are key mechanisms that the proposing party should be aware of as explained in Figure 9.

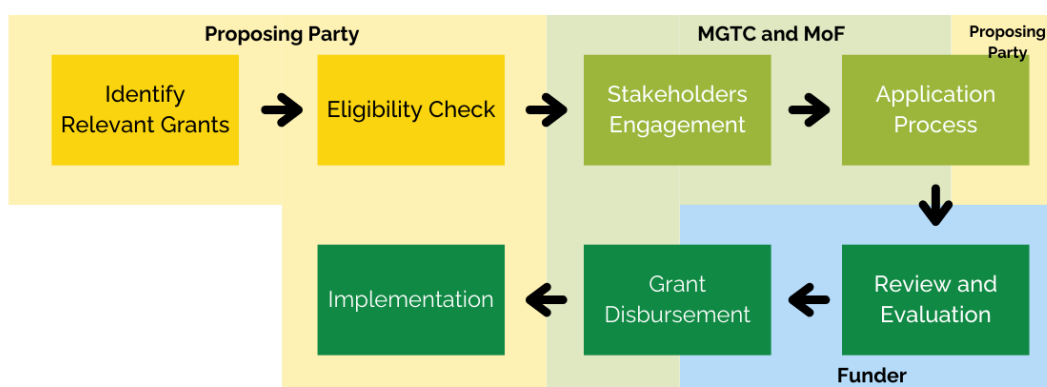


Figure 9 Grants Mechanism Process in Malaysia

1. Identify relevant grants:

- Begin by researching grant criteria, eligibility, and application deadlines to identify suitable opportunities.
- Look into grants offered by international organisations, foreign governments, and multilateral agencies.
- Consider grants aligned with your project's objectives, such as those supporting climate action, sustainable development, or capacity building.
- Ensure alignment with specific needs by reviewing focus areas, eligibility criteria, and funding amounts.

2. Eligibility check:

- Verify that your organisation or project meets the eligibility requirements for the selected grants.
- Align your initiative with the objectives of the grants to increase the chances of approval.
- Review the eligibility criteria for each grant thoroughly and ensure compliance.
- Confirm that your organisation or project meets specific requirements, such as sector focus, geographic scope, or project size.

3. Stakeholders engagement:

- Engage internal stakeholders, including the Malaysian Green Technology And Climate Change Corporation (MGTC) from the Ministry of Natural Resources and Environmental Sustainability (NRES) and the Ministry of Finance (MoF), to align proposal development with updated policies and national interests in climate change.
- Facilitate external engagement with funders to receive initial reviews and engage in intense discussions to strengthen the proposal. The Ministry of Foreign Affairs can assist in this process.

4. Application process:

- Develop a comprehensive proposal ensuring enabling conditions such as robust studies and project viability.
 - Ensure projects are technically feasible and economically viable, assessing risks and benefits.
 - Leverage innovative solutions and adopt clean technologies.
 - Strengthen local institutions and enhance project management skills.
 - Regularly assess project progress and adjust strategies as needed.
 - Encourage private investment and foster public-private partnerships (PPP).
- Obtain the grant application form from the relevant provider, fill it out accurately, and attach required documents such as project proposals, budgets, and supporting materials.
- Submit the application within the specified deadline and follow the submission guidelines provided by the grant provider.

5. Review and evaluation:

- Grant providers evaluate applications based on merit, alignment with objectives, and feasibility.
- A review committee assesses proposals and selects recipients based on predetermined criteria.

6. Grant disbursement:

- Once approved, funds are disbursed according to the grant agreement.
- The MoF manages disbursement in cooperation with the MGTC.
- Follow the grant provider's guidelines for financial reporting and project milestones, ensuring compliance and monitoring progress.

7. Implementation:

- Begin project implementation promptly upon receiving funds.

- Beyond implementation, conduct monitoring and evaluation (M&E), and report to all engaged stakeholders to ensure transparency and accountability.

Loans

Loans play an important part in developing climate action in Malaysia, coming from international and domestic sources. However, Malaysia is very careful in leveraging these instruments. The ratio of international loans to the GDP in Malaysia varies based on different factors and economic conditions. As of 2021, the loans from non-resident banks (net) to GDP were reported at approximately 0.43%. Additionally, Malaysia's debt-to-GDP ratio provides insight into its overall indebtedness. In 2021, the debt-to-GDP ratio was approximately 63.26% and it increased to 63.9% in 2022 reflecting the country's total government debt relative to its economic output (World Bank, 2024). Meanwhile, the external debt in Malaysia in December 2023 reached USD 270.7 billion, increased by USD 4 billion from the previous quarter (Focus Economics, 2024).

In pursuing the loans for climate action the proposing party must pay attention to the process both internally within the government and externally with other related stakeholders.

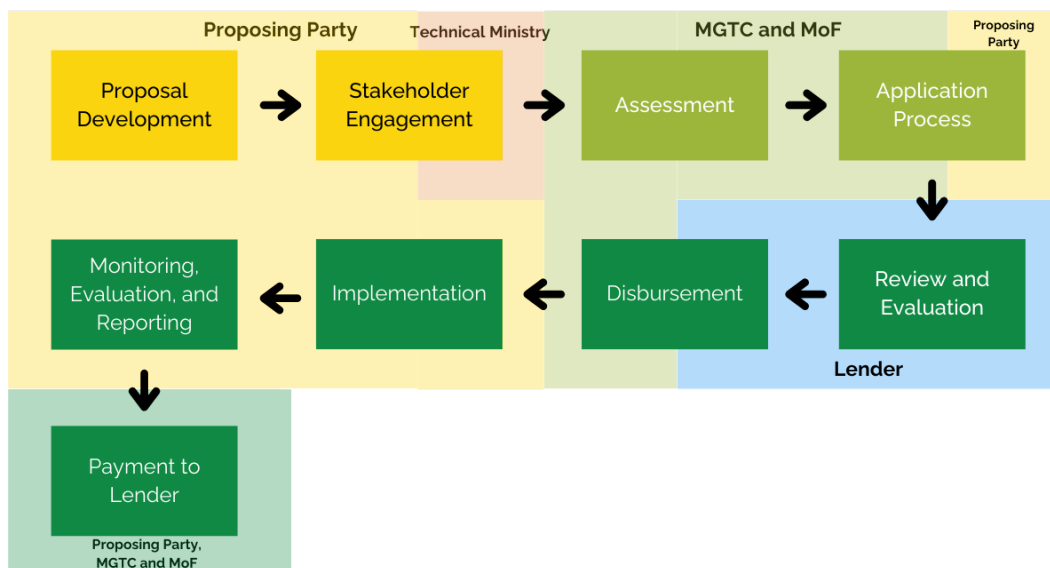


Figure 10 Loans Mechanism in Malaysia at A Glance

Source: Central Bank of Malaysia, 2021; Planning Process of Development Project in the Malaysian Context: A Crucial Brief Overview, 2011; MGTC, 2024; and Ministry of Economy, 2024.

1. **Proposal development:** The proposing party is required to develop a comprehensive proposal that encompasses a clear vision aligned with national interests and agendas. This includes establishing a defined timeframe, ensuring payment viability, conducting a robust feasibility study, and addressing other enabling conditions crucial for project success.

2. **Stakeholder engagement:** The proposing party engages with technical ministries to gather inputs and endorsements for the proposal. Collaboration with the technical ministries ensures alignment with sector-specific goals and enhances the overall quality of the proposal.
3. **Assessment:** The Malaysian Green Technology and Climate Change Corporation (MGTC) and the Ministry of Finance (MoF) collaborate with the Ministry of Economic Affairs to assess the proposal's financial viability. This involves consulting on the need for loans and evaluating alignment with national development priorities. Bank Negara Malaysia (BNM) optionally provides oversight on monetary policy and financial stability, influencing the financial environment.
4. **Application process:** Upon approval from internal stakeholders, the proposing party, MGTC, and MoF engage with lenders to discuss loan terms and conditions. This phase involves presenting the proposal, negotiating terms, and finalising agreements with potential lenders.
5. **Review and evaluation:** Lenders conduct a thorough review of the loan application, considering factors such as interest rates, disbursement mechanisms, and repayment schedules. Negotiations may occur to address technical aspects and ensure mutual agreement between parties.
6. **Disbursement:** Upon approval, MoF coordinates with MGTC to disburse funds for project implementation. This phase involves careful monitoring to ensure that allocated funds are utilised effectively in accordance with project objectives.
7. **Implementation:** Relevant technical ministries, including the Ministry of Works, Ministry of Transport, as well as the Ministry of Energy, Science, Technology, Environment, and Climate Change (MESTECC), oversee project implementation. Particularly, MoF monitors progress, financial disbursements, and compliance with loan terms to ensure project success.
8. **Monitoring, evaluation, and reporting:** Post-project completion, the Ministry of Economic Affairs evaluates the project's impact and effectiveness. MoF maintains oversight to ensure timely repayment of loans and manages debt sustainability. Continuous monitoring of national financing capabilities ensures alignment with long-term financial goals and obligations.
9. **Payment to lender:** MGTC and MoF facilitate payments to lenders while concurrently monitoring project implementation progress. This ensures that payments are made in accordance with the agreed-upon terms and that project execution remains on track.

Private Investment

Domestic Private Investment

Domestic private investment plays a crucial role in financing and implementing climate action projects in Malaysia, supported by government policies, regulatory frameworks, and stakeholder engagement mechanisms. This collaborative approach, coupled with effective security arrangements and regulatory compliance, facilitates project implementation and sustainability, contributing to Malaysia's efforts to address climate change and achieve long-term economic and environmental goals.

In Malaysia, domestic private investment in climate action projects underscores the importance of local ownership, ensuring that Malaysians retain control over their investments. This emphasis on local ownership not only fosters a sense of ownership and commitment among Malaysians towards addressing climate change but also ensures that the benefits of these projects remain within the local economy. Additionally, local ownership promotes accountability and transparency, as stakeholders are directly involved in decision-making processes related to climate action initiatives.

Investments in domestic climate action projects are generally perceived as less risky due to investors' familiarity with local conditions and regulations. This familiarity allows investors to better assess and mitigate risks, thereby increasing confidence in the potential returns from these projects. Moreover, the alignment of climate action goals with national priorities further enhances the attractiveness of these investments, as they contribute to broader economic development objectives while addressing environmental challenges.

The primary goal of domestic private investment in climate action projects is multifaceted. Beyond addressing climate change challenges, these investments aim to stimulate economic growth by creating new job opportunities and fostering the development of local industries. By focusing on sustainable development, these projects contribute to Malaysia's long-term prosperity while safeguarding the environment for future generations. This dual focus on economic and environmental sustainability underscores the significance of domestic private investment in advancing Malaysia's climate action agenda.

In terms of policies and laws, Malaysia has enacted various regulations to support climate action initiatives. The National Policy on Climate Change, introduced in 2009, provides a comprehensive framework for addressing climate change challenges and guides government agencies, industries, and communities in implementing climate action strategies. Additionally, legislation such as the Environmental Quality Act 1974 and the Clean Air Regulations establish standards and regulations for environmental protection and emission control, thereby contributing to efforts to combat climate change and mitigate its impacts.

Stakeholder engagement and approval are integral components of the climate action project implementation process. The government plays a central role in approving these projects, ensuring compliance with regulations and providing incentives to encourage private investment. Close coordination with the Malaysian

Investment Development Authority (MIDA) the Malaysian Green Technology Corporation (MGTC) and relevant technical ministries is essential for aligning projects with national climate change objectives. Moreover, engaging local communities in project planning and benefit-sharing fosters grassroots support and ownership, enhancing the success and sustainability of these initiatives.

