Terminal Evaluation

Green Technology Application for the Development of Low Carbon Cities Project (GTALCC)

(GEF Project ID: 5329 – UNDP PIMS ID: 4283)

Evaluation Timeframe: October 2021 – January 2022

Malaysia
GEF 5; GEF Climate Change Mitigation; CC-4 (Promote Energy Efficient, Low-Carbon Transport and Urban Systems)

Executing Agency: UNDP
Implementing Partner: Ministry of Environment and Water
Other Project Partners: Sustainable Energy Development Authority Malaysia (SEDA)

Final Report

Prepared for

UNDP MALAYSIA

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Document Sign-off
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In particular, the TE team would also like to thank the staff of the Ministry of Environment and Water (KASA), the Ministry of Energy and Natural Resources (KeTSA), the Sustainable Energy Development Authority of Malaysia (SEDA) and the United Nations Development Programme (UNDP) Country Office for providing a comprehensive compilation of relevant project documents, as well as for their cooperation and support to the TE team in finalising well-organised meeting schedules and visit itineraries for the evaluation mission, which met a wide range of project partners, participating cities and other government and private sector stakeholders.

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Acronyms and Abbreviation

APAD	Agensi Pengangkutan Awam Darat, Land Public Transport Agency
AWP	Annual Work Plan
BEMRS	Building Energy Monitoring & Reporting System
CASBEE	Comprehensive Assessment System for Built Environment Efficiency
CEO ER	CEO Endorsement Request
CETDEM	Centre for Environment, Technology and Development, Malaysia
CIRIS	City Inventory Reporting and Information System
CSP	Continuity and Sustainability Plan
EOP	End of Project
EPU	Economic Planning Unit (EPU), International Coop. Division
ER	Emission Reduction
GE	General Election
GEF	Global Environment Facility
GeRAK	Low Carbon Catalyst Grant
GHG	Greenhouse Gas
GHG Portal	City Greenhouse Gas Emission Inventory Reporting System
GNG	Green Neighbourhood Guideline
GPC	Global Protocol for Community-Scale Greenhouse Gas Emission Inventories
GTALCC	Green Technology Application for the Development of Low Carbon Cities
IEO	Independent Evaluation Office
IFLCC	Institutional Framework for Low Carbon Cities
IMBRT	Iskandar Malaysia Bus Rapid Transit
IMELC	Iskandar Malaysia Eco-life Challenge
IMT-GT	Indonesia Malaysia-Thailand Growth Triangle
IPMVP	International Performance Measurement and Verification Protocol
IRDA	Iskandar Regional Development Authority
JKPPP	Jawatankuasa Pelaksanaan dan Pemantauan Projek, Project Implementation and Monitoring Committee
JKR	Jabatan Kerja Raya, Kementerian Kerja Raya - Public Works Department, Ministry of Works
JPBD	Jabatan Perancangan Bandar dan Desa, PLANMalaysia
JPSPN	Jabatan Pengurusan Sisa Pepejal Negara, National Solid Waste Management Department
KASA	Kementerian Alam Sekitar and Air, Ministry of Environment and Water
KeTSA	Kementerian Tenaga dan Sumber Asli, Ministry of Energy and Natural Resources
KPKT	Kementerian Perumahan dan Kerajaan Tempatan, Ministry of Housing and Local Government
KWP	Kementerian Wilayah Persekutuan, Ministry of Federal Territories
LCC	Low Carbon City
LCCF	Low Carbon Cities Framework and Assessment System
LCMB	Low Carbon Mobility Blueprint
LCS	Low Carbon Society
LCSBPIM	Low Carbon Society Blueprint for Iskandar Malaysia
M&E	Monitoring and Evaluation
MBMB	Majlis Perbandaran Melaka Bersejarah, Melaka Historic City Council
MBPJ	Majlis Perbandaran Petaling Jaya, Petaling Jaya Municipal Council
MCO	Movement Control Order
MEA	Ministry of Economic Affairs
MESTECC	Ministry of Energy, Science, Technology, Environment and Climate Change
MGTC	Malaysian Green Technology and Climate Change Corporation
MIP	Malaysian Institute of Planners
MOT	Ministry of Transport, Kementerian Pengangkutan
MP	Malaysia Plan
MP Sepang	Majlis Perbandaran Sepang, Sepang Municipal Council
MPHTJ	Majlis Perbandaran Hang Tuah Jaya, Hang Tuah Jaya City Council

MRT	Mass Rapid Transit
MTR	Mid-term Review
MyL3C	Malaysia Low Carbon Cities Conference
MySDG Fund	Malaysia Sustainable Development Goals Trust Fund
NLCCM	National Low Carbon City Masterplan
NSC	National Steering Committee
PIR	Project Implementation Report
PMU	Project Management Unit
PPJ	Perbadanan Putrajaya, Putrajaya Corporation
ProDoc	Project Document
PTC	Project Technical Committee
PTHM	Perbadanan Teknologi Hijau Melaka, Melaka Green Technology Corporation
SEDA	Sustainable Energy Development Authority Malaysia, Pihak Berkuasa Pembangunan Tenaga Lestari
SMART	Specific, Measurable, Attributable, Realistic/Relative, Timebound
ST	Suruhanjaya Tenaga, Energy Commission
TE	Terminal Evaluation
TOR	Terms of Reference
UNDP	United Nations Development Programme
UPEN Johor	Unit Perancang Ekonomi Negeri Johor, Johor State Economic Planning Unit
UPEN Melaka	Unit Perancang Ekonomi Negeri Melaka, Melaka State Economic Planning Unit
UPEN Selangor	Unit Perancang Ekonomi Negeri Selangor, Selangor State Economic Planning Unit
UTM	University of Teknologi Malaysia
WFH	Work From Home
WUF	World Urban Forum

1 EXECUTIVE SUMMARY

Table 1-1 – Project Information

Project Details		Project Milestones	
Project Title	Green Technology Application for the Development of Low Carbon Cities (GTALCC)	PIF Approval Date	Jun 20, 2013
UNDP Project ID (PIMS#)	4283	CEO Endorsement Date	Apr 14, 2015
GEF Project ID	5329	ProDoc Signature Date	Jun 1, 2016
UNDP Atlas Business Unit, Award ID, Project ID		Date Project Manager Hired	May 1, 2017
Country	Malaysia	Inception Workshop Date	Nov 8, 2016
Region		Mid-Term Review Completion Date	July 2019
Focal Area	Climate Change	Terminal Evaluation Completion Date	March 2022
GEF Operational Programme or Strategic Priorities/ Objectives		Planned Operational Closure Date	June 1, 2022
Trust Fund	GEFTF		
Implementing Partner (GEF Executing Entity)	Ministry of Environment and Water (KASA)		
NGOs/CBO Involvement	Centre for Environment, Technology and Development, Malaysia (CETDEM), Environmental Protection Society Malaysia (see Section 4.1.4 for more details)		
Private Sector Involvement	Mass Rapid Transit (MRT) Corporation, Petronas-ROVR, Scania Malaysia (see Section 4.1.4 for additional private sector organisations and more details)		
Geospatial coordinates of project sites			

Financial Information		
PDF/PPG	**At approval (USD)**	**At PDF/PPG completion (USD)**
GEF PPG grants for project preparation	100,000	100,000
Co-financing for project preparation	0	0
Project	**At CEO Endorsement (USD)**	**At TE (USD)**
[1] UNDP Contribution	354,000	59,660
[2] Government	55,258,266	48,123,133
[3] Other multi-/bi-laterals	0	0
[4] Private Sector	0	0
[5] NGOs	0	0
[6] Total co-financing [1+2+3+4+5]	55,612,266	48,182,793
[7] Total GEF funding	4,354,794	4,354,794
[8] Total Project Funding [6+7]	**59,967,060**	**52,537,587**

Project Description

The Green Technology Application for the Development of Low Carbon Cities (GTALCC) project was developed by UNDP and funded by the Global Environment Facility (GEF). The GTALCC project was implemented by the Malaysian Ministry of Environment and Water (KASA) with the Sustainable Energy Development Authority Malaysia (SEDA) as the lead consultant agency. The GTALCC project aims to reduce the growth rate of greenhouse gas (GHG) emissions from cities in Malaysia. The overall objective of the project is to facilitate the implementation of low carbon development initiatives in at least five Malaysian cities and present a clear and integrated approach to low carbon urban development.

The GTALCC project is the first of its kind in Malaysia. It promotes an integrated and holistic approach to urban development planning and is structured into three components.

- **Component 1: Policy support for the promotion of integrated low carbon urban development**, which will enable cities to implement and adopt integrated low carbon urban development plans and programmes
- **Component 2: Awareness and institutional capacity development**, which will expedite appraisal, approval and the implementation of strategic urban development and ensure cities are aware of and planning and implementing low carbon technology applications
- **Component 3: Low carbon technology investments in cities**, where there is an increase in investment in low carbon technologies with more low carbon projects implemented.

The project is implemented over 60 months and is expected to generate direct GHG emission reductions of 346,442 tCO_2eq by End-of-Project (EOP) and 2,152,032 tonnes CO_2eq over the lifetime of project investment. The Project will also strengthen national planning systems broadly, which is expected to present economic benefits. The Project will boost investor confidence and generate lessons and knowledge on promoting and applying green technologies and integrated urban systems.

Purpose and Methodology of Terminal Evaluation

The Terminal Evaluation (TE) aims to assess the achievement of project results against expectations and to draw lessons that can improve the sustainability of benefits from this project and contribute to the overall improvement of UNDP programming. The findings of the TE report will help to promote accountability and transparency and assess the extent of project accomplishments. The UNDP Country Office will use the TE findings to draw lessons that can help improve the selection, design and implementation of future UNDP-supported initiatives.

The overall approach and methodology for the TE exercise follows relevant UNDP and GEF guidelines. The assessment and evaluation methodology will use a combination of qualitative and quantitative evaluation methods and will rely on evidence-based information and analysis of documents produced under the project. The TE was conducted in the midst of the COVID -19 pandemic in Malaysia. As travel restrictions and quarantine regulations were in place, the TE team relied mainly on reports and documents provided by the GTALCC project team and UNDP. These secondary sources were complemented by the results of interviews with local stakeholders organised by the GTALCC project team at a central location with the participation of the national evaluator, as well as field visits.

In assessing outputs and outcomes, the evaluation referred to the Project Logical Framework, that indicates success indicators and targets as shown in Appendix D). Rating of specific project elements is carried out according to the evaluation criteria and the rating scales listed in Appendix J.

Summary of Evaluation

The GTALCC project was designed to remove key barriers on 1) incomplete policy and regulatory framework to promote low carbon planning and development, especially at the sub-national level; 2) lack of awareness and institutional capacity for evidence-based low carbon planning at the sub-national level; and 3) lack of capacity of cities to mobilise finance and incentives and availability of financial mechanisms to promote low carbon investments. The GTALCC project is consistent with the country's priorities according to the 10th, 11th and 12th Malaysia Plans. The project outcomes are found to be relevant to the national, regional and local development priorities and policies, the GEF focal areas/ operational programme strategies, and the UNDP country programme for Malaysia 2016 – 2020, and its relevance has been confirmed by the government and private sector stakeholders interviewed by the TE team.

The practise of adaptive management was used in project implementation, which is reflected throughout the project. The implementation of the M&E system for the project met progress and financial reporting requirements, including timeliness of reports. The project used feedback from the M&E system, such as progress reports, project implementation review (PIR) and an MTR report, to adjust the project implementation approach and improve project performance. The project team (SEDA) and UNDP have collaborated regularly to ensure the effectiveness of project management and implementation. All five participating cities that were foreseen in the planning phase have participated in the implementation phase. Regular meetings of the National Steering Committee (NSC) and the Project Technical Committee (PTC) have been crucial in maintaining effective project management and inter-ministerial coordination, even during the pandemic COVID -19.

The project is considered efficient in terms of the use of financial resources to deliver outputs and outcomes. The project management structure described in ProDoc is considered efficient in achieving the expected results. However, the Malaysian government introduced the MCO and WFH measures in 2020 and 2021, resulting in unintended cost savings, and it is unlikely that the project will achieve its disbursement target by June 2022. As of June 2021, the project had cumulative expenditures of 56.76% and a balance of US$1,883,178. The Project Implementation Report (PIR) dated September 2021 shows that while activities are on track, financial expenditures are far behind plan, mainly due to the inability to travel, hold physical events and engage with stakeholders. Planned physical meetings and engagements were replaced by online platforms, which also resulted in additional cost savings for the project. The level of co-financing for the project at the end of 2021 is USD 292,227,133, significantly higher than the indicative level at project approval of USD 55,612,266. The significant increase in co-financing is due to the development cost of one billion Malaysian Ringgit reported by Iskandar Malaysia for the Bus Rapid Transit..

The GTALCC project has made significant progress toward its expected outcome. The target level of each indicator under all the project outcomes was met. However, the project has faced a challenge in accounting for the direct emission reduction due to the delays in implementation of the two important projects, IMBRT and the cycling pathway in Putrajaya. The actual low carbon investments during the project period will generate about 2,300 tCO2eq which will be far below the direct emission reduction target of 346,442 tCO2eq, as stated in ProDoc. Considering that GEF has not given any clear guidance on how to estimate emission reductions when an investment is committed but delayed beyond the project period, indirect emission reductions could be considered as an alternative to measuring the extent to which the project meets its objective.

The National Low Carbon City Masterplan (NLCCM) is regarded by all government and private sector stakeholders interviewed as the greatest achievement of the GTALCC project. Its relevance to the low carbon development in Malaysia has been reinforced by the statement of the Malaysian

Government during COP 26 in achieving zero waste and transforming cities to a low carbon pathway with NLCCM.

In terms of sustainability of financial resources for future low carbon investments, GTALCC has shifted its focus from developing a proposal for international funding from NAMA, GEF or GCF for future low carbon investments in cities to relying on government budget and relevant financial action items as outlined in NLCCM. However, funding for environmental programmes in Malaysia is generally limited, and most of the 154 local authorities require grants and subsidies from the Federal and State agencies to improve environmental outcomes. While low carbon investments in the 5 participating cities are expected to continue through their self-drive, motivation and capacities strengthened by GTALCC, replicating low carbon initiatives in the remaining local authorities will require financial support from the Federal government, especially those with a small tax and non-tax revenue base.

The project has succeeded in improving the institutional framework for low-carbon investment and greenhouse gas accounting and reporting in the 5 participating cities. The Malaysia Green Technology and Climate Change Corporation (MGTC) was appointed as the focal agency for the implementation of the NLCCM. However, the structure of the MGTCC as a company limited by guarantee (CLBG) is a cause for concern. The implementation of the measures described in the NLCCM often falls under the responsibility of ministries or government agencies. Without its own legal powers, the MGTC must rely on the KASA, KeTSA and MHLG authorities to implement the measures. It has the technical capacity for low-carbon action, but may not have the 'governing power' to promote the sustainability of GTALCC outcomes.

The GTALCC project has focused on the three key sectors critical to the low carbon pathway, namely transport, waste and energy. Several knowledge products on different topics in these 3 key sectors have been produced and disseminated to specific target groups in the low carbon cities sector. The project has used its information sharing platforms (e.g. www.gtalcc.gov.my, www.ghgportal.my) and the events it has organised or participated in to disseminate the information from the knowledge products. One of the events was the Asia Pacific Urban Forum, where GTALCC was an event partner with a stand and took centre stage slot to provide information about the GTALCC project and its initiatives: https://www.apuf7.org/all-events/seda

Ratings of the specific project elements are summarised in Table 1-2.

