



Project Implementation Report

(1 July 2022 – 30 June 2023)

Project Title:	Sustainable-City Development in Malaysia
GEF ID:	9147
UNIDO ID:	150046
GEF Replenishment Cycle:	GEF-6
Country(ies):	Malaysia
Region:	SA - Southeast Asia
GEF Focal Area:	Climate Change Mitigation (CCM)
Integrated Approach Pilot (IAP) Programs ¹ :	IAP – Cities
Stand-alone / Child Project:	
Implementing Department/Division:	ENE / ESI
Co-Implementing Agency:	n/a
Executing Agency(ies):	Malaysian Industry – Government Group for High Technology (MIGHT)
Project Type:	Full-Sized Project (FSP)
Project Duration:	60
Extension(s):	1
GEF Project Financing:	2,752,293
Agency Fee:	247,707
Co-financing Amount:	20,230,000
Date of CEO Endorsement/Approval:	12/14/2014
UNIDO Approval Date:	1/16/2017
Actual Implementation Start:	2/3/2017
Cumulative disbursement as of 30 June 2023:	2,724,399.27
Mid-term Review (MTR) Date:	9/15/2020
Original Project Completion Date:	2/3/2022
Project Completion Date as reported in FY22:	6/30/2024
Current SAP Completion Date:	6/30/2024

¹ Only for GEF-6 projects, if applicable

Expected Project Completion Date:	6/30/2024
Expected Terminal Evaluation (TE) Date:	6/30/2024
Expected Financial Closure Date:	1/30/2025
UNIDO Project Manager ² :	Ms. Katarina Barunica

I. Brief description of project and status overview

Project Objective

The sustainable city development project is executed in partnership with Malaysian Industry-Government Group for High Technology (MIGHT). The project aims to promote an integrated approach to urban planning and management in a way that balances economic, social and environmental resource consideration. The project seeks to build awareness and institutional capacity, and to promote investment in climate risks mitigation technologies through demonstration projects.

Malaysia has made several official commitments to sustainable development. In 2009, it pledged a 40 percent reduction in carbon emissions per unit of GDP by 2020, while reiterating its commitment at the Rio Summit in 1992 to keep at least 50 percent of the nation's landmass under forest cover. The emission cut has been adjusted to 45 % per unit of GDP by 2030 during the COP21 meeting in Paris last year. This project will provide an important step in achieving these macro-goals by demonstrating the potential for savings from smart-grid implementation and facilitating the diffusion of this technology throughout the country. This will lead to savings via (a) altering consumer behavior and building properties which leads to energy savings and (b) allowing for the inclusion of renewable energy and electric vehicles in the smart grid which will further stabilize the grid and reduce peak loads.

The project has the aim of reducing GHG emissions in cities in Malaysia. It will achieve this by providing support to the development and enhancement of national urban policy framework in an integrated and inclusive manner. Towards this, it has a two-pronged objective:

- To promote an integrated approach to urban planning and management that is guided by evidence-based, multidimensional, and broadly inclusive planning process that balance economic, social and environmental resource consideration.
- To build awareness and institutional capacity and promote investment in climate risks mitigation technologies through demonstration projects.
- Results:

The project will result in new National & state policies, and an improved strategic direction for development of sustainable and resilient cities; supported by enabling programs (funding models, green procurement, PPPs, etc.) & projects. The Institutional capacity of policymakers at the national, state and local levels will be built and awareness raising events for policy-makers, industry and end-users will be organized at all levels for dissemination of tangible benefits/results of project.

Project Core Indicators		Expected at Endorsement/Approval stage
6	Greenhouse Gas Emissions Mitigated (metric tons of CO2e)	Direct 849,300 metric tons; Indirect (Bottom-Up) 3,499,000 metric tons

Baseline

² Person responsible for report content

This project will provide an important step in achieving macro-goals by demonstrating the potential for savings from smart-grid implementation and facilitating the diffusion of this technology throughout the country. This will lead to savings via (a) altering consumer behavior and building properties which leads to energy savings and (b) allowing for the inclusion of renewable energy and electric vehicles in the smart grid which will further stabilize the grid and reduce peak loads.

Though there are a number of baseline projects within Malaysia and specifically within Melaka, they are not currently being undertaken in an integrated and inclusive manner. Additionally, there is limited scope for national cooperation in these activities. Therefore, under the baseline scenario, the impacts are likely to be limited or at the very least slowed.

Associated Baseline Programmes/Projects

Development of sustainable cities is being supported by a number of on-going and upcoming programs and policy tools at the national and local levels.

Related Baseline National Policies on Sustainable City Development

Urban development planning in Malaysia is guided by the five-year Malaysia plan (currently, the Eleventh Malaysia Plan, 2016-2020) as well as National Physical Plan-2 (NPP2).

The Eleventh Malaysia Plan

In the Eleventh Malaysia Plan, 2016-2020, the Government has defined six strategic thrusts to help Malaysia stay ahead of the challenges and opportunities of the fast-changing global and political landscape. These thrusts, which aim to comprehensively address the end-to-end needs of the people and the nation, are:

1. Enhancing inclusiveness towards an equitable society;
2. Improving wellbeing of all;
3. Accelerating human capital development for an advanced nation;
4. Pursuing green growth for sustainability and resilience;
5. Strengthening infrastructure to support economic expansion; and
6. Reengineering economic growth for greater prosperity.

The Government has also identified six “game changers”, which are innovative approaches to accelerate Malaysia’s development that once successfully applied, will fundamentally change the trajectory of the country’s growth. One of the Game Changers is the promotion of competitive cities that will provide nodes for strong economic agglomeration. Under the Plan, city competitiveness master plans will be developed for four major cities (namely Kuala Lumpur, Johor Bahru, Kuching, and Kota Kinabalu) taking into account six principles to ensure that they will be economically advanced and be a great place to live in for urban residents of all socioeconomic levels (see Box).

Box 1: Building Competitive Cities in Malaysia

Six principles will be used as building blocks for local authorities to develop their city competitiveness plans.

Principle 1: Enhancing Economic Density High economic density in cities is the key to innovation. It brings people and businesses closer and enables information and knowledge sharing, new technological inventions, and new businesses. In addition, economic density increases efficiency and optimises resource use.

Principle 2: Expanding Transit-oriented Development (TOD) Transit-oriented Development (TOD) refers to urban development concepts involving the mixed use of residential and commercial development to be pedestrian-friendly, designed with maximum access to public transport.

Principle 3: Strengthening knowledge-based clusters Knowledge-based clusters will be developed to attract investment and talent.

Principle 4: Enhancing liveability Cities need to be liveable and should create a conducive environment that attracts talent to live, study, work, and play in.

Principle 5: Adopting green-based development and practices All these cities will place high importance on continuous sustainable growth by enhancing green-based development and optimising low carbon resources.

Principle 6: Ensuring inclusivity Inclusivity is the backbone to successful and competitive cities. Inclusiveness will be one of the main thrusts for the four cities, to ensure that communities have ample opportunities to participate in social, political, and economic activities.

National Physical Plan (NPP) - Published as of August 2010

First approved by the National Physical Planning Council in 2005, the goal of the National Physical Plan (NPP) is to establish an efficient, equitable and sustainable national spatial framework to guide the overall development of the country towards achieving developed nation status by 2020. The NPP is prepared in accordance with the provisions of the Town and Country Planning Act 1976 (Act 172).

Recognizing the needs to strengthen the green agenda and to overcome the issues of climate change, the second NPP (NPP-2) sets out a strategic direction to cope with these issues with additional policies and measures formulated to include climate change, protection of biodiversity, green and new technology sustainable tourism and public transport. Selected policies in the NPP2 supporting the green growth concept and initiatives are summarized as follows:

- a) The spatial planning framework will incorporate mitigation and adaptation measures against the impacts of climate change.
- b) Environmentally Sensitive Areas (ESA) will be integrated in the planning and management of land use and natural resources to ensure sustainable development.
- c) Forests and peat lands are important carbon sinks. Existing forest reserves shall be conserved in order to limit the amount of carbon released into the atmosphere.
- d) Promoting the transit-oriented development (TOD3) concept as the basis of urban land use planning to ensure viability of public transport, supported by walkways and linkages to promote connectivity and to reduce emissions.
- e) All urban settlements will be serviced by an integrated network of solid-waste disposal and/or recovery facilities. Waste generation management will be promoted including recycling of waste, solid waste collection and disposal in accordance with the National Solid Waste Master Plan.
- f) As strategic assets, electricity generation plants and distribution mains shall be suitably located to provide a reliable and efficient supply of power to consumers. Renewable energy such as energy from solar, wind, wave and biomass are to be promoted to complement traditional power generation sources. In accordance with the National Green Technology Policy (see below), green technology shall be actively promoted as a means to mitigate climate change. Therefore, new developments and buildings shall incorporate greater energy efficiency and utilize renewable energy sources.

National Urbanization Policy (NUP) - Published as of August 2006

The NUP guides and coordinates planning and urban development in Malaysia by incorporating key concepts such as urban growth limits, compact cities, urban regeneration, utilization of open spaces, solid waste generation/containment, sustainable transport, energy efficiency, and renewable energy. Green urbanism has also been reflected in the NUP approved by the Cabinet on 8 August 2006. The NUP, which is being revised, emphasizes the following:

1. Optimal and balanced land use planning for urban development to ensure all development shall be compatible with the surrounding land use and concentrated within the urban growth limit so as to create a compact city.
2. Re-development programmes for brownfield areas and promotion of urban regeneration.
3. Provision of adequate open spaces and recreational areas to meet the requirements of the population, consequently promoting the contiguous and integrated development of green areas in urban centers to reduce carbon emission.
4. Development of an integrated, efficient and user-friendly public transportation system including environmentally friendly vehicles, bicycle lanes, and a pedestrian network for efficient connectivity and a reduction in air pollution.
5. Effective and sustainable solid waste and toxic management systems to effect solid waste reduction, full utilization of bio-degradable materials and encourage recycling programmes for the community.
6. Strategies related to sufficient, affordable housing, taking into account the needs of various groups of society including the disabled and senior citizens.
7. Environmental conservation and improvements to the urban quality of life.
8. Development that reduces the impact of urban heat islands and ensure that urban development will take into account reduction of air, noise and water pollution.
9. Use of innovative technology in urban planning, development and urban services management with the aim of reducing the production of waste, promoting the construction of green buildings and encouraging the use of efficient energy and renewable energy.

State and Local Urban Planning Policies

Local land-use planning, and development has a key role in reducing GHG emission from cities and in Malaysia this is a top down process through three tiers of government – the Federal Government, State Government and Local Authorities. The National Physical Plan (NPP) and the National Urbanization Policy (NUP) set the framework for land- use planning within which, on a nominal 5-year cycle, the states prepare their State Structure Plans and the municipalities prepare the District Local Plans, the Municipal Council Plans and Special Area Plans. The Federal Department of Town & Country Planning (JPBD) of the Ministry of Urban Well Being, Housing and Local Government (KPKT) guides planning, including for low carbon development, through the provision of planning policies, standards and guidelines.

State and local physical planning procedures are based on the provisions of the Town and Country Planning Act 1976. There are several specific planning guidelines and circulars with specific green city provisions including the following (See Annex G):

- Planning Guideline on Environmentally Sensitive Areas;
- Green Neighbourhood Planning Guideline;
- Planning Guideline for Roof Top Gardens; and
- The Circular from the Secretary General, KPKT on Rain Water Harvesting System, 1999.

Energy and Transport Policy Framework and Support Initiatives

Low Carbon Cities Framework (LCCF) - Published as of 2011

The Low Carbon Cities Framework (LCCF), which was launched in 2011 by KeTTHA, is a conceptual framework aimed at providing a framework to achieve sustainable developments that will subsequently reduce carbon emissions. The document can be used by all stakeholders, in human settlements of any size, be they cities, townships or neighborhoods either new or existing, to measure the impact of their

development decisions in terms of carbon emissions and abatement. LCCF is a national framework and assessment system to guide and assess the development of cities and to support holistic sustainable development in Malaysia. It will provide for equivalent GHG as a result of human activities in cities so that there may be awareness towards how these GHG can be reduced.

It focuses on four key areas: urban environment, urban transport, urban infrastructure and buildings. The LCCF is structured around the Low Carbon City Criteria, which is categorized into 13 performance criteria and 35 sub-criteria, each of which provides specific action plans toward carbon reduction targets for cities to adopt. Its assessment system allows the user to calculate the baseline as well as the reduced carbon count. This count will then translate into a carbon reduction rating for any particular development.

The Electric Mobility Blueprint - *Published as of 2015*

The draft Electric Mobility Blueprint was released in February 2015, providing a comprehensive framework for the development of an EV sector and supporting ecosystem in Malaysia. Key strategies outlined are:

- i) Encourage Public Engagement with EVs;
- ii) Encourage Private Ownership of EVs through Financial Incentives;
- iii) Implement Regulatory Support to Encourage Use of EVs;
- iv) Incentivize and Create an EV System; and
- v) Build an EV Economy.

Specific targets outlined in the Electric Mobility Blueprint are: Progressive increase in number of EVs and charging stations by 2020:

- 100,000 electric cars;
- 100,000 electric scooters;
- 2,000 electric buses;
- 125,000 charging stations.

The Blueprint has yet to be officially adopted and additional input from the project is expected to assist in its final adoption and implementation.

National Key Result Areas -Published as of 2010)

The National Key Result Areas (NKRAs) identified under the Government Transition Programme (GTP), launched in 2010, includes Urban Public Transport as one of the six focus areas, specifically highlighting the importance of the development and improvement of bus networks, and connecting outlying areas with metropolitan cities, such a Kuala Lumpur and Melaka City. The Land Public Transport Commission (SPAD) was established in 2010 under the Land Public Transport Act and is responsible for developing transport related policies, and planning and regulating trains, buses and taxi services within Malaysia, with a specific focus on integrated and sustainable public transport. Focusing on the more general development of green technologies, the National Green Technology Policy (NGTP) specifically identifies the transportation sector as one of its four focal areas, highlighting the importance of incorporating green technology into supporting infrastructure and public road transport.