Process and Mechanism:

- **Project proposal submission:** Domestic investors submit detailed project proposals outlining objectives, scope, and financing needs for climate action initiatives. These proposals undergo rigorous evaluation to ensure alignment with national climate change policies and regulations.
- **Environmental Impact Assessment (EIA):** Prior to project approval, an Environmental Impact Assessment (EIA) is conducted to evaluate the potential environmental impacts of proposed projects. This assessment helps identify and mitigate risks, ensuring compliance with environmental regulations and minimising adverse effects on ecosystems and communities.
- **Government approval:** Obtaining necessary permits and approvals from relevant authorities is essential for project implementation. Government agencies assess proposed projects to ensure alignment with national climate change objectives and regulatory requirements, providing the necessary authorisation for commencement.

In terms of security, domestic private investors have various mechanisms to protect their investments, including asset security, real property security, as well as receivables and cash security. These security arrangements provide assurance to investors and lenders, protecting their interests in the event of default or insolvency. Moreover, regulatory considerations such as filing and registration requirements, stamp duty, and foreign investment restrictions play a crucial role in ensuring transparency, legality, and compliance with regulatory frameworks. Enforcement of security follows legal procedures outlined in land statutes, ensuring fairness and transparency in asset recovery processes (Idris, Chang, Prihandono, & Rasidi, 2024 and International Comparative Legal Guides, 2024).

Foreign Direct Investment

Malaysia has progressively liberalised its economy, welcoming foreign direct investments (FDIs) across various sectors. However, certain strategic industries remain subject to foreign equity restrictions to safeguard national interests. This comprehensive overview delves into the key aspects of FDI in Malaysia, focusing on climate action projects and relevant policies, stakeholders, processes, and regulations (Idris, Chang, Prihandono, & Rasidi, 2024 and International Comparative Legal Guides, 2024).

Regulatory Environment and Policies:

The Malaysian government has introduced several policies and regulations to facilitate and govern FDI in climate action initiatives. The National Policy on Climate Change, introduced in 2009, outlines the nation's strategic approach to addressing climate change challenges and guides government agencies, industries, and communities in their efforts. Additionally, the Environmental Quality Act 1974 and the Clean Air Regulations play a crucial role in governing environmental protection and emission regulations, ensuring compliance with international standards.

Foreign Ownership Restrictions:

While Malaysia has lifted foreign equity restrictions in various sectors, allowing 100% foreign ownership, certain strategic industries, including energy, oil and gas, information technology, and telecommunications, remain subject to foreign equity limits. In the renewable energy sector, specific programmes have varying foreign equity restrictions.

The Feed-in Tariff system, which incentivises renewable energy generation, has a maximum foreign equity shareholding limit of 49%. The Large-Scale Solar Photovoltaic Plant (LSS) programme has tightened restrictions, with the fourth competitive bidding round (LSS@MEnTARI) limited to wholly Malaysian-owned companies or those listed on Bursa Malaysia with at least 75% Malaysian shareholding. The recently announced fifth LSS bidding round (LSS5) and the Low Carbon Energy Generation Programme (LCEG) have yet to disclose their foreign equity shareholding criteria.

Conversely, the Corporate Green Power Programme (CGPP) and the Net-Energy Metering (NEM) scheme have less stringent requirements, allowing foreign participation with certain conditions, such as local Engineering, Procurement, and Construction (EPC) requirements.

Stakeholder Engagement and Approval Process:

Stakeholder engagement and approval processes are integral to the successful implementation of climate action projects in Malaysia. The government plays a central role in approving these projects, ensuring compliance with regulations, and providing incentives to encourage private investment.

Foreign investors must submit detailed project proposals, which undergo rigorous evaluation by relevant authorities to ensure alignment with national climate change policies and regulations. An EIA is mandatory to assess potential environmental impacts and mitigate risks.

Engaging local communities in project planning and benefit-sharing is crucial for fostering grassroots support and project sustainability. Close coordination with government agencies like MIDA, MGTC, MoF and MoE and relevant technical ministries is essential to align projects with national climate change objectives.

Government Approvals and Restrictions:

The government agencies and departments responsible for overseeing projects vary depending on the sector. In the energy and renewable energy sectors, the Energy Commission (EC) is the primary regulator in Peninsular Malaysia, while the Sustainable Energy Development Authority (SEDA) manages feed-in tariff and Net-Energy Metering (NEM) schemes. Specific approvals may be required from these agencies, such as EC approval for electricity supply agreements.

Land acquisition by non-citizens or foreign companies is subject to prior approval from the relevant state authority, as governed by the National Land Code. Additionally, licenses or permits may be required for the ownership and operation of natural resources, pipelines, or other assets, depending on the nature of the project.

Taxation and Financial Considerations:

Malaysia offers various tax incentives to attract foreign investments in strategic sectors, including the manufacturing, high-tech, and green technology industries. These incentives may include investment tax allowances, income tax exemptions, and tax incentives for green technology services.

Foreign companies must comply with Malaysian corporate tax regulations, which may vary based on the company's residency status, paid-up capital, and gross income. Withholding taxes may apply to payments made to non-residents, subject to applicable tax treaties.

While Malaysia has executed numerous bilateral investment treaties to promote a conducive environment for investments and protect foreign investments, these treaties do not provide protection from foreign equity restrictions.

To pursue FDIs, this study outlines the process shown in Figure 11

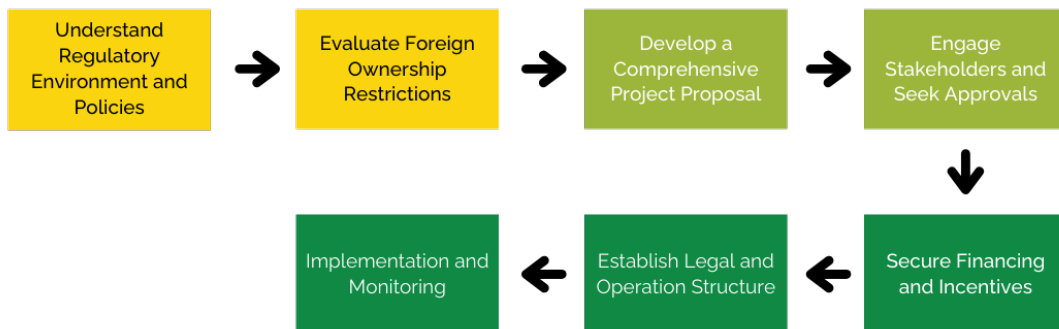


Figure 11 FDI Process and Mechanism at Glance in Malaysia

1. Understand the regulatory environment and policies

- Review the National Policy on Climate Change, the Environmental Quality Act 1974, and the Clean Air Regulations to ensure compliance with Malaysia's environmental regulations and climate change initiatives.
- Familiarise with sector-specific policies and guidelines relevant to the project.

2. Evaluate foreign ownership restrictions

- Assess the foreign equity restrictions applicable to your project's sector, such as renewable energy or carbon capture and storage.
- Determine if the project falls under programmes like Feed-in Tariff, Large-Scale Solar, or Corporate Green Power Programme, and review the corresponding foreign equity shareholding limits.

3. Develop a comprehensive project proposal

- Prepare a detailed project proposal outlining objectives, scope, financing needs, and alignment with national climate change policies and regulations.
- Conduct an EIA to evaluate potential environmental impacts and propose mitigation strategies.

4. Engage stakeholders and seek approvals

- Consult with relevant government agencies, such as the EC, SEDA, MGTC, MIDA and technical ministries, to ensure alignment with national climate change objectives.
- Engage with local communities in project planning and benefit-sharing to foster grassroots support and project sustainability.
- Obtain necessary approvals, permits, and licenses from federal and state authorities, such as land acquisition approvals, natural resource licenses, and pipeline permits.

5. Secure financing and incentives

- Explore available tax incentives for foreign investors in the manufacturing, high-tech, and green technology sectors, such as investment tax allowances, income tax exemptions, and green technology service incentives.
- Engage with financial institutions and lenders to secure project financing, ensuring compliance with Malaysian corporate tax regulations, withholding taxes, and other financial requirements.

6. Establish legal and operational structure

- Incorporate a project company in Malaysia or establish a local subsidiary, complying with relevant corporate laws and regulations.
- Obtain necessary licenses and permits for the ownership and operation of project assets, such as natural resources, pipelines, or other infrastructures.
- Ensure compliance with labour laws and regulations for hiring foreign workers, technicians, engineers, or executives.

7. Implementation and monitoring

- Proceed with project implementation, adhering to approved plans, environmental regulations, and health and safety standards.
- Continuously monitor and report on project progress, environmental impacts, and compliance with regulatory requirements.

- Maintain open communication and engagement with stakeholders, including government agencies and local communities, throughout the project lifecycle.

Malaysia's progressive liberalisation and favourable investment climate, coupled with its commitment to sustainable development and climate action, present significant opportunities for foreign direct investment. However, navigating the complex landscape of sector-specific regulations, foreign equity restrictions, and stakeholder engagement processes is crucial for successful project implementation and long-term success in the Malaysian market.

Bonds

Bonds represent an emerging financial instrument that fosters public participation in funding initiatives. These debt securities, issued by governments or corporations, play a significant role in raising capital for projects. In Malaysia, sovereign bonds can be particularly impactful. Sovereign bonds are issued by national governments and are backed by the full faith and credit of the government. They can be used to finance various projects related to climate change mitigation and adaptation. Green sovereign bonds, specifically designated for environmentally sustainable projects, are gaining traction. By issuing sovereign bonds, Malaysia can attract both domestic and international investors, thus mobilising significant resources for climate action (CDP, 2021; ADB, 2022; and ADB, 2024).

Meanwhile, Malaysia boasts a well-developed bond market with outstanding bonds totalling USD 433 billion, renowned for its stability and liquidity. In addition, Islamic finance plays an important role in Malaysia's financial system. Malaysia is one of the largest issuers of *sukuk*, bonds-like with Sharia-compliant financial instruments, with a 41.5% global share in 2020. In 2021, Malaysia issued the world's first sovereign sustainability *sukuk* at USD 1.3 billion. The framework for socially responsible *sukuk* was developed in 2014. The first sustainable *sukuk* was issued in 2015, and the first green *sukuk* was issued in 2017 (CDP, 2021; ADB, 2022; and ADB, 2024).

In relation to financing climate action, 67% of funds were allocated for energy projects and 32% were used for buildings, with the rest classified for uses relating to issues including waste, water, and land use. A total of fifteen green bond, *sukuk*, and loan deals have been issued since 2017, with *sukuk* comprising the majority. Bonds and *sukuk* are predominantly issued in Malaysian ringgit, with sizes ranging from USD 30 million to USD 500 million, except for the Commerce International Merchant Bankers (CIMB)'s 2019 USD 680 million Sustainable Development Goals (SDGs) Bond. In 2021, Malaysia issued the world's first USD sovereign sustainability *sukuk* at USD 1.3 billion. This market offers robust opportunities for financing climate action, including investments in renewable energy and energy efficiency projects (CDP, 2021; ADB, 2022; and ADB, 2024).

There are several types of bonds in Malaysia designated for climate action (CDP, 2021; ADB, 2022; and ADB, 2024).

- Green bonds

- Social bonds
- Sustainability bonds
- Sustainability-linked bonds
- Green *Sukuk*

The process of proposing and issuing bonds and sukuk for climate action initiatives in Malaysia involves several key steps (Figure 12), from initial planning to market placement.