Table 1-2 – Summary of Evaluation Ratings

1. Monitoring & Evaluation (M&E)	**Rating**
M&E design at entry	Satisfactory (S)
M&E Plan Implementation	Satisfactory (S)
Overall Quality of M&E	Satisfactory (S)
2. Implementing Agency (IA) Implementation & Executing Agency (EA) Execution	**Rating**
Quality of UNDP Implementation/Oversight	Satisfactory (S)
Quality of Implementing Partner Execution	Satisfactory (S)
Overall Quality of Implementation/Oversight and Execution	Satisfactory (S)
3. Assessment of Outcomes	**Rating**
Relevance	Highly Satisfactory (HS)
Effectiveness	Moderately Satisfactory (MS)
Efficiency	Moderately Satisfactory (MS)
Overall Project Outcome Rating	Moderately Satisfactory (MS)

4. Sustainability	Rating
Financial sustainability	Moderately Likely (ML)
Socio-political sustainability	Moderately Likely (ML)
Institutional framework and governance sustainability	Moderately Unlikely (MU)
Environmental sustainability	Moderately Likely (ML)
Overall Likelihood of Sustainability	Moderately Likely (ML)

Summary of Findings and Conclusions

The GTALCC project is considered effective in removing the barriers to transforming Malaysian cities into low carbon cities. More information on the extent to which the identified barriers have been removed is given in Appendix L. The project has achieved most of its outcomes. The National Low Carbon Cities Masterplan (NLCCM) prepared by the project and approved by the Government of Malaysia is recognised as the project's most significant achievement and it will guide agencies and authorities at Federal, State, and local levels in supporting low carbon investments to meet the carbon reduction targets. There is an increased awareness of low carbon actions and implementations through NLCCM and communication and outreach activities supported by the project. The five participating cities have all actively participated in the project with a high level of ownership.

Although the formal adoption of NLCCM by the Malaysian Government has somehow assured sustainability of the low carbon cities programme in Malaysia, its sustainability could be further enhanced through the establishment of additional financial mechanisms which could provide alternatives for cities to finance their low carbon investments. Regarding NLCCM implementation, the Malaysian Green Technology and Climate Change Corporation (MGTC) has been entrusted with rolling out the Masterplan. While MGTC has the technical capacity for low carbon measures, implementation of NLCCM often falls under the responsibilities of ministries or government agencies, and MGTC has to rely on other agencies and authorities to implement specific actions to achieve the required outcomes. In addition, a more solid vertical linkage between State entities and dedicated divisions in the local authorities will be necessary to ensure the successful implementation of NLCCM.

Key Lessons Learned

1. For the GTALCC project, the Sustainable Energy Development Authority Malaysia (SEDA) was appointed to manage and deliver project activities on behalf of the Government of Malaysia. The status of SEDA as a statutory body formed under the Sustainable Energy Development Authority Act 2011 has developed, to a certain extent, an immunity to political instability at the Federal level in Malaysia. UNDP could consider this arrangement for countries where political changes are foreseen during project implementation.

2. A review of performance indicators should have been carried out in a well-balanced manner. The revised project performance indicators proposed by MTR have introduced greater clarity to the targets for achievement and facilitated better project performance. However, there was little correlation between the quantity of the target achievements at the outcome level and the amount of GHG emission reduction at the objective level. As a result, the GTALCC project is not able to meet the target achievement for direct emission reduction due to the delayed operational milestones of only a few investment projects, namely, IMBRT and the bicycle pathway in Putrajaya. As such, a pragmatic and sensible assessment of the indicators should be done to ensure performance targets are achievable.

3. Although the GTALCC project has undertaken some initiatives on ensuring gender balance in all its activities and has made a conscious effort to ensure that women participate in its communication and outreach activities, such as the MyL3C conference, GTALCC does not have a dedicated gender expert to support the project management unit and participating cities in designing and implementing low carbon activities and investments in a gender-sensitive manner.

Recommendations

The proposed recommendations, summarised in Table 1-3, aim to ensure timely completion and quality of the remaining project deliverables, sustain the GTALCC project's impacts after EOP, and promote effective implementation of NLCCM in the long term.

Table 1-3 – Proposed Recommendations

Rec#	TE Recommendation	Entity Responsible	Timeframe
1	Extend the project completion date to ensure robust impact measurements of project activities under the Continuity and Sustainability Plan and low carbon investment projects under Component 3	GTALCC Project Management Unit	Throughout 2022
2	Continue populating data for the City Greenhouse Gas Emission Inventory Reporting System	GTALCC Project Management Unit/ 5 Participating Cities	Until June 2022
3	Enhance awareness and knowledge on gender mainstreaming with provision of technical assistance	UNDP/ GTALCC Project Management Unit	Throughout 2022
4	Strengthen the Implementation Mechanisms of the NLCCM	MGTC and Plan Malaysia	Until June 2022
5	Communicate the NLCCM at the State Planning Committee Meetings	MGTC and Plan Malaysia	Throughout 2022
6	Expedite the creation of an alternative funding scheme to finance LC initiatives at the local government level	Ministry of Finance, MGTC and UNDP	Until 2023
7	Accelerate peer-to-peer learning by creating planning tools for local authorities	KPKT and UNDP	Throughout 2022
8	Enhance the expertise and professional competency on low carbon approaches	Public Service Department, KASA and Human Resource Ministry	Throughout 2022

2 INTRODUCTION

This Terminal Evaluation (TE) Report is part of the requirements of the evaluation process under the United Nations Development Programme (UNDP) Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects. The project under evaluation is the Green Technology Application for the Development of Low Carbon Cities (GTALCC) project, funded by the Global Environment Facility (GEF) and implemented by the Malaysian Ministry of Environment and Water (KASA) with the Sustainable Energy Development Authority Malaysia (SEDA) as the lead consulting agency.

2.1 EVALUATION PURPOSE

The aim of TE is to assess the achievement of project results against expectations and to draw lessons that can both improve the sustainability of benefits from this project and contribute to the overall enhancement of UNDP programming. The findings of the TE report help to promote accountability and transparency and assess the extent of project accomplishments. The results of TE will be used by the UNDP Country Office to draw lessons that can help improve the selection, design and implementation of future UNDP-supported initiatives.

2.2 SCOPE OF THE EVALUATION

This TE covers the following three main areas/aspects of the GTALCC project: Project Design/Formulation; Project Implementation; and Project Results & Impacts. The evaluation period is from June 2016 to January 2022, with a projection of project progress to impact up to June 2022.

It should be noted that Theory of Change, Gender Equality and Women's Empowerment, and Social and Environmental Safeguards (SES) were not prescribed in the UNDP Project Document (ProDoc) and GEF CEO ER templates used during the project development phase. Therefore, these aspects were not included in the ProDoc. In light of this, the TE team identifies and evaluates the results related to gender equality and women's empowerment and SES during the implementation and monitoring and evaluation of activities. Aspects of gender evaluation include equal opportunities for women and men in terms of participation and decision-making, the collection of sex-disaggregated data and information on gender, and the use of gender-sensitive indicators.

2.3 METHODOLOGY

The overall approach and methodology for the TE exercise comply with the Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects, the GEF Evaluation Policy and Minimum Requirements, the TOR (**Appendix A**) and the approved Inception Report. The TE is also in line with the updated GEF Evaluation Policy approved in June 2019, which sets out the guiding principles and minimum requirements for the evaluation. The assessment and evaluation methodology will use a combination of qualitative and quantitative evaluation methods and will rely on evidence-based information and analysis of documents produced by the project.

The TE team relied primarily on reports and documents provided by the GTALCC project team and UNDP through a cloud server. However, the stakeholder meetings and field visits are crucial to the data collection process as they serve to verify these basic facts, obtain missing data and get further opinions from respondents to interpret the facts. The meetings and interviews help the TE team to obtain detailed information about impressions and experiences and to explore opinions and perceptions about the project.

The TE was conducted in Malaysia during the pandemic COVID -19 and travel restrictions and quarantine regulations were still in place. In view of this, most of the interviews with local stakeholders were arranged by the GTALCC project team at a central location with the participation of the national evaluator. The lead evaluator also participated remotely via online sessions. Note that the interviews followed a semi-structured interview format guided by a matrix of questions covering each of these criteria (as shown in **Appendix H**). In addition to the meetings at the central location, the national evaluator also travelled to the participating cities to visit the low-carbon project sites, talk to local stakeholders and gather additional information. The detailed mission plan for the TE, the people interviewed and the project sites visited are listed in **Appendix E**.

In assessing outputs and outcomes, the evaluation referred to the Project Logical Framework that indicates success indicators and targets as shown in **Appendix D**. While there were no changes in the targeted outcomes, the activities and results of the project were updated in June 2019 as approved by the NSC and reported in the minutes of the NSC 1/2019 meeting. The rating of each project element will be carried out in accordance with the evaluation criteria and rating scales indicated in the UNDP guidelines mentioned above. The ratings will be determined based on the reporting of the project progress and the analysis of the achievement of the End-of-Project (EOP) targets carried out by the TE team and compared with the mission observations (stakeholder interviews with stakeholders and field visits) and information provided in the project technical reports and policy and background documents.

The TE was also conducted in accordance with the principles set out in the United National Evaluation Group's (UNEG) "Ethical Guidelines for Evaluations". The signed Code of Conduct is attached as **Appendix I.**

2.4 Data Collection and Analysis

Relevant reports and documents had been compiled by the project team and UNDP, and these are available for the TE team through a shared Google drive[1]. The TE team also visited the GTALCC project website (http://gtalcc.gov.my/), the City Greenhouse Gas Emission Inventory Reporting System (https://www.ghgportal.my/), and various internet resources managed by the participating cities to review and collect additional data. Findings from the stakeholder interviews and site visits were consolidated by the TE team, and validity and reliability of data and information were ensured through triangulation of various information sources. The full list of documents and findings from stakeholders' interviews and site visits are provided in **Appendix F and G** respectively.

2.5 Limitations

As mentioned earlier, this TE exercise was conducted during the COVID -19 pandemic in Malaysia (and worldwide). Therefore, most of the meetings and interviews were held through online platforms. Although virtual meeting technologies have greatly improved over the past two years (during the pandemic), there are still limitations that affect the effectiveness of these virtual meeting platforms, e.g. the quality of internet connection can greatly affect the clarity of communication during online interviews. The pandemic also affects the timing of the national evaluator's field visits, as the availability of responsible staff in participating cities is affected by the Work from Home (WFH) order. While WFH has delayed data collection and validation, it has not compromised the review of evidence and documents by TE.

[1] https://drive.google.com/drive/folders/1kVThdhUGMg2VHazfAm6uDghG0zT1_34o

2.6 STRUCTURE OF THE TE REPORT

This TE report contains the executive summary, report body and appendices. The report contents are structured around the following main sections:

- Executive Summary;
- Introduction;
- Project Description;
- Findings with descriptive assessment and rating given for specific project elements. The assessment covers the following aspects: Project Design/Formulation, Project Implementation, and Project Results;
- Main Findings, Conclusions, Recommendations & Lessons; and
- Appendices.

Appendices at the end of the report include but are not limited to terms of reference (TOR), CVs of the evaluation team, co-financing table, project results framework, detailed mission plan and persons interviewed, the document reviewed, a summary of site visits, evaluation question matrix, and other relevant detailed assessment results.

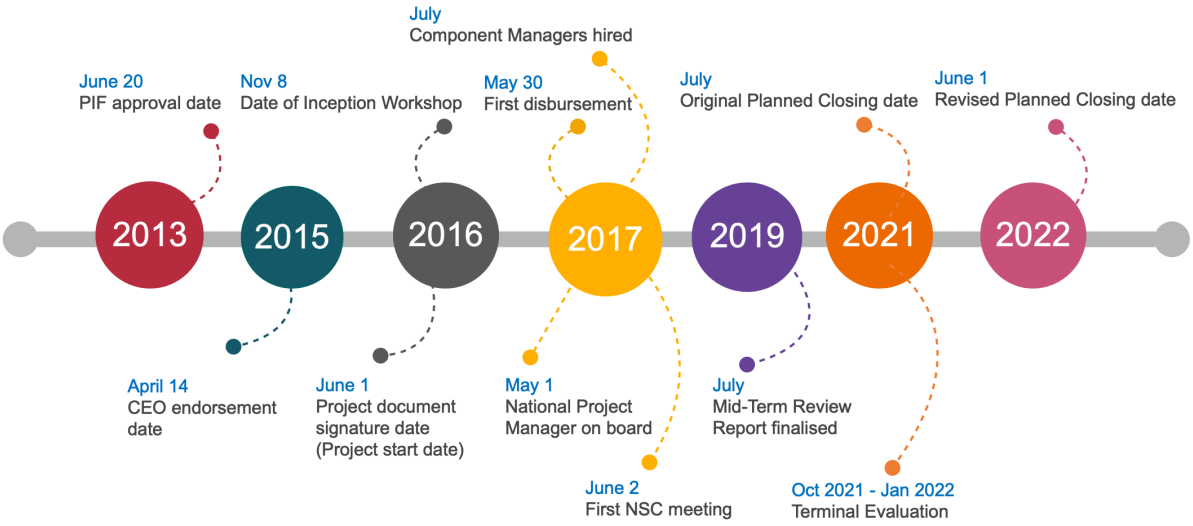
3 PROJECT DESCRIPTION

The Green Technology Application for the Development of Low Carbon Cities (GTALCC) project was developed by UNDP and funded by the Global Environment Facility (GEF). The GTALCC project has been implemented through the Ministry of Environment and Water Malaysia (KASA) with the Sustainable Energy Development Authority Malaysia (SEDA) as the lead consultant agency.

3.1 KEY PROJECT MILESTONES

The GTALCC project has a total project duration of 60 months. A summary of project development and key implementation milestones is shown below:

Figure 3-1 – Key Project Milestones/Events



The TE covers the duration from the project start date up to the revised operational closure date of June 1, 2022. Following the finalisation of the TE report, the project shall be continued to complete the remaining and updated project activities up to the new closure date of June 1, 2022.