Malaysian Urban Rural National Indicators Network (MURNInet) - *Data as of 2015*

JPBD has also introduced MURNInet (Malaysian Urban Rural National Indicators Network) in 1998. It is a system to determine the sustainability level of an urban area by using a set of urban indicators. The programme, in which more than 70 % of the local authorities had participated by 2015, enables the tracking of the sustainability status of an urban area whether it has increased, reduced or static. The main objectives of MURNInet are:

1. To determine sustainability level of cities in the country based on a set of selected indicators;
2. To identify the strength and weaknesses of every city based on the performance of the indicators;
3. To propose improvement measures and identify opportunities to achieve sustainability level; and

4. To establish MURNInets as a tool to measure various local authority roles including administrative, technical, formulation of political objectives, encourage public participation and monitoring plan implementation.

The MURNInet is currently being reviewed for enhancement by JPBD.

Melaka State: Project Demonstration City - Data as of 2014 & 2015

In consultation with the national stakeholders, Melaka has been selected to be the demonstration city for this project as it is a front- runner in Malaysia that is actively involved in embracing the concept of 'Green City'. The state government has announced an ambitious plan to become the first state in Malaysia to adopt green technology and be a green 'city-state' by 2020. This initiative is the first by a city or state outside the Klang Valley Area, after the Prime Minister of Malaysia announced that the cities of Putrajaya and Cyberjaya would become pioneer green cities.

Box 2: Melaka in Numbers

Population : 0.86mil (2014)
GDP per capita: USD 9,506
Labour Force: 375,000
Unemployment: 0.9%
Number of tourist arrival: 13.5mil (2013) &
15mil expected in 2014

(Source: news)

Total Emissions: 1.96 MT CO₂ eq
Emissions per-capita: 2.33 T CO₂ eq
(Source: CM speech Sep 15 in Philippines)

Total Number of Vehicles, Melaka (2014)

Motorcycle 416,813
Motorcar 310,169
Bus 1,645
Taxi 1,548
Goods vehicles 26,683
Others 13,199
Total 770,057

Source: Ministry of Transport, Malaysia

Melaka (also known as the The Historic State) is the third smallest Malaysian state. It is located in the southern region of the Malay Peninsula, at proximity to the Straits of Melaka. The capital is Melaka City, which is 148 km south-east of Malaysia's capital city Kuala Lumpur, 235 km from Johor's largest city Johor Bahru. This historical city centre has been listed as a UNESCO World Heritage Site since 7 July 2008. It has more than 14 million tourists per year and a population of around 900,000,

Melaka State consists of four municipal districts – Alor Gajah, Jasin, Melaka Tengah, and Hang Tuah Jaya. Melaka Tengah is the most built out, with the highest urban density, and includes the historic Melaka center. Alor Gajah and Jasin are still predominantly agricultural districts, while Hang Tuah Jaya is a newly created planned district that has become the new state government center.

As of 2014, service sector contributed to the largest share of economy in Melaka accounting for 46.4% of its GDP, followed by manufacturing (39.1%), agriculture (11.1%), construction (3.3%) and mining (0.1%)²⁶. In terms of number of workforces, as of 2013, there were 275,000 people working in the industrial sectors, 225,000 people working in the service sectors, 35,000 people working in the entrepreneurship sectors and 12,300 people working in the agricultural sectors.

Currently there are 23 industrial areas which are centered along the edges of the city proper in suburbs which include Ayer Keroh, Batu Berendam, Cheng, Taman Tasik Utama and Tanjung Kling. While outside Melaka City, industrial areas include Alor Gajah and Sungai Udang. There are around 500 factories in the state which are owned by investors from Germany, Japan, Singapore, Taiwan, United States, etc. For small and medium-sized enterprises, a number of estates have been established by the state government.

Baseline projects/investments in the demonstration city:

There are significant programmes and planned investments in the primary demonstration city/state of Melaka. However, without the project's interventions, the urban planning and management involved would not be based on an integrated and inclusive approach – and levels of investment in green technologies through public and private means would be limited. Essentially, while there are a number of potential programmes, they would not be integrated in a cohesive manner and their impacts would be limited without the proposed project.

In October 2010 Melaka had declared that it met the benchmark of 'Developed State' as set out by the OECD (Organisation for Economic Co-operation and Development). The State Government has developed the Melaka Green Technology City State 2020 Blueprint and Melaka Green City Action Plan (GCAP). The GCAP, which has been developed in 2014 under the Asian Development Bank (ADB) funded project on Indonesia-Malaysia-Thailand (IMT) Growth Triangle (GT) Green City Initiative, provides a broad framework for integrated development that supports the actions being taken under the Blueprint. Together, these two documents will help achieve Melaka's vision of becoming a green city by 2020, a designation that is contingent on achieving a set number of indicators listed in the Blueprint.

Melaka has also set up the Melaka Green Technology Council to oversee the implementation of the blueprint and various green initiatives under GCAP. The function of the council as the highest coordinating body in green initiatives is to ensure that green technology is implemented in a holistic manner in the state by 2020. The state has also set up the Melaka Green Development Organisation (PTHM), under the council, which focuses on managing nine committees tasked with pursuing the state's green initiatives in areas such as open spaces, industrial zones, rivers, beaches, buildings, the transportation system, utilities, education, information as well as marketing. While more detailed information about the initiatives of GCAP can be found in Annex H, some related ones are elaborated below.

Renewable energy power generation in Melaka

Melaka has an ambitious vision to “to become a world-class solar city ... by 2025.”²⁷ For this purpose, it has set up a Melaka World Solar Valley, an area of 7,248 hectares, where a cluster of green technology industries specializing in solar energy will be created. The initiative will positively impact the process for development of renewable energy power generation – specifically for the integration of Solar PV into the grid. The state inaugurated a 5 megawatts solar farm in Rembia, Alor Gajah in 2013, and completed a second solar farm with a capacity to generate 8 megawatts of electricity in its newly developed state administrative centre of Hang Tuah Jaya in Ayer Keroh a year later. The State is also confident that its solar PV capacity will increase in the next few years as its industry players take advantage of the incentives offered by both the national and state governments for the installation of Large Scale Solar Photovoltaic Plant (LSSPV) in the State.²⁸

Building and smart-grid related programmes in Melaka

In most regions of the world, heating, ventilation and air conditioning (HVAC) and cooling loads represent the largest building-sector energy end-use (50% of building consumption). The building envelope – the boundary between the conditioned interior of the building and the outdoors – can be significantly improved to reduce the energy needed to heat and cool buildings. With innovative

technologies such as advanced facades, highly insulating windows, high levels of insulation, well-sealed structures, and cool roofs in hot climates, the need for interior conditioning can be avoided in many parts of the world, including some of the fastest growing regions in hot climates.

In Malaysia, the average building energy consumption is between 269 to 275 kWh/m²/year. Malaysia's commercial and residential sector consumes approximately 13% of national energy demand, and 48% of electricity consumption. Its GHG emission accounted for approximately 4% of national CO₂ emission related to energy, at 3947 GgCO₂²⁹.

There is potential for reduction of energy consumption of 40-50% in new buildings and 15-25% in existing buildings through energy efficiency applications including retrofittings, building/home energy management systems (BEMS/HEMS). Renewable energy applications could also help to save energy consumption and reduce the use of fossil fuels. The Malaysian Standard Code of Practice on Energy Efficiency and Use of Renewable Energy for Non- residential Buildings (MS 1525:2007) provides guidelines on the effective use of energy (including renewable energy) in new and existing non-residential buildings.

Please refer to the explanatory note at the end of the document and select corresponding ratings for the current reporting period, i.e. FY23. Please also provide a short justification for the selected ratings for FY23.

In view of the GEF Secretariat's intent to start following the ability of projects to adopt the concept of adaptive management³, Agencies are expected to closely monitor changes that occur from year to year and demonstrate that they are not simply implementing plans but modifying them in response to developments and circumstances or understanding. In order to facilitate with this assessment, please introduce the ratings as reported in the previous reporting cycle, i.e. FY22, in the last column.

Overall Ratings ⁴	FY23	FY22
Global Environmental Objectives (GEOs) / Development Objectives (DOs) Rating	<i>Satisfactory (S)</i>	<i>Satisfactory (S)</i>
<p>The project has been able to deliver on policy, standards and capacity building activities in support of its dual objectives, contributing to its global environmental objective of mitigating and reducing greenhouse gas emissions through more integrated and sustainable urban development and the adoption of low carbon technologies. A key component still to be completed is the smart grid technology demonstration where direct GHG emissions will be mitigated. Delays on realizing the potential of the smart grid technology reflect the realities of having to postpone in person work as a result of ongoing COVID-19 related challenges that have not been unique to Malaysia. The project has developed a strategy forward for completing the remaining work on technology demonstration and delivering on its objectives.</p> <p>The activities under the policy, standards and capacity building component were successfully completed in 2022.</p>		
Implementation Progress (IP) Rating	<i>Satisfactory (S)</i>	<i>Satisfactory (S)</i>
In spite of the challenges related COVID-19 (health and movement restrictions), the project has		

³ Adaptive management in the context of an intentional approach to decision-making and adjustments in response to new available information, evidence gathered from monitoring, evaluation or research, and experience acquired from implementation, to ensure that the goals of the activity are being reached efficiently

⁴ Please refer to the explanatory note at the end of the document and assure that the indicated ratings correspond to the narrative of the report

<p>been able to press ahead and complete many activities on the originally intended timeline. This has been accomplished through adapting to having meetings, conferences and capacity building activities online. The project has had set-backs with respect to timelines for installation and scoping of technology demonstrations for the smart grid demonstration and has been approved for a project extension to complete this work that could not have been completed otherwise.</p>		
Overall Risk Rating	Moderate Risk (M)	Moderate Risk (M)
<p>There is ongoing risk that Malaysia, like all countries, could face the need to have additional health and movement restrictions due to changes in national circumstances related to COVID-19. Based on what we have experienced so far from the pandemic in terms of waves, the requested extension should suffice to complete the project's remaining activities</p>		

II. Targeted results and progress to-date

Please describe the progress made in achieving the outputs against key performance indicator's targets in the project's **M&E Plan/Log-Frame at the time of CEO Endorsement/Approval**. Please expand the table as needed.

Please fill in the below table or make a reference to any supporting documents that may be submitted as annexes to this report.

Project Strategy	KPIs/Indicators	Baseline	Target level	Progress in FY23
Component 1 – Integration of Climate Risks in urban planning and management				
Outcome 1.1: National Urban Policy framework strengthened to promote sustainable and resilient cities model/Improved.				
SC IAP Indicator	SC IAP Indicator 1 Number of cities exhibiting projects with integrated, multi-sector sustainability planning	A number of fragmented sector-focused policies on green urban development exist but no specific integrated sustainable city master plans have been developed by city municipalities in Malaysia.	At least one sustainable city master plan proposed for endorsement by stakeholders	1) Development of Malaysia Sustainable Cities and Communities' Standard: Smart City ICT Infrastructure. Status: Completed 2) Smart Melaka Blueprint 2035. Status: Completed 3) Smart Grid Regulatory Framework & Policy Input Status: Final stage of development. 4) Smart Grid Replication and Scale-up Plan Status: In-progress
	SC IAP Indicator 2 Number of cities have integrated resilience consideration into their planning process	There are cities with integrated resilience practices within planning process now	At least one city integrated resilience practices into their planning process	1) Smart Grid Refresher Course on Solar Thermal Engineering 25 th & 26 th July 2022 2) GEF6 – National Steering Committee Technical Site Visit 28 September 2022 3) Workshop on the Smart Melaka 2035 Action Plan implementation & Monitoring 3-4 October 2022 4) Forum on the Blueprint/Smart City Action Plan Preparation 2022 4-5 October 2022 5) Workshop on the Development of Standard: Draft Malaysia Standard (DMS) 2770: Smart Cities Vocabulary 27-28 October 2022

			<p>6) Workshop on Smart City Action Plan of Majlis Perbandaran Klang 10 November 2022</p> <p>7) APT Regional Workshop on Smart City Platform 1 December 2022</p> <p>8) MyICSC Portal Training 15 December 2022</p> <p>9) Smart Grid Replication and Scale-up Plan Workshop 16th March 2023</p> <p>10) Preparation Workshop on Shah Alam Smart City Action Plan 2023 – 2030 29 March 2023</p> <p><u>Please refer to Appendix 1:</u> Related documents for Item (1) - (10)</p>
<p>SC IAP Indicator 3 Number of cities with meaningful engagement of multiple stakeholders in planning and implementation of the projects supported by the IAP</p>	<p>Limited scope of Stakeholders involved in planning and implementation of sustainability plans</p>	<p>Multiple groups attend the stakeholder engagement events at the design and/or implementation stages, and the events complement or enhance the local authority's established process for stakeholder engagement</p>	<p>1) Smart Cities Networking and Talk Series 5 July 2022</p> <p>2) Smart Grid Outreach programs at 4 municipalities in Melaka</p> <ul style="list-style-type: none"> ▪ Majlis Perbandaran Hang Tuah Jaya on 19th July 2022. ▪ Majlis Perbandaran Alor Gajah on 20th July 2022. ▪ Majlis Perbandaran Jasin on 21st July 2022. ▪ Majlis Bandaraya Melaka Bersejarah on 27th July 2022. <p>3) Smart Grid exhibition during Smart Melaka Blueprint 2035 Launching, at Element X, Hatten City, Melaka 20th August 2022</p> <p>4) Smart Melaka Blueprint 2035 launched by Chief Minister of Melaka 20 August 2022</p> <p>5) Panel session 5th ISES Deep Dive Workshop 8 (DDW8) Youth Empowerment: Save for the Future (Smart Grid) 30th August 2022</p> <p>6) IDB Talk: Kuala Lumpur Sebagai Bandar Pintar Bertaraf Dunia 12 September 2022</p> <p>7) Cities 4.0 2022 20-21 September 2022</p> <p>8) Melaka Smart Grid Technology Summit 2022 27th & 28th September 2022</p> <p>9) Malaysia Urban Forum – Side Event: The Metaverse and How we Build it Together. 17 October 2022</p> <p>10) Smart Melaka International Conference 2022 6 -7 December 2022</p> <p>11) Smart Cities Networking and Talk Series – ESG and IP in Smart Cities 30 May 2023</p>