 <p>Identifying funding needs</p>	<p>The process begins with identifying the funding requirements for climate action projects. Stakeholders, including the Malaysian Green Technology Corporation (MGTC), Ministry of Finance (MoF), Joint Committee on Climate Change (JC3), and Malaysia Carbon Action Council (MYCAC), assess the financial needs of proposed initiatives.</p>
 <p>Feasibility assessment</p>	<p>Once the funding needs are identified, a feasibility assessment is conducted to determine the viability of issuing bonds or <i>sukuk</i> for financing climate action projects. This assessment evaluates the potential impact of the projects, their alignment with climate goals, and their financial sustainability.</p>
 <p>Engagement with regulators and advisors</p>	<p>Stakeholders engage with regulators such as Bank Negara Malaysia (BNM) and the Securities Commission Malaysia (SC) to seek approval for the issuance and ensure compliance with regulatory requirements. Additionally, Sharia advisors are consulted for <i>sukuk</i> issuance to ensure compliance with Islamic finance principles.</p>
 <p>Structuring the bonds or <i>sukuk</i></p>	<p>Based on the feasibility assessment and regulatory guidance, the bonds or <i>sukuk</i> are structured to meet the specific needs of climate action projects. This includes determining the terms and conditions, such as the interest rate (coupon), maturity date, and asset backing for <i>sukuk</i>.</p>
 <p>Documentation preparation</p>	<p>Comprehensive documentation, including the offering circular or prospectus for bonds and the trust deed for <i>sukuk</i>, is prepared to provide investors with detailed information about the issuance. This documentation highlights the objectives, risks, terms, and conditions of the bonds or <i>sukuk</i>.</p>
 <p>Marketing and investor roadshow</p>	<p>The underwriters, appointed by the issuer (e.g., MGTC), conduct marketing activities and investor roadshows to generate interest in the bonds or <i>sukuk</i>. These activities aim to attract a diverse group of investors and ensure successful subscriptions.</p>
 <p>Pricing and allocation</p>	<p>The underwriters determine the pricing of the bonds or <i>sukuk</i> based on market demand and investor appetite. Once the pricing is finalised, allocations are made to investors, ensuring fair distribution of the securities.</p>
 <p>Regulatory approval and listing</p>	<p>Following pricing and allocation, regulatory approvals from BNM and SC are obtained, and the bonds or <i>sukuk</i> are listed on Bursa Malaysia (BM) for secondary market trading. This step enhances transparency and liquidity in the market.</p>
 <p>Interest payments and returns</p>	<p>After issuance, the issuer makes periodic interest payments to bondholders, and <i>sukuk</i> holders receive periodic returns based on profit-sharing agreements. These payments provide investors with financial incentives and ensure the sustainability of the climate action projects.</p>
 <p>Principal repayment</p>	<p>Finally, at maturity, the issuer repays the principal amount to bondholders and <i>sukuk</i> holders, completing the investment cycle. The successful issuance and repayment of bonds or <i>sukuk</i> contribute to the financing of climate action initiatives and support Malaysia's efforts towards sustainable development and climate resilience.</p>

Figure 12 Bonds Acquisition Process in Malaysia

Blended Finance

Blended financing is one of the emerging innovative financing schemes in Malaysia. This study contends that this instrument can be divided into co-financing and Private-Public Partnership (PPP).

Co-Financing

In Malaysia, the development of climate financing initiatives is guided by the Integrated National Financing Framework (INFF), which represents a collaborative effort between Malaysia and the UN Development Programme (UNDP). This framework serves as a comprehensive blueprint, encompassing various aspects such as policy, regulation, financial instruments, institutions, and public-private collaboration. Within the context of climate action, the Malaysian Green Technology Corporation (MGTC) assumes a pivotal role in facilitating the matchmaking of co-financing processes with all initiatives under its purview. This strategic involvement ensures alignment between funding sources and climate projects, maximising the impact of financing efforts in addressing environmental challenges.

However, the climate financing landscape in Malaysia is not without its challenges and opportunities. One significant challenge is the potential for fragmentation, which underscores the importance of coordinated efforts among stakeholders to ensure synergy and avoid duplication of efforts. Strengthening institutional capacity for climate financing is another critical aspect, necessitating investment in human resources and expertise to effectively manage and implement financing mechanisms. Nevertheless, there are ample opportunities for innovation in climate financing, including exploring new and creative financing mechanisms to mobilise resources for climate action projects. Encouraging public-private collaboration is also essential, as leveraging private sector expertise and resources can enhance the scalability and impact of climate initiatives.

Several examples illustrate the diverse nature of co-financed projects in Malaysia's climate financing landscape. Projects such as solar energy farms, involving co-financing from both the government and private investors, demonstrate the potential for collaboration between different sectors to advance renewable energy solutions. Similarly, initiatives like mangrove reforestation, supported by international climate funds and local non-governmental organisations (NGOs), highlight the importance of leveraging both domestic and international resources for environmental conservation efforts. Additionally, climate-resilient agriculture projects, co-funded by grants and community contributions, underscore the role of community engagement and participation in addressing climate challenges (The Edge Malaysia, 2023) (Malay Mail, 2021) (Halimatussadiah, Moeis, & Ardiansyah, 2023) (Loong, 2023).

In Malaysia, the process of co-financing climate action involves several key steps and mechanisms, with various stakeholders playing crucial roles throughout the process.

1. **Project identification and proposal:** Stakeholders from diverse sectors, including government agencies, NGOs, private sector entities, and local communities, participate in identifying climate-related projects. These projects can range from renewable energy installations to reforestation, flood control, and sustainable agriculture initiatives. Stakeholders propose projects that address specific climate challenges and contribute to the country's climate goals.
2. **Funding sources and co-financing opportunities:** Several funding sources contribute to financing climate action projects in Malaysia. Government budgets play a significant role, with the Malaysian government allocating funds for climate initiatives through its annual budget. Additionally, Malaysia accesses international climate funds such as the Green Climate Fund (GCF) and the Global Environment Facility (GEF) to co-finance projects. The private sector also plays a crucial role by investing in climate-friendly projects, often in collaboration with government agencies. Furthermore, grants and donor funding from NGOs and development partners provide additional financial support for specific climate projects.
3. **Approval and endorsement:** The approval and endorsement of climate action projects involve various stakeholders at different levels. Relevant ministries and agencies, such as the Ministry of Environment and the Ministry of Energy, Science, Technology, and Innovation, are responsible for approving projects based on their alignment with national policies and priorities. Major projects may require Cabinet approval for implementation. At the local level, local authorities endorse community-level projects, ensuring that proposals meet local needs and priorities.
4. **Implementation and monitoring:** Once approved, climate action projects are implemented by responsible ministries or agencies. These implementing agencies oversee project execution, ensuring that activities are carried out according to plan and within budget. Regular monitoring and evaluation are conducted to assess project effectiveness, adherence to climate goals, and proper utilisation of funds. This ongoing monitoring ensures that projects remain on track and deliver the intended climate benefits to the community and the environment.

Throughout this process, the Malaysian Green Technology Corporation (MGTC) plays a pivotal role in the climate financing process. Collaborating closely with the Ministry of Finance (MoF), MGTC takes on the responsibility of coordinating climate action initiatives and facilitating co-financing arrangements. Through this partnership, MGTC conducts thorough studies and assessments to ensure that proposed projects are not only feasible and financially viable but also aligned with Malaysia's climate objectives. By leveraging its expertise and engaging with multiple stakeholders, MGTC ensures that climate projects are strategically planned and effectively implemented to address Malaysia's climate challenges and contribute to its sustainable development goals.

Furthermore, Malaysia's climate financing landscape is diverse, drawing from various funding sources to support climate action initiatives. Government budgets stand as a cornerstone in financing climate-related endeavours, as funds are allocated through the annual budgetary process. These resources are directed towards a wide range of initiatives, including renewable energy development, environmental conservation, and climate resilience efforts. Additionally, Malaysia accesses international climate funds such as the GCF and the GEF, broadening its financial resources and accessing international expertise to bolster its climate projects.

Private sector investments are also instrumental in funding climate initiatives in Malaysia. Companies across different industries invest in renewable energy, energy efficiency, and other climate mitigation efforts, often in collaboration with government agencies. This collaboration between the public and private sectors not only mobilises additional resources but also fosters innovation and expertise sharing in the pursuit of sustainable development.

Moreover, grants and donor funding from NGOs and development partners significantly contribute to Malaysia's climate financing landscape. These funds are earmarked for specific projects aimed at addressing environmental challenges and promoting sustainable development. By leveraging these diverse funding sources and co-financing mechanisms, Malaysia demonstrates its commitment to addressing climate change and advancing environmental sustainability at both domestic and global levels, positioning itself as a leader in climate action.

Public-Private Partnership

Public-Private Partnerships (PPPs) are integral to Malaysia's infrastructure development, including climate action-related projects (World Economic Forum, 2024). PPPs serve as collaborative arrangements between the public sector, typically the government, and the private sector, aiming to create, fund, and manage projects or services that benefit both parties and the public at large. In the context of climate action, PPPs hold significant potential to drive sustainable development and address environmental challenges effectively.

However, PPPs in climate action encounter several challenges and considerations that need to be addressed. These include the allocation of risks between public and private partners, ensuring transparency in decision-making and fund utilisation, and balancing the interests of both parties involved.

Despite these challenges, PPPs offer numerous benefits for advancing climate action. They alleviate the government's burden by providing high capital costs for development projects while allowing long-term optimisation of public finances based on cash flow performance. Additionally, PPPs deliver public services focusing on continuous maintenance of public assets, optimal risk distribution, minimal government subsidies, and essential projects. The selection of reputable companies with good finances and expertise ensures minimal risk to the government, while innovative solutions from the private sector enhance the construction and operation of public assets.

In the context of climate action, PPPs mainly consult and coordinate with key stakeholders such as the MGTC, MoF, MIDA, and the Prime Minister's Department. By engaging these stakeholders, PPPs can ensure effective implementation, stakeholder engagement, and alignment with national climate goals. Overall, PPPs play a crucial role in advancing climate action by leveraging private sector expertise and resources, ultimately contributing to sustainable development and environmental stewardship (Prime Minister Department, 2024).

The Concept of PPP

PPP (Public Private Partnership)

PFI	Privatisation
Funding through private financial resources without government guarantee.	Funding through financial resources without Government guarantee.
Impact on Government budget spread over the duration of concession period.	No financial implication to the government for user-pay model. Financial implication occurs to the government for government funded model(s).
Risks are allocated to parties which can manage them most efficiently.	Risks are entirely borne by the private sector.
Public sector involvement through enforcement of pre-agreed KPIs.	Government acts as regulator.
Relationship with private contractor is long term over entire project life	Relationship with private contractor is long term over entire project life.
Suitable for projects with commercial viability	Suitable for projects commercial viability.

*Figure 13 The Concept of PPP in Malaysia
Source: Prime Minister Department, 2024*

Private Finance Initiative (PFI) and Privatisation falls under the PPP, with the concepts outlined below (Prime Minister Department, 2024):

- **Funding:** Both PFI and Privatisation are funded through private financial resources without government guarantee.
- **Impact on Government Budget:** PFI spreads the impact over the concession period, while Privatisation has no financial implication to the government for the user-pay model.
- **Risks:** In PFI, risks are allocated to parties able to manage them most efficiently; while in Privatisation, risks are entirely borne by the private sector.

- **Public Sector Involvement/Regulation:** The public sector is involved through the enforcement of pre-agreed key performance indicators (KPIs) in PFI; while the government acts as a regulator in Privatisation.
- **Relationship with Private Contractor:** Long-term over the entire project life for both models.
- **Suitability:** Both models are suitable for projects with commercial viability.