3.2 DEVELOPMENT CONTEXT

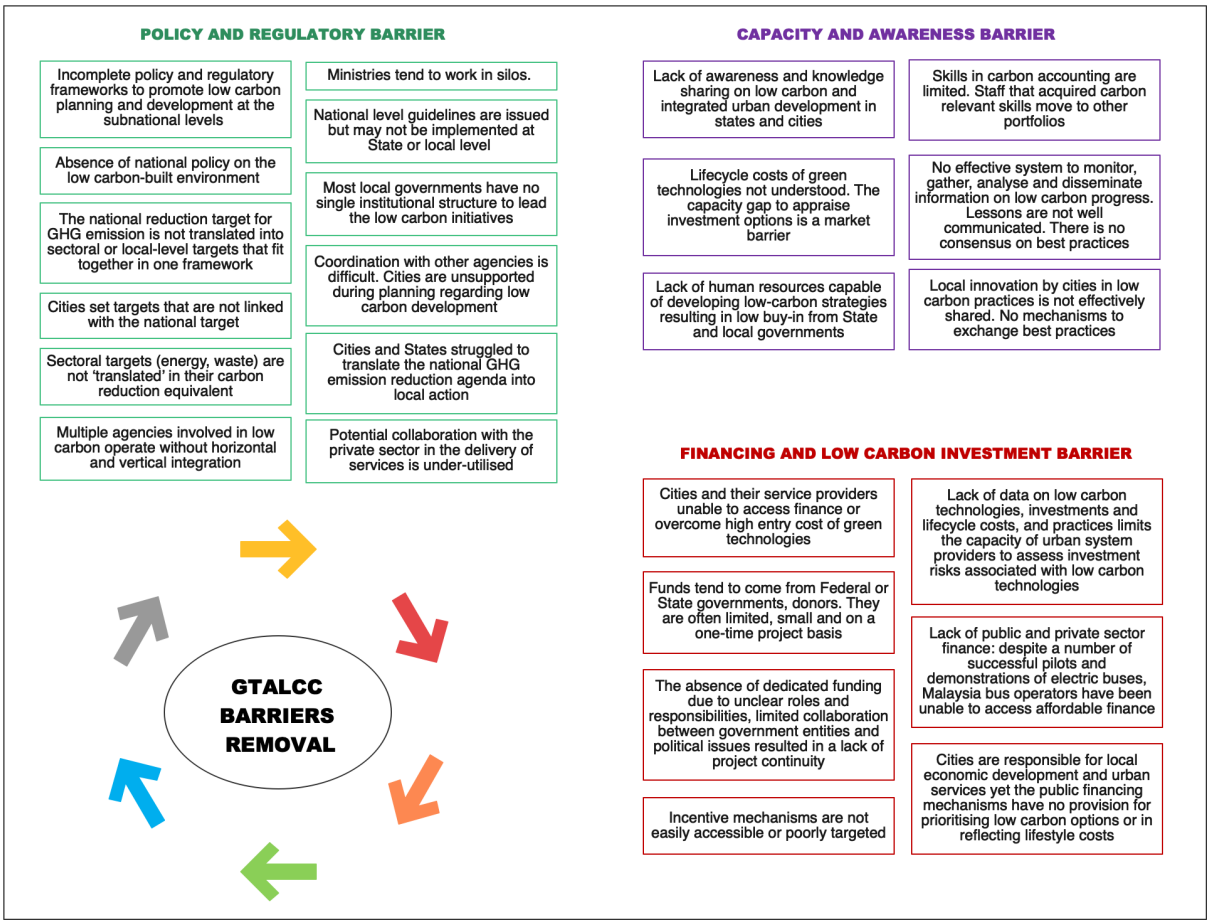
Malaysia is one of the fastest urbanising countries in Asia, with more than 75% (as of 2020) of the population living in urban areas. Greenhouse gas emissions from Malaysian cities are a serious concern for long-term sustainability and competitiveness. The majority of urban emissions are energy-related, and Malaysia's economy, buildings and transport sector are relatively energy-intensive. Waste management is increasingly becoming a problem for cities as space for landfills and treatment systems becomes scarce. Increasing urban sprawl and rising incomes are putting further pressure on city authorities, and emissions will continue to rise. Behind this urban sprawl is the ongoing development of new, mostly rural areas for new low-density residential and commercial developments. While local planning and development drives these issues, urban emissions are also dependent on various contextual factors, including urban form, local climate, building design and technology, transport modes and income levels.

Malaysia has made low carbon development a key feature of its development agenda. The Tenth and Eleventh Malaysia Plans (2011-2015 and 2016-2020, respectively) form the country's comprehensive blueprint and set forth the country's overarching strategy for low carbon development and sustainable urban development. The 11th Plan targets a 40% reduction in GHG emission intensity of GDP (compared to 2005 levels) and a 22% recycling rate of household waste.

3.3 Problems That the Project Sought to Address

The project followed a barrier removal approach. The following are the major barriers identified during the project's design stage (2012 to 2015), and project activities were designed to address these barriers.

Figure 3-2 – Key Barriers to Low Carbon Investments in Malaysian Cities



3.4 Immediate and Development Objective

The GTALCC project aims to reduce the growth rate of GHG emissions from cities in Malaysia. The project's overall objective is to facilitate the implementation of low carbon development initiatives in at least 5 Malaysian cities and present a clear and integrated approach to low carbon urban development. This objective will address the key barriers to integrated low-carbon urban planning and development identified above.

3.5 DESCRIPTION OF PROJECT

The GTALCC project is structured into the following three components:

1) **Component 1: Policy support for promoting integrated low carbon urban development**, which will enable cities to implement and adopt integrated low carbon urban development plans and programmes.
2) **Component 2: Awareness and institutional capacity development**, which will expedite appraisal, approval and the implementation of strategic urban development, and esure cities are aware of and planning and implementing low carbon technology applications.
3) **Component 3: Low carbon technology investments in cities**, where there is an increase in investment in low carbon technologies with more low carbon projects implemented.

The outcomes and outputs under each component, as revised following the MTR recommendations, are shown in Table 3-1. Success indicators of the project are shown in the project results framework as shown in **Appendix D**.

Table 3-1 – Components, Outcomes and Outputs of GTALCC

Outcome	Output
Component 1: Policy support for the promotion of integrated low carbon urban development GEF budget: USD 988,351	
Outcome 1.1: Major cities implemented and adopted integrated low carbon urban development plans and/or programmes	Output 1.1.1: Formulated and adopted framework and coordination mechanism for low-carbon urban planning Output 1.1.2: Established GHG accounting framework and decision-making tools for national and sub-national levels Output 1.1.3: Formulated and adopted low carbon development and investment plans for cities
Component 2: Awareness and institutional capacity development GEF budget: USD 997,202	
Outcome 2.1: Expedient appraisal, approval, and implementation of strategic urban development plans/programme and projects	Output 2.1.1: Strengthened operational coordination mechanism for effective implementation of low carbon city policy
Outcome 2.2: Major cities are aware of, and are planning and implementing low carbon technology applications for integrated urban development	Output 2.2.1: Complete training programmes for policy decision-makers, local governments, green practitioners and financing institutions on strategic urban planning processes for low carbon and climate resilient development Output 2.2.2: Operational knowledge management systems for low carbon city development
Component 3: Low-carbon technology investments in cities GEF budget: USD 2,162,199	
Outcome 3.1: Increased investments in low carbon technology applications in cities	Output 3.1.1: Leveraged investments in low carbon projects and initiatives
Outcome 3.2: More low carbon projects implemented in Malaysian cities	Output 3.2.1: Low carbon transport projects and initiatives Output 3.2.2: Low carbon energy project and initiatives Output 3.2.3: Low carbon waste management projects and initiatives
Project management GEF Budget: USD 207,042	
TOTAL GEF budget: USD 4,354,794	

The project is the first of its kind in Malaysia as it promotes an integrated and holistic approach to urban development planning. The project is innovative because of its a) urban focus - no previous

low-carbon project in Malaysia has taken this approach at this scale and scope, and b) harmonisation and enhancement of baseline activities and other project actions to promote integrated urban planning and adoption of green technologies. This integration across urban systems, across subsumed territorial boundaries and between different levels has not yet been addressed in a harmonised and coordinated manner in Malaysia.

The Project targets 5 urban areas: Putrajaya (Federal Territory), Petaling Jaya (city), Iskandar Malaysia (a regional development corridor in Johor - comprising 5 local authorities and represented by IRDA), Cyberjaya (Sepang) and Melaka (focusing on Hang Tuah Jaya). These urban areas are referred to as "participating cities" in the ProDoc.

3.6 Expected Results

The Project is expected to generate direct GHG emission reductions of 346,442 tCO_2eq by End-of-Project (EOP) and 2,152,032 tonnes CO_2eq over the lifetime of project investment. The Project will also strengthen national planning systems broadly and this is expected to present economic benefits. The Project will boost investor confidence and generate lessons and knowledge on the promotion and application of green technologies, and integrated urban systems. In particular, the participating cities where the main economic drivers are closely linked to the low-carbon development agenda, such as tourism (e.g., Melaka) and attracting foreign direct investment (Iskandar Malaysia), will further leverage the low carbon green technology gains for broader economic benefits. This will catalyse further green technology investments and generate replication and indirect GHG emission reductions.

3.7 Total Resources

The GEF contribution of USD 4,354,794 from the GEF Trust Fund (GEF TF) was approved in April 2015, and the committed co-financing was USD 55,612,266 obligated by UNDP, the Government of Malaysia and the participating cities.

3.8 Key Partners

Stakeholders involved in the promotion of low-carbon urban planning and development in Malaysia are listed below. These stakeholders have actively participated in the GTALCC project.

- UNDP Malaysia
- Ministry of Environment and Water, *Kementerian Alam Sekitar dan Air* (KASA)
- Sustainable Energy Development Authority (SEDA), *Lembaga Pembangunan Tenaga Lestari*
- Economic Planning Unit (EPU, or formerly Ministry of Economic Affairs (MEA)) through its International Cooperation Division
- Ministry of Housing and Local Government, *Kementerian Perumahan dan Kerajaan Tempatan* (KPKT)
- Ministry of Federal Territories, *Kementerian Wilayah Persekutuan* (KWP)
- Ministry of Energy and Natural Resources, *Kementerian Tenaga dan Sumber Asli (*KeTSA)
- Ministry of Transport (MOT), *Kementerian Pengangkutan*
- Land Public Transport Agency, *Agensi Pengangkutan Awam Darat* (APAD)
- National Solid Waste Management Department of KPKT, *Jabatan Pengurusan Sisa Pepejal Negara* (JPSPN)
- Ministry of Works (KKR) - Public Works Department, *Jabatan Kerja Raya* (JKR)

- PLANMalaysia or Town and Country Planning Department, *Jabatan Perancangan Bandar dan Desa* (JPBD)
- Malaysian Green Technology and Climate Change Corporation (MGTC)
- Energy Commission, *Suruhanjaya Tenaga* (ST)
- Johor State Economic Planning Unit, *Unit Perancang Ekonomi Negeri Johor* (UPEN Johor)
- Selangor State Economic Planning Unit, *Unit Perancang Ekonomi Negeri Selangor* (UPEN Selangor)
- Melaka State Economic Planning Unit, *Unit Perancang Ekonomi Negeri Melaka* (UPEN Melaka)
- Melaka Green Technology Corporation, *Perbadanan Teknologi Hijau Melaka* (PTHM)
- Putrajaya Corporation, *Perbadanan Putrajaya* (PPJ)
- Sepang Municipal Council, *Majlis Perbandaran Sepang* (MP Sepang)
- Iskandar Regional Development Authority (IRDA)
- Hang Tuah Jaya Municipal Council, *Majlis Perbandaran Hang Tuah Jaya* (MPHTJ)
- Petaling Jaya Municipal Council, *Majlis Perbandaran Petaling Jaya* (MBPJ)
- Melaka Historic City Council, *Majlis Perbandaran Melaka Bersejarah* (MBMB)
- Malaysian Institute of Planners
- Centre for Environment, Technology and Development, Malaysia (CETDEM)
- Universiti Teknologi Malaysia (UTM)
- University Malaya

4 FINDINGS

4.1 PROJECT DESIGN/FORMULATION

4.1.1 Analysis of Results Framework (Project Logic and Strategy, Indicators)

The GTALCC Project Logical Framework was used as the reference for the indicators, baseline and targets and the project logic/strategy. The Logical Framework was reviewed and updated from what was originally conceived and approved by UNDP/GEF in April 2015. Note that, the Project Document was not signed until June 2016, and the project effectively started in mid-2017 following the hiring of the National Project Manager and the three component managers.

In mid-2019, the Mid-Term Review (MTR) of the project highlighted the following observations on the project result framework:

- Some outcome indicators rely on decision-making processes that are totally beyond the influence of the GTALCC project, e.g., % of BRT system completed.
- Relevant works on the formulation of the NLCCM and institutional framework are not reflected in the result framework's list of indicators.
- The values of indicators in the results framework are quantitative without proper indication and description of their meaning and how the numbers have been derived.

However, the MTR commented that the PIR 2017 and 2018 provide detailed explanations of the values of indicators. Combining these available project information gives a clearer picture of the actual achievement and roles of the GTALCC project. Given these observations, the MTR exercise recommended multiple modifications to the original project results frameworks. The eighteen (18) indicators proposed in the ProDoc were reduced to thirteen (13). There was no change in the number of indicators at the objective (one indicator) and outcome level 1 (three indicators). The outcome level 2 has five (5) indicators (increased from four in the original results framework), and the outcome level 3 has four (4) indicators (decreased from ten in the initial results framework). The proposed modifications were discussed and approved in the National Steering Committee (NSC) meeting in June 2019. The NSC 1/2020 meeting also agreed to extend the project implementation period until June 2022 to accommodate the project closure process and unexpected impacts of the COVID-19 pandemic.

For this Terminal Evaluation, the revised project results framework recommended by the MTR report and adopted by the NSC in June 2019 with the activities, indicators and EOP targets (as shown in **Appendix I**) were used as the basis for the assessment of achievements and the required performance rating. The analysis of the revised project results framework found that the indicators mainly were logical, practical and feasible and mainly were SMART (Specific, Measurable, Attributable, Realistic/Relative, Timebound).

4.1.2 Assumptions and Risks

The assumptions for the project stated in the ProDoc are listed below:

- Economic growth in the country will continue;
- Government support for low carbon development will continue;

- Cities continue to pursue low carbon development;
- Participating councils are supported and engaged by federal agencies to implement the national planning agenda;
- Councils are able to undertake a local planning cycle during the period of the project;
- Green Mobility Fund will be capitalised by Government as planned;
- The government continues to support the NAMA framework and approach; and
- Government and private sector partners deliver projects according to schedule.

The above assumptions can be categorised into three main groups: 1) continued government, council and city support for low carbon development; 2) continued stable economic development; and 3) continued government support for the Green Mobility Fund and the NAMA framework. Most of the assumptions have proven correct, with the exception of the establishment and progress of the Green Mobility Fund and Malaysian economic growth, which has been disrupted by the unprecedented impact of the global COVID -19 pandemic.

During the project design phase, the following risks shown in the table below were identified.

Table 4-1 – Risks identified during the Project Design Phase

#	Description	Type	Impact / Probability	Countermeasures / Management Response
1	Risk due to climate change impacts on urban systems	Environmental	Medium/ Medium	The project will assist policy-makers and city authorities to address climate change risks through comprehensive urban planning processes that will consider climate-resilient strategies
2	Change in support from Government on LCC	Political	High / Low	Engage key decision-makers at all stages of the project, especially in public forums; Provide regular briefings and updates; Clear roles and responsibilities for Government at all levels; Promote lessons and achievements widely; Engage central planning and financing ministries; and Ensure commitments are well communicated
3	Unstable economic growth in Malaysia	Economic	High / Low	An integrated approach diffuses impacts on any sector in particular. Reducing dependency on imported fossil fuel reduces exposure to global economy volatility
4	High staff mobility in Government and project team	Institutional	High / Medium	Establish clear succession strategy; Maintain effective briefing and engagement with Government partners to ensure alignment of agendas; Maintain a pool of candidates and consultants for project roles
5	Weak coordination between ministries and with cities	Institutional	High / Medium	Early and regular engagement of key stakeholders; Clear MOUs aligned with work plan; Work with existing structures
6	Lack of access to quality data	Technical	High / Medium	Raise awareness and establish safeguards for data sharing; Make costs transparent; Establish high-level data sharing agreements /MOUs; Ensure data vetted; Train relevant personnel
7	Capture of outputs by political interests	Political	Medium / Medium	Communicate strategy and raise awareness at all levels. Specifically Output 2.1.1 will seek to

#	Description	Type	Impact / Probability	Countermeasures / Management Response
				establish improved legal frameworks and practices for community engagement in planning and development project appraisal.
8	Lack of interest from private sector on low carbon investments in cities	Economic	Low / Medium	The project supports a model in which the Government provided an enabling environment to spur private investment and the private sector provides innovative approaches to catalyse investment. The approach is to prepare high quality feasibility studies, investment appraisals and business plans to facilitate investment decision making.
9	Change in commitment or fortunes of private sector participants leading to withdrawal from investment projects	Economic	Medium / Medium	Based project design on board approved co-financing commitments; Establish an open and transparent approach to market development and avoid locking to one technology or service provider; Maintain broader linkages with sector to ensure multiple players in the marketplace
10	Non-implementation of new technologies due to high cost	Technical	Medium / Medium	Assist in selecting the most appropriate technologies taking into account the socio-economic profiles and local market conditions. Strengthen market-demand through awareness and facilitation of bankable investments.