			<p>12) Johor Smart City Forum 2023 12-14 June 2023</p> <p>Please refer to Appendix 2: Related documents for Item (1) - (12)</p>
<p>SC IAP Indicator 4 Number of cities with improved tracking systems and enhanced capacity for measuring local and global sustainability indicators</p>	<p>The existing practices do not address sustainability indicators.</p>	<p>Developed manual for collecting and analyzing sustainability indicators at city level</p>	<p>1) Development of Malaysia Sustainable Cities and Communities' Standard: Smart City ICT Infrastructure. Status: Completed</p> <p>2) Smart Melaka Blueprint 2035. Status: Completed</p> <p>Please refer to Appendix 3: Related documents on (1) – (2)</p>
<p>SC IAP Indicator 6 Number of cities that have learned about best practices for municipal financial management and financing for sustainability</p>	<p>The cities have low understanding of the best practices for municipal financial management and sustainability</p>	<p>At least three cities' representatives received knowledge</p>	<p>1) Workshop on Smart City Action Plan of Majlis Perbandaran Klang 10 November 2022</p> <p>2) APT Regional Workshop on Smart City Platform 1 December 2022</p> <p>3) Preparation Workshop on Shah Alam Smart City Action Plan 2023 – 2030 29 March 2023</p> <p>4) Forum on the Blueprint/Smart City Action Plan Preparation 2022 4-5 October 2022</p> <p>5) Session Green Financing – Johor Smart City Forum 13 June 2023</p> <p>Please refer to Appendix 4 Related documents on (1) – (5)</p>

Outcome 1.2 Investments in pilot cities generate local and global environmental benefits

	<p>SC IAP Indicator 7 Number of cities were investment projects have incorporated sustainability indicators or factors</p>	<p>No city project on low emission and environmentally sound technologies implemented under SC-IAP</p>	<p>Two (2) to three (3) cities demonstration projects on low-emission and environmentally sound technologies, incorporating sustainability indicators or factors, implemented under SC-IAP</p>	<p>1) 30kW Rooftop Solar at Majlis Bandaraya Melaka Bersejarah (MBMB). Status: Installation of solar panel completed but pending user sign-off. Way forward, to install small battery system connected to the solar PV rooftop at MBMB, complete testing and commissioning for data measurement and verification, obtain user sign-off and proceed with handover.</p> <p>2) Tapping on existing 4000L Solar Thermal Project at Ever Delicious Food Industries. Status: Electromagnetic Flowmeter for Solar Thermal Hot Water System had been installed, then to proceed with user sign-off.</p> <p>3) 100kW Rooftop Solar at Majlis Perbandaran Alor Gajah (MPAG). Status: Installation of solar panel completed but pending user sign-off and NEM approval.</p>
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SC IAP Indicator 8 Funds leveraged to support the investment flow to urban sustainability in the IAP projects	No business models / contractual agreements established under SC-IAP	2-3 business models / contractual agreements established in the 2-3 investment projects	<ol style="list-style-type: none"> 1) Zero capex (UNIDO 100%). 2) Co-investment from EVD. 3) 300,000 smart meters from TNB. 4) NDA with parties. 5) User Acceptance Proposal. 6) Collective agreement.
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Component 1 – Integration of Climate Risks in urban planning and management

Outcome 1.1: National Urban Policy framework strengthened to promote sustainable and resilient cities model/Improved.

Output 1.1: National & state policies and strategic direction for development of sustainable and resilient cities	Developed national framework for sustainable city development	Developed the National Policy Level on Smart City Framework 2019-2025.	One national framework for sustainable city development	<ol style="list-style-type: none"> 1) Development of Malaysia Sustainable Cities and Communities' Standard: Smart City ICT Infrastructure. Status: Completed 2) Smart Melaka Blueprint 2035. Status: Completed
	Developed enabling policy frameworks	There is smart grid initiatives of TNB and GEF-UNDP GTALCC projects in Melaka. The project will leverage ongoing initiatives and allow for scaling up smart grid developments through development of enabling policies.	10% increase of expected smart grid applications	<p>Smart Grid Regulatory Framework & Policy Input is currently developed through our PDP (Universiti Tenaga Nasional, UNITEN). The draft final report for SGRF & Policy Input documents had been circulated to Project Advisory Committee (PAC) and Technical Committee (TC) for their input and feedbacks.</p> <p>Please refer to Appendix 5: List of Conducted Engagement Sessions for the Development of Smart Grid Regulatory and Policy Input Documents.</p> <p>Following are the outlines for Smart Grid Regulatory Framework in Malaysia:</p> <ol style="list-style-type: none"> a) Smart Grid Definition b) Smart Grid Vision c) Smart Grid Drivers d) Smart Grid Priority Areas e) Smart Grid Enablers and Key Technologies f) Smart Grid Standards g) SWOT Analysis for Smart Grid Implementation h) Thematic Analysis on 10 Priority Areas: <ul style="list-style-type: none"> ▪ Advanced Metering Infrastructure (AMI). ▪ Electric Vehicle (EV) & Electric Vehicle Supply Equipment (EVSE). ▪ Cyber Security. ▪ Renewable Energy (PV, biodiesel, biomass). ▪ Wide-area Situational Awareness (WASA). ▪ Distribution Automation System (DAS). ▪ Demand Response. ▪ Energy Management System (EMS). ▪ Network Communication. ▪ Energy Storage. i) Smart Grid Cyber Security <ul style="list-style-type: none"> ▪ Smart Grid Cyber Security Levels. ▪ Smart Grid Cyber Security Pillars. ▪ Smart Grid Cyber Security Requirements. ▪ Smart Grid Cyber Security High Level Analytical Reference ▪ Smart Grid Data Security and Privacy. ▪ Smart Grid Cyber Security SWOT Analysis <p>As continuation from existing GEF6 Smart Grid Project, the development of Replication and Scale-up Plan for Smart Grid is currently conducted by UNITEN starting from October 2023 for 1-year.</p> <p>This project will provide a comprehensive guideline for other cities, state, and countries to replicate and scale up based on current on-ground GEF6 Smart Grid Project in Melaka.</p>

				<p>A series of activities had been conducted as follows:</p> <ol style="list-style-type: none"> Engagement with SEDA Malaysia on 10th February 2023 Engagement with TNB DN on 7th February 2023 Engagement with UPEN Melaka on 15th June 2023 Smart Grid Replication & Scale-up Plan Workshop conducted on 16th March 2023. <p>Following is the list of increment on Smart Grid applications for RE & EV penetration in Malaysia:</p> <p>Data as of July 2023: Smart Meter increment (deployment): 2019: 281,066 2020: 891,294 2021: 1.8 million 2022 – 2024: 2.1 million</p> <p>RE penetration 2019: 8,047 MW 2020: 8,699 MW 2021: 7,995 MW 2022: 9,040 MW</p> <p>EV Penetration 2019: 645,151 kWh 2020: 934,691 kWh 2021: 997,000 kWh</p>
<p>Output 1.2: Institutional capacity of policymakers at the national, state, and local levels built.</p>	Number of workshops and seminars organized	No comprehensive training on integrated sustainable urban planning and management	At least 1 training on integrated, evidence based and inclusive sustainable city planning and management including formulation of master plans conducted.	<p>1.Smart Grid Capacity Building Refresher course on Solar Thermal Engineering Date: 25th & 26th July 2022</p> <p>2.GEF6 – National Steering Committee Technical Site Visit 28 September 2022</p> <p>3.Workshop on the Smart Melaka 2035 Action Plan implementation & Monitoring 3-4 October 2022</p> <p>4.Forum on the Blueprint/Smart City Action Plan Preparation 2022 4-5 October 2022</p> <p>5. Workshop on the Development of Standard: Draft Malaysia Standard (DMS) 2770: Smart Cities Vocabulary 27-28 October 2022</p> <p>6.Workshop on Smart City Action Plan of Majlis Perbandaran Klang 10 November 2022</p> <p>7.APT Regional Workshop on Smart City Platform 1 December 2022</p> <p>8.MyICSC Portal Training 15 December 2022</p> <p>9.Preparation Workshop on Shah Alam Smart City Action Plan 2023 – 2030 29 March 2023</p> <p>Please Refer to Appendix 6: Related documents from item (1) - (9)</p>

Number of policy makers participated in training courses / workshops and awareness events on integrated sustainable city development	No national or local policy makers trained	100 policy makers at national state and local levels trained (at least 40 % female participants)	<ol style="list-style-type: none"> 1) Smart Cities Networking and Talk Series: Future of Malaysia Cities: A metamorphosis in Action. 5 July 2022 Total Participants: 106 (Male 77%, Female 23%) 2) Smart Melaka Blueprint 2035 launched by Chief Minister of Melaka 20 August 2022 Total Participants: 350 (Male 55%, Female 45%) 3) IDB Talk: Kuala Lumpur Sebagai Bandar Pintar Bertaraf Dunia 12 September 2022 Total Participants: 100 (Male 55%, Female 45%) 4) Cities 4.0 2022 20-21 September 2022 Total Participants: 100 (Male 60%, Female 40%) 5) GEF6 – National Steering Committee Technical Site Visit 28 September 2022 Total Participants: 15 (Male 33%, Female 77%) 6) Workshop on the Smart Melaka 2035 Action Plan implementation & Monitoring 3-4 October 2022 Total Participants: 110 (Male 55%, Female 45%) 7) Forum on the Blueprint/Smart City Action Plan Preparation 2022 4-5 October 2022 Total Participants: 157 (Male 56%, Female 44%) 8) Malaysia Urban Forum – Side Event: The Metaverse and How we Build it Together 17 October 2022 Total Participants: 45 (Male 57%, Female 43%) 9) Workshop on the Development of Standard: Draft Malaysia Standard (DMS) 2770: Smart Cities Vocabulary 27-28 October 2022 Total Participants: 48 (Male 60%, Female 40%) 10) Workshop on Smart City Action Plan of Majlis Perbandaran Klang 10 November 2022 Total Participants: 70 (Male 60%, Female 40%) 11) APT Regional Workshop on Smart City Platform 1 December 2022 Total Participants: 120 (Male 55%, Female 45%)
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			<p>12) Smart Melaka International Conference 2022 6 -7 December 2022 Total Participants: 300 (Male 60%, Female 40%)</p> <p>13) MyICSC Portal Training 15 December 2022 Total Participants: 26 (Male 37%, Female 63%)</p> <p>14) Workshop Preparation for Shah Alam Smart City Action Plan 2023 – 2030 29 March 2023 Total Participants: 85 (Male 60%, Female 40%)</p> <p>15) Smart Cities Networking and Talk Series– ESG and IP in Smart Cities 30 May 2023 Total Participants: 124 (Male 60%, Female 40%)</p> <p>16) Johor Smart City Forum 2023 12-14 June 2023 Total Participants: 10,000 (Male 52%, Female 48%)</p> <p><u>Please refer to Appendix 7.</u> Related documents for Item (1) – (16)</p>
Number of experts and end-users participated in training courses / workshops and awareness events on integrated sustainable city development and RE integrated smart grid	No experts or end users trained	At least 50 experts and 50 end users trained (at least 40% female participants)	<p>Assessment and Certification for Smart Grid Training on:</p> <p>1) Smart Grid: Elements, Issues & Challenges Total Participants: 76 (Male: 78%, Female: 22%) Total Proficiency: 45%</p> <p>2) Solar Thermal Engineering Total Participants: 52 (Male: 81%, Female: 19%) Total Proficiency: 64%</p> <p>3) Solar Photovoltaic Total Participants: 66 (Male: 79%, Female: 21%) Total Proficiency: 59%</p> <p>4) EV Deployment Towards Sustainability Total Participants: 56 (Male: 82%, Female: 18%) Total Proficiency: 63%</p> <p>5) Building Energy Modelling Total Participants: 39 (Male: 78%, Female: 22%) Total Proficiency: 46%</p> <p>6) GHG Calculation & Analysis on SG Integration Total Participants: 59 (Male: 75%, Female: 25%) Total Proficiency: 26%</p> <p>7) Data Analytics & Cyber Security for Smart Grid Total Participants: 103 (Male: 66%, Female: 34%) Total Proficiency: 12%</p>

			<p>8) Cost Benefit Analysis & Risk Analysis on Smart Grid Investment Total Participants: 61 (Male: 67%, Female: 33%) Total Proficiency: 57%</p> <p>Overall gender segmentation: (Male: 76%, Female: 24%)</p>
Increased awareness of local policy makers	Low awareness on RE-integrated, evidence based and inclusive approach to sustainable city planning and management.	At least 60% of the participating end-users and utilities companies are convinced on the benefits of smart grid	<p>Smart Grid Technology Site Visit in conjunction with Melaka Smart Grid Technology Summit 2022 (MSGTS2022) Date: 28 September 2022 Total Participants: 60 (Male 73%, Female 27%)</p> <p>Please Refer to Appendix 8: List of Participants for Smart Grid Technology Site Visit</p>
Increased awareness of concerned national policy makers at various levels and targeted stakeholders created on integrated, evidence-based inclusive approach to sustainable city planning and management.	Low awareness on integrated, evidence based and inclusive approach to sustainable city planning and management	At least 60% of participants feel capable of successfully applying the knowledge/skills	<p>1) Smart Cities Networking and Talk Series: Future of Malaysia Cities: A metamorphosis in Action. 5 July 2022</p> <p>2) Smart Melaka Blueprint 2035 launched by Chief Minister of Melaka 20 August 2022</p> <p>3)IDB Talk: Kuala Lumpur Sebagai Bandar Pintar Bertaraf Dunia 12 September 2022</p> <p>4)Cities 4.0 2022 20-21 September 2022</p> <p>5)GEF6 – National Steering Committee Technical Site Visit 28 September 2022</p> <p>6)Workshop on the Smart Melaka 2035 Action Plan implementation & Monitoring 3-4 October 2022</p> <p>7)Forum on the Blueprint/Smart City Action Plan Preparation 2022 4-5 October 2022</p> <p>8)Malaysia Urban Forum – Side Event: The Metaverse and How we Build it Together 17 October 2022</p> <p>9)Workshop on the Development of Standard: Draft Malaysia Standard (DMS) 2770: Smart Cities Vocabulary 27– 28 October 2022</p> <p>10)Workshop on Smart City Action Plan of Majlis Perbandaran Klang 10 November 2022</p> <p>11)APT Regional Workshop on Smart City Platform 1 December 2022</p> <p>12)Smart Melaka International Conference 2022 6 -7 December 2022</p>