Types of PPP

PPPs in Malaysia come in various forms, each with its own structure and mechanism for collaboration between the public and private sectors. Below are some common types of PPPs (ADB, 2020) (Prime Minister Department, 2024):

- **Build-Operate-Transfer (BOT):** In this model, a private entity is granted the right to build and operate a facility for a certain period. After this period, the ownership is transferred back to the public sector. This model is often used for infrastructure projects like highways, water treatment plants, and power plants.
- **Joint Venture (JV):** A JV is a business arrangement where the public and private sectors establish a new entity to provide a public service or project. Both parties contribute assets, share risks, and participate in the profits.
- **Build-Own-Operate (BOwOp):** The private sector builds, owns, and operates a facility or service with no intention to transfer ownership to the public sector. This is common in sectors where long-term control is beneficial, such as energy production.
- **Build-Lease-Transfer (BLT):** In a BLT, the private sector designs and builds an asset, lease it to the public sector, and then transfers it back to the public sector at the end of the lease term.
- **Build-Operate-Own (BOpOw):** Similar to BOwOp, but in this case, the private sector may operate the facility indefinitely without transferring ownership.
- **Design-Build-Finance-Operate (DBFO):** The private sector is responsible for the design, construction, financing, and operation of a project. The public sector typically pays the private entity for available services.
- **Design-Construct-Manage-Finance (DCMF):** The private sector designs, constructs, manages, and finances the delivery of a service, often with a focus on efficiency and innovation.
- **Concession:** A concession grants a private entity the right to operate a public service under specified conditions. This can include the collection of fees or tolls from the public.

Each type of PPP has its own regulatory framework and mechanisms that define the roles, responsibilities, and revenue-sharing models for the public and private partners. The choice of the PPP model depends on the project's nature, the level of investment required, the desired level of control by the public sector, and the risk-sharing preferences of both parties.

End-to-end Process

The approval and endorsement process for climate-related PPPs typically begins with a project proposal from the private sector, focusing on climate-related initiatives such as green energy infrastructure, waste management, and eco-tourism projects. Subsequently, relevant government ministries, such as the Ministry of Environment, review the proposal to assess its feasibility and alignment with national policies. In cases where major projects are involved, high-level endorsement from the Cabinet may be required to proceed.

PPP Process Flow

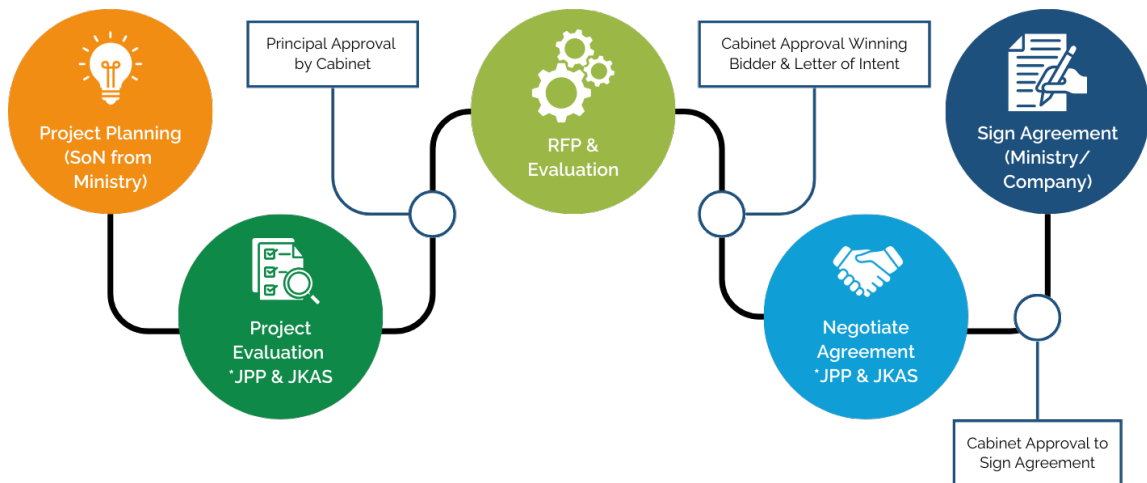


Figure 14 End-to-end PPP Process in Malaysia
Source: Prime Minister Department, 2024

PPP Implementation Process

1. **Project planning:** Initiated by a State-Owned Enterprise (SOE) from the Ministry, this is where the project concept and objectives are defined.
2. **Project evaluation:** Conducted by the Malaysian Public Sector Accounting Standards (MPSAS), this step involves assessing the project's feasibility, impact, and alignment with national priorities.
3. **Principal approval by the Cabinet:** The project proposal is presented to the Cabinet for principal approval, which is a critical milestone for the project to proceed.
4. **Request for proposal (RFP) & evaluation:** An RFP is issued to solicit bids from private entities. The received proposals are then evaluated based on set criteria.
5. **Cabinet approval for winning bidder & Letter of Intent:** The Cabinet approves the winning bidder and a Letter of Intent is issued, signifying the government's intention to enter into a partnership.

6. **Negotiate agreement:** PPP and the Ministry of Public Sector Accounting negotiate the terms and conditions of the agreement with the selected private partner.
7. **Cabinet approval to sign agreement:** The final step involves obtaining Cabinet approval to sign the agreement, and formalising the partnership between the Ministry/Company and the private entity.

This process ensures that PPP projects are thoroughly planned, evaluated, and implemented in a structured manner, with oversight and approvals at key stages to ensure transparency and alignment with public interests.

Corporate Social Responsibility

The implementation of Corporate Social Responsibility (CSR) initiatives in Malaysia, particularly in the realm of climate action, involves several key components, including policies, stakeholder engagements, approval processes, and mechanisms.

In Malaysia, CSR encompasses the integration of social, economic, and environmental considerations into business operations, striving for a balance between profit, people, and the planet. This holistic approach emphasises the importance of environmental stewardship, social responsibility, and ethical business practices (Tek-Yew & Shyen, 2020).

The success of CSR initiatives hinges on the involvement of various stakeholders. These stakeholders encompass government bodies, the private sector, civil society organisations (CSOs), and local communities. While the government sets overarching policies, approves projects, and ensures regulatory compliance, the private sector spearheads CSR implementation, aligning business practices with climate goals. CSOs play a crucial role in advocating for sustainable practices and monitoring the impact of CSR projects, while local communities actively participate in project planning and benefit-sharing.

Responsible stakeholders, including companies, government bodies, CSOs, and local communities, each contribute essential roles in advancing CSR initiatives within the context of climate action in Malaysia.

Companies are pivotal in implementing CSR practices, allocating resources, and integrating sustainability into their business operations. They drive initiatives aimed at reducing environmental impact, promoting social responsibility, and upholding ethical business practices.

Government bodies play a crucial regulatory and oversight role, setting policies, providing incentives, and ensuring compliance with environmental standards. They approve projects, enact laws, and create frameworks that guide CSR efforts, including those related to climate action.

CSOs serve as advocates for sustainable practices and act as watchdogs, monitoring the impact of CSR initiatives on communities and the environment.

They often collaborate with businesses and government agencies to promote transparency, accountability, and the adoption of best practices.

Local communities, as stakeholders directly affected by CSR initiatives, contribute to the planning, implementation, and success of projects. Their engagement is essential for ensuring that initiatives align with community needs, values, and priorities, thereby fostering greater acceptance and sustainability.

The approval process for CSR initiatives involves both internal and external components. Internally, company leadership evaluates and approves climate-related projects, ensuring alignment with CSR objectives. Externally, compliance with environmental laws and regulations is imperative. Seeking third-party certification for green initiatives enhances credibility and underscores a commitment to sustainable practices.

In the context of climate action, coordination with technical ministries, such as NRES, and the Malaysian Green Technology Corporation (MGTC), is paramount. These entities provide expertise, guidance, and support to ensure that climate-related initiatives are effectively planned, executed, and monitored. Such collaboration enhances the efficiency and impact of CSR initiatives, contributing to Malaysia's sustainable development goals and climate resilience efforts.

Process of Implementing CSR for Climate Action

Implementing CSR initiatives for climate action involves several key steps as outlined below (Figure 15):

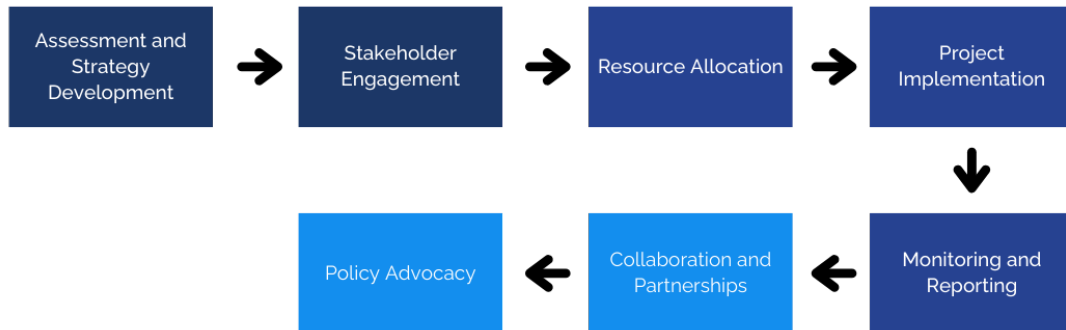


Figure 15 CSR Process and Mechanism in Malaysia

1. **Assessment and strategy development:** Assess environmental impact and develop a climate-focused CSR strategy aligned with business goals.
2. **Stakeholder engagement:** Engage stakeholders for input on climate-related initiatives and gather feedback.
3. **Resource allocation:** Allocate resources to climate-related projects, prioritising those aligned with core competencies.
4. **Project implementation:** Invest in renewable energy projects, energy efficiency measures, and waste reduction, among others.
5. **Monitoring and reporting:** Regularly track progress toward climate goals and report transparently on CSR initiatives and their impact.
6. **Collaboration and partnerships:** Collaborate with non-governmental organisations (NGOs), government agencies, and other stakeholders on joint climate projects and share best practices.
7. **Policy advocacy:** Advocate for climate-friendly policies and regulations through industry associations and forums.

In conclusion, effective CSR in climate action hinges on the collaboration and coordination of various stakeholders. By working together, these stakeholders can drive positive change, promote sustainable development, and address pressing climate challenges in Malaysia.

Designated Climate Fund

International Funds

- **Green Climate Fund**

The Green Climate Fund (GCF) is created to support the efforts of developing countries in responding to the challenge of climate change. GCF operates through a network of over 200 accredited entities and delivery partners who work directly with developing countries for project design and implementation. The partners include international and national commercial banks, multilateral, regional and national development finance institutions, equity funds institutions, United Nations (UN) agencies, and civil society organisations (CSOs). This open partnership enables GCF to foster unprecedented coalitions between private investors, development agencies, and CSOs to achieve transformative change and support the harmonisation of standards and practices.

GCF can structure its financial support through a flexible combination of grants, concessional debt, guarantees or equity instruments to leverage blended finance and crowd in private investment for climate action in developing countries. This flexibility enables GCF to pilot new financial structures to support green market creation.

By leveraging the risk management capacity of our partners and our own set of investment, risk and results management frameworks, GCF enhances the climate action ambitions of its partners. It can accept higher risks to support early-stage project development as well as policy, institutional, technological, and financial innovation to catalyse climate finance. This capacity to take risks is backed up by a robust second-level due diligence system.

Malaysia actively explores opportunities to access the Green Climate Fund (GCF). An area of priority for the country is the development of a comprehensive National Adaptation Plan under which internal funding was used to carry out a scoping study in this area. In developing further a comprehensive plan, Malaysia is currently applying for funding from GCF.

- **Global Environment Facility**

The Global Environment Facility (GEF) is the largest multilateral trust fund focused on enabling developing countries to invest in nature and supports the implementation of major international environmental conventions including on biodiversity, climate change, chemicals, and desertification (GEF, 2024).

The Special Climate Change Fund (SCCF), one of the world's first multilateral climate adaptation finance instruments, was created at the 2001 Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) to help vulnerable nations to address these negative impacts of climate change.