The above risks are logical and help to determine the project activities and planned outputs. In particular, risks 6 and 7 have been mitigated through the awareness and feasibility studies under Components 2 and 3. The proposed countermeasures for risks 1 to 5 are directly relevant to the proposed project management and implementation approach. Note that the risks and significant impacts of the unprecedented global COVID -19 pandemic are spread across all identified risks and it is impossible for the GTALCC project to predict the COVID -19 risk during the project design/formulation phase.

4.1.3 Lessons from Other Relevant Projects

The GTALCC project was initiated to address the barriers to integrated low-carbon urban development in Malaysia. Prior to GTALCC, the main city-level policies for green technology adoption were the **Low Carbon Cities Framework and Assessment System** (LCCF) and the **Green Neighbourhood Guideline** (GNG). The Malaysian Green Technology and Climate Change Corporation (MGTC) is responsible for implementing the LCCF, while the GNG is the responsibility of PlanMalaysia, an agency of the Ministry of Housing and Local Government. The LCCF, originally introduced in 2011 and updated in 2017, consists of a framework and assessment system that enables the implementation of carbon reduction measures in a city or a township. The GNG aims to serve as a reference for the design and planning of a township based on the principles of sustainable development.

The design of the GTALCC project was based on the lessons learned from the LCCF initiative. Although cities have applied LCCF voluntarily, few municipalities have used the framework to respond to national policy gaps for low carbon development and climate change. By engaging with MGTC, the implementor of LCCF, the GTALCC project team used the LCCF's training module version 2 as a baseline to develop its 'Train the Trainer' curriculum to increase the capacity of local authorities

on low carbon city planning. One of the knowledge products of GTALCC, the *Study on Institutional Framework for Low Carbon Cities,* had also proposed the governance structures for the implementation of LCCF and the incorporation of LCCF into the local development control planning system.

GTALCC also aimed to establish a GHG data model compliant with the international GHG accounting standard. The local authorities under IRDA, for instance, use the Low Carbon Society blueprint, which incorporates a methodology using the internationally recognised Asia-Pacific Integrated Model (AIM) to project GHG emissions under various scenarios.[2] Other Malaysian local authorities are familiar with two other GHG accounting methodologies, namely the LCCF Track and the **Global Protocol for Community-Scale Greenhouse Gas Emission Inventories** or otherwise known as the GPC Method.[3] Several local authorities such as Majlis Bandaraya Petaling Jaya, Majlis Perbandaran Ampang Jaya, Majlis Perbandaran Hang Tuah Jaya, Dewan Bandaraya Kuala Lumpur have used GPC as a reporting standard. The GTALCC project, through its stakeholder consultation and expert review processes, draws policy lessons about the strength and weaknesses of the different GHG reporting formats.[4] It then aligned Malaysia's GHG data model with GPC, promoting a common accounting framework for LCC development and implementation. The Online City Level GHG Emission Reporting System or the GHG Portal is currently live, allowing the public to understand and monitor GHG inventory trends across the different sectors. The GHG Accounting training in March 2021 had 33 participants from 11 local authorities based on the GPC framework.

Specific lessons were considered from existing green technology regulations as highlighted in the **Building Sector Energy Efficiency Project** or **BSEEP**, another GEF-UNDP initiative. The outputs from the project which the Public Works Department implemented from 2010 to 2015 were not widely disseminated. The GTALCC project team, following the instruction from the NSC, seized the opportunity to share the importance of green technology regulations such as the Uniform Building By-Law (UUBL 1984, Clause 38 revised in 2012) among municipality officers. This By-Law which has been gazetted in three states, namely Penang, Selangor and Terengganu, provides for the voluntary adoption of *Malaysian Standard 1525: Code of Practice on Energy Efficiency and the Use of Renewable Energy for Non-Residential Buildings***.** This regulation aims to reduce the energy consumption of buildings. The GTALCC project team has carried out the MS 1525 training for all five participating local authorities to enable the council officers to promote energy efficiency and clean energy when appraising new development proposals. As a result of the awareness-raising training, the Johor state government eventually adopted and gazetted the revised By-Law.

4.1.4 Planned Stakeholder Participation

Planning of stakeholder participation has started from the early stages of the GTALCC project development. The ProDoc recognises the lack of cooperation across sectors and jurisdictions as a significant barrier to the widespread adoption of low carbon integrated approaches to development

[2] All the Low Carbon Society blueprints were developed by Universiti Teknologi Malaysia-Low Carbon Asia Research Centre (UTM-LCARC) based on a research collaboration between UTM-LCARC, Kyoto University, Okoyama University and the National Institute of Environmental Studies.

[3] The GPC Method was developed by World Resources Institute (WRI), C40 Cities Climate Leadership Group and Local Governments for Sustainability (ICLEI), and launched in 2014.

[4] The GTALCC project commissioned Dr Rachael Jonassen to review the emissions tracking system LCCF Track. The reviewer identified the gaps and strengths of the LCCF Track in comparison with six other frameworks, frameworks and assessment systems in use around the world.

in cities. Therefore, strengthening stakeholder involvement was considered a priority strategy to mobilise participation horizontally and vertically in Malaysia's multi-tiered governance.

GTALCC has engaged a broad range of relevant ministries and agencies, regulatory authorities, private sector industry organisations, professional institutions and civil society representatives (NGOs) as partners for the project implementation. All key stakeholders have been engaged throughout the project implementation period. Facilitation and coordination support through the National Steering Committee (NSC) and the Project Technical Committee (PTC) has ensured stakeholder participation during the project implementation period. The NSC provides strategic oversight and coordinates and mobilises pledged resources, whereas the PTC ensures technical quality and provides a decision support resource for the NSC. Table 4.2 summarises the key stakeholders of the GTALCC project and their leading roles as NSC and PTC members in the project. The institutional restructuring of relevant government ministries and the change of National Project Directors do not significantly impact project implementation and stakeholder engagement.

Table 4-2 – Project Key Stakeholders and Roles

Entity	Role
Federal Agencies	
Ministry of Environment and Water, Kementerian Alam Sekitar and Air (KASA)	NSC Chair and PTC Member
Sustainable Energy Development Authority (SEDA), Pihak Berkuasa Pembangunan Tenaga Lestari	NSC Member and PTC Chair
Ministry of Economic Affairs (MEA) - Economic Planning Unit (EPU), International Cooperation Division	NSC Member
Ministry of Housing and Local Government, Kementerian Perumahan dan Kerajaan Tempatan (KPKT)	NSC Member
Ministry of Federal Territories, Kementerian Wilayah Persekutuan (KWP)	NSC Member
Ministry of Energy and Natural Resources, Kementerian Tenaga dan Sumber Asli (KeTSA)	NSC Member
Ministry of Transport (MOT), Kementerian Pengangkutan	NSC Member
Land Public Transport Agency, Agensi Pengangkutan Awam Darat (APAD)	NSC Member
Ministry of Housing and Local Government, National Solid Waste Management Department, Kementerian Perumahan dan Kerajaan Tempatan (KPKT), Jabatan Pengurusan Sisa Pepejal Negara (JPSPN)	NSC Member
Ministry of Works - Public Works Department, Jabatan Kerja Raya (JKR)	NSC Member
PLANMalaysia, Jabatan Perancangan Bandar dan Desa (JPBD)	NSC Member
Malaysian Green Technology and Climate Change Corporation (MGTC)	PTC Member
Energy Commission, Suruhanjaya Tenaga (ST)	PTC Member
Regional and Local Agencies	
Johor State Economic Planning Unit, Unit Perancang Ekonomi Negeri Johor (UPEN Johor)	NSC Member
Selangor State Economic Planning Unit, Unit Perancang Ekonomi Negeri Selangor (UPEN Selangor)	NSC Member
Melaka State Economic Planning Unit, Unit Perancang Ekonomi Negeri Melaka (UPEN Melaka)	NSC Member
Melaka Green Technology Corporation, Perbadanan Teknologi Hijau Melaka (PTHM)	PTC Member
Putrajaya Corporation, Perbadanan Putrajaya (PPJ)	PTC Member
Sepang Municipal Council, Majlis Perbandaran Sepang (MP Sepang)	PTC Member
Iskandar Regional Development Authority (IRDA)	PTC Member
Hang Tuah Jaya Municipal Council, Majlis Perbandaran Hang Tuah Jaya (MPHTJ)	PTC Member
Petaling Jaya Municipal Council, Majlis Perbandaran Petaling Jaya (MBPJ)	PTC Member
Melaka Historic City Council, Majlis Perbandaran Melaka Bersejarah (MBMB)	PTC Member

Entity	Role
Associations and NGOs	
Malaysian Institute of Planners	PTC Member
Centre for Environment, Technology and Development, Malaysia (CETDEM)	PTC Member

In addition to the NSC and PTC members mentioned above, the GTALCC project has collaborated with the Low Carbon Asia Research Centre of the University of Teknologi Malaysia (UTM) and regularly shared information on the project and progress of activities with other city councils (e.g. Subang Jaya City Council, Seberang Perai City Council and Port Dickson City Council), industry associations (e.g. Malaysia Biofuel Association) and non-governmental organisations (e.g. Environmental Protection Society Malaysia). The private sector is actively participating in the B100 biofuel initiative with commitments from Prasarana, Scania Malaysia, Petronas-ROVR and Mass Rapid Transit (MRT) Corporation.

Participation in the GTALCC was further expanded during the course of the project. The Inception Workshop for GTALCC on 29 September 2016 was attended by 29 representatives from ministries and agencies, while nine other participants represented the private sector, civil society and academia. During 2019, the project conducted more than 20 stakeholder meetings and trained more than 200 city personnel in low-carbon cities, while thousands of students participated in GTALCC-supported activities. In 2021, 1,575 participants attended the virtual Malaysia Low Carbon Cities Conference, while 856 people attended the five webinars organised by GTALCC.

The evaluators met with key stakeholders and beneficiaries of the project during the TE mission and it can be concluded that stakeholder engagement was adequately planned. The project management successfully engaged the target groups as expected in the ProDoc..

4.1.5 Linkages between Project and Other Interventions

As mentioned above, the GTALCC project design clearly articulates linkages with other interventions on decarbonisation, including the following:

- Low Emission Capacity Building (LECB) Project (2013-2015) implemented by the Ministry of Natural Resources and Environment (NRE) and UNDP;
- National Corporate GHG Reporting Programme (MyCarbon) Project (2013-2015) implemented by the Ministry of Natural Resources and Environment (NRE) and UNDP;
- Building Sector Energy Efficiency Project (BSEEP) (2010-2015) implemented by UNDP, GEF and the Public Works Department; and
- Cleantech for SMEs in Malaysia under the Malaysia Clean Technology Innovation, Competition and Entrepreneurship Acceleration Programme (MCTICEA) (2013-2017) implemented by the Malaysian Industry-Government Group for High Technology (MIGHT), GEF and UNIDO.

In addition, the continuity with past low carbon technology interventions is ensured as the lead consultant, SEDA, had prior experiences and the institutional memory in managing UNDP-GEF projects such as the Malaysian Industrial Energy Efficiency Improvement Programme and the Malaysian Building Integrated Photo-voltaic (MBIPV).

At the early stage of the project implementation, the NSC has instructed the project management team to concentrate on the emerging trends in climate mitigation at the city level by focusing on low

carbon mobility and energy efficiency in buildings. This was also to ensure synergies and avoid duplication with those interventions highlighted in the ProDoc.

GTALCC established linkages with international tools for assessing buildings' energy efficiency, such as the Comprehensive Assessment System for Built Environment Efficiency (CASBEE) and the Building Energy Monitoring and Reporting System (BEMRS). CASBEE is a Japanese tool[5] for evaluating and rating the environmental performance of buildings and the built environment. CASBEE has been customised and adopted by IRDA and introduced to all local authorities in 2018. Several pilots and projects[6] have been assessed through CASBEE, and GTALCC adopted CASBEE as the city showcases in 2019. BEMRS is a reporting tool for measuring building energy performance and tracking and monitoring GHG emissions through the building energy-saving programme. BEMRS was adopted as one of the catalytic programmes under GTALCC to spearhead the broader adoption of the low carbon cities concept and initiatives at the local authority level. In 2020, Hang Tuah Jaya Municipal Council (MPHTJ), in collaboration with Sustainable Energy Development Authority (SEDA) Malaysia, installed BEMRS in their buildings.

Cognisance of the importance of a low carbon public transport system, GTALCC commissioned a study titled “Low Carbon Public Transportation (Bus): Scaling-up Financing and Viable Business Cases for Cities”. The study establishes linkage with the **Low Carbon Mobility Blueprint (LCMB)**, prepared and published by the Ministry of Environment and Water (KASA) in 2021. LCMB aims to assess the best options in energy and GHG mitigation planning in the transport sector, particularly land transport, using scenario analyses of a business-as-usual case and similarly for 2030. It is expected to complement the existing KASA’s Green Technology Master Plan with more precise targets and action plans specific to the transport sector in Malaysia.

The GTALCC project has established linkages with multiple ongoing low carbon initiatives implemented at the regional and city level, as illustrated in Appendix K. At the regional level, it co-financed many activities under the **Low Carbon Society Blueprint for Iskandar Malaysia (LCSBPIM) 2025**, a comprehensive climate change mitigation action plan and detailed strategies to guide the development of Iskandar Malaysia.[7] GTALCC also co-financed the **Iskandar Malaysia Ecolife Challenge (IMELC)** programme. IMELC aims to create awareness of the Low Carbon Society (LCS) among students, teachers, and their families to achieve the target of carbon reduction for Iskandar Malaysia by 2025. IMELC began its implementation in 2013. Through the support of GTALCC, IMELC managed to enhance the project outreach from 34,000 students in 345 schools in 2017 to about 100,000 students in 906 schools in 2021.

Similarly, at the city level, GTALCC had supported many low carbon initiatives based on the wish list of the participating cities. The project funded Majlis Bandaraya Petaling Jaya (MBPJ) to develop an App that digitalises the Council’s Green Tax Rebate Scheme. The E-Rebate app allows applications to be submitted online and simplifies the assigned evaluators' bureaucratic tasks. GTALCC also assisted Putrajaya Corporation in many of its micro-mobility initiatives. The installation of the bike access ramps in Putrajaya resulted in the local authority winning first place in KPKT’s Green Neighbourhood Award in 2020.