			<p>13)MyICSC Portal Training 15 December 2022</p> <p>14)Workshop Preparation for Shah Alam Smart City Action Plan 2023 – 2030 29 March 2023</p> <p>15)Smart Cities Networking and Talk Series–ESG and IP in Smart Cities 30 May 2023</p> <p>16)Johor Smart City Forum 2023 12-14 June 2023</p> <p>Please Refer to Appendix 9: Related documents for Item (1) – (16)</p>
Number of events	Capacity building activities on sustainable city development is limited and fragmented, For instance, GEF-UNIDO IEEMMS project implements capacity building activities in the field of Energy Management Systems and energy system optimization.	One Targeted training courses for end-users, private sector, academia and civil society to promote integrated approach to sustainable city development.	<p>Smart Grid Refresher Course. (Targeted to Melaka Participants):</p> <ul style="list-style-type: none"> i. Smart Grid: Elements, Issues and Challenge Date: 8th October 2021 ii. Solar Photovoltaic Date: 17th January 2022 iii. Electric Vehicle (EV) Deployment Towards Sustainability and Building Energy Modelling Date: 18th January 2022 iv. Solar Thermal Engineering Date: 25th & 26th July 2023
Number of workshops and seminars organized	There are only a few demonstration projects on smart grid in few locations in Malaysia, e.g., Melaka, Johor, Putrajaya. The institutional capacity of local authorities remain limited and not sufficiently addressed within the other demonstration projects.	1 Training course on costs and benefits analysis on smart grid related investment; RE-integrated smart grid, solar powered EV charging stations, energy efficiency and RE applications in Buildings	<p>1)Briefing of Proposed Technical Design for the 100kW Rooftop Solar at <i>Majlis Perbandaran Alor Gajah</i> (MPAG) Alor Gajah Municipal Council Date: 21st July 2022</p> <p>2)Briefing on Electromagnetic Flowmeter installation for Solar Thermal Hot Water System Date: 8th September 2022</p> <p>3)Technical Briefing for 100kW Solar Rooftop at MPAG Date: 29th September 2022</p> <p>4)Briefing on Large Scale Solar Integration with Quantum Solar Park Date: 10th November 2022</p> <p>5)Briefing on commercial building integration with Infineon Technologies Melaka Date: 22nd November 2022</p> <p>6)Briefing on commercial building integration with Industrial Training Institute Selandar Melaka Date: 23rd November 2022</p> <p>7)Briefing on commercial building integration with Mahkota Medical Centre Date: 9th December 2022</p>

			At least 1 RE-integrated smart grid training conducted, on data analysis and management on sustainable city development and on data collected from smart grid	<p>1) Briefing session on data collection and data integration with Melaka Data Centre Department Date: 5th September 2022</p> <p>2) Briefing session on the development of monitoring room for Smart Grid Demonstration Project (SGDP) at Wisma TNB Melaka Date: 31st October 2022</p> <p>3) Briefing session on SGDP data mirroring to Melaka Command Centre Date: 7th November 2022</p>
Output 1.3: Awareness raising events for policymakers, industry and end-users organised at all levels for dissemination of tangible benefits/results of project.	Developed and implemented education and outreach programme	The state government has a program to promote electric cars and scooter, but there is Low awareness on benefits of smart grid among consumers and stakeholders.	At least five awareness raising events on REintegrated smart grid organized (at least 40% female participants)	<p>1) Melaka Smart Grid Technology Summit 2022 (MSGTS2022) Date: 27th & 28th September 2022 Total Participants: 472 (Male: 58%, Female: 48%)</p> <p>2) Parallel Panel Session in conjunction with MSGTS2022 Date: 27th September 2022</p> <ul style="list-style-type: none"> Session 1: Industry Roles in Driving Smart Grid towards Smart Nation Session 2: Smart Grid Demonstration Project Potential Replication and Upscaling Session 3: Sharing Session with Local Community on the Awareness of Smart Grid towards Smart Nation <p>3) Exhibition in conjunction with MSGTS2022 Date: 27th September 2022 List of Exhibitors:</p> <ul style="list-style-type: none"> UNITEN on Smart Grid Regulatory Framework, Capacity Building and Awareness TNB research on Smart Grid Demonstration Project BMW on Electric Vehicle SENDOK Group EV Van UMW on Bioenergy and Biofuel UTeM on Energy Management System Maps & Global Sdn Bhd on informative industry maps including power plant and Renewable Energy. <p>Please Refer to Appendix 10: Melaka Smart Grid Technology Summit 2022 Event Report</p>
	% Of participants reporting that they feel capable of successfully applying the knowledge/skills acquired in their workplace.	Low awareness on REintegrated smart grid system among equipment vendors, service providers, industry management, and financial institutions.	At least 60% of the participating end-users and utilities companies are convinced on the benefits of smart grid	<p>1) Smart Grid exhibition during Smart Melaka Blueprint 2035 Launching, at Element X, Hatten City, Melaka on 20th August 2022.</p> <p>2) Exhibition of Smart Grid Demonstration Project for the 5th International Sustainable Energy Summit (ISES) Date: 29th and 30th August 2022</p> <p>3) 5th International Sustainable Energy Summit (ISES) Deep Dive Workshop 8 (DDW8) Youth Empowerment: Save for the Future Date: 30th August 2022</p> <p>Please Refer to Appendix 11: 5th ISES Deep Dive Workshop 8 (DDW8) Youth Empowerment: Save for the Future</p>
	Number of institutions and city-based networks engaged with IAP at the local, regional, and global	Limited number of institutions and networks have been engaged with IAP so far	At least fifty companies Engaged	<p>1) List of Smart City Development (SCD) stakeholders.</p> <p>2) List of Smart Grid Project Stakeholder.</p>

	level as partners (IAP Indicator 8) Established web portal			Kindly refer to Appendix 12 Related documents for Item (1)-(2)
	Established web portal	There is no specific web portal on sustainable city development	Published materials on integrated approach for sustainable city development; and RE integrated smart grid (Materials should be gender aware)	<p>1) Smart City Development</p> <ul style="list-style-type: none"> Malaysia International Centre for Sustainable Cities (MylCSC). <p>2) Smart Grid Project Web Portal:</p> <ul style="list-style-type: none"> Smart Grid Facebook Smart Grid Instagram Smart Grid YouTube Smart Grid Capacity Building Training Smart Grid Website <p>3) Smart Grid Publications</p> <ul style="list-style-type: none"> MSGTS2022 Publications BERNAMA <p>Please refer to Appendix 13: Related documents for Item (1) - (3)</p>
	Number of national and regional awareness raising seminars/conferences organized on integrated approach on integrated smart grid organized	Low knowledge on sustainable city practices, lack of information sources and poor information exchange	At least five awareness raising events on integrated smart grid organized (at least 40% female participants)	<p>Outreach programs to Melaka community. These activities were conducted at 4 municipalities in Melaka as below:</p> <ul style="list-style-type: none"> Majlis Perbandaran Hang Tuah Jaya on 19th July 2022. Majlis Perbandaran Alor Gajah on 20th July 2022. Majlis Perbandaran Jasin on 21st July 2022. Majlis Bandaraya Melaka Bersejarah on 27th July 2022.
Outcome 1.2: Investments in pilot cities generate local and global environmental benefits.				
Output 1.2.1: The adoption of renewable energy (RE) integrated smart grid facilitated through demonstration activities of distributed RE systems, solar powered EV charging facilities, battery energy storage, EE and RE applications in buildings and ICT system.	Location choice and demonstration project design is justified through.	No due diligence studies conducted for smart grid application on selected sites in Melaka.	Prepared Due Diligence Report	Various series of Site Technical Assessment (STA) had been carried out from July 2022 until June 2023. Several stakeholder engagements had been conducted to participate in the Smart Grid Demonstration Project.
	Demonstration projects constructed in line with ESMP and technical requirements	Project had not started installations	Successfully performing three installations	For Phase 1-3 of SGDP, a total of forty-nine (49) commercial buildings, one (1) EV Bus Charging Station, two (2) EV Scooter Charging Station, three (3) EV Car Charging Station, two (2) sites of solar thermal, two (2) sites of solar PV rooftop and four (4) sites of large scale solar have completed with EMS toolkit installation but pending user sign-off.
	Number of consumers (residential and commercial) connected to the smart grid with smart meters	270,000 residential. This figure should be zero as none connected to the smart grid.	300,000 residential. This figure should be 30,000 as per Phase 3.	Manual extraction of bulk data requires a new extract, transform and load (ETL) process to increase the number of AMI customer data (currently 39) at SGDP portal but pending user sign-off. The new ETL process to extract larger bulk data from TNB (2000+ customers) to be tested and developed in August 2022.
	Number of commercial buildings implementing BEMS	Zero commercial	110 commercials	<p>For commercial buildings with EMS toolkit installation, a total of eight buildings have been integrated to the Smart Grid Demonstration Project system but pending user sign-off.</p> <p>Completed:</p> <ol style="list-style-type: none"> Felda Travel Sdn Bhd PLUS R&R Ayer Keroh AEON Ayer Keroh

			iv. AEON Bandaraya Melaka v. Train Stations of Keretapi Tanah Melayu Berhad (KTMB) at Tampin vi. Train Stations of Keretapi Tanah Melayu Berhad (KTMB) at Batang Melaka Ongoing: 1. Institut Latihan Perindustrian (ILP) Selandar 2. PLUS 3. Kompleks Seri Negeri Preparation of Proposal 1. Infineon 2. Wisma Yayasan Melaka
Number of commercial buildings implementing BEMS	Zero commercial	Zero large commercial Buildings	Large Commercial Building with BEMS already installed with EMS toolkit but pending user sign-off: 1) CTRM 2) UTeM 3) MMU
Capacity of RE energy installed in Melaka	0 MW Renewable installed	44.26 MW of solar PV	According to Phase 1 deliverables, one site large solar scale has been integrated with the smart grid. 1) Large Solar Scale Gading Kencana Solar Farm (8MW). According to Phase 2 deliverables, two site large solar scale and 130kW solar PV rooftop have been integrated with the smart grid. 1) Large Solar Scale KMB Solar Farm (5MW). 2) Large Solar Scale i2 Energy Solar Farm (6.8MW). 3) Solar PV Rooftop at MBMB (30kW). According to Phase 3 deliverables, one site large solar scale has been integrated with the smart grid. 1) 50MW Quantum Solar Park LSS Above sites related to solar have been installed with EMS toolkit but required integration with Virtual Energy Manager (VEM) dashboard.
Number of EVs added to municipal fleet.	0 EV in municipal fleet	5 EV Charging Stations	According to Phase 1 deliverables, 1 EVCS have been integrated with the Smart Grid. 1) EVCS at Mahkota Parade mall According to Phase 2 deliverables, 2 EVCS have been integrated with the Smart Grid. 1) EVCS at BMW 2) EVCS at MBMB According to Phase 3 deliverables, 2 EVCS have been integrated with the Smart Grid. 1) EVCS at Melaka Sentral 2) EVCS at Graha Makmur Ongoing: EV Scooter Charging Station at MBMB Bukit Serindit. Above sites related to EVCS have been installed with EMS toolkit but required integration with Virtual Energy Manager (VEM) dashboard.

Component 2 – Adequate monitoring and evaluation facilitates smooth and successful project implementation.

Outcome 1: Adequate monitoring and evaluation facilitates smooth and successful project implementation

Output 2.1.1: Regular monitoring exercises conducted.	GEF PIRs prepared	Project had not started	Prepare GEF PIRs on yearly basis	1) Completed for 1 July 2018 – 30 June 2019. 2) Completed for 1 July 2019 – 30 June 2020. 3) Completed for 1 July 2020 – 30 June 2021. 4) Completed for 1 July 2021 – 30 June 2022.
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				5) Ongoing for 1 July 2022 – 30 June 2023
Output 2.1.2: Midterm review and final independent project evaluation conducted.	Project mid-term review carried out including submission of GEF Tracking Tools Project final evaluation conducted including submission of GEF Tracking Tools	Project had not started	Conduct independent mid-term review in project year 3 Conduct independent final evaluation	Completed the MTR in September 2020.
Component 3 – N/A				
Outcome 1:				
Output 1.1:				
Output 1.2:				
Output 1.3:				

III. Project Risk Management

1. Please indicate the overall project-level risks and the related risk management measures: (i) as identified in the CEO Endorsement document, and (ii) progress to-date. Please expand the table as needed.

Describe in tabular form the risks observed and priority mitigation activities undertaken during the reporting period in line with the project document. Note that risks, risk level and mitigations measures should be consistent with the ones identified in the CEO Endorsement/Approval document. Please also consider the project's ability to adopt the adaptive management approach in remediating any of the risks that had been sub-optimally rated (H, S) in the previous reporting cycle.

	(i) Risks at CEO stage	(i) Risk level FY 22	(i) Risk level FY 23	(i) Mitigation measures	(ii) Progress to-date	New defined risk ⁵
1	Drop in oil prices significantly affect government revenues and spending resulting in changed priorities and resource allocation	Medium (M)		<p>The economy being highly dependent on global economic factors is beyond the control of the project. However, by virtue of the focus on planning at the sub-national level and the emphasis on an integrated approach, especially with regards cross-sectoral coordination, the impact of economic downturn in any sector is diffused.</p> <p>The risk will also be reduced by closely engaging Government at all levels across a range of institutions and in various capacities Ministry of Housing and Local Government (KPKT), Ministry Of Natural</p>	Not relevant	<input type="checkbox"/>

⁵ New risk added in reporting period. Check only if applicable.