The SCCF is managed by the GEF and operates in parallel with the Least Developed Countries Fund (LDCF). Both funds have a mandate to serve the Paris Agreement (PA). SCCF financing is open to all vulnerable developing countries and supports a wide spectrum of adaptation activities, including innovative tools that can be scaled for impact.

The SCCF facilitates the inclusion of resilience and adaptation in larger efforts backed by the GEF trust fund, and in projects that promote private sector involvement. The SCCF's main goal is to facilitate the creation of strong, climate-resilient economies and communities by helping countries address a range of barriers, including:

- a) Limited access to climate-resilient technologies and infrastructure.
- b) Limited institutional capacity to foresee and manage climate risks.
- c) Low engagement by the private sector, including small and medium-sized enterprises and entrepreneurs, for developing and providing adaptation solutions.
- d) Lack of access to finance from public sources and to markets for adaptation solutions.

Recent initiatives backed by the SCCF show these obstacles are far from insurmountable. Small farmers provided with equitable and localised lending can afford to invest in climate adaptation technologies. Incubators and targeted funds can attract private-sector involvement in climate adaptation innovation, and cutting-edge tools such as artificial intelligence and drones can dramatically improve climate risk data, which can be a boon to everything from disaster risk mitigation to municipal budget planning and the design of commercial lending products.

From GEF cycle 4 to 6 (June 2006 – June 2018), Malaysia was allocated an indicative sum of USD 37,082,779 and utilised USD 32,265,249. The support has been primarily used to develop the country's institutional and technical capacity on reporting obligations to the UNFCCC as well as the implementation of mitigation actions. The United Nations Development Programme (UNDP) and the United Nations Industrial Development Organization (UNIDO) have facilitated these actions. The funding received under the GEF-6 cycle was primarily used to

build up technical and technological capacities. Sectors that have also received financial support for mitigation projects were transport, energy, forestry (peatland), and low-carbon cities.

- **BioCarbon Fund Initiative for Sustainable Forest Landscapes**

The BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL) collaborates with countries around the world to reduce emissions from the land sector through smarter land-use planning, policies, and practices (BioCarbon Fund ISFL, 2024).

ISFL aims to help rural communities address poverty and develop sustainably while simultaneously reducing land-based greenhouse gas emissions. To accomplish these goals, ISFL programmes seek to build on experience, leverage partnerships, incentivise results, and emphasise working at scale.

ISFL provides technical assistance for emissions-reduction programmes that impact multiple sectors of the economy, as well as results-based payments to incentivise and sustain programme activities. ISFL programmes also serve as in-country strategic engagement platforms to mobilise, coordinate, and scale up funding from different sources. It is focused on synchronising multi-sector, multi-partner land-use interventions from both the public and private sectors to maximise positive results.

Programme Criteria and Selection

ISFL countries are selected on the basis of criteria that provide the best foundation for ISFL programmes to achieve the greatest possible impact. These criteria ensure that countries are prepared to undertake a complex land-use programme that will be governed and monitored effectively. They also assess the global community's commitment to working collectively toward in-country solutions so that countries have the necessary support to achieve results. The programme criteria are described below:

- a) **Engagement and capacity for large-scale programmes:** The ISFL assesses the degree of readiness for a large-scale emission reduction programme. This is based on a preliminary assessment of a country's engagement in and capacity for a results-based or Reducing Emissions from Deforestation and Forest Degradation (REDD+) programme and its potential to reduce carbon emissions. In particular, links between national efforts for sustainable forestry use and other land uses are considered, as well as the institutional arrangements in place and the capacity of local stakeholders to implement such a programme.
- b) **Enabling environment and governance:** The ISFL assesses the current quality of the enabling environment and its potential to improve, considering the strength of governance, private sector engagement, and in-country green growth initiatives.

- c) **Agricultural drivers of land use change:** The ISFL analyses the agricultural factors behind land-use change to understand which commodities, if any, are key drivers and whether the pressure on forests could be considered historically high or likely to increase significantly. This analysis allows the ISFL to understand the potential of climate-smart agriculture practices to reduce greenhouse gas (GHG) emissions in potential countries.

- **The Forest Carbon Partnership Facility**

The Forest Carbon Partnership Facility (FCPF) is a global partnership of governments, businesses, civil society, and indigenous people focused on reducing emissions from deforestation and forest degradation, forest carbon stock conservation, the sustainable management of forests, and the enhancement of forest carbon stocks in developing countries, activities commonly referred to as REDD+ (FCPF, 2024).

Launched in 2008, the FCPF now works with 47 developing countries across Africa, Asia, Latin America and the Caribbean, along with 17 donors that have made contributions and commitments totalling USD 1.3 billion. The FCPF supports REDD+ efforts through two separate but complementary funds.

The FCPF Readiness Fund helps countries set up the building blocks to implement REDD+. This includes designing national REDD+ strategies, developing reference emission levels, designing measurement, reporting, and verification systems and setting up national REDD+ management arrangements, including proper environmental and social safeguards. The current funding is valued at USD 400 million.

The FCPF Carbon Fund pilots results-based payments to countries that have advanced through REDD+ readiness and implementation and have achieved verifiable emission reductions in their forest and broader land-use sectors. The current funding is valued at USD 900 million.

Carbon Funds payments are designed to help countries and their stakeholders achieve long-term sustainability in financing forest conservation. They are intended to help reduce climate change impacts from forest loss and degradation by making forests more valuable standing than cut down. The Carbon Fund remunerates participant countries in accordance with negotiated contracts for verifiable emission reductions (ERs).

Domestic

To implement the climate strategy, Malaysia has designated a climate fund management system. It is managed by the Malaysian Green Technology and Climate Change Corporation (MGTC). MGTC is an agency under the NRES mandated to drive the country to the scope of *"green growth, climate change mitigation, and green lifestyle."* MGTC performs three roles as follows (MGTC, 2024):

1. Mainstreaming the Green Economy through green products and services expansion programmes such as the MyHIJAU Mark Certification Programme. The Green Technology Financing Scheme (GTFS) and Green

Technology Investment Tax Exemption (GITE), as well as training and human capital development schemes, are also included.

2. Drive climate change mitigation actions such as advocacy for energy efficiency and renewable energy, low-carbon urban, programmes and low-carbon mobility.
3. Cultivate a green lifestyle through publicity and awareness programmes in fostering cooperation between the government and private sectors on the global-scale platform such as the International Greentech and Eco Products Exhibition and Conference Malaysia (IGEM) programme and other public programmes physically or through social media.

Three national policies, particularly the National Green Technology Policy (NGTP), the National Climate Change Policy (NCCP) and the Green Technology Master Plan (GTMP), regulated MGTC's role as a catalyst for green economic growth.

MGTC implements initiatives and programmes that provide specific details in achieving the long-term impact of the Nationally Determined Contribution (NDC) to reduce the intensity of greenhouse gas (GHG) emissions by 45% based on the Gross Domestic Product (GDP) compared to the intensity of emissions in 2005 by 2030. These initiatives are implemented to increase the rate of GDP from green technology of RM 100 billion as well as the generation of 230,000 green jobs (MGTC, 2024). In summary, MGTC arranges all the climate financing schemes in Malaysia. The explanation below breaks down the initiatives under MGTC.

- **Green Technology Financing Scheme**

The Green Technology Financing Scheme (GTFS) stands as a pivotal financing initiative spearheaded by the Malaysian government, aimed at fostering the development and adoption of green technology within the country. Designed to bolster investments in green technology projects, GTFS serves as a catalyst for the widespread utilisation of environmentally friendly technologies across diverse sectors. Eligibility for GTFS funding is extended to legally registered Malaysian companies with a minimum of 60% Malaysian shareholding, along with support for Energy Services Companies (ESCOs) through a 2% interest/profit rebate, further incentivising green investments. This initiative targets six key sectors, including energy, manufacturing, transport, building, waste, and water, offering a financing tenure of up to ten years for eligible projects.

Financed through allocations from the Malaysian government, GTFS operates through different schemes, each with specific funding parameters. GTFS 2.0, approved by the Ministry of Finance (MOF), received an allocation of RM 2.0 billion from January 2019 until the end of 2020. On the other hand, GTFS 4.0 has been reinstated with an allocation of up to RM 1.0 billion until 31 December 2025, continuing its support for the same six key sectors. This structured financing scheme not only provides essential financial support for green technology initiatives but also underscores the government's commitment to promoting sustainability and innovation within Malaysia's economic landscape (MGTC, 2024) (MFSI, 2024) (GTFS, 2024).

- **Low Carbon Cities Framework**

In Malaysia, the establishment of the Low Carbon Cities Framework (LCCF), implemented by GreenTech Malaysia, is helping the local authorities transform their cities into low-carbon cities. Though still in its initial phase of implementation, cities that have adopted the Low Carbon Cities Framework (LCCF) are beginning to see the economic benefits not only for the local authorities but also for the residents and businesses residing in these cities.

Malaysia has established the LCCF to provide guidance for the local authorities, universities, and any other regions on how to transform their cities into low-carbon cities since 2011. The LCCF looks at addressing carbon emissions in 4 main areas; urban environment, urban infrastructure, urban transportation, and buildings. Local authorities are encouraged to adopt LCCF, and those that have, are finding success in their low-carbon initiatives.

Many of the local authorities adopting LCCF typically look to local solution providers to meet their low-carbon needs and ambitions. As more and more local authorities adopt LCCF, and those that have already adopted LCCF begin working on more aggressive and ambitious plans, the market demand for locally available solutions will increase. This will further stimulate the local green economy and accelerate the transformation towards low-carbon cities.

- **Green Incentive**

In tandem with the Malaysian Government's agenda to drive the growth of Malaysia's green economy, the Green Technology Tax Incentive was introduced in 2014. The programme aims to provide the industry with an option of two available incentives. Companies seeking to acquire qualifying green technology assets listed under the MyHIJAU Directory or those undertaking qualifying green technology projects for business or own consumption may apply to the Green Investment Tax Allowance (GITA). The Green Income Tax Exemption (GITE) is available for qualifying green technology service provider companies listed under the MyHIJAU Directory.

- **Low Carbon Mobility Blueprint**

MGTC under the supervision of the Ministry of Public Sector Accounting (KASA), is a focal point in decarbonising Malaysia's transportation sector which saw the completion of the Low Carbon Mobility Blueprint 2021-2030 (LCMB) in 2020.

The policy framework seeks to reduce emissions from the transportation sector, which currently ranks as the second-largest CO₂ emitter in the nation after the energy sector, contributing 25% to 30% of the nation's GHG emissions with predominantly internal combustion engines (ICE) vehicles on the road.

The blueprint deploys a policy framework to mainstream the shift towards electrification in the transportation industry as a key strategy to diminish our emissions and contribute towards the achievement of Malaysia's national PA GHG target.

o **GeRAK**

The Low Carbon City Catalyst Grant (GeRAK) is a component of the implementation of small projects approved under the Strategic Programme to Empower the People and the Economy (PEMERKASA) with an allocation of RM 35 million for 2021. The objectives of GeRAK are as follows:

- Strengthen the implementation of low-carbon urban programmes and initiatives by local authorities in addition to increasing local economic generation, reducing the impact on the environment and improving the quality of life of the people.
- The ceiling cost for each local authority is RM 250,000, subject to the set criteria. Local authorities need to commit their own allocation to implement Communication, Education, and Public Awareness (CEPA) activities and participation in the Low Carbon Cities 2030 Challenge (LCC2030C).