[5] CASBEE was developed by a research committee established in 2001 through the collaboration of academia, industry and national and local governments, which established the Japan Sustainable Building Consortium (JSBC) under the auspice of the Ministry of Land, Infrastructure, Transport and Tourism (MLIT).

[6] There are 11 projects (6 buildings, 2 urban developments and 3 cities) assessed and certified through CASBEE.

[7] LCSBPIM 2025 was endorsed by the Prime Minister of Malaysia in December 2012. It provides a quick reference for all policymakers in both public and private sectors as well as IRDA. LCSBPIM highlights 12 actions, grouped into three parts: Green Economy, Green Community, and Green Environment.

4.2 PROJECT IMPLEMENTATION

The GTALCC project was implemented by SEDA under the responsibility of KASA (Implementing Partner). SEDA Malaysia, as the lead consultant, managed and implemented the project activities on behalf of KASA and reported to KASA and UNDP on the project progress, results and achievements. Monthly meetings of the Project Implementation Committee were organised to ensure on-schedule execution of each procurement. The implementation of the GTALCC project largely depends on inter-ministerial coordination and the regular NSC meetings have played an important role in the overall performance of the project.

4.2.1 Adaptive Management

The adaptive management practice is reflected throughout the project implementation period. In 2018, UNDP supported project procurements because the procurement by all government agencies, including the project team, was temporarily suspended by the government order. The project later divided the roles of procurements of necessary goods and services among SEDA and UNDP Malaysia. Basically, SEDA is responsible for the procurement of domestic goods and services, while UNDP Malaysia is responsible for the procurement of international consultants and contractors.

In 2019, the Project Implementation and Monitoring Committee or "Jawatankuasa Pelaksanaan dan Pemantauan Projek" (JKPPP, in Bahasa Malaysia) was established with participation from KASA, UNDP and the PMU. The JKPPP meetings were organised as physical (before COVID-19) and virtual meetings (during COVID -19), and the meetings became more frequent and scheduled every one to two months. To date, 13 JKPPP meetings have been organised since 2019. The JKPPP meetings have enabled the project to achieve smooth implementation and deliver actual project results outcomes/outputs in line with what was planned in terms of the target indicators.

Following the MTR recommendations on changes in project activities, outputs and indicators, these proposed changes were reviewed, finalised and endorsed by the NSC meeting organised in June 2019. The recommended changes have introduced greater relevance and clarity between project activities and respective outputs, specifically outputs under Component 3 (see Table 4-3). Although some changes in outputs and activities were extensive, there are no changes in the project outcomes.

Table 4-3 – Original Outputs (ProDoc) and Revised Outputs (MTR)

Outcome	Original Output (ProDoc)	Revised Output (Approved by NSC 1/2019)
Outcome 1.1: Major cities implemented and adopted integrated low carbon urban development plans and/ or programmes.	Output 1.1.1: Approved city policies, legislation and regulations, and strengthened enforcement systems for integrated LCUD	Output 1.1.1: Formulated and adopted framework and coordination mechanism for low-carbon urban planning
	Output 1.1.2: Established GHG accounting framework and decision-making tools for national and sub-national levels	No Revision
	Output 1.1.3: Completed and approved evidence-based low carbon development plans and	Output 1.1.3: Formulated and adopted low carbon development and investment plans for cities

Outcome	Original Output (ProDoc)	Revised Output (Approved by NSC 1/2019)
	investment programmes for cities and precincts	
Outcome 2.1: Expedient appraisal, approval and implementation of strategic urban development plans/programme and projects	Output 2.1.1: Strengthened and operational coordination mechanisms for effective implementation of low carbon city policy	Output 2.1.1: Strengthened operational coordination mechanism for effective implementation of low carbon city policy
Outcome 2.2: Major cities are aware of, and are planning and implementing low carbon technology applications for integrated urban development	Output 2.2.1: Complete training programmes for policy decision-makers, local governments, green practitioners and financing institutions on strategic urban planning processes for low carbon and climate resilient development	No Revision
	Output 2.2.2: Operational knowledge management systems for low carbon city development	No Revision
Outcome 3.1: Increased investment in low carbon technology applications in cities	Output 3.1.1: Applied design considerations into BRT for enhanced GHG emission reduction potential	Output 3.1.1: Leveraged investments in low carbon projects and initiatives
	Output 3.1.2: Leveraged investments to support the scaling up of low carbon public transport systems	
	Output 3.1.3: Validated and scaled-up green technology incentive scheme in target cities for households and SMEs	
	Output 3.1.4: Leveraged investments in low carbon urban systems based on low carbon development plans	
	Output 3.1.5: Approved pilot NAMA proposal for low carbon urban development	
Outcome 3.2: More low carbon projects implemented in Malaysian cities	Output 3.2.1: Operationalised electric vehicles and charging station infrastructure	Output 3.2.1: Low carbon transport projects and initiatives
	Output 3.2.2: A BRT system operating in Iskandar Development Region	Output 3.2.2: Low carbon energy project and initiatives
	Output 3.2.3: An operating city cycleway in Putrajaya	
	Output 3.2.4: Operationalised on-site waste processing projects in Petaling Jaya	Output 3.2.3: Low carbon waste management projects and initiatives

The MTR commented that the PIR 2017 and 2018 provides detailed explanations of the values of the indicators and the combination of this available project information provides a clearer picture of the actual achievement and role of the GTALCC project. In light of these observations, the MTR recommended several changes to the original project results framework. The eighteen (18)

indicators proposed in the ProDoc were reduced to thirteen (13) indicators. The number of indicators at target level (one indicator) and outcome level 1 (three indicators) was not changed. For outcome level 2, there are five (5) indicators (down from four in the original results framework), and for outcome level 3, there are four (4) indicators (down from ten in the original results framework). The proposed changes were discussed and approved at the National Steering Committee (NSC) meeting in June 2019 (See Section 4.1.1). At the NSC 1/2020 meeting, it was also decided to extend the project implementation period until June 2022 to accommodate the project closure process and the unexpected impact of the pandemic COVID -19.

4.2.2 Actual Stakeholder Participation and Partnership Arrangements

The GTALCC project has achieved the active participation of federal, regional and city-level agencies and authorities as well as non-governmental organisations, industry associations and private sector companies since the beginning of the project. This has been demonstrated through regular attendance and participation in the NSC and PTC meetings. In the design phase, the project targeted 5 regions/cities, namely Cyberjaya, Hang Tuah Jaya, Iskandar Malaysia, Petaling Jaya and Putrajaya, and these 5 participating cities have continuously participated in the implementation phase of the GTALCC.

The project has also maintained its momentum despite the restructuring of the participating ministries and the unprecedented impact of the COVID -19 pandemic in 2020 and 2021. Over the past two years, the project has managed to secure additional buy-in from private sector companies, such as a national oil and gas company, a commercial vehicle manufacturer, the Mass Rapid Transit (MRT) Corporation and RapidBus, to implement demonstration projects. In addition, the GTALCC project also participated in the World Urban Forum (WUF) convened by the UN Human Settlements Programme (UN -Habitat) in Kuala Lumpur and Abu Dhabi to share knowledge and experiences in the development and implementation of LCC in Malaysia. Towards the end of the project period, GTALCC has actively engaged with stakeholders by sharing project information and progress of activities with partners and stakeholders.

4.2.3 Project Finance and Co-Finance

4.2.3.1 GEF Finance

The project budget and expenditure as of 31 December 2021 are summarized in Table 4-4.

Table 4-4 – Project Expenditure 2017 - 2021

Budget (per AWP)	2017	2018	2019	2020	2021
Component 1 (Outcome 1.1)	292,025.00	389,508.03	366,616.06	220,471.04	327,931.84
Component 2 (Outcome 2.1 & 2.2)	161,850.00	254,508.00	362,499.95	167,865.48	167,586.69
Component 3 (Outcome 3.1 & 3.2)	24,000.00	554,308.00	979,863.81	735,549.82	1,141,657.74
Project Management	38,000.00	29,000.00	53,000.00	72,285.71	82,348.20
Total Annual Planned Disbursement	**515,875.00**	**1,227,324.03**	**1,761,979.82**	**1,196,172.05**	**1,719,524.47**
Actual annual Expenditures	**459,293.53**	**411,016.07**	**835,185.38**	**640,689.00**	**525,197.23**

Budget (per AWP)	2017	2018	2019	2020	2021
% Annual Expense vs. Planned disbursement	*89%*	*33%*	*47%*	*54%*	*31%*
Cumulative expenditures	*459,293.53*	*870,309.60*	*1,705,494.98*	*2,346,183.98*	*2,871,381.21*
% of Total GEF Budget (USD4,354,794)	11%	20%	39%	54%	66%
				Balance (as of 31 December 2021)	**1,483,412.79**

As at 31 December 2021, the project had a cumulative expenditure of 66%, with a balance of USD 1,483,412.79. The Project Implementation Report (PIR), as of September 2021, shows that while activities are on track, financial spending is way off-track because of the inability to travel, organise physical events and procure services for stakeholder engagement due to the prolonged COVID-19 pandemic in 2020 and 2021. Planned physical meetings and engagements were replaced by online platforms, resulting in cost savings for the project. The additional cost savings have been channelled to other activities with the cities and stakeholders. According to the project team, project expenditure of USD 388,847.81 is still outstanding for the year 2021, which was planned to be disbursed in 2022. The remaining balance of the GEF budget for 2022 is therefore USD 1,094,564.98. The TE team has been informed that this balance has already been committed and will be disbursed before the EOP. However, based on the updated project status as of May 2022 (see Table 4-5), the TE team estimated that about 47% of this committed expenditure will be disbursed before the EOP (1 June 2022) and the total cumulative expenditure of the project will reach 87% of the total GEF budget by the EOP.

Table 4-5 – Committed Project Expenditures in 2022

#	Project Activities	Committed Amount in 2022 (USD)	Project Status (as of 13 May 2022)
1	B100 – Petronas-ROVR Mobile Fuel Truck (Contract Awarded in 2021. Ready for B100 transportation)	64,050.00	The pilot run was delayed and only started from mid-May until 1 June 2022.
2	B100 – Biodiesel Supply (Tender in Progress)	137,500.00	The pilot run was delayed and only started from mid-May until 1 June 2022.
3	Solar MRT (Installation of Solar PV by PathGreen Energy Sdn Bhd)	29,437.50	The solar installation was approved by SEDA, with the completion target by 31 May 2022.
4	Parcel F (Low Carbon Zone with E-Scooters & EV Charging Stations)	23,500.00	Procurement in progress. Installation completion target by 31 May 2022.
5	Pilot on Installation of EV Chargers at High-Rise Residential Buildings with Strata Title (Final Payment)	10,500.00	Completed in 2021. Final payment in process
6	Videographer for Pilot Project	906.25	Completed in 2021. Final payment in process
7	SEDA Milestones Claim (Consultancy Fee for GTALCC Project Implementation & Management)	210,416.06	In process for payment with KASA & UNDP
8	FACE FORM #034 - #039/2021 (claims for various completed activities)	113,093.49	In process for payment with KASA & UNDP
9	FACE FORM #001 - #013/2022 (claims for various completed activities)	25,388.33	In process for payment with KASA & UNDP

10	Continuity and Sustainability Plan (CSP) for KASA & MGTC (NLCCM, NLCCN & Cities GHG Online Portal)	396,021.98	The original nationwide roll-out engagement program to be implemented by GTALCC and MGTC.
11	UNDP Project Management (UNDP's staffing for GTALCC)	47,084.78	UNDP
12	Other (for meetings, workshops and events etc. including Project Closure event)	36,666.59	May be returned to GEF
	TOTAL	**1,094,564.98**	

4.2.3.2 Co-Financing

Based on the co-financing letters submitted by the participating cities, KASA and UNDP, the extent of co-financing realised by the project is USD 292,227,133, which is approximately 5.2 times higher than the indicative values of USD 55,612,266 at the project approval stage. The significant increase in co-financing is primarily due to the one billion Malaysian Ringgit approved by the Malaysian government for infrastructure development, which includes all studies/assessments required by government agencies and land acquisition costs for the IMBRT project. However, the TE team understands that the disbursement of the one billion Malaysian Ringgit co-financing reported by IRDA will be in phases and IRDA has confirmed that only 25 million Ringgit will be disbursed before the EOP. Considering this, IRDA's co-financing has been adjusted and the total co-financing realised through EOP is US$48,182,793 or approximately 87% of the indicative co-financing value at the project approval stage. Details of the actual co-financing realised to date are shown in Table 4-6 and Table 4-7.

Table 4-6 – Project Co-Financing

Co-financing (type/source)	UNDP own financing (USD)		Government (USD)		Partner Agency (USD)		Total (USD)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants	240,000	0	22,476,341	35,857,500	31,570,492	10,227,976	54,286,833	46,085,476
Loans/Concessions							0	0
In-kind support	114,000	59,660	252,486	0	958,947	2,037,657	1,325,433	2,097,317
Other								
Totals	**354,000**	**59,660**	**22,728,827**	**35,857,500**	**32,529,439**	**256,015,633**	**55,612,266**	**48,182,793**

Table 4-7 – Confirmed Sources of Co-Financing at TE Stage

Sources of Co-Financing	Name of Co-Financier	Type of Co-Financing	Investment Mobilized	Amount (USD)
GEF Agency	UNDP	Grant		
GEF Agency	UNDP	In-Kind		59,660
Recipient Country Government	KASA	Grant	Investment Mobilized	35,857,500
Recipient Country Government	KASA	In-Kind	Recurrent Expenditures	
Other (Local Government)	Iskandar Malaysia	Grant	Investment Mobilized	6,902,300
Other (Local Government)	Iskandar Malaysia	In-Kind	Recurrent Expenditures	884,077
Other (Local Government)	Petaling Jaya	Grant	Investment Mobilized	1,905,180
Other (Local Government)	Petaling Jaya	In-Kind	Recurrent Expenditures	575,540
Other (Local Government)	Putrajaya	Grant	Investment Mobilized	1,397,573
Other (Local Government)	Putrajaya	In-Kind	Recurrent Expenditures	575,540
Other (Local Government)	Cyberjaya/ Sepang	Grant	Investment Mobilized	22,923
Other (Local Government)	Cyberjaya/ Sepang	In-Kind	Recurrent Expenditures	2,500
Total Co-Financing				**48,182,793**

4.2.4 Monitoring & Evaluation (*)

4.2.4.1 M&E Design at Entry

The TE Team finds the project M&E as designed at the CEO Endorsement stage to be robust and according to the standards of GEF and UNDP.

4.2.4.2 M&E Implementation

The TE team notes that the implementation of the project's M&E system met progress and financial reporting requirements, including timeliness of reports. The new structure of the federal government following the 14th Malaysia General Election (GE14) in May 2018, which involved a review and redesign of the roles and functions of ministries, including the restructuring of key ministry staff and the review of national projects, delayed the decision-making process at all levels of ministries and agencies. These pollical impacts were beyond the project's control, and, as a result, the information provided by the M&E system could not be fully used to improve project performance before the MTR.

After the MTR in mid-2019, effective changes were made to project implementation based on the recommendations of the MTR. However, the project was affected by another federal ministry restructuring in February 2020 and was severely impacted by the Movement Control Order (MCO) and Work From Home (WFH) order due to the COVID -19 pandemic in Malaysia. However, the M&E system and the Project Implementation and Monitoring Committee (JKPPP) established in 2019 have helped to keep the project progress on track despite the implementation challenges and constraints..