				Resources, Environment And Climate Change (NRECC), Ministry of Science, Technology and Innovation (MOSTI) and state and city authorities have been involved in the project design and have clearly defined roles and responsibilities. Also, by ensuring that the project outputs are aligned to the national and state priorities, the said risk would be reduced. Continued political support will be maintained by involving high level decision makers in the activities of the project, especially in public events, and maintaining a regular high-level briefing and feedback on project progress.		
2	Delays/lack of adoption at the national level of the proposed improvements to the institutional and regulatory framework by public institutions	Medium (M)		<p>Output 1.1.1. is dedicated to supporting improvements to the regulatory and policy framework, and awareness and capacity building within national, state, and local institutions. In order to mitigate any potential risk of delays, close cooperation of the project partners in the NSC, comprising of senior government policy makers, will be sought and a clear delineation of project stakeholders' roles and responsibilities has been outlined in this project document.</p> <p>In addition, Output 1.1.2 aimed at capacity building of the various relevant institutions to create awareness and a better understanding of the project's interventions, thereby creating ownership among the local counterparts.</p>	<p>No delay for Smart City Development (Output 1.1, Output 1.2 and Output 1.3)</p> <p>For Smart Grid Project; Output 1.1.1.</p> <ol style="list-style-type: none"> 1) Smart Grid Project: Smart Grid Regulatory Framework & Policy Input Smart Grid Policy Framework required on site engagements with stakeholders to obtain feedback and buy in from prominent stakeholders. A series of roundtable discussion and finalization workshop is conducted physically with relevant experts and regulators. 2) No delay for the Smart Grid Replication & Scale-up Plan. <p>Output 1.1.2</p> <ol style="list-style-type: none"> 1) Smart Grid Project: Capacity Building Program Limitation in conducting physical site visit to Smart Grid Demo Project and training due to traveling restriction. Smart Grid Virtual Site Visit and online training was conducted. However, based on the feedback received, most participants proposed for physical site visit and training. Hence, a Smart Grid Refresher Course was conducted in 2022 particularly to Melaka stakeholders. In addition to that, a physical engagement at existing SGDP sites was conducted to provide an exposure related to Smart Grid technologies. 2) Smart Grid Project: Demonstration Project <ol style="list-style-type: none"> a) Time consuming for site owner to grant approval for EMS toolkit installation. b) Stakeholders have reservation on commitment to participate due to data security, sharing of network 	<input type="checkbox"/>

					with 3 rd parties and longer period to get buy in from top management which is part of company/organisation policy.	
3	Delays/lack of adoption at the municipal level of the proposed improvements to the institutional and regulatory framework by public institutions	Medium (M)		At a municipal level, a number of green city initiatives are being developed in Malaysia, in such cities as Putrajaya, Cyberjaya and Iskandar. The project envisages substantial policy and information support for selected city, including provision of training, awareness raising activities and demonstration. The project will tailor capacity building activities for local counterparts to ensure essential understanding on importance and benefits of sustainable city master plan.	No delay for Smart City Development (Output 1.1, Output 1.2 and Output 1.3) As for Smart Grid Project, the proposed Smart Grid Regulatory Framework & Policy Input will be a reference to the government in the development of Smart Grid in Malaysia. The project had obtained buy-in from key stakeholder, i.e., Energy Commission and aligned with the government direction.	<input type="checkbox"/>
4	Negative construction, operation, and decommissioning phase impacts and technology failure	Medium (M)		<p>Proper due diligence and construction management will be conducted during the pre-construction and construction phases of the pilot project to mitigate negative construction impacts. This will include public consultation and information disclosure.</p> <p>For the operational phase, though this is a pilot project, electric vehicles, and the associated required equipment, as well as the energy efficiency and renewable energy applications in buildings are now commercially and widely available in Malaysia. In addition, the groundwork already laid by the ongoing Energy Efficient Low-Carbon Transport project will have built capacity and tested the products at length. The smart grid demonstration will also build on ongoing smart grid initiative of the Melaka State. Moreover, UNIDO will share its experience of similar projects in other countries such as South Africa, Senegal, the Republic of Côte d'Ivoire, India, and China.</p> <p>To address risks of inappropriate disposal of equipment during the decommissioning phase, during the project there will be the provision of training on hazardous materials as well as adoption of official policies for dealing with disposal of materials.</p>	<p>a) Disruption on signal strength from EMS Toolkit antenna transferring data to the data server causing interruption will affect data reporting. Product defect or lower product lifespan effect reporting period for GHG reduction and low energy efficiency application for building owner.</p> <p>b) Extraction of bulk data from TNB data lake for residential components is required for a longer time since at this moment it is extracted manually.</p> <p>c) A small battery for Electric Vehicle Charging Station (EVCS) is to be installed to suit latest configuration and specification of Electric Scooter.</p> <p>d) Currently, EMS toolkit requires reconfiguration to provide access to real time live energy data for energy audit and performance report.</p>	<input type="checkbox"/>
5	Project interventions are not sustained beyond the project life span	Medium (M)		Relevant public bodies' agreement will be secured in order to guarantee the project continuation after the end of the GEF funding period and the built capacity and policies will support this continued implementation. Given the ongoing Green City initiatives, it is expected that the project activities will be incorporated into its structure to ensure sustainability.	<p>Output 1.1.1</p> <p>1.Malaysia Smart City Framework Ministry of Local Government Development (KPKT) initiated smart city rating assessment through MS ISO 37122:2019 Smart Cities Indicators for all 155 PBTs to achieve smart city status according to number of indicators achievement.</p> <p>2.The Development of Malaysia Sustainable Cities and Communities' Standards: ICT Infrastructure</p>	<input type="checkbox"/>

					<p>National Standard Committee appointed TC SC 1 & 2 to develop new item proposal on smart city vocabulary registered as DMS2770:202x.</p> <p>3.Smart Melaka 2035 Action Plan Implementation & Monitoring Melaka State agreed and approved SMB2035 to execute the action plans by the appointed agencies and to be monitor annually under exco supervision through Smart Melaka Implementation Committee (SMIC).</p> <p>4.Smart Grid :Smart Grid Regulatory Framework & Policy Input. The draft final report for the Smart Grid Regulatory Framework & Policy Input had been circulated to PAC and TC members. The revision for further improvement is required as per input and feedback received from the PAC and TC members.</p> <p>The final report for Smart Grid Regulatory Framework & Policy Input documents will be uplifted to Energy Commission and as a reference document for the development of Smart Grid in Malaysia.</p> <p>5.Smart Grid Replication & Scale-up Plan The Smart Grid Replication & Scale-up Plan document will be a guideline for the cities, state, and country to replicate and upscaling of what had been developed in Melaka.</p> <p>Output 1.1.2 1. Sustainable City Development Capacity Building Capacity Building program should be done continuously as the municipalities, state government and federal agencies are keen to have more understanding, training, and knowledge & technology transfer in future.</p> <p>2.Smart Grid Project: Capacity Building Program There will be a physical training on Solar Thermal Engineering particularly for Melaka stakeholders. This training to be conducted in January 2022 and it was rescheduling to July 2022 due to trainer unavailability and low number of registrants. On the other hand, the site visit to existing SGDP sites had been organised in conjunction with MSGTS2022 on 28th September 2022.</p> <p>A few parties had shown an interest to carry on with Smart Grid training beyond the project timeline and further discussion is required.</p> <p>Output 1.1.3 1.MylCSC MylCSC operational and management has been transferred to Malaysia</p>
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					<p>Smart Cities Alliance Association (MSCA) as per decision in NSC Committee Meeting 2022.</p> <p>2.Melaka Smart Grid Technology Summit 2022 The Melaka Smart Grid Technology Summit 2022 was conducted on 27th & 28th September 2023 to showcase and secure buy-in from the government on the developed Smart Grid Demo Project at Melaka as a pioneer advanced technology in Malaysia.</p> <p>As a way forward, the Communication, Education and Public Awareness (CEPA) elements is integrated in the development of Smart Grid Replication & Scale-up Plan.</p>	
6	Climate change risk/Infrastructure developed is vulnerable to climate change risks	Low (L)		While the infrastructure to be developed under the proposed project could potentially be vulnerable to climactic disruptions (e.g., smart grid system in coastal areas), sufficient due diligence has been undertaken in the PPG phase as to the location of such infrastructure and location to mitigate this risk.	Not applicable. The installation of EMS toolkit, solar PV rooftop and solar thermal system is not affected to the climate change.	<input type="checkbox"/>
7	Gender Risk: Risk of resistance against, or lack of interest in, the project activities from stakeholders, especially regarding the active promotion of gender equality. Low participation rates of suitable female candidates due to lack of interest, inadequate project activity or missing qualified female population within engineering sector.	Low (L)		Malaysia, while having a number of significant gender issues, is a pro-gender equality society. This project will pursue thorough, gender responsive communication, and ensure stakeholder involvement at all levels, with special regard to involving women and men, as well as civil society and non- governmental organizations promoting gender equality. This shall mitigate social and gender related risks, promote gender equality, create a culture of mutual acceptance, and maximize the potential contribution of the project to improving gender equality in the energy field. As gender has been clearly mainstreamed throughout the project design, this will help mitigate any potential risk.	<p>For the project 2022/2023, the participation has recorded the attendance by gender. Unfortunately, it is challenging to match balanced in participant's gender as the targeted participants position holders are male.</p> <p>The technicality of Smart Grid had hindered the participation from female. Nevertheless, the project team consistently highlighted the importance of empowering women to embrace technology including Smart Grid related technology.</p>	<input type="checkbox"/>
8	Key stakeholders (government institutions, the private sector, and end-users) are not interested/not supportive the project's interventions	Medium (M)		As the project will demonstrate a very new and unique technology to Malaysia, 'buy-in' from the private sector and public is very important to mitigate the said risk of disinterest. Any such potential risk will be mitigated through targeted public awareness, engagement, outreach and education activities, dissemination of information and consultations, as well as capacity building, to be implemented under Outputs 1.1.2. and 1.1.3. In addition, the demonstrations to be undertaken under Output 1.2.1. will showcase the technology in a visible manner to present the opportunities and benefits of the proposed technologies. Furthermore, the private sector's involvement in the development	<p>Continuously engaging the key stakeholders for their expertise and directions.</p> <p>As for Smart Grid Project development, it is derived based on the Malaysia direction & commitment, Sustainable Development Goals (SDGs) and state direction.</p>	<input type="checkbox"/>

				of the policies and strategies under Output 1.1.1. will help ensure that the policy framework and financial mechanisms are in line with the needs of investors and manufacturers.		
9	Environmental and social risks	Medium (M)		During the project preparation period (PPG) relevant environmental and social risks have been identified and included in the ESMP. Since ESMP will serve as an active tool, additional risks that are identified during the project implementation will be included as they are identified.	No additional risks have been identified so far during project implementation.	<input type="checkbox"/>
10	Delays due to COVID 19 pandemic	Medium (M)		Project has and will comply with national health and safety procedures prescribed by the government. Where possible, activities have and will be moved to online platforms and activities that require in-person site visits have been postponed until permitted.	The Smart Grid Project timeline is restructured due to various constraints such as traveling, conducting on ground site assessment and installation, obtaining commitment from technology contributors, and conducting physical engagements. It is to adhere with Covid-19's Standard of Operations (SOP) imposed by the Malaysian government.	<input type="checkbox"/>

2. If the project received a sub-optimal risk rating (H, S) in the previous reporting period, please state the actions taken since then to mitigate the relevant risks and improve the related risk rating. Please also elaborate on reasons that may have impeded any of the sub-optimal risk ratings from improving in the current reporting cycle; please indicate actions planned for the next reporting cycle to remediate this.

NA

3. Please indicate any implication of the **COVID-19** pandemic on the progress of the project.

As of July 2022, the Government managed to mitigate the Covid-19 outbreak and started to allow re-opening numbers of activities that's essential for government sectors and private sectors. As for Sustainable City Development program and activities, the delivery timeline for some projects needs to be restructure in term on the new workflow and SOP.

As for Smart Grid program and activities, the delivery timeline for projects needs to be restructured in term of the new workflow and adhere Covid-19's Standard of Operations (SOP). At the same, TNBR had requested for 2nd extension of time (EOT) for 6-months, from January 2023 to June 2023. Subsequently, the EOT request by TNBR had been agreed by Technical Committee (TC) members during the TC meeting No. 01/2022.

This is because Smart Grid Demonstration Project faced difficulties to conduct on ground technical site assessment, installation of EMS toolkit process and stakeholder engagements. Hence, TNBR had requested for the 3rd EOT for 9-months from July 2023 until March 2024. It is to allow TNBR to complete all deliverables, documentation, and handover of SGDP to MIGHT. As such, TC members agreed to endorse this request with condition that required TNBR to form a consortium which consist of TNBR and potential collaborative partner(s) to complete all specific deliverables.

4. Please clarify if the project is facing delays and is expected to request an **extension**.

- a) The Smart Grid Project, due to various limitation such as traveling, conducting on ground installation, and obtaining commitment from technology contributors, it is challenging for Smart Grid Demo Project to complete all the deliverables within the stipulated timeline. MIGHT and TNBR are committed to deliver a successful SGDP that achieved all deliverables and meeting targeted GHG emission reduction from all the installed equipment. Hence, TNBR had requested 3rd EOT from July 2023 till March 2024, with the condition that TNBR must complete all on ground physical installation by 31st December 2023.

b) For UNITEN, there are physical activities which rescheduled beyond the project timeline and expected to complete by December 2023. At this moment, all deliverables have completed for Smart Grid Regulatory Framework & Policy Input, Capacity Building and Awareness Raising Events. MIGHT and UNITEN currently finalising the reports based on feedback from PAC and TC members. On the other side, the Replication and Scale-up Plan for Smart Grid will complete by end of this year.

5. Please provide the **main findings and recommendations of completed MTR**, and elaborate on any actions taken towards the recommendations included in the report.

MTR was conducted in previous reporting phase. The recommendations received were duly implemented after the MTR was conducted.

IV. Environmental and Social Safeguards (ESS)

1. As part of the requirements for **projects from GEF-6 onwards**, and based on the screening as per the UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP), which category is the project?

- ☐ Category A project
- ☐ **Category B project**
- ☐ Category C project

(By selecting Category C, I confirm that the E&S risks of the project have not escalated to Category A or B).

Notes on new risks:

- *If new risks have been identified during implementation due to changes in, i.e. project design or context, these should also be listed in (ii) below.*
- *If these new/additional risks are related to Operational Safeguards # 2, 3, 5, 6, or 8, please consult with UNIDO GEF Coordination to discuss next steps.*
- *Please refer to the UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP) on how to report on E&S issues.*

Please expand the table as needed.

	E&S risk	Mitigation measures undertaken during the reporting period	Monitoring methods and procedures used in the reporting period
(i) Risks identified in ESMP at time of CEO Endorsement	The general public opposes the execution of the proposed project.	The project has continued awareness raising activities through the reporting period.	Positive media coverage of project and public engagement during project milestones.
	Negative construction, operation and decommissioning phase impacts and technology failure	Due diligence to be completed when construction occurs.	N/A
	Infrastructure developed is vulnerable to climate change risks	Demonstration sites assessed for risks.	N/A
	Low participation of rates of females in project implementation	Female participation encouraged in trainings and sessions.	We try to encourage and invite more female participation in our program
	Project development involves alteration, damage, or removal of any critical physical or cultural heritage	It has been verified that sites selected are not cultural heritage sites.	N/A
	Conflict of interest over locations where selected sites are based	Sites proposed through consultations/	N/A
	COVID-19	N/A	N/A
(ii) New risks identified during project implementation (If not applicable, please insert 'NA' in each box)	N/A	N/A	N/A

V. Stakeholder Engagement

1. Using the previous reporting period as a basis, please provide information on **progress, challenges and outcomes** regarding engagement of stakeholders in the project (based on the Stakeholder Engagement Plan or equivalent document submitted at CEO Endorsement/Approval).