Accessing Funding through MGTC

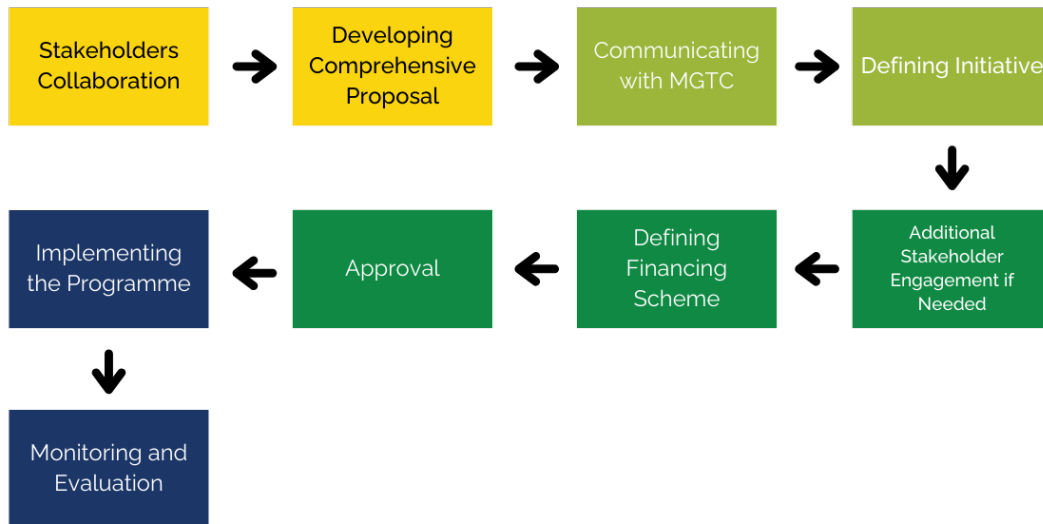


Figure 16 Key Steps of Pursuing Finance through MGTC

Financing the climate action project through MGTC, the proposing party should be aware of the several steps required before applying the proposal. To ensure an effective process, the proposing party should pay attention to the key steps shown in the Figure 16.

1. **Stakeholder collaboration:** The proposing party should actively engage with strategic partners who will be involved in implementing the programme. This collaboration is essential for building strong partnerships and ensuring successful implementation. Partners should be chosen strategically based on their expertise and alignment with the programme's objectives.

2. **Developing a comprehensive proposal:** All stakeholders, including the proposing party and strategic partners, should contribute to the development of a comprehensive proposal. This proposal should meticulously detail the programme's needs, potential impacts, and alignment with national interests and agendas. It should also consider the defined sectors and address enabling conditions necessary for successful implementation.
3. **Communicating with MGTC:** Open communication with MGTC is crucial before submitting the proposal. Intense discussions with MGTC can provide valuable insights and input, helping to refine the proposal and ensure alignment with MGTC's objectives and priorities.
4. **Defining initiative:** MGTC offers various initiatives to implement climate action. By discussing with MGTC, the proposing party can determine the most suitable initiative based on the proposed project's objectives, scope, and alignment with MGTC's mandates.
5. **Defining financing scheme:** Each initiative offered by MGTC comes with different financing options, such as grants, low-interest loans, or blended financing. Through discussions with MGTC, the proposing party can identify the most appropriate financing scheme that aligns with the programme's needs and objectives.
6. **Additional stakeholder engagement if needed:** Depending on the complexity of the initiative and financing scheme, additional strategic partners may need to be engaged. MGTC and the proposing party should discuss the possibility of involving additional stakeholders to ensure comprehensive support for the programme.
7. **Approval:** Once all aspects of the proposal have been settled, including enabling conditions and stakeholder engagement, the proposal then can be submitted for approval. MGTC will review the proposal and, if satisfied, grant approval for the programme to proceed.
8. **Implementing the programme:** With approval and financing disbursement secured, the proposing party can proceed with implementing the programme. This involves executing planned activities, managing resources, and achieving set milestones within the specified timeline.
9. **Monitoring and evaluation:** Throughout the implementation process, continuous monitoring and evaluation are essential to ensure that the programme stays on track and achieves its intended objectives. This involves tracking progress, identifying any challenges or deviations, and making necessary adjustments to ensure success.

- **Malaysia Forest Fund**

The Malaysia Forest Fund (MFF), inaugurated on 30 June 2021, stands as a strategic initiative aimed at realising the objectives outlined in the REDD Plus Finance Framework (RFF). Spearheaded by the NRES, MFF operates with a clear mandate to generate funding for the forestry sector, primarily through the trade of carbon credits. This innovative financing mechanism underscores Malaysia's commitment to forest conservation and sustainable environmental practices (MFF, 2024).

Governance of the Malaysia Forest Fund is entrusted to a designated Board of Trustees, comprising influential policymakers, industry stakeholders, and non-governmental organisations (NGOs). The Board is supported by the Ministry responsible for its establishment, ensuring transparent governance and effective utilisation of resources. This diverse composition ensures comprehensive oversight and strategic decision-making to effectively advance MFF's objectives. Central to its role, MFF orchestrates forest conservation efforts through market-based mechanisms, particularly carbon credits. By engaging in carbon offsetting initiatives, MFF generates funds that are reinvested into forest conservation initiatives, nurturing biodiversity, and fostering community participation in conservation endeavours.

In summary, the MFF plays a pivotal role in financing forest conservation efforts by managing the REDD++ fund in Malaysia, leveraging innovative market mechanisms to protect the environment and promote sustainable practices. For further information and updates on MFF initiatives, interested parties can visit the official MFF website and explore additional resources provided.

Carbon Economic Value

Malaysia has made a move in carbon economic value (CEV) beyond result-based payment (RBP) in the treaty of REDD++. Malaysia has established a carbon market system. In Malaysia, the carbon market serves as a mechanism to assign a monetary value to efforts aimed at reducing or offsetting carbon emissions. By putting a price on carbon emissions, this market incentivises businesses and industries to adopt cleaner practices and invest in initiatives that mitigate climate change.

In alignment with Malaysia's climate goals, which include achieving climate neutrality and reducing greenhouse gas (GHG) emissions intensity, the carbon market plays a pivotal role. Malaysia's commitment to these goals sets the stage for robust carbon market initiatives aimed at achieving these targets effectively.

Policy and regulation are essential components of Malaysia's carbon market framework, governed by the Ministry of Finance (MoF) and the Ministry of Environment and Water (KASA), now known as NRES. These regulatory frameworks provide guidelines for the establishment and operation of carbon trading platforms, such as the voluntary carbon market (VCM) exchange mandated by Bursa Malaysia Berhad (Chabria, 2023 and Bursa Malaysia, 2022).







Stakeholder	Role in VCM
 Government	Sets surrounding environment for project development and may play an active role in facilitating VCM scaling
 Project developer*	Owns land or assets of the crediting project
 Technical expert*	Works with/as part of project developers to provide scientific/engineering expertise to assess mitigation potential and implement project
 Standard	Creates rules and procedures governing carbon credit market and maintains registry of issuances
 Validation and Verification Bodies (VVB)*	Validates project design (prior to implementation) and verifies periodically (to issue credits. To validate/verify projects of a particular standard VVB must be accredited with that standard
 Financial Institutions	Unlock green financing by allocating capital and steering financial flows towards more low carbon, climate resilient activities

Figure 17 Stakeholder Map of The Carbon Economic Value (CEV) Instrument in Malaysia
Source: Bursa Malaysia, 2022

Stakeholder engagement (Figure 17) is crucial for the success of the carbon market in Malaysia. Collaboration between government agencies, the private sector, certification bodies, and civil society organisations ensures the development of a robust and credible market ecosystem. Endorsement from relevant authorities, such as the MoF and KASA, lends legitimacy to carbon market initiatives and fosters investor confidence.

In Malaysia, the management of the voluntary carbon market is overseen by the Bursa Carbon Exchange (BCX) under Bursa Malaysia Berhad. BCX serves as the platform where carbon credits are issued, bought, and sold, facilitating transactions within the carbon market. This exchange provides transparency and liquidity to the market, enabling stakeholders to participate in carbon trading activities efficiently.

Malaysia defined three mechanisms of carbon pricing (Bursa Malaysia, 2022):

- **Voluntary Carbon Market (VCM):** Companies purchase and "retire," voluntarily, carbon offsets/credits, to fulfil either voluntary emissions reduction targets or to create "carbon neutral" products for their customers.
- **Emissions Trading System (ETS):** The regulator sets a fixed limit for the amount of CO₂ to be emitted, sometimes called a "cap". They then issue the respective amount of emission allowances (or permits) to firms either directly or through auctions. One allowance typically grants the right to emit one ton of CO₂.

- **Carbon Tax:** The regulator sets a fixed limit for the amount of CO₂ to be emitted and then applies taxes on every ton of CO₂ emitted in excess of the defined limit at fixed rates. Depending on design, carbon credits may be acceptable, to a limit, to offset an organisation's exposure to tax.

Mechanism

Carbon credits can be traded on a Voluntary Carbon Market (VCM), where companies make voluntary purchases to compensate for their emissions. The mechanism takes at least for steps as shown in Figure 18.

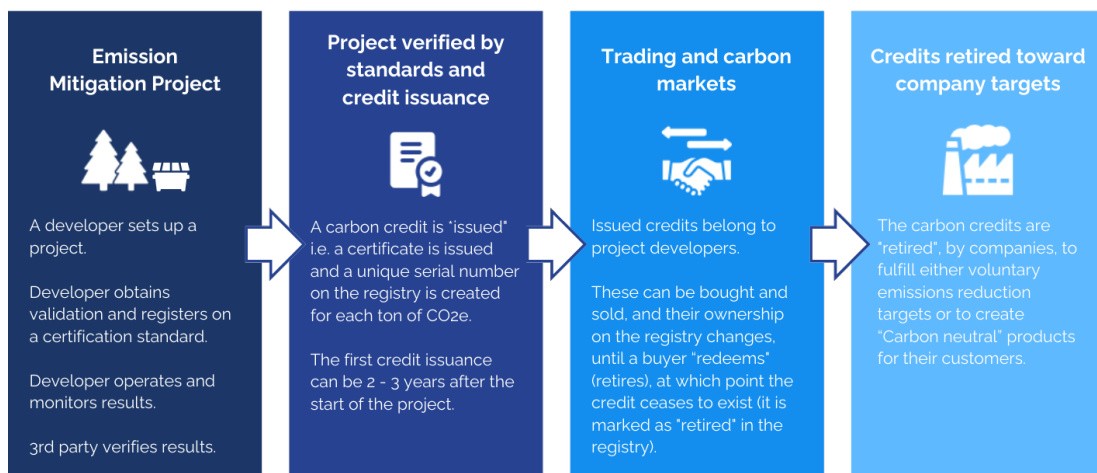


Figure 18 Mechanism of VCM in Malaysia
Source: Bursa Malaysia, 2022

To join this initiative there are groups of sectors covering several sub-sectors explained as follows:

- **Technology-based**
 - Renewable energy
 - Energy efficiency
 - Waste disposal
 - Industrial gas
 - Household device
 - Transport
 - Tech-based removals
- **Nature-based**
 - Agriculture/soil carbon
 - Forestry
 - Other land use
 - Blue carbon

In summary, climate finance in Malaysia can be shown in the picture of sources and instruments. It is imperative to know which instruments from whom it should be pursued. Therefore, Figure 19 explain the glance of climate finance consists of instruments and actors.