4.2.4.3 Overall Assessment

The project has used feedback from the M&E system, such as progress reports, project implementation reviews (PIR), to adjust the approach to project implementation and improve project performance. The changes recommended by the MTR were acknowledged by the project team and UNDP as providing more clarity on project activities and outputs and keeping implementation progress on track.

Assessment of M&E design, M&E implementation and the overall quality of M&E are shown in Table 4-8.

Table 4-8 – Assessment of Monitoring & Evaluation (M&E)

Monitoring & Evaluation (M&E)	Rating
M&E design at entry	Satisfactory (S)
M&E Plan Implementation	Satisfactory (S)
Overall Quality of M&E	Satisfactory (S)

4.2.5 UNDP Implementation/Oversight & Implementing Partner Execution (*)

4.2.5.1 UNDP Implementation/Oversight

UNDP provided the necessary support throughout the project cycle, including in its identification, concept development, appraisal, preparation of a detailed proposal, approval and start-up, oversight, supervision, completion and evaluation. UNDP also played a key role in monitoring and

evaluation of the project through participation in the NSC and JKPPP meetings. In terms of project implementation, UNDP supported procurement activities as adaptive management during government changes to minimise delays. For example, the new government formed after the 14th General Election in Malaysia (GE14) in 2018 issued a temporary suspension directive on procurement activities, which affected the procurement of services/consultancies under SEDA Malaysia. During this temporary suspension of procurement activities, UNDP used the UNDP procurement channel to tender and hire experts. UNDP also supported the procurement of international consultancy services for the project.

4.2.5.2 Implementing Partner Execution

The GTALCC project was implemented by the Ministry of Energy, Green Technology and Water (KeTTHA) at its inception and then became the Ministry of Energy, Science, Technology, Environment and Water (MESTECC) in May 2018 and the Ministry of Environment and Water (KASA) in February 2020. These transitions resulted in the relocation of key staff from implementing partners, including the then National Project Director (NPD), who was based in the Ministry of Energy and Natural Resources (KeTSA). During the initial phase of the restructuring of the federal government machinery, it was agreed that the NPD would remain in KeTSA to avoid delays in the implementation of project activities. Eventually, a new NPD was appointed by KASA. From a project implementation perspective, these transitions had little impact on the overall performance of the project and the progress of most activities went according to plan.

4.2.5.3 Overall Project Implementation/Execution

Table 4-9 – Assessment of UNDP Implementation/Oversight & Implementing Partner Execution

UNDP Implementation/Oversight & Implementing Partner Execution	Rating
Quality of UNDP Implementation/Oversight	Satisfactory (S)
Quality of Implementing Partner Execution	Satisfactory (S)
Overall Quality of Implementation/Oversight and Execution	Satisfactory (S)

4.2.6 Risk Management

Towards the end of the project, the identified risks were effectively addressed by the project management unit, the implementing partner and UNDP. Most risk probabilities were correctly assessed, with the exception of the probabilities for political and economic risk. In terms of political risk, Malaysia had two changes of government within 22 months (in May 2018 and February 2020), which led to a reorganisation of ministries and affected the implementation of the project. Malaysia has not experienced a change in the Executive branch since independence in 1957. These political changes and the restructuring of the public sector and ministries, as well as the realignment of policy priorities, have led to delays in project implementation that have impacted financial implementation.

As mentioned in section 4.2.5.2, the institutional home of the GTALCC project has changed several times in recent years. This has led to transfers of key implementing partner staff from the ministry responsible for the project. The spillover effect after the change of government in 2018 continued in 2019 as the new policy makers needed time to understand UNDP project procedures and operations.

The economic risk due to the COVID -19 pandemic was eminent and this unprecedented pandemic had an impact not only on the Malaysian economy but also on project operations. The Malaysian government imposed several Movement Control Orders (MCOs) in 2020 and 2021, and Work-From-

Home (WFH) was imposed on the project team and local stakeholders during the MCO period to reduce physical contacts.

The adaptive project management strategy adopted by the project team and UNDP, such as the establishment of the Project Implementation and Monitoring Committee (JKPPP), more frequent virtual project meetings and the sharing of procurement responsibilities between the project team and UNDP, proved effective in mitigating the impact of political risk. Despite two government restructurings during the project period, the Malaysian government's commitment and political support to the development and implementation of the LCC was strong, as evidenced by the adoption of the NLCCM and the government's statement during COP26. The project team has also been successful in coordinating with participating cities through the Microsoft Teams and Zoom online meeting platforms, and project implementation plans have been adjusted to maintain the momentum of project activities on the ground. Through these measures, the project has managed to minimise the impact of the COVID -19 pandemic on project deliverables.

4.2.7 Social and Environmental Standards

According to the Social and Environmental Screening, undertaken in 2015, the project includes activities with minimal or no risks of adverse social or environmental impacts. Although the project includes physical interventions such as the installation of electric vehicle charging stations, the installation of solar PV panels and the demonstration of BRT technologies. These will be carried out in accordance with the rules and regulations issued by the relevant authorities. The BRT project has undergone a Social and Environmental Impact Assessment (SIEA) in accordance with the Malaysian government's standard requirements for infrastructure projects and the risk has been assessed as insignificant.

4.3 PROJECT RESULTS

4.3.1 Progress towards Objective and Expected Outcomes

The assessment of progress toward objective, outcomes and outputs are discussed in the subsequent sections.

4.3.1.1 Progress Towards Objective

Objective: To facilitate the implementation of low carbon initiatives in at least five Malaysian cities and showcase a clear and integrated approach to low carbon development The overall rating for the objective is **Moderately Satisfactory** with consideration of lifetime direct ER and indirect ER (bottom up) as part of the GHG emission reductions delivered by the project.

The project objective is to facilitate the implementation of low carbon initiatives in at least 5 Malaysian cities and showcase a clear and integrated approach to low carbon development. The objective indicator is “Cumulative Direct GHG Project emission reductions (ER) resulting from the Project technical assistance and investments by end-of-project, tCO_2eq”. The target ER at EOP is 346,442 tCO_2eq which is expected to be contributed by seven investment projects (see Annex 1 – Detailed CO_2 Emission Calculations per GTALCC ProDoc). However, only three of which have been implemented:

- Enhancement of the Iskandar Malaysia Bus Rapid Transit (IMBRT) project[8]
- Scaled-up green technology incentive scheme by MBPJ[9]
- Expansion of cycling path and setup of bicycle sharing in Putrajaya[10]

Other 5 new investment projects have been identified and implemented during the GTALCC project period, including:

- Study of greenhouse gas benefits of the Mass Rapid Transit (MRT) Sungai Buloh-Kajang Line
- Support for implementation of the Iskandar Malaysia Eco-life Challenge (IMELC) initiative
- B100 pilot programme for public transportation
- Electric vehicle charging stations for Strata Residential Buildings
- Installation of solar PV at MRT facility.

According to the detailed CO_2 emission calculations in ProDoc, about 90% of the estimated direct ER is accounted for by the Iskandar Malaysia Bus Rapid Transit (IMBRT) project. The estimates in ProDoc assumed the GTALCC project period as 2015-19 and the BRT operations would start in 2017. Accordingly direct emission reductions totaling 312,641 tonnes CO_2eq and averaging 104,214 tonnes CO_2eq per year (for 3 years) has been attributed to the GTALCC project. According to the GTALCC project document, the IMBRT was expected to commence construction of Phase 1 in 2015 and be operational towards the end of 2017.

During the MTR process in 2019, IRDA informed the MTR team that the Ministry of Finance (MOF) was about to approve the funding for the IMBRT project. As a result, the original direct emission reduction target was maintained by the MTR report. However, the approval from MOF came much later, hence the delayed project commencement and construction of one line of Phase 1 is now expected to begin in early 2022, and the operations are expected to start two years after commencement of construction, in late 2023 and during 2024. The cycling pathway project in Putrajaya will also be delayed and will be commissioned only after the end of the GTALCC project.

Given the large deviations from the original number of investment projects in ProDoc and the delays in the implementation of the IMBRT, cycle track, B100 and MRT solar PV projects, the GTALCC project faced the challenge of accounting for direct emission reductions. The GTALCC project engaged an international consultant to conduct a GHG emission reduction assessment. It was highlighted that the GEF has not provided clear guidance on estimating emission reductions when an investment is committed but delayed beyond the project period. However, it is assumed that the GEF would encourage accounting for genuine emission reductions that would take place. For these delayed projects, a tentative and conservative approach has been used to account for indirect emission reductions that attempts to follow the GEF methodology as closely as possible.

Based on this approach, the evaluation report estimates a significant reduction in direct ER, as the direct ER from the IMBRT and cycle track projects would be zero, as the operation of the project would only start after the end of the GTALCC project. The results of the evaluation are summarised in Table 4-10.

[8] For the IMBRT project, GTALCC provided RM52,920 to fund the International Peer Review process, providing recommendations on design improvement.

[9] GTALCC provided a matching grant of RM150,000 for the digitalisation of the E-Green Rebate System for broader access by the residents of Petaling Jaya.

[10] GTALCC funded a study worth RM103,835 to design the dedicated on-road bicycle lane.

Table 4-10 – GHG Emission Reduction by Low Carbon City Investments attributed to the GTALCC Project

Project	Direct ER	Lifetime direct ER	Indirect ER (Bottom Up)	Indirect ER (Top Down)
Iskandar Malaysia Bus Rapid Transit	0	0	848,390	12,607,047
MRT GHG benefits	681	9,079	1,362	14,690
On-road bicycle lane	0	0	33,268	Not estimated
Green Rebate Scheme	753	2,509	3,011	808,785
Iskandar Malaysia Eco-life Challenge (IMELC)	493	10,158	4,433	15,878
B100 for public transportation	81	4,836	1,290	Not estimated
EV charging station	14	274	123	Not estimated
MRT Solar PV	0	414	0	0
National Electric Bus Roadmap	0	0	17,303	Not estimated
National Low Carbon Cities Masterplan	0	0	0	178,734,105
Total tCO2eq	**2,022**	**27,270**	**909,180**	**192,180,505**

Note:

As shown in Table 4-10, the estimated direct ER at EOP is far below the target established in ProDoc. However, the GTALCC project has introduced low carbon design in all the above-mentioned low carbon investments and the benefits of reducing GHG emissions will soon be realised during their operation. For example, the GTALCC programme recommended the Gold Standard design features for Bus Rapid Transit (BRT) and the recommendations were adopted into the design by the lead BRT consultant and the Iskandar Malaysia BRT team (IMBRT).

As the GEF has not provided clear guidance on how to estimate emission reductions when an investment is committed but delayed beyond the project period, the TE team recommends considering the lifetime direct ER and indirect ER (bottom-up) which estimate ER from project operations after the EOP as part of the project objective indicator. As shown in the table above, the combined direct ER, lifetime direct ER and indirect ER (bottom-up) are 938,749 tCO_2eq. Although this combined GHG ER is much higher than the original ER target at the time of the EOP of 346,442 tCO_2eq, the TE team rated the extent to which the project is achieving its objective as moderately satisfactory, as the majority of GHG ER will take place after the EOP.

4.3.1.2 Progress Towards Expected Outcomes

Key achievements versus the indicators under each outcome in the revised project results frameworks recommended by MTR are discussed below. Table 4-11 presents the actual accomplishments versus the targeted levels with a rating given on each indicator.

Outcome 1.1: Major cities implemented and adopted integrated low carbon urban development plans and/or programmes

The overall rating for this outcome is **Highly Satisfactory (HS).**

This outcome has three indicators which are delivered through the completion of the following three outputs under this outcome.

- Output 1.1.1: Formulated and adopted framework and coordination mechanism for low-carbon urban planning
- Output 1.1.2: Established GHG accounting framework and decision-making tools for national and sub-national levels
- Output 1.1.3: Formulated and adopted low carbon development and investment plans for cities

Output 1.1.1 was achieved through the development of the National Low Carbon Cities Masterplan (NLCCM) in 2019, which will later be approved by the Malaysian Government in 2021. Other key activities under this output include the development of guidelines to support investment in low carbon infrastructure and training workshops and seminars on low carbon cities and green technology regulation and policy. Output 1.1.2 was achieved through training on GHG accounting and the establishment of an online city-level GHG emission reporting system (GHG Portal). Output 1.1.3 was achieved through the formulation of the low carbon development plan for the 5 participating cities and the study of the GHG benefits of the Sungai Buloh-Kajang MRT line. The implementation of most project activities under this outcome went according to plan, except for the organisation of seminars, conferences and study missions, which were delayed due to the pandemic COVID -19..

The target level of each indicator for this outcome has been met. Findings from the assessment of the achievements of the outcome against indicators are summarised below.

- **Indicator 1.1.1: National low-carbon planning and institutional framework developed and adopted** - The NLCCM document was developed in 2018 and completed in December 2019. It was presented to the Secretary-General (KSU) of the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) on 3 Mar 2020. NLCCM was approved for adoption by the Malaysia Climate Action Council which was chaired by the Honorable Prime Minister of Malaysia on 13 April 2021 and approved by the Cabinet on 7 July 2021. NLCCM was officially launched by the Prime Minister during the Malaysia Low Carbon Cities Conference (MyL3C) on 13 July 2021. A series of webinars were held in June and July 2021 to showcase the NLCCM to stakeholders around Malaysia.
- **Indicator 1.1.2: GHG Online Portal established and used by 5 cities** - The City Greenhouse Gas Emission Inventory Reporting System (GHG Portal), www.ghgportal.my, was developed to support Malaysian local authorities in reporting city-wide GHG emissions according to the requirements of the Global Protocol for Community-scale Greenhouse Gas Emission Inventories (GPC). The design of the system is based on CIRIS (City Inventory Reporting and Information System) developed by C40 Cities. The system is designed to automatically calculate greenhouse gas emissions and aggregate the data according to different sectors. Users will be able to use the system to benchmark their greenhouse gas emissions with other Malaysian cities and cities worldwide. The portal has been populated with data from 5 cities. The GHG Online Portal is one of the two key supporting activities for implementing NLCCM as endorsed by the NSC's Continuity and Sustainability Plan (CSP). With the adoption of NLCCM, the participation of local authorities in the Portal is mandatory for the first 33 target cities under the three groups identified in NLCCM's absolute carbon reduction targets.

- **Indicator 1.1.3: Three cities with adopted GHG reduction targets** – 5 cities in Malaysia adopted GHG reduction targets in their local and structure plans. Their current GHG reduction targets (absolute terms) are:
    1. Putrajaya = -18% by 2025 relative to 2012 (Putrajaya Green City 2025)
    2. Petaling Jaya = 30% by 2030 relative to 2014 (Petaling Jaya Low Carbon City Action Plan 2015-2030)
    3. Cyberjaya = 27% by 2025 relative to 2016 (Cyberjaya Smart Low CarbonCity Action Plan 2025)
    4. Hang Tuah Jaya = 16% by 2030 relative to 2018 (Hang Tuah Jaya Green City Master Plan
    5. Iskandar Malaysia = -16% by 2025 relative to 2010 (Low Carbon Society Blue Print for Iskandar Malaysia)

Outcome 2.1: Expedient appraisal, approval and implementation of strategic urban development plans/programme and projects

Overall rating for this outcome is **Satisfactory (S).**

The only output under this outcome is a "strengthened operational coordination mechanism for effective implementation of low carbon city policy" which was delivered through the study on Institutional Framework for Low Carbon Cities (IFSLCC), completed in 2019 and approved in 2020. The IFSLCC document must be read together with the NLCCM document. Cities and local authorities have been engaged to learn and adopt implementation and monitoring of recommendations from IFSLCC. This outcome has one indicator which has been achieved, and findings from the assessment of the achievement of this indicator are summarised below.