The National Steering Committee (NSC) continues to be chaired by the Ministry of Housing and Local Government (KPKT), providing strategic guidance and coordination between various ministries, state and local authorities, and other stakeholders. The local project executing agency remains the Malaysian Industry-Government Group for High Technology (MIGHT), which hosts the PMU with support from UNIDO. The NSC members comprise organisations from the government Ministry and Agencies with multi-disciplinary backgrounds that provide guidance and input in meeting the GEF 6 program objectives. The National Steering Committee provides a platform for disseminating the project's work to a larger audience through the membership of committee members. The project has also supported the development of the Malaysia Smart City Framework, and funds have been allocated to supporting awareness-raising activities directed at other cities, civil society, and the public since its launch. Below are the detailed deliverables:

Output 1.1.1 focuses on developing National and State Policies for sustainable cities and communities. At the National level, the latest progress in the **Development of Malaysia Sustainable Cities and Communities' Standards: Smart Cities' ICT Infrastructure**, National Standards Committee for Smart City (NSC-SC) is chaired by PlanMalaysia established. Under this NSC-SC, two Technical Committee (TC) were formed to focus on smart city indicators and smart city ICT infrastructure standards. Many government bodies and industry are engaged. MIGHT engage in both TC.

As for the Smart Grid Regulatory Framework and Policy Input, a series of engagements, focus group discussions and workshops had conducted prior to finalising the Smart Grid Regulatory Framework and Policy Input documents. These series of engagements were frequently conducted with key stakeholders to verify the compilation of information and data for Smart Grid Regulatory Framework are accurate, ensure missing information identified and addressed accordingly. The formulation of this document expected to support and guide the development of Smart Grid in Malaysia towards an integrated and inclusive approach for Sustainable city. Under this component, all deliverables had been completed and the final report which comprises of key outlines such as Smart Grid Definition, Smart Grid Vision, Smart Grid Drivers, Smart Grid Priority Areas, Smart Grid Enablers and Key Technologies, Smart Grid Standards, SWOT Analysis for Smart Grid Implementation, Thematic Analysis on related regulatory documents and Cyber Security for Smart Grid in Malaysia context is in final stage of development.

In addition, the on-going Replication and Scale-up Plan for Smart Grid in Malaysia project will be a crucial document for the cities, state, and country to replicate and upscaling of on-ground Smart Grid Demonstration Project in Melaka.

Under Output 1.1.2 for Sustainable City Development, related to capacity building, MIGHT, in collaboration with several partners, organised programs like **'Steering Committee Technical Site Visit'** to Solar Farm under Gading Kenchana's supervision at Melaka. Fifteen members of the NSC joined these activities, which included a detailed briefing on solar technology and installation.

MIGHT and Melaka state conducted a workshop on the **'Smart Melaka 2035 Action Plan implementation & Monitoring'**. This workshop was attended by 110 participants from public agencies, industry players and community representatives aimed to derive the action plans as deliverables to specific agencies. It will be monitored by exco under Smart Melaka Implementation Committee.

At the National level, MIGHT and KPKT conducted a **'Forum on the Blueprint/Smart City Action Plan Preparation'** to all 157 PBTs in Malaysia with a total of 157 participants aimed to brief and explain the need for smart city policy documents and the setting of smart city component priority. Furthermore, on standardisation development, a workshop on the **'Development of Standard: Draft Malaysia Standard (DMS) 2770: Smart Cities Vocabulary'** was conducted due to the need for harmonisation terms and vocabulary for smart city understanding. This workshop was attended by 48 participants representing ten organisation members of TC SC 1 & 2.

On the other hand, MIGHT and PlanMalaysia co-organised the **'APT Regional Workshop on Smart City Platform'** aimed at knowledge sharing and technology transfer between South Korea and Malaysia delegations. This program was attended by 120 participants from government agencies, private sectors, and academia and also highlighted bridging both site networking to strengthen the smart city agenda. MIGHT also conduct a **'MyICSC Portal Training'** for all 26 existing and new members registered. This program is a continuous activity for MyICSC to ensure that admin, authors, and users can use the MyICSC portal.

At the city level, MIGHT has facilitated the Klang Municipal Council (MPKlang) for the **'Workshop on Smart City Action Plan of Majlis Perbandaran Klang'**. The workshop aimed at finalising the Klang Smart City action plan document, which was participated by 70 people from MPKlang Staff and other Selangor state agencies. Next, MIGHT was also invited by Shah Alam City Council to facilitate their 2nd **'Preparation Workshop on Shah Alam Smart City Action Plan 2023 – 2030'**. This workshop was attended by 85 participants and aimed at identifying specific strategies and developing an action plan based on the seven smart city components.

As for **Smart Grid Capacity Building Program**, eight trainings activities related to the Smart Grid key components including Smart Grid (elements, issues & challenges), Solar Thermal Engineering, Solar Photovoltaic, Electric Vehicle and Electric Vehicle Supply Equipment, Building Energy Modelling, GHG

Calculation and Analysis on Smart Grid Integration, Data Analytics & Cyber Security and Cost Benefit & Risk Analysis on Smart Grid Investment had been completed. The Smart Grid Refresher Course also conducted as an approach to increase the number of participations from Melaka stakeholders. In addition, Smart Grid Virtual Site developed as an alternative plan for physical site visit due to the movement restriction and social gathering limitation imposed by Malaysian Government. Nevertheless, in conjunction with Melaka Smart Grid Technology Summit 2022 (MSGTS2022), the physical site visit at Smart Grid Demonstration Project sites had received sixty participants from all sectors, including government, industry, and academia. This activity allowed stakeholders to gain on-site experience and gain knowledge on Smart Grid related technologies.

Under Output 1.1.3, MIGHT has organised and participated in various local and international conferences to support awareness of smart and sustainable cities. MIGHT have organised the **'Smart Cities Networking and Talk Series'**, providing insights and necessary fundamentals on Metaverse in smart city development. This session was attended by 106 participants representing federal agencies, state government, city authorities, private sectors and academia.

At the National level, in conjunction with the Malaysia Urban Forum 2022, which Urbanice Malaysia organised, MIGHT has conducted a **'Side Event: The Metaverse and How we Build it Together'**. This event was joined by 45 participants and aimed to discuss building a metaverse, a virtual environment that fulfils specific inherent requirements of a future city.

The **fifth edition of Cities 4.0 2022**, co-organised by MIGHT and Confexhub, held from 20 – 21 September 2022 with the overarching theme 'Local Action, Global Achievement' is aimed at facilitating discussions and dialogues on strategies for developing a practical roadmap to localise the SDGs for local actions on project implementation and monitoring. This program attracted over 100 attendees from 30 countries gathered.

At State & city levels, MIGHT and UPEN conducted **Smart Melaka Blueprint 2035, Launching** at the Element X Mall, Melaka. They aimed to introduce the document and briefly explain its strategies, action plans and quick-win projects. Three hundred fifty participants from all Melaka State government agencies, private sectors, universities, and community society joined the launching ceremony. Next MIGHT was invited as a panellist speaker for the **'IDB Talk: Kuala Lumpur Sebagai Bandar Pintar Bertaraf Dunia'** conducted by KL City Hall (DBKL). This program was attended by 100 participants from DBKL staff and other invited organisations around Kuala Lumpur territory.

MIGHT jointly host an international level of awareness program at the **'Smart Melaka International Conference 2022'** to share the experiences and expertise in realising the potential of Melaka towards a digital society with respected panellists and speakers. More than 300 people participated in this program, from international delegations, federal agencies, all state departments, city authorities, students, and industry players.

Another awareness program organised by MIGHT is on **'Smart Cities Networking and Talk Series – ESG and IP in Smart Cities'**, focusing on various strategies for making IP systems the top priority to achieve the ESG objectives and pave the way for implementing smart cities. This session was attended by 124 participants from government agencies at federal, state and city levels, industry players of smart city stakeholders and universities representative. Additionally, **Johor Smart City Forum 2023** was successfully conducted on 12-14 June 2023 with 10,000 participations from all Johor state government agencies, private sectors, and students. This program is the Johor state initiative in mobilising the state towards a smart state by 2030.

For **Smart Grid Awareness Raising Events**, MIGHT together with UNITEN, TNB Research and strategic partner, PTHM has successfully organised Melaka Smart Grid Technology Summit 2022 (MSGTS2022) on 27th & 28th September 2022. The event received a total of 472 attendees (physical) and had obtained extensive media coverage which bring positive impact to the Smart Grid Project. Upon project launching in September 2020, diverse range of activities, including panel discussions, keynote presentations, interactive workshops, technology demonstrations, exhibition, outreach programs, media coverages, and social media engagement conducted. These activities and events aimed to disseminate information and benefit of Smart Grid and at the same time to secure buy-in and support from Melaka consumers in reducing GHG emission via adoption of Smart Grid technologies.

For **Smart Grid Demonstration Project**, stakeholder engagements conducted via physical engagements and virtual approach to pursue potential stakeholder into contributing to the project. Among the stakeholders are from industries, universities, and government bodies. However, few stakeholders have reservation on commitment to participate due to data security, sharing of network with third parties and longer period to get buy in from top management which is part of company/organisation policy. Furthermore, it was time consuming to convince potential stakeholders into joining the project since they required top-down and bottom-up approach to give commitment and implement competitive procurement for energy management. Data of energy consumption or generation from the Smart Grid's components collected to a mock server, transferred to the data centre and National Load Dispatch Centre (NLDC). In the year 2023, the project successfully completed the deliverables to integrate thirty-nine (39) smart meters from residential, forty-nine (49) commercial buildings, five (5) EV charging stations, accumulative of 130kW rooftop solar PV, one thousand (1000) litres of solar thermal, four thousand (4000) litres of solar thermal and accumulative of 69.8 MW large scale solar. As of now, all those EMS toolkit which installed at site required to obtain user sign-off.

2. Please provide any feedback submitted by national counterparts, GEF OFP, co-financiers, and other partners/stakeholders of the project (e.g. private sector, CSOs, NGOs, etc.).

Detailed feedback is presently being collected by an evaluator and will be submitted once complete.

3. Please provide any **relevant stakeholder consultation** documents.

List of stakeholder's consultation through committee meetings as follows:

- 1) National Steering Committee Meeting 2022
- 2) MyICSC Content & Technical Committee
- 3) Smart Melaka Blueprint 2035 Technical Committee
- 4) Smart Melaka Blueprint MELDIC Committee
- 5) Smart Grid Project Technical Committee (TC)
- 6) Smart Grid Project Advisory Committee (PAC)

Please refer to Appendix 20:

Related documents for Item (1) - (6)

VI. Gender Mainstreaming

1. Using the previous reporting period as a basis, please report on the **progress achieved on implementing gender-responsive measures and using gender-sensitive indicators**, as documented at CEO Endorsement/Approval (in the project results framework, gender action plan or equivalent),.

Numbers of initiative has been made to improve the quality of governmental policies, programmes, and projects, ensuring a more efficient allocation of resources and outline better results to increased well-being for both women and men, and the establishment of a more socially just and sustainable society. Efforts to enhance female presence in the training sessions, awareness sessions and other project activities. As for the Smart Grid program and activities, based on respondents' feedback, due to technicality of Smart Grid subjects, it is then skewing towards involvement of male participants. Nevertheless, efforts were initiated to increase female participation in Smart Grid initiatives.

VII. Knowledge Management

1. Using the previous reporting period as a basis, please elaborate on any **knowledge management activities / products**, as documented at CEO Endorsement / Approval.

For this reporting period, the project has produced several knowledge products as follows:

- 1) **National & State Policy** – With the establishment of MS ISO 37122:2019 Smart City Indicators, the National Standard Committee on smart cities (NSC-27) is the coordinator to guide and facilitate smart cities' agenda and development for Malaysia. All 155 PBTs in Malaysia are developing a smart city action plan document by stages to accelerate the smart city agenda and initiatives aligned with the Malaysia Smart City Framework policy document. Moving forwards, this committee will also spearhead a series of standardisation documents to support smart city development.
- 2) **Capacity Building:**
 - a. **The workshop on the Smart Melaka 2035 Action Plan implementation & Monitoring** is to justify the SMB2035 action plans into each department, agency, and private entity's deliverables. Melaka has implemented this procedure to ensure that projects are delivered and monitored continuously under EXCO supervision.
 - b. **Forum on the Blueprint/Smart City Action Plan Preparation 2022** help all 155 PBTs to understand a smart city by component and how to identify projects and initiative under each piece as a solution for their urbanisation issue and challenges.
 - c. **Workshop on the Development of Standard: Draft Malaysia Standard (DMS) 2770: Smart Cities Vocabulary** is being developed by the coordination and facilitation of both TC SC 1 and 2. This document will define Malaysia's most commonly used terms for smart cities.
 - d. **The workshop on the Smart City Action Plan of Majlis Perbandaran Klang (MPKlang)** is the final stage of developing a smart city action plan document by MPKlang. It is essential to review, justify, elaborate, and finalise each strategy and action plan to ensure these initiatives address urbanisation issues and challenges MPKlang faces.
 - e. **APT Regional Workshop** on Smart City Platform shared APT members' views, strategies, experiences, and challenges on the Smart City Data Platform as a smart city is rapidly gaining popularity in many APT member countries. This workshop brings together the latest ICT technologies and more innovative services to citizen's daily life. Moving forward, Malaysia and South Korea delegations gained valuable knowledge exchanges and look forward to collaborating for any potential opportunities.
 - f. **MyICSC Portal Training** helps existing and new authors actively promote and makes sharing any new knowledge, event, and activities easier to gain fresh perspectives on various topics. This training was conducted twice yearly in response to highly increased MyICSC portal users and authors' registration.
 - g. **Preparation Workshop on Shah Alam Smart City Action Plan 2023 – 2030** shared the information and best practices of smart city implementation, which helped the audience of Shah Alam City Council (MBSA) to develop their smart city action plan document. Many agencies and organisations joint the workshop to support and develop a comprehensive smart city action plan for MBSA.
 - h. **2-days Smart Grid Refresher Course on Solar Thermal Engineering** which covered fundamentals of solar radiation, solar energy conversion, solar thermal collector, and solar heating & cooling system as well as solar thermal power.
 - i. **The industrial Smart Grid Site Visit** to existing Smart Grid Demonstration Project was conducted as a value-added on the theory knowledge from Smart Grid training. This activity aimed to provide an exposure to stakeholders on the actual development of smart grid technology.
- 3) **Awareness: -**
Malaysia International Centre for Sustainable Cities (MyICSC) provides a significant opportunity to utilise the knowledge and shared learning of an entire endeavour, which helps to promote the

accomplishment of high performance at all sites and accelerates the broad-based adoption of new improvements. MyICSC establishes a setting that actively encourages and makes it easier for members of a specific community of interest to share their knowledge and gain fresh perspectives on various topics Smart Cities Networking and Talk Series.