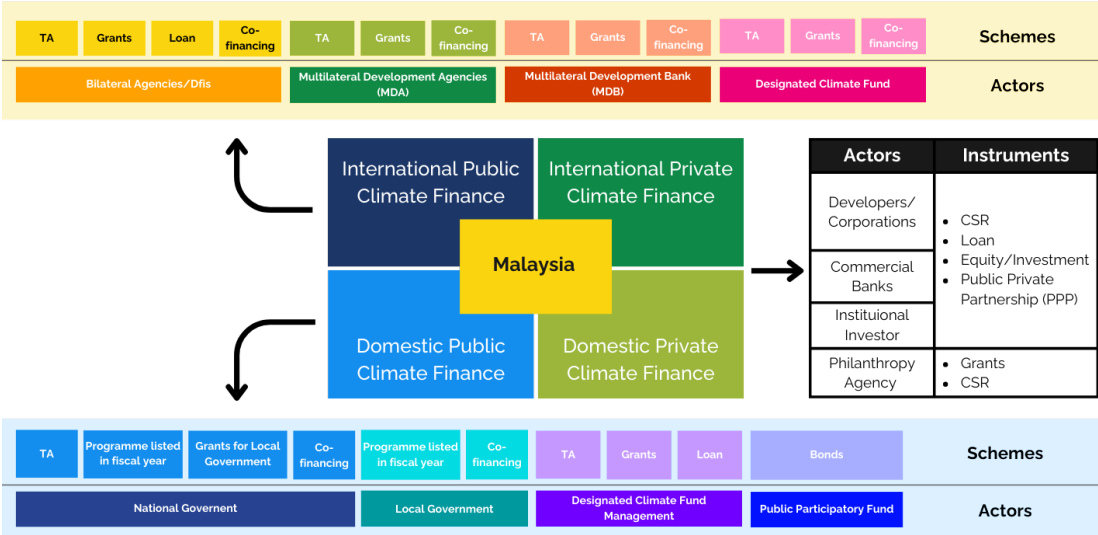


Figure 19 Climate Finance Architecture in Malaysia by Schemes and Sources

Financing Local Climate Action

Financing climate action at the city and local levels in Malaysia poses distinct challenges compared to national-level initiatives, primarily due to limited flexibility in funding sources. While various financing options are discussed in preceding discussions, not all of them are readily accessible to local governments. In practice, only nine financing instruments are commonly available to local governments (Figure 20). However, this study reveals that the majority of local governments rely heavily on the Local Government Budget, which often faces limitations.

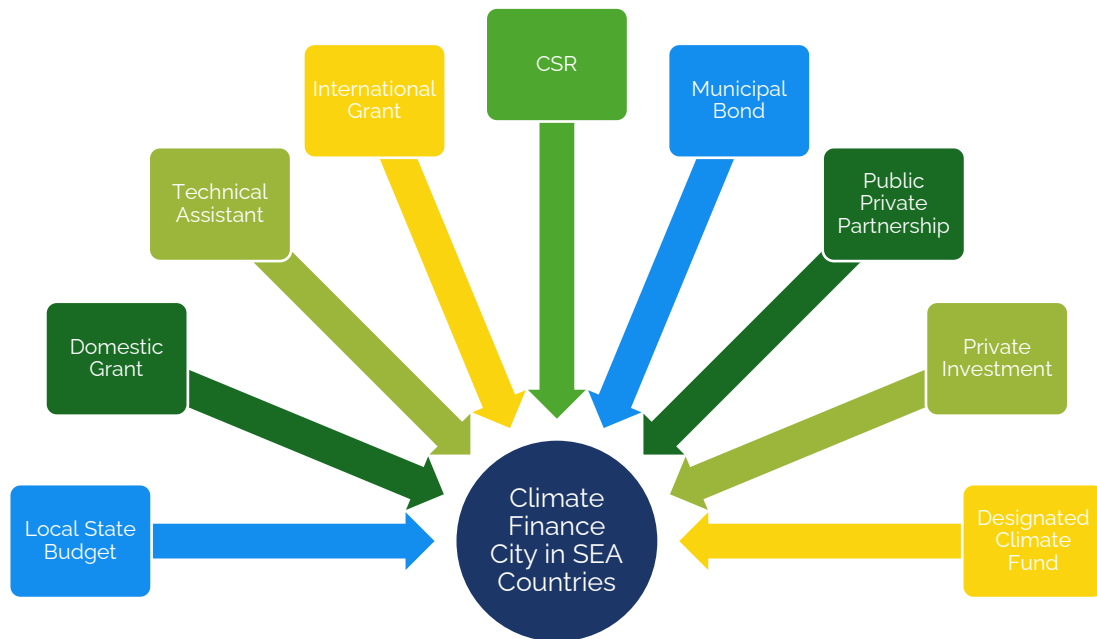


Figure 20 Accessible Climate Finance Instruments for Local Governments in Malaysia

Beyond the nine instruments outlined, not all are directly accessible to local governments in Malaysia. For instance, Public-Private Partnerships (PPP), private investment, and bonds may require consultation and coordination with national-level authorities before being accessible to cities. Similarly, the concept of carbon economic value (CEV), although emerging as an innovative instrument, may not be directly accessible to cities due to regulatory constraints in some countries, including Malaysia. This highlights the need for additional actors at the local level to facilitate access to such schemes, ultimately ensuring that cities can benefit from these financing opportunities (Table 6).

Table 6 Accessibility Status of Climate Finance for Cities in Malaysia

Type of Financing	Accessibility Status for City
Technical Assistant	Yes
International Grant	Yes, on climate adaptation at the national and city government levels
Loan	None from the public sector with international Multilateral Development Bank (MDBs). MGTC manages the Green Technology Financing Scheme (GTFS) nationally
Public-Private Partnership	Yes, with acknowledgement from the national level
Private Investment	Yes, with acknowledgement from the national level
Corporate Social Responsibility	Yes
National Grant	Yes
Municipal Bond/Green Bond	Yes Sustainability-linked bonds (SLB) and Sustainability-linked <i>sukuk</i> (SLS) are the fastest growing segment under sustainability-theme bonds. Social, sustainability, or other SRI <i>sukuk</i> issuances made under the SC's SRI Sukuk Framework from 25 August 2020 onwards. Bond issuances made under the ASEAN Green Bond Standards, ASEAN Social Bond Standards or ASEAN Sustainability Bond Standards from 29 October 2020 onwards.
Carbon Economical Value Market	Possible with further coordination with Bursa Malaysia
Carbon Economical Value: Voluntary Based	Possible under further coordination at the national level
Carbon Tax	Not determined yet
Access to designated Climate Fund	Possible under further coordination at the national level

In Malaysia, it is crucial for cities to collaborate with the MGTC to align their climate action plans with suitable financing schemes. This partnership ensures that cities can access optimal financing options while ensuring that their projects align with national climate goals. By working closely with MGTC, cities and funders can mutually reap benefits, maximising the impact of climate action initiatives across Malaysia's urban areas.

In particular, this study underscores the significance of municipal bonds as an emerging financial tool for Malaysian cities, enabling them to secure capital for climate action projects. Municipal bonds streamline the process of acquiring funds while also coordinating with national entities, thereby strengthening the financial resources available for sustainable endeavours. Despite potential challenges in

accessing loans directly, cities can still capitalise on climate projects funded through loans. Effective communication between cities and technical experts, alongside preparedness to implement projects, are critical components in this regard.

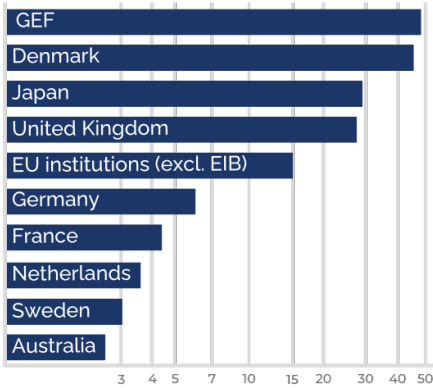
Encouraging Malaysian cities to diversify their financing avenues is essential for advancing climate action initiatives. However, achieving readiness is paramount, necessitating cities to develop comprehensive project plans that evolve from initial stages to robust feasibility studies. This level of preparedness significantly improves the likelihood of securing funding or benefiting from climate projects supported by various actors and financing mechanisms. Proactive preparation and collaborative efforts are essential for effectively harnessing financial opportunities to drive local climate action forward.

Financing Reality

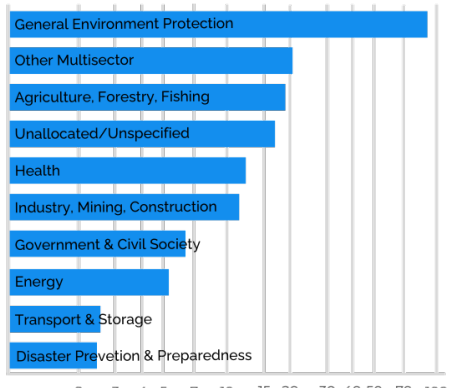
National Fact Sheet



Figure 21 Cost of Climate Action in Malaysia and its Capabilities
 Source: National climate budget: Based on the calculation of climate-related actions from the NRECC budget and SDGs Budget for SDG 12, 14, and 15 (Ministry of Finance, 2024; Ministry of Finance, 2024; The Malaysian Reserve, 2022)



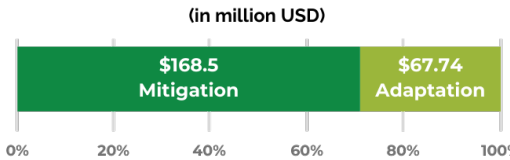
Top ten funders



Top ten invested sectors



Financing instruments



Expenditure of Adaptation vs Mitigation

Figure 22 International Support for Malaysia
 Source: OECD, 2024

The Gap

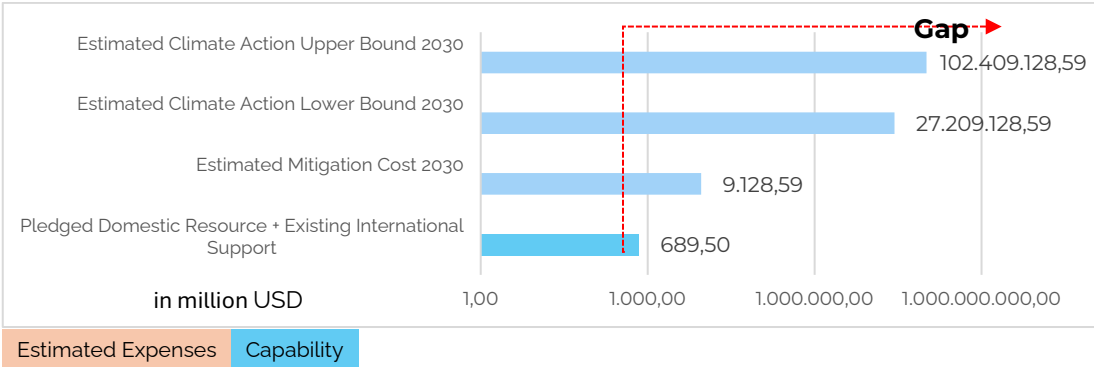


Figure 23 Gap of The Estimated Cost of 2030 Climate Targets to Domestic Pledged Resources and Existing International Support

With the given fact sheet about Malaysia's effort and need to finance climate action (Figure 21 and