- **Indicator 2.1.1: Institutional framework for low carbon city urban development developed and adopted** - The Institutional Framework for Low Carbon Cities (IFLCC) study was conducted and the framework document was developed in consultation with the key stakeholders. Direct active engagement sessions/ focus group discussions were held from the beginning (inception) to the draft final report. The inputs from the stakeholders are based on their actual experience in driving their cities' low carbon agenda, i.e., failures, successes, challenges and opportunities. The final report was approved by Project Technical Committee (PTC) Meeting on 30 Jun 2020. The key stakeholders were briefed and trained as part of the dissemination and adoption programme for the cities in Q2 2021.

Outcome 2.2: Major cities are aware of, and are planning and implementing low carbon technology applications for integrated urban development

Overall rating for this outcome is **Satisfactory (S).**

There are two outputs under this outcome:

- Output 2.2.1: Complete training programmes for policy decision-makers, local governments, green practitioners and financing institutions on strategic urban planning processes for low carbon and climate resilient development
- Output 2.2.2: Operational knowledge management systems for low carbon city development

Output 2.2.1 was completed through the development of a training curriculum on "Development of Low Carbon Cities Assessment and Accreditation Panel, Facilitator and Accessor/Verifier", and implementation of the training curriculum. Output 2.2.2 was delivered through a wide range of activities, including supporting communication and outreach activities implemented by participating cities (e.g., Iskandar Malaysia Eco Life Challenge – IMELC, Eco-Schools Programme at Hang Tuah Jaya, Melaka), sponsorship for cities' wishlist on low carbon cities awareness activities (see **Appendix K**), organisation of a national conference on low carbon cities, production and dissemination of promotional materials, and establishment of the National Low Carbon Cities Network (NLCCN). This outcome has four indicators and all of which have been achieved. Findings from the assessment of the achievements of the outcome against the indicators are summarised below.

- **Indicator 2.2.1: Five cities with clear organisational setup for low carbon planning** - Low carbon planning has been institutionalised under the respective division with dedicated officer-in-charge in Hang Tuah Jaya, Iskandar Malaysia, Putrajaya, Petaling Jaya, and Cyberjaya:
    1. Hang Tuah Jaya - specialized unit called "Green Technology Unit" that focuses on the Low Carbon Cities agenda
    2. Iskandar Malaysia – Resilient Environment Division
    3. Putrajaya – Sustainable Development Division under Town Planning Department
    4. Petaling Jaya – Organisation in review but the municipal council has an existing Sustainable Development Division under its Development Planning Department
    5. Cyberjaya – Sepang Municipal Council has a dedicated Health and Environment, and Sustainable Development Division
- **Indicator 2.2.2: Five cities with low carbon urban development plans** – 5 participating cities developed low carbon urban development plans (Note: * Low carbon sector is covered by cities' local and structure plan):
    1. Johor Bahru District Local Plan 2025* (Low Carbon Society Blue Print for Iskandar Malaysia – including Johor Bahru District)
    2. Putrajaya Structure Plan 2025* (Putrajaya Green City 2025)
    3. Cyberjaya Smart Low Carbon City Action Plan 2025
    4. Hang Tuah Jaya Local Plan 2025* (Hang Tuah Jaya Green City Master Plan)
    5. Petaling Jaya Low Carbon City Action Plan 2015-2030
- **Indicator 2.2.3: Two hundred trainees (with 40% women) trained in integrated low carbon planning** – A number of training workshops and events on low carbon planning have been organised by GTALCC from 2017 to 2021, and these workshops and events were attended by 2,231 participants. Of which 991 (44.4%) are females and 1,240 (55.6%) are males. In addition, a Low Carbon Cities Training Curriculum for official training programmes were developed with key stakeholders and cities officials. The curriculum study and development were led by the Malaysian Institute of Planners' Low Carbon Cities and Sustainability Centre in consultation with cities as key stakeholders. The training curriculum

was endorsed by the Project Technical Committee on 30 June 2020 and will be adopted by ministries, agencies and cities. About 700 women participants in the workshops and trainings held so far corresponded to 44% of the total participants.

- **Indicator 2.2.4: Low Carbon City Network established and operational** - The network is a transformation of the existing GTALCC project website into a full-suite web-based network portal with new modules including a micro-site for GHG Online Portal and the NLCCM.

Outcome 3.1: Increased investment in low carbon technology applications in cities

The overall rating for this outcome is **Moderately Satisfactory (S)**

The only output under Outcome 3.1 is "leveraged investments in low carbon projects and initiatives" which was delivered through various technical assistance provided by the GTALCC project to the participating cities to continue and enhance the cities' investment in low carbon technologies and applications. These include the international peer review of the IMBRT design and provision of recommendations to achieve the Gold or Silver standard, support for national low carbon mobility EV bus roadmap for public transportation, and development of the E-Rebate App to support the Green Tax Rebate Scheme (GTRS) programme in MBPJ. This outcome has one indicator which has been achieved. Findings from the assessment of the achievement of this indicator are summarised below.

- **Indicator 3.1.1: Total amount of USD 185 million of investments leveraged funding for low carbon projects** - The total investment mobilised and committed for low carbon projects reported by the participating cities is USD 253,977,976. The largest investment is the Iskandar Malaysia Bus Rapid Transit (IMBRT) project with a budget of more than USD 200 million. However, the majority of the budget committed for the IMBRT project will be disbursed after EOP.

Outcome 3.2: More low carbon projects implemented in Malaysian cities

Overall rating for this outcome is **Moderately Satisfactory (MS)**

There are three outputs under this outcome:

- Output 3.2.1: Low carbon transport projects and initiatives
- Output 3.2.2: Low carbon energy project and initiatives
- Output 3.2.3: Low carbon waste management projects and initiatives

The abovementioned outputs were recommended by the MTR report and also correspond to the key sectors focused by the NLCCM document. Completion of these outputs has been delivered through technical assistance provided by the GTALCC project to the 5 participating cities and other agencies, such as the Mass Rapid Transit Corporation in Kuala Lumpur (see Appendix K for a list of TA and project activities undertaken by the 5 participating cities). The development and implementation of most projects and initiatives have been significantly affected by the COVID-19 pandemic resulting in delays in decision-making processes by the participating cities and partners. However, the GTALCC project managed to achieve the three indicators under Outcome 3.2 in terms of meeting the number of low carbon projects. However, direct ERs from these low carbon projects that are attributable to

the GTALCC project are somewhat limited due to the implementation delay, and most ERs will occur after EOP. With a limited contribution to the project direct ERs, the overall rating of this outcome is Moderately Satisfactory. Findings from the assessment of the achievement of the indicators are summarised below.

- **Indicator 3.2.1: Two investment projects in low carbon transportation** - A total of 4 investment projects in low carbon transportation facilitated by the GTALCC project have already been completed and 3 more are in progress. Note that, apart from the IMBRT project, other completed low carbon transportation investments facilitated by the GTALCC project (e.g., B100 for RapidBus Kuala Lumpur, EV chargers, Electric Bicycles and Bicycle Access Ramps) are small-scale pilot demonstration projects with limited contribution to the project direct ER.
- **Indicator 3.2.2: Two investment projects in low carbon energy** The GTALCC project completed the installation of Building Energy Monitoring Systems completed in March 2020 for Hang Tuah Jaya Municipal Council (MPHTJ) in collaboration with Sustainable Energy Development Authority (SEDA) Malaysia. Other low carbon energy investment projects identified are solar PV installations at Taman Midah MRT Station Park and Ride Building, a government building in Putrajaya, and residential buildings in the city of Petaling Jaya. The solar PV projects at Taman Midah MRT Station Park and Ride Building and residential buildings in Petaling Jaya are still in progress, but the solar PV project in Putrajaya was discontinued as it does not meet the authority requirement for the Net Energy Metering (NEM) Scheme.
- **Indicator 3.2.3: Two investment projects in low carbon waste management** - - Two low-carbon waste management projects were facilitated by the GTALCC project, including on-site waste management with anaerobic digesters and biogas capture in Petaling Jaya and waste composting by Iskandar Puteri City Council in Johor. The project team reported that the anaerobic digester and biogas capture are a small program with minimum GHG emission reduction potential. GTALCC was also involved in preparing the on-site Waste Management Plan for Cyberjaya and the Waste Minimisation and Management Action Plan for Putrajaya. It is envisaged that these two cities will implement the recommendations contained in the plans. For Putrajaya, the GTALCC-funded Waste Management Study and Action Plan was submitted to the President and Management of Putrajaya Corporation on 7 July 2020 for approval and implementation. The City Services Department was tasked with implementing the recommendations and action plan. The Sepang City Council, which oversees development in Cyberjaya, is negotiating with Kumpulan Darul Ehsan Berhad, a state-owned GLC responsible for rubbish collection and disposal in Selangor, to implement the waste management plan. The difference in pace in adopting the plan reflects the greater autonomy of the Putrajaya Corporation compared to the limited powers of the Sepang Municipal Council in waste management, which is dependent on decisions made by the state of Selangor, where it is based.

Table 4-11 – Assessment of Progress Toward Objectives and Expected Outcomes

Objective/Outcome	Description of Indicator	Baseline Level	End of project target level	Updated Target and Assessment (May 2022)	TE Team Rating	TE Team Comment
Objective: To facilitate the implementation of low carbon initiatives in at least five Malaysian cities and showcase a clear and integrated approach to low carbon development	Cumulative Direct GHG Project emission reductions (ER) resulting from the Project technical assistance and investments by end-of-project, tCO2 eq.	0	346,442	Direct ER = 2,022 tCO2eq Lifetime direct ER = 27,270 tCO2eq Indirect ER (Bottom Up) = 909,180 tCO2eq Indirect ER (Top Down) = 192,180,505 tCO2eq The above ER targets are based on the report on GHG emission reduction evaluation of the GTALCC project completed in September 2021. Direct ER from the B100 pilot programme for public transportation is partially included in the direct ER achieved, while direct ERs from the Iskandar Malaysia Bus Rapid Transit (IMBRT) and Installation of solar PV at MRT facility are excluded from the total direct ER achieved as the operations of these projects would commence only after the end of the GTALCC project.	MS	The GTALCC project introduced better low-carbon design features into all investments assisted by the project, and the TE team recommends consideration of lifetime direct ER and indirect ER (bottom up) which estimate ER from the project operation after EOP as part of the project objective indicator.
Outcome 1.1: Major cities implemented and adopted integrated low carbon urban development plans and/or programmes	Status of national low-carbon planning and institutional framework	No Framework	Framework developed and adopted	The EOP target for this indicator is achieved. The National Low Carbon Cities Masterplan (NLCCM) was developed, presented to and approved for adoption by the Malaysia Climate Action Council that was chaired by the Honorable Prime Minister of Malaysia on 13 April 2021 and approved by Cabinet on 7 July 2021. The Prime Minister launched the document at the Malaysia Low Carbon Cities Conference (MyL3C) on 13 July 2021. A series of webinars were held in June and July 2021 to promote and build up the momentum towards MyL3C in July 2021.	HS	

Objective/Outcome	Description of Indicator	Baseline Level	End of project target level	Updated Target and Assessment (May 2022)	TE Team Rating	TE Team Comment
	GHG Online Portal established and used by cities	0	5	The EOP target of this indicator is achieved. GHG online portal is established at www.ghgportal.my with 5 cities used namely 1. Cyberjaya 2. Hang Tuah Jaya 3. Iskandar Malaysia 4. Petaling Jaya 5. Putrajaya	S	Although data from the 5 participating cities has already been uploaded to the portal, additional historical and more recent data from the 5 participating cities and others should be uploaded to demonstrate the comprehensiveness and usefulness of the portal.
	Number of cities with adopted GHG reduction targets	0	3	The EOP target of this indicator is achieved in their local and structure plans. 5 cities in Malaysia adopted GHG reduction targets. Their current GHG reduction targets (absolute terms) are: 1. Putrajaya = -18% by 2025 relative to 2012 (Putrajaya Green City 2025) 2. Petaling Jaya = 30% by 2030 relative to 2014 (Petaling Jaya Low Carbon City Action Plan 2015-2030) 3. Cyberjaya = 27% by 2025 relative to 2016 (Cyberjaya Smart Low CarbonCity Action Plan 2025) 4. Cyberjaya = 27% by 2025 relative to 2016 (Cyberjaya Smart Low CarbonCity Action Plan 2025) 5. Iskandar Malaysia = -16% by 2025 relative to 2010 (Low Carbon Society Blue Print for Iskandar Malaysia)	S	
Outcome 2.1: Expedient appraisal, approval and implementation of	Status of institutional framework for low carbon city	No Framework	Framework developed and adopted	The EOP target of this indicator is achieved. Institutional framework for low carbon cities developed and adopted. The key stakeholders were	S	

Objective/Outcome	Description of Indicator	Baseline Level	End of project target level	Updated Target and Assessment (May 2022)	TE Team Rating	TE Team Comment
strategic urban development plans/program and projects	urban development			briefed and trained as part of the dissemination and adoption programme for the cities in Q2 2021.		
Outcome 2.2: Major cities are aware of, and are planning and implementing low carbon technology applications for integrated urban development	Number of cities with clear organisational setup for low carbon planning	0	5	The EOP target of this indicator is achieved. Low carbon planning is being institutionalised under the respective division with dedicated officer in-charge: 1. Hang Tuah Jaya - specialised unit called "Green Technology Unit" that focuses on the Low Carbon Cities agenda. See organisation structure at http://www.mphtj.gov.my/ms/htj/pengurusan/carta-organisasi-mphtj-2020. 2. Iskandar Malaysia – Resilient Environment Division, see management team structure at https://www.irda.com.my/about-us/management-team/. 3. Putrajaya – Sustainable Development Division under Town Planning Department. See organisation chart at https://www.ppj.gov.my/en/second-page/carta-organisasi-1. 4. Petaling Jaya – Organisation in review but the municipal council has an existing Sustainable Development Division under its Development Planning Department. See list of departments at https://www.mbpj.gov.my/ms/mbpj/pengurusan/jabatan-mbpj. 5. Cyberjaya – Sepang Municipal Council has a dedicated Health and Environment, and Sustainable Development Division. See organisation chart at https://www.mpsepang.gov.my/en/organisation-chart/?lang=en.	S	