- 4) **Smart Cities Networking and Talk Series** is a knowledge-sharing event to gain extensive knowledge, expand networking and seek potential business collaborations. This session brought two influential on the Future of Kuching Smart City and exciting Metamorphosis Cities for Malaysian Tourists.
- 5) **Smart Melaka Blueprint 2035 (SMB2035) launching** by Chief Minister of Melaka, YB Datuk Seri Utama Haji Sulaiman Bin Md. Ali, along with the Launch of Asia's First Metaverse Immersive Experiential Mall, Element X, Pre-Launch of Smart Melaka International Conference 2022, and the Memorandum of Understanding (MoU) Exchange Ceremony. SMB2035 includes four "game changers" and twenty-two "fast win" projects and MIGHT will continue to advise, help, and enable Melaka state in implementing these plans.
- 6) **IDB Talk: Kuala Lumpur Sebagai Bandar Pintar Bertaraf Dunia** discussed that "Smart Cities" should prioritise data, ICT, a human-centred approach, and effective governance and agreed that the expansion of smart cities necessitates the use of suitable collaboration and delivery partners, suitable economic models and the breaking down of data and information silos to gain city-level knowledge. This talk concluded that to fulfil community goals, smart cities must ensure that everyone involved knows their role & responsibilities.
- 7) **Cities 4.0 2022** was conducted with the overarching theme 'Local Action, Global Achievement' and aims to facilitate discussions and dialogues on strategies for developing a practical roadmap to localise the SDGs for local actions on project implementation and monitoring.
- 8) **Malaysia Urban Forum – Side Event: The Metaverse and How we Build it Together** covered the discussion of building a metaverse, a virtual environment that fulfils specific inherent requirements of a future city Experts shared their views on defining METAVERSE, understanding its impact on smart city planning and the best approach to deploying Metaverse in cities services in the technology and energy sector.
- 9) **Smart Melaka International Conference 2022** was to bring together subject matter experts and industry participants from this region so that they may exchange their experiences and expertise with one another to realise Melaka's potential as a digital society. This event marked the beginning of the road for Melaka towards being the knowledge centre for smart cities, delivering awareness and developing capacity building.
- 10) **Smart Cities Networking and Talk Series – ESG and IP in Smart Cities** is an informative sharing session focusing on various strategies for making IP systems the top priority to achieve ESG objectives and pave the way for implementing smart cities.
- 11) **Johor Smart City Forum 2023**, organised by the Johor State Government together with PLANMalaysia, is a forum that aims to fast-track smart city implementation through innovation, collaboration, and progress. By bringing together industry experts (including ourselves), service providers, government agencies, academicians, and organisations, the forum provides a platform for these stakeholders to exchange ideas, discuss challenges, and foster partnerships that can accelerate the development of smart cities in Johor.

2. Please list any **relevant knowledge management mechanisms / tools** that the project has generated.

Please list here the documents which will be submitted in addition to the report, e.g.:

- 1) The Malaysia International Centre for Sustainable Cities platform can be accessed here:
Link: <https://icsc-my.org/>

- 2) Smart Melaka Blueprint 20235 (Physical Report)
Link: https://www.melaka.gov.my/ms/koleksi-media/penerbitan/polisi-prosedur-pelan/lampiran-ppp-penerbitan/smart-melaka-blueprint-2035_english-version.pdf
- 3) Development of Malaysia Sustainable Cities and Communities' Standard: Smart City ICT Infrastructure ((Physical Report via Purchase)
- 4) Smart Grid Capacity Building Website:
Link: <https://sites.google.com/view/sg-e-workshop/home?authuser=1>
- 5) Smart Grid Website:
Link: <http://smartgrid4smartnation.uniten.edu.my>
- 6) Melaka Smart Grid Technology Summit 2022
Link: <https://www.youtube.com/watch?v=p-egSb4LHBI>
- 7) Smart Grid Replication and Scale-up Plan Workshop
Link: <https://youtu.be/ASBqXXy45Wg>

VIII. Implementation progress

1. Using the previous reporting period as a basis, please provide information on **progress, challenges and outcomes achieved/observed** with regards to project implementation.

Progress	<p>1) National and State Policy</p> <ul style="list-style-type: none"> National Standard Committee National Standard Committee appointed TC SC 1 & 2 to develop a new item proposal on smart city vocabulary registered as DMS2770:202x. Follow thru, the Ministry of Local Government Development (KPKT) initiated a smart city rating assessment through MS ISO 37122:2019 Smart Cities Indicators for all 155 PBTs to achieve smart city status according to several indicators achieved. Smart Grid Regulatory Framework and Policy Inputs All deliverables had been completed and the final report which comprises of key outlines such as Smart Grid Definition, Smart Grid Vision, Smart Grid Drivers, Smart Grid Priority Areas, Smart Grid Enablers and Key Technologies, Smart Grid Standards, SWOT Analysis for Smart Grid Implementation, Thematic Analysis on related regulatory documents and Cyber Security for Smart Grid in Malaysia context is in final stage of development. Replication and Scale-up Plan for Smart Grid The Malaysian Replication and Scale-up Plan for Smart Grid is crucial for cities, states, and countries to replicate and upscale the Melaka Smart Grid Demonstration Project. <p>2) MyICSC MyICSC content is being updated continuously by existing authors and users. An increasing number of users registered for MyICSC, mainly students searching for smart city references and programs.</p> <p>3) Awareness/Conference</p>
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	<p>Overall progress show improvement in meeting the deliverable and conducted in a new normal way which is impactful in reaching participants and panellist all around the globe. For Smart Grid Project, those awareness activities and events aimed to disseminate information and benefit of Smart Grid and at the same time to secure buy-in and support from Melaka consumers in reducing GHG emission via adoption of Smart Grid technologies. For Smart Grid Project, MIGHT, UNITEN, TNB Research, and PTHM organized the Melaka Smart Grid Technology Summit 2022, attracting 472 attendees and securing media coverage. The event aimed to disseminate information and benefits of Smart Grid, while securing consumer support for reducing GHG emissions through Smart Grid technologies.</p> <p>4) Capacity Building All programs were conducted successfully, with high participation from both genders representing the public and private sectors. All events were conducted hybrid to attract a broad audience and reach the specific and targeted group. For Smart Grid, Eight training activities on Smart Grid components, including Solar Thermal Engineering, Solar Photovoltaic, Electric Vehicle and Electric Vehicle Supply Equipment, Building Energy Modelling, GHG Calculation, Data Analytics, Cyber Security, and Cost Benefit & Risk Analysis, were completed. A Smart Grid Refresher Course was conducted to increase participation from Melaka stakeholders. A Smart Grid Virtual Site was developed for physical site visits, attracting sixty participants from government, industry, and academia.</p> <p>5) Smart Grid Demo Project for Smart Grid The project involved convincing stakeholders to join the project, requiring a top-down and bottom-up approach for energy management. In 2023, the project successfully integrated 39 smart meters, EV charging stations, 130kW rooftop solar PV, 1000 Liters of solar thermal, and 69.8 MW large-scale solar. The EMS toolkits require user sign-off. An industrial Smart Grid site visit was conducted to provide exposure to the development of smart grid technology.</p> <p>Disclaimer: All those EMS toolkit which installed at site required to obtain user sign-off. Currently, several Site Technical Assessment being progressively conducted to obtain user sign-off from user.</p>
Challenge	<p>1) National and State Policy Almost 60% of 155 PBTs in Malaysia faced difficulty delivering smart city rating assessments due to a lack of understanding of the smart city framework, approach, and solutions. Only 10% of PBTs have developed their smart city action plan, and the remaining 30% are preparing to develop the document.</p> <p>2) MyICSC MyICSC encounters difficulty as KPKT cannot bear the operational & management cost for the next cycle. MIGHT be given the authority to run the MyICSC portal for the next year and need to find a new vendor to manage and operate the MyICSC portal.</p> <p>3) Conference The challenge was to ensure that speakers were available for each of the programmes. Additionally, the changes in the panellists influenced</p>

	<p>the overall programme outline, which necessitated significant revisions to the context setting to match the audience's expectations.</p> <p>4) Capacity Building A crucial challenge for capacity-building programs is the contribution and participation to meet each program requirement and gender balance. Small stakeholders were keen to participate, which has implemented smart city initiatives or delivered digital infrastructure. Structuring the suitable content is also challenging as it must be customised according to the participant's needs and readiness.</p> <p>5) Smart Grid Project.</p> <ul style="list-style-type: none"> • Constraint to get buy in from users to participate in Smart Grid Demonstration Project due to uncertainty business operation and technology prioritization. • Currently, manual extraction of bulk data from TNB data lake for residential component is time consuming. • Reconfiguration of EMS toolkit and back-end server required to ensure data able to upload to the dashboard. • Time consuming for site owner to grant approval for EMS toolkit installation. • Political instability and leadership changes has caused externalities factors in deciding project output according to the timeline. • Knowledge inadequacy on the importance of energy management system resulting potential stakeholder to consider the proposal and accept as user for Smart Grid Demonstration Project.
Outcomes achieved / observed	<p>1) National and State Policy MIGHT position to facilitate, advise, and strategically engage with state government and PBTs to develop smart city blueprints and action plans. These initiatives will help these states and PBTs to highlight and address smart city direction, implementation, and monitoring processes.</p> <p>2) MyICSC MyICSC operational and management has been transferred to Malaysia Smart Cities Alliance Association (MSCA) as per the NSC Committee Meeting 2022 decision.</p> <p>3) Conference Many awareness programs are conducted in a new normal way which is impactful in reaching out to participants and panellists all around the globe. MyICSC Portal entered phase-3 and would be more impactful with the connection to the international counterpart.</p> <p>4) Capacity Building All programs were successfully conducted and gave impactful outcomes to all participants and organisers. It is recommended that some of the capacity-building programs be continued for other areas and new participants' backgrounds.</p> <p>5) Smart Grid Project</p> <ul style="list-style-type: none"> • The draft final report comprises of key outlines of Smart Grid Regulatory Framework which was developed based on Smart Grid Architecture Model, Thematic Analysis and Cyber Security for

	<p>Smart Grid had been presented and obtained buy-in from prominent stakeholders.</p> <ul style="list-style-type: none"> • The prelim findings upon performing benchmarking activity Replication and Scale-up Plan project had been identified. Pursuant to that, the identified key factors for technical and non-technical had been validated by key stakeholders during the Smart Grid Replication & Scale-up Plan workshop. Besides, the cities selection to replicate existing Smart Grid Demonstration Project also verified in the abovementioned workshop. • The Smart Grid training on 8 courses namely Smart Grid (elements, issues & challenges), Solar Thermal Engineering, Solar Photovoltaic, Electric Vehicle and Electric Vehicle Supply Equipment, Building Energy Modelling, GHG Calculation and Analysis on Smart Grid Integration, Data Analytics & Cyber Security and Cost Benefit & Risk Analysis on Smart Grid Investment were developed and conducted since the beginning of the GEF6 Smart Grid Project. In order to improve the number of participations from Melaka, the Smart Grid Refresher Course also conducted to build institutional capacities in integrated and inclusive approach. Furthermore, the Smart Grid industrial virtual and physical site visit had been organised and had allowed stakeholders to gain on-site experience and knowledge on Smart Grid technologies at few sites in Melaka. • The Awareness activities was designed based on the conducted market segmentation prior to Covid-19. It becomes a challenge for the team to be creative and shift it to online platform. Nevertheless, most of the awareness activities managed to be conducted despite the pandemic situation. A series of knowledge sharing session, technology demonstrations, exhibitions, outreach programs, media coverages, and social media engagement had been developed and conducted upon Smart Grid Awareness and Demonstration Project launching way back in 2022. • Smart Grid Demonstration Project activities conducted in manageable way although facing difficulties due to time consuming in obtaining approval from stakeholders as technology contributor of the Smart Grid Demonstration Project. The project progress update monitored based on weekly basis to ensure the project completion as expected. Mitigation plans were determined to ensure all of the deliverables are according to the project timeline.
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2. Please briefly elaborate on any **minor amendments⁶ to the approved project that may have been introduced during the implementation period or indicate as not applicable (NA).**

Please tick each category for which a change has occurred and provide a description of the change in the related textbox. You may attach supporting documentation, as appropriate.


⁶ As described in Annex 9 of the *GEF Project and Program Cycle Policy Guidelines*, **minor amendments** are changes to the project design or implementation that do not have significant impact on the project objectives or scope, or an increase of the GEF project financing up to 5%.

<input type="checkbox"/>	Results Framework	N/A
<input type="checkbox"/>	Components and Cost	N/A
<input type="checkbox"/>	Institutional and Implementation Arrangements	N/A
<input type="checkbox"/>	Financial Management	N/A
<input type="checkbox"/>	Implementation Schedule	2017-2024
<input type="checkbox"/>	Executing Entity	N/A
<input type="checkbox"/>	Executing Entity Category	N/A
<input type="checkbox"/>	Minor Project Objective Change	N/A
<input type="checkbox"/>	Safeguards	N/A
<input type="checkbox"/>	Risk Analysis	N/A
<input type="checkbox"/>	Increase of GEF Project Financing Up to 5%	N/A
<input type="checkbox"/>	Co-Financing	N/A
<input type="checkbox"/>	Location of Project Activities	Malaysia mainly Melaka as pilot city
<input type="checkbox"/>	Others	N/A

3. Please provide progress related to the **financial implementation** of the project.

The project's national co-financing is a combination of government (central, state, municipal) and private sector funding (cash and in kind). National co-financing allows for country ownership and gains the government's interest in project outputs and outcomes for which their funds are spent. The co-financing has been mobilized mostly for the investment and technology demonstration of the smart grid in Melaka, under Outcome 1.2.