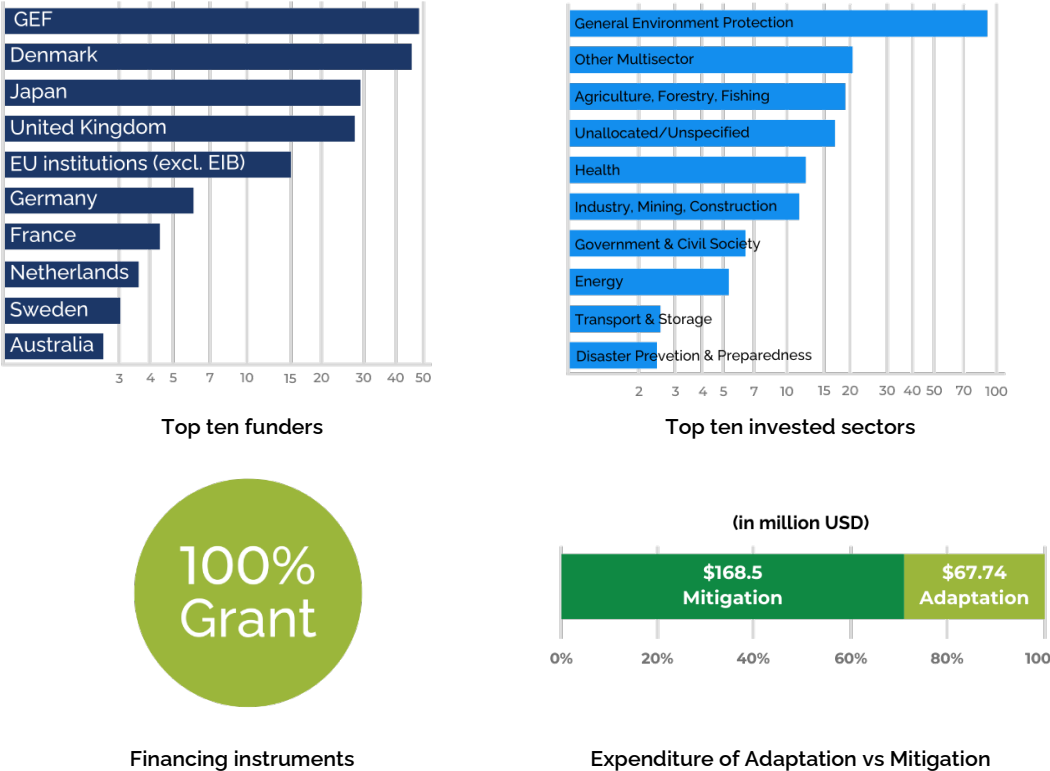


Figure 22), this study identifies the gap between the needs and current efforts. In Malaysia's pursuit of its 2030 climate targets, a comprehensive understanding of the country's capabilities and needs is essential.

Malaysia demonstrates a commendable commitment to climate action, with domestic resources pledged for climate actions in 2030 amounting to USD 453.26 million. Additionally, the nation has received international support totalling USD 236.24 million until 2021. When combined, these pledges result in a substantial sum of USD 689.50 million, representing Malaysia's existing capability to finance

climate initiatives (Figure 23).

However, the magnitude of Malaysia's climate action needs is substantial. The estimation of mitigation costs for 2030 alone stands at USD 9,128.59 million, signifying the substantial investment required to reduce emissions and combat climate change impacts effectively. Furthermore, the lower bound estimation for total climate action needs in 2030 amounts to USD 27,209,128.59 million, while the upper bound reaches a staggering USD 102,409,128.59 million.

This contrast between capability and necessity underscores the significant gap Malaysia faces in mobilising resources to achieve its climate targets. While the nation exhibits a commendable commitment to climate action, the scale of investment required far exceeds current capacities. Bridging this gap necessitates innovative financing mechanisms, enhanced international cooperation, and strategic resource allocation (Figure 23).

Malaysia's economic strength, reflected in its Gross Domestic Product (GDP) of USD 407 billion, underscores its capacity to engage in climate action. However, when examining the allocation for climate initiatives, the average government climate action budget accounts for 5.12% of the National Fiscal Budget, equating to USD 4.13 billion. This delineates the portion of the national budget specifically designated for addressing climate challenges, derived from the overall fiscal allocation, which stands at USD 80.7 billion (Figure 24).

Conversely, the pressing needs for climate action paint a stark picture of the investments required. The estimated average mitigation cost annually from 2016 to 2030 amounts to USD 652.04 million, signalling the annual financial commitment needed to effectively mitigate Malaysia's greenhouse gas (GHG) emissions. Furthermore, the annual climate action at the lower bound is projected at USD 160.65, representing the minimum annual investment essential for comprehensive climate action. Meanwhile, the upper bound estimation reaches a substantial USD 340.65 billion, reflecting the ambitious scale of investment required each year to fully address Malaysia's climate challenges (Figure 24).

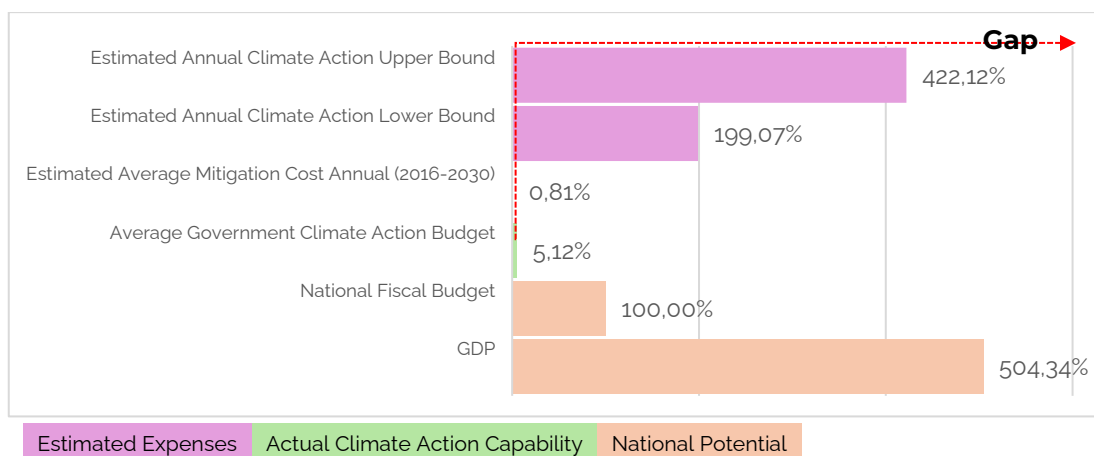


Figure 24 The Gaps in Conducting Annual Climate Action Compared to the Real Annual Country's Capability

Both figures show that Malaysia's commitment to climate action is commendable, evidenced by its dedicated budget allocations. However, the scale of investment necessary to meet its climate action needs far surpasses its current capacity.

Furthermore, moving to city resolution, in assessing the climate action needs of cities in Malaysia, it is essential to consider both the estimated costs and the accessibility of financing options available to them. The data provided offers insights into the annual mitigation costs and the financial landscape of these urban centres.

City and Local Government Reality in Climate Finance

Given the constraints on accessing external funding sources and the limited fiscal capacity at both the national and city levels, Malaysian cities may struggle to mobilise the resources necessary to implement comprehensive adaptation strategies. This limitation is particularly concerning as the impacts of climate change continue to intensify, posing significant risks to vulnerable communities and ecosystems in Malaysia.

Moreover, the total estimation of annual mitigation costs for the eight pilot cities from 2024 to 2030 amounts to USD 69.69 million. This figure encompasses the essential expenses required to mitigate climate change impacts effectively within these cities. However, the range of total climate action costs provides a more comprehensive view, with the lower bound estimated at USD 88,069.69 million and the upper bound at a substantial USD 160,069.69 million. These projections encapsulate the varying degrees of investment necessary to implement comprehensive climate action strategies tailored to the specific needs and challenges of each city (Figure 25).

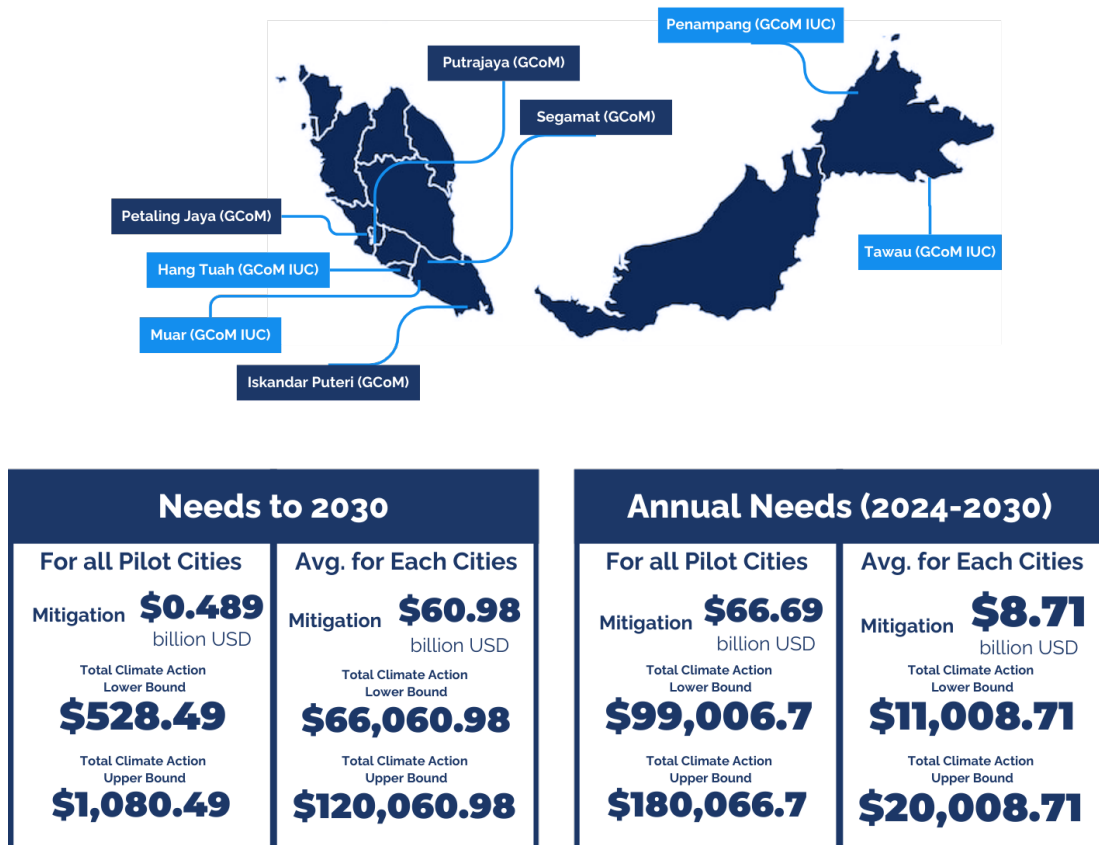


Figure 25 Summary of Climate Action Cost for Cities in Malaysia

Individually, the average annual mitigation cost for each city in Malaysia stands at USD 8.71 million, reflecting the financial burden borne by local authorities in tackling climate change. This figure serves as a baseline for understanding the financial requirements unique to each urban centre. Moreover, the estimated total climate action costs provide a broader perspective, with the lower bound set at USD 11,008.71 million and the upper bound at a formidable USD 20,008.71 million (Figure 25). These figures underscore the magnitude of investment needed to comprehensively address climate challenges at the city level, encompassing mitigation, adaptation, and resilience-building efforts.

However, despite these identified needs, the accessibility of climate finance remains a critical factor influencing the implementation of climate action initiatives in Malaysian cities. While certain financing options, such as technical assistance and national grants, are readily accessible, others, such as loans and access to designated climate funds, require coordination with national-level authorities. Additionally, the status of financing schemes varies across cities, with some already benefiting from existing mechanisms, while others still navigating a landscape of uncertainty and policy development (Table 7).

Table 7 Number of Financing Schemes and Its Status in Malaysia

Status	Number of Financing Scheme
Yes	5
Need national-level Involvement	5
Not accessible	1
Still in a grey area/policy not developed yet/policy still under development	1

In navigating this complex financial terrain, Malaysia's cities must leverage available financing options effectively, foster partnerships with national-level entities, and advocate for policies that enhance accessibility to climate finance. Only through concerted efforts and strategic coordination can these cities mobilise the resources necessary to build climate-resilient communities and secure a sustainable future for their residents.

Malaysia confronts a substantial disparity between its existing capability for climate action expenditure and the financial resources required to meet its climate action needs. Addressing this gap demands a concerted effort from both domestic and international stakeholders to ensure Malaysia's sustainable and resilient future.

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