The GEF grant makes a catalytic effect, unlocking investment in sustainable urban development and smart grid technology, with consideration for policy development and financial investment that reflects an integrated approach



GRANT DELIVERY REPORT

Grant:

2000003570

Grant Status:

Authority to implement

Grant Validity:

03.02.2017 - 30.06.2024

Sponsor:

400150 - GEF - Global Environment Facility

Currency:

USD

Reporting Period:

03.01.2017 - 21.07.2023

Other Reference:

9147-U3-PJ-FS-GR-01

Fund:

GF

Prepared on:

21.07.2023

Project

Project Description

Country

Region

Project Manager

Project Validity

150046

SUSTAINABLE-CITY DEVELOPMENT IN MALAYSIA

Malaysia

Asia and Pacific

Katarina Barunica

01.08.2015 - 30.06.2024

Funds Available

Description	Released Budget Current Year (a)	Obligations Current Year (b)	Disbursements Current Year (c)	Expenditures Current Year (d=b+c)	Total Agreement Budget (e)	Released Budget (f)	Obligations + Disbursements (g)	Funds Available* (h=f-g)	Support Cost (i)	Total Expenditures (j=g+i)	
	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	
2000003570											
1100	Staff & Intern Consultants	(3.96)	(0.01)	0.00	(0.01)	175,550.96	175,550.96	158,554.91	16,996.05	0.00	158,554.91
1500	Local Travel	0.00	0.00	0.00	0.00	27,655.43	27,655.43	27,655.43	0.00	0.00	27,655.43
1700	Nat.Consult./Staff	0.00	0.00	0.00	0.00	10,038.51	10,038.51	19.92	10,018.59	0.00	19.92
2100	Contractual Services	252.79	(7,498.34)	7,498.34	0.00	1,299,421.17	1,299,421.17	1,299,168.38	252.79	0.00	1,299,168.38
3000	Train/Fellowship/Study	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4500	Equipment	(24.19)	0.00	0.00	0.00	1,234,088.56	1,234,088.56	1,234,112.75	(24.19)	0.00	1,234,112.75
5100	Other Direct Costs	650.50	0.00	506.06	506.06	5,538.37	5,538.37	5,393.93	144.44	0.00	5,393.93
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	245,195.89	245,195.89
2000003570	USD Total	875.14	(7,498.35)	8,004.40	506.05	2,752,293.00	2,752,293.00	2,724,905.32	27,387.68	245,195.89	2,970,101.21

* Does not include Unapproved Obligations

The above statement has been certified electronically by the designated officials in UNIDO's Financial Services.

IX. Work Plan and Budget

1. Please provide **an updated project work plan and budget** for the remaining duration of the project, as per last approved project extension. Please expand/modify the table as needed.

Please fill in the below table or make a reference to a file, in case it is submitted as an annex to the report.

Outputs by Project Component	Year 1 2017				Year 2 2018				Year 3 2019				Year 4 2020				Year 5 2021				Year 6 2022				Year 7 2023				Year 8 2024				GEF Grant Budget Available (US\$)		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Component 1 - Integration of climate risks in urban planning and management																																			
Outcome 1: National Urban policy framework strengthened to promote sustainable and resilient cities model/Improved																																			
Output 1.1: National & state policies and strategic directions for development of sustainable and resilient cities.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0		
Output 1.1.2: Institutional capacity of policymakers at the national, state, and local levels built.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0		
Output 1.1.3: Awareness raising events for policymakers, industry and end-users organised at all levels for dissemination of tangible benefits/results of project.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	USD 5048.95			
Outcome 1.2: Investment in pilot cities generate local and global environmental benefits																																			
Output 1.2.1: The adoption of renewable energy (RE) integrated smart grid facilitated through demonstration activities of distributed RE systems, solar-powered EV charging facilities, battery energy storage, EE and RE applications in buildings and ICT system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	USD 65,490.99			
Component 2 – Monitoring and Evaluation																																			

Outcome 2.1: Adequate monitoring and evaluation facilitates smooth and successful project implementation																										
Output 2.1.1: Regular monitoring exercises conducted.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Output 2.1.2: Midterm review and final independent project evaluation conducted.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0

X. Synergies

1. Synergies achieved:

Potential synergies achieved throughout this project is throughout the collaboration of multiple stakeholders for each project activities which will improve the revenue, cost and financial of the project.

3. Stories to be shared (Optional)

Please provide a brief summary of any especially interesting and impactful project results that are worth sharing with a larger audience, and/or investing communications time in. Please include links to any stories/videos available online.

XI. GEO LOCATION INFORMATION

The Location Name, Latitude and Longitude are required fields insofar as an Agency chooses to enter a project location under the set format. The Geo Name ID is required in instances where the location is not exact, such as in the case of a city, as opposed to the exact site of a physical infrastructure. The Location & Activity Description fields are optional. Project longitude and latitude must follow the Decimal Degrees WGS84 format and Agencies are encouraged to use at least four decimal points for greater accuracy. Users may add as many locations as appropriate.

Web mapping applications such as [OpenStreetMap](#) or [GeoNames](#) use this format. Consider using a conversion tool as needed, such as: <https://coordinates-converter.com>

Please see the Geocoding User Guide by clicking [here](#)

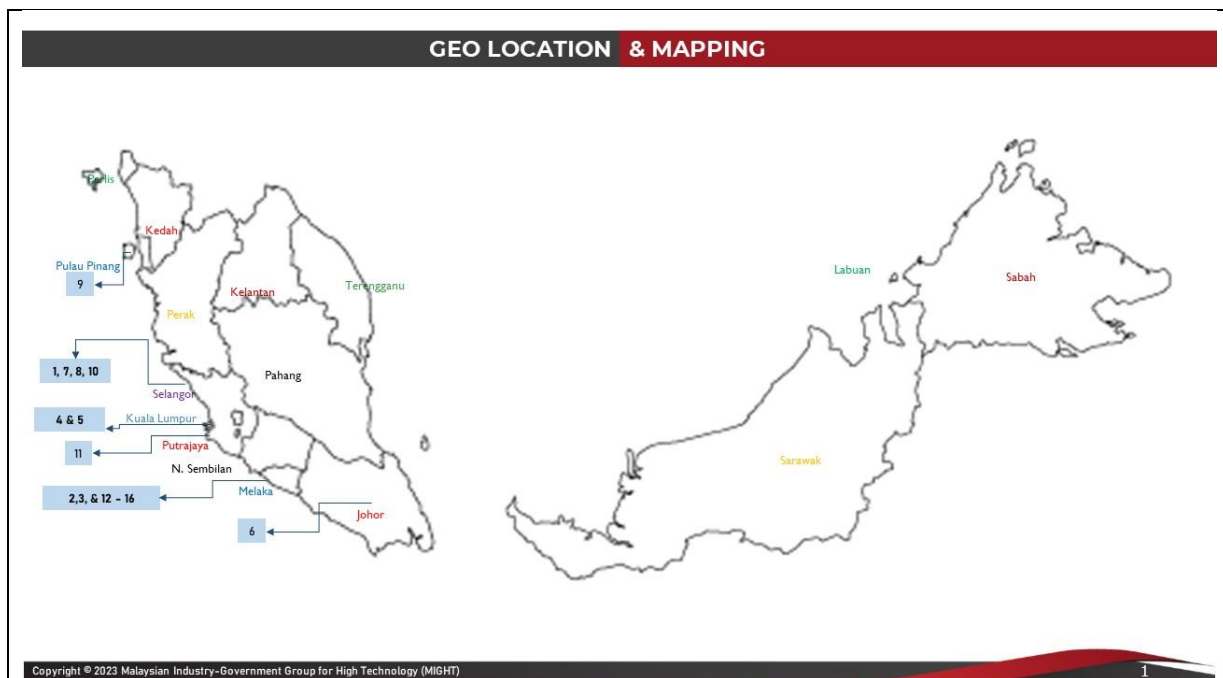
No.	Location Name	Latitude	Longitude	Geo Name ID	Location and Activity Description
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1.	Cyberjaya	N 2° 55' 22'	E 101° 39' 25"	6930887	<p>Smart Cities Networking and Talk Series: Future of Malaysia Cities: A metamorphosis in Action. 5 July 2022</p> <p>Smart Cities Networking and Talk Series–ESG and IP in Smart Cities 30 May 2023</p>
2.	Hatten Hotel, Bandar Hilir, Melaka	2.193600	102.252305	10113646	<p>Smart Melaka Blueprint 2035 launched by Chief Minister of Melaka 20 August 2022</p> <p>Workshop on the Smart Melaka 2035 Action Plan implementation & Monitoring 3-4 October 2022</p> <p>Smart Melaka International Conference 2022 6 -7 December 2022</p>
3.	Bandar Hilir	2.25	102.25	1733035	GEF6 – National Steering Committee Technical Site Visit 28 September 2022
4.	Kuala Lumpur City Hall, Kuala Lumpur	3.13269	101.68549	12231269	IDB Talk: Kuala Lumpur Sebagai Bandar Pintar Bertaraf Dunia 12 September 2022
5.	Hotel Istana, Kuala Lumpur	3.1504	101.7119	6475514	Cities 4.0 2022 20-21 September 2022
6.	Persada, Johor Bahru	1.5141	103.75252	1732751	Johor Smart City Forum 2023 12-14 June 2023
7.	Bangi, Selangor	2.9584	101.7655	6464595	Forum on the Blueprint/Smart

					City Action Plan Preparation 2022 4-5 October 2022
8.	Shah Alam, Selangor	3.08507	101.53281	1732903	Malaysia Urban Forum – Side Event: The Metaverse and How we Build it Together. 17 October 2022 Workshop Preparation for Shah Alam Smart City Action Plan 2023 – 2030 29 March 2023
9.	Georgetown	5.518523,	100.817415	6469343	Workshop on the Development of Standard: Draft Malaysia Standard (DMS) 2770: Smart Cities Vocabulary 27– 28 October 2022
10.	Premier Hotel, Klang	2.99046	101.44753	9950959	Workshop on Smart City Action Plan of Majlis Perbandaran Klang 10 November 2022
11.	Palm Garden Hotel, Putrajaya	2.970535	101.709612	1996552	APT Regional Workshop on Smart City Platform 1 December 2022
12.	KMB 5MW Solar Power Plant	2.3398619356 36714	102.21673659 059783	1734749	Malaysia , Melaka Alor Gajah and 5MW ground mounted solar farm.
13	Gading Kencana 8 MW Ayer Keroh Solar Power Plant	2.2936727633 61673,	102.34268335 98393	7797837	Malaysia , Melaka Melaka Tengah and 8MW ground mounted solar farm.
14	50MW Quantum Solar Park (Melaka)Sdn. Bhd	2.2918571373 734613	102.36389221 887981	1779926	Malaysia , Melaka Jasin and 50 MW ground mounted solar farm.
15	30kW Solar Rooftop MBMB	2.233641	102.280490	12231235	Malaysia , Melaka Melaka Tengah and 30kW Solar Rooftop

16.	100kW Solar Rooftop MPAG	2.3860510997 428688	102.21505107 21622	12231185	Malaysia , Melaka Alor Gajah and 100kW Solar Rooftop
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Please provide any further geo-referenced information and map where the project interventions is taking place as appropriate.



EXPLANATORY NOTE

1. **Timing & duration:** Each report covers a twelve-month period, i.e. 1 July 2022 – 30 June 2023.
2. **Responsibility:** The responsibility for preparing the report lies with the project manager in consultation with the Division Chief and Director.
3. **Evaluation:** For the report to be used effectively as a tool for annual self-evaluation, project counterparts need to be fully involved. The (main) counterpart can provide any additional information considered essential, including a simple rating of project progress.
4. **Results-based management:** The annual project/programme progress reports are required by the RBM programme component focal points to obtain information on outcomes observed.

Global Environmental Objectives (GEOs) / Development Objectives (DOs) ratings	
Highly Satisfactory (HS)	Project is expected to achieve or exceed <u>all</u> its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as "good practice".
Satisfactory (S)	Project is expected to <u>achieve most</u> of its <u>major</u> global environmental objectives, and yields satisfactory global environmental benefits, with only minor shortcomings.
Moderately Satisfactory (MS)	Project is expected to <u>achieve most</u> of its major <u>relevant</u> objectives but with either significant shortcomings or modes overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environmental benefits.
Moderately Unsatisfactory (MU)	Project is expected to achieve <u>some</u> of its major global environmental objectives with major shortcomings or is expected to <u>achieve only some</u> of its major global environmental objectives.
Unsatisfactory (U)	Project is expected <u>not</u> to achieve <u>most</u> of its major global environmental objectives or to yield any satisfactory global environmental benefits.
Highly Unsatisfactory (HU)	The project has failed to achieve, and is not expected to achieve, <u>any</u> of its major global environmental objectives with no worthwhile benefits.

Implementation Progress (IP)	
Highly Satisfactory (HS)	Implementation of <u>all</u> components is in substantial compliance with the original/formally revised implementation plan for the project. The project can be presented as "good practice".
Satisfactory (S)	Implementation of <u>most</u> components is in substantial compliance with the original/formally revised plan except for only few that are subject to remedial action.
Moderately Satisfactory (MS)	Implementation of <u>some</u> components is in substantial compliance with the original/formally revised plan with some components requiring remedial action.
Moderately Unsatisfactory (MU)	Implementation of <u>some</u> components is <u>not</u> in substantial compliance with the original/formally revised plan with most components requiring remedial action.
Unsatisfactory (U)	Implementation of <u>most</u> components in <u>not</u> in substantial compliance with the original/formally revised plan.
Highly Unsatisfactory (HU)	Implementation of <u>none</u> of the components is in substantial compliance with the original/formally revised plan.

Risk ratings	
Risk ratings will assess the overall risk of factors internal or external to the project which may affect implementation or prospects for achieving project objectives. Risk of projects should be rated on the following scale:	
High Risk (H)	There is a probability of greater than 75% that assumptions may fail to hold or materialize, and/or the project may face high risks.
Substantial Risk (S)	There is a probability of between 51% and 75% that assumptions may fail to hold or materialize, and/or the project may face substantial risks.
Moderate Risk (M)	There is a probability of between 26% and 50% that assumptions may fail to hold or materialize, and/or the project may face only moderate risk.
Low Risk (L)	There is a probability of up to 25% that assumptions may fail to hold or materialize, and/or the project may face only low risks.