Objective/Outcome	Description of Indicator	Baseline Level	End of project target level	Updated Target and Assessment (May 2022)	TE Team Rating	TE Team Comment
	Number of cities with low carbon urban development plans	0	5	The EOP target for this indicator is achieved. 5 cities with low carbon urban development plans: 1. Johor Bahru District Local Plan 2025* (Low Carbon Society Blue Print for Iskandar Malaysia – including Johor Bahru District) 2. Putrajaya Structure Plan 2025* (Putrajaya Green City 2025) 3. Cyberjaya Smart Low Carbon City Action Plan 2025 4. Hang Tuah Jaya Local Plan 2025* (Hang Tuah Jaya Green City Master Plan) 5. Petaling Jaya Low Carbon City Action Plan 2015-2030 (Note: * Low carbon sector is covered by cities' local and structure plan).	S	
	Number of trainees trained in integrated low carbon planning (% of women)	0 (0%)	200 (40% women)	The EOP target for this indicator is achieved. A total of 2,231 (44.4% women) people trained in integrated low carbon planning from 2017 to 2021.	HS	
	Status of Low Carbon Cities Network	None	Established and operational	The EOP target for this indicator is achieved. The network is a transformation of the existing GTALCC project website into a full-suite web-based network portal with new modules including micro-site for GHG Online Portal and the NLCCM.	S	
Outcome 3.1: Increased investment in low carbon technology applications in cities	Total amount of investments leveraged funding for low carbon projects	0	$185 million	The EOP target of this indicator is achieved The investment committed and mobilised for low carbon projects reported by the 5 participating cities are:	MS	The investment by Iskandar Malaysia is committed with annual disbursement targets, and, due to the project delay from the Iskandar Malaysia

Objective/Outcome	Description of Indicator	Baseline Level	End of project target level	Updated Target and Assessment (May 2022)	TE Team Rating	TE Team Comment
				Iskandar Malaysia = USD 250,652,300 Petaling Jaya = USD 1,905,180 Putrajaya = USD 1,397,573 Cyberjaya/Sepang = USD 22,923 Total = USD 253,977,976		side, most of the disbursements will occur after EOP. These post-EOP disbursements will not be counted as the project co-financing, although they are influenced by the GTALCC project.
Outcome 3.2: More low carbon projects implemented in Malaysian cities	Investment projects in low carbon transportation	0	2	The EOP target of this indicator is achieved. A total of 4 investment projects in low carbon transportation facilitated by the GTALCC project already completed and 3 more are in progress. 1. International Peer Reviewer engaged by the project provided technical assistance in 2020 with recommendations on the preliminary design to achieve Bus Rapid Transport (BRT) Gold Standard. Some of the recommendations were adopted into the design by the BRT Lead Consultant and Iskandar Malaysia BRT (IMBRT) team. 2. The IMBRT technology pilot is on-going since March 2021 with various bus technologies on trial in Johor Bahru. 3. The B100 (Bio-Fuel) for Public Transportation – RapidBus Kuala Lumpur / Mass Rapid Transit (MRT) Corporation is in the final stages of pilot programme, pending procurement of a specialised mobile fueling system. It is targeted to commence in Q2 2022.	MS	Although the number of investment projects is achieved, most of low carbon transportation investments facilitated by the GTALCC project, except the IMBRT project, are small-scale pilot demonstration projects with limited contribution to the project direct ER. Moreover, many projects will be operational after EOP.

Objective/Outcome	Description of Indicator	Baseline Level	End of project target level	Updated Target and Assessment (May 2022)	TE Team Rating	TE Team Comment
				4. The design study for on-road bike lane between Putrajaya Sentral and the government complex is being finalised. It will identify the best route for a dedicated bike lane. The technical studies supported by the project on Road Safety Audit (RSA) 2 and 3 have been completed and this shall provide inputs to the designing of a safe bike lane on existing road. 5. The pilot project has installed 10 units of EV chargers at 6 locations i.e. Petaling Jaya (4 units at 2 locations), Shah Alam (3 units at 2 locations), and Kuala Lumpur (3 units at 2 locations). The final report provides a guideline for apartments and building owners on type of installations that can be carried out, the procedures, and potential business models. 6. The electric bicycles are being used by Enforcement and Maintenance staff members of Putrajaya Corporation in Putrajaya and Sepang Municipal Council in Cyberjaya. 7. The Bicycle Access Ramps installed at the stairways of 2 bridges in Putrajaya is now part of the city's comprehensive cycle network.		
	Investment projects in low carbon energy	0	2	The EOP target of this indicator is achieved. The GTALCC Project facilitated four investment projects in low carbon energy. Three were completed but the solar PV project with the city of Putrajaya was cancelled due to the regulatory requirement on the installation site.	MS	Although the number of investment projects is achieved, most of low carbon energy projects are small-scale pilot demonstration projects with limited contribution to the project direct ER. Moreover, the 2 solar projects with Petaling

Objective/Outcome	Description of Indicator	Baseline Level	End of project target level	Updated Target and Assessment (May 2022)	TE Team Rating	TE Team Comment
				1. Collaboration with the city of Putrajaya on Proof of Concept (POC) to determine Solar PV's technical and commercial viability for government buildings with alternative solutions to increase adoption of renewable energy. The demonstration at Putrajaya's Precinct 4 parking complex will not commence as it does not meet the authority requirement for Net Energy Metering (NEM) Scheme and high financial investment for installation of Solar PV and infrastructure works for Self-Consumption (SELCO) scheme. 2. Collaboration with the city of Petaling Jaya - Business proposal development is on-going to identify package deals to lower costs for users and increase uptake in the city. The project shall support Petaling Jaya on the promotion of the packages once ready. An EPC Partner shall be selected to be MBPJ's Promotional and Implementation Partner for the Solar PV Bundle Purchase Scheme Initiative and shall be able to provide competitive Solar PV Bundle Packages to design, fabricate, supply, install, test and commission Solar PV onto rooftops, for a minimum of 50 houses. 3. Collaboration with Mass Rapid Transit (MRT) Corporation - Solar PV installation of 37kWp will be installed at Taman Midah MRT Station Park and Ride Building. 4. Installation of Building Energy Monitoring Systems completed in March 2020 for Hang Tuah Jaya Municipal Council (MPHTJ) in collaboration with		Jaya and MRT will be operational after EOP.

Objective/Outcome	Description of Indicator	Baseline Level	End of project target level	Updated Target and Assessment (May 2022)	TE Team Rating	TE Team Comment
				Sustainable Energy Development Authority (SEDA) Malaysia.		
	Investment projects in low carbon waste management	0	2	The EOP target of this indicator is achieved. There are 2 low carbon waste management projects facilitated by the GTALCC Project that were completed, including the on-site waste management with anaerobic digesters and biogas capture in Petaling Jaya and waste composting by Iskandar Puteri City Council in Johor. In addition, the following study and planning were supported by GTALCC. 1. Cyberjaya On-Site Waste Management Plan has been completed and accepted by Sepang Municipal Council (MPS) in 2020. MPS to collaborate with the waste management contractor on the recommendations of the plan. 2. Putrajaya Waste Minimisation and Management Action Plan Study was supported by the project and completed in February 2020. The document was handed over to Putrajaya for implementation of recommendations stated in the report.	MS	The project team noted that the 2 projects in Petaling Jaya and Iskandar are small and contribution to direct ER is marginal.

4.3.2 Relevance (*)

The GTALCC project was found to be in line with the country's priorities as set out in the 10th, 11th and 12th Malaysia Plans, and the project outcomes were found to be relevant to national, regional and local development priorities and policies, GEF focal areas/operational programme strategies and the UNDP Malaysia Country Programme 2016 - 2020. All key government and private sector stakeholders interviewed confirmed the alignment with national priorities and the project was formulated according to the needs and interests of the targeted and relevant stakeholders. This has been evident throughout the project design and implementation, where all participating cities have actively participated in the project, despite the unprecedented impact of the pandemic COVID -19 in 2020 and 2021. The relevance of the GTALCC project to low carbon development in Malaysia was reaffirmed by the Malaysian government's declaration at COP 26 to achieve zero waste and put cities on a low-carbon path with the National Low Carbon City Master Plan (NLCCM) developed under the GTALCC project.

The rating for relevance is **Highly Satisfactory**.

4.3.3 Effectiveness (*)

In terms of overall implementation, the project was effective in delivering project outputs and achieving the outcomes set out in the project's results framework, with moderate shortcomings in meeting project implementation schedules. Government restructuring in 2018 and 2020 led to delays in procurement of consultancy services by the project and confusion in the project management structure. The COVID -19 pandemic in 2020 and 2021 has had a significant impact on the project's work plan, particularly on the field implementation activities carried out in each participating city. Despite these significant constraints, the adaptive management approaches adopted by the project team and UNDP, such as procurement support from UNDP, the establishment of the Project Implementation and Monitoring Committee (JKPPP) and more frequent project management meetings, have enabled the smooth implementation of the project and the achievement of actual project outcomes/outputs corresponding to what has been planned in terms of the target indicators. However, the above constraints have pushed back the low carbon investment milestones planned by the 5 participating cities and these delayed investments have significantly reduced the direct ER during the project period.

The National Low Carbon City Masterplan (NLCCM) is considered the most important achievement by all government and private sector stakeholders interviewed. The statement made by KASA in November 2021 at the COP -26 conference in Glasgow, UK, highlighted several measures to achieve the target of a 45% reduction in carbon intensity by 2030 and the target of zero greenhouse gas emissions by 2050. The NLCCM is clearly the key reference for Malaysia in putting cities on a low-carbon pathway. Participating cities have acknowledged the project's contributions to LCC planning and implementation, capacity building and communication.

The rating for effectiveness is **Moderately Satisfactory**.

4.3.4 Efficiency (*)

The project is considered efficient in terms of the use of financial resources to deliver outputs and realise outcomes. However, the project will not be able to achieve the direct emission reduction target proposed as the objective level indicator due to significant delays in the implementation of many low-carbon projects implemented by the participating cities. The IMBRT project, for example, is expected to be operational by late 2023 to early 2024. Although the IMBRT project is estimated to

reduce more than 100,000 tCO2eq annually, these reductions cannot be counted as direct ER of the GTALCC project as it will only become operational after the EOP.

The project management structure described in ProDoc is considered efficient to achieve the expected results. The appointed Component Managers help to maintain the efficiency of project implementation and budget management at component level. Adaptive management of project procurement and use of online meeting platforms introduced by SEDA and UNDP have mitigated the impact of government restructuring and the COVID -19 pandemic. The MTR recommendations help streamline the implementation and monitoring of activities under Component 3 and clarify indicators and targets. Overall, stakeholders interviewed expressed satisfaction with the project management and timeliness of the project.

However, the MCO and WFH measures imposed by the Malaysian government for 2020 and 2021 have resulted in unintended cost savings. However, according to the approved AWP 2022, the remaining project funds have already been committed, as shown in Table 4-5. The TE team views that project delay and extension due to the COVID-19 pandemic are beyond the project's control.

The rating for efficiency is **Moderately Satisfactory**.

4.3.5 Overall Outcome (*)

The overall assessment of the project outcome rating is summarised in the table below.

Table 4-12 – Assessment of Outcomes

Assessment of Outcomes	Rating
Relevance	Highly Satisfactory (HS)
Effectiveness	Moderately Satisfactory (MS)
Efficiency	Moderately Satisfactory (MS)
Overall Project Outcome Rating	Moderately Satisfactory (MS)

4.3.6 Sustainability (*)

4.3.6.1 Financial resources

The GTALCC project has shifted its focus from developing a proposal for international financing through NAMA, GEF or GCF for future low-carbon investments in cities to the government budget and relevant financial action points outlined in the NLCCM. This approach poses two risks in the context of financing low-carbon cities in Malaysia. First, funding for environmental programmes in Malaysia is generally limited. The federal government's annual budget for the environment portfolio is used to fund operational expenses such as staff salaries. Note that international environmental assistance has been instrumental in improving Malaysia's policy response to sustainable development over the past two decades. Second, local government expenditure generally accounts for less than 5% of total government expenditure, with the federal government accounting for about 80% of the share. This means that most of the 154 local authorities need grants and subsidies from the federal and state governments to improve environmental outcomes.

The five local authorities selected under the GTALCC project are leaders among their peers. Strengthened by visionary leadership and strategic partnerships, these cities have initiated many initiatives to adopt green technologies and create a low-carbon society. GTALCC, through its direct and indirect support throughout the project, has further strengthened the capacity of these local authorities to establish low-carbon initiatives. Given their initiative and motivation, the Financial

Sustainability rating for all five participating cities is "Likely", meaning that the positive impacts of the GTALCC intervention are expected to continue.

However, replicating low-carbon initiatives in the remaining local authorities will require financial support from the federal government, especially in those cities with low tax and non-tax revenues. The NLCCM justifies and provides the policy hook for cities to access the annual budget to advance their low carbon policies. The RM35 million Low Carbon Catalyst Grant (GeRAK) was a step in the right direction to drive climate change action at the local government level. Scaling up low carbon initiatives is only possible if such a grant is made available annually, rather than a one-off measure as GeRAK was. The financial instruments recently announced by the federal government and government-related financial institutions also point to opportunities for future funding of low-carbon cities:

- IMT-GT – Aiming for local climate actions, twelve cities in Malaysia will develop a green roadmap under the Indonesia Malaysia-Thailand Growth Triangle (IMT-GT) cooperation framework.
- MySDG Fund – The multi-donor mechanism is created to enable collaboration between the Government, the private sector, corporate bodies, entities within and outside Malaysia, and individuals in achieving the SDGs.
- Employee Provident Fund (EPF) – Malaysia's largest retirement fund recently released its Sustainability Investment Policy to become fully ESG compliant by 2030 and climate neutral by 2050.

Alternatively, the remaining 146 local authorities must possess the technical know-how to access international funds for low carbon investments.

The rating for sustainability of financial resources for these local authorities is **Moderately Likely**.

4.3.6.2 Socio-political

The restructuring of ministries due to the change in political leadership has not affected the project, but the domain of environmental policy is relatively more fragmented than before. In recent years, there have been too many changes in leadership to ensure policy stability. As a result, Malaysia's public policy lacks focus to deal with increasingly complex environmental challenges, jeopardising the longevity of the low-carbon outcomes that GTALCC sought.

GTALCC has played an important role in creating a network of professionals, service providers, community leaders and officials in low-carbon cities through its training and seminar offerings. These stakeholders recognise the importance of adopting and embedding the low-carbon cities agenda. The network and its leadership (e.g. the Malaysian Institute of Planners) will ensure that project outcomes extend beyond GTALCC funding. The success of the online portal is therefore imperative to ensure that the positive 'project mood' persists on a new platform and that the leadership vacuum on the government side is filled.

The lockdown measures during the pandemic COVID -19 have significantly affected the fiscal capacity of governments, including local authorities, to collect taxes and raise revenue. Since public health is the critical factor for local authorities' survival, many will not devote their limited human resources to progressive but non-urgent tasks such as community empowerment for low-carbon cities.

Given the uncertainties involved with the socio-political component, the sustainability rating is **Moderately Likely**.

4.3.6.3 Institutional framework and governance

With the government's endorsement and the release of the NLCCM, GTALCC has successfully put in place the necessary and clear policy framework prior to project completion. The government has also selected the Malaysian Green Technology and Climate Change Corporation (MGTCC) to spearhead the implementation of the Masterplan. The Malaysian Climate Change Action Council (MyCAC) will oversee the implementation of the master plan. In theory, MyCAC, with the Prime Minister as its chair, is well positioned to coordinate horizontal integration among the various ministries. If done well, the process can address the challenge of silos between ministries and agencies.

While MGTC is an agency under the Ministry of Environment and Water (KASA)[11], its structure as a company limited by guarantee (CLBG) is a course of concern. The Cabinet, on 7th July 2021, approved and endorsed MGTC as the implementing agency for NLCCM's rollout. The implementation of blueprints or master plans often falls under the responsibilities of ministries or their agencies whose operating expenditures the government supports. Without its source of legal power and government funding, MGTCC has to rely on the authorities of KASA, KeTSA and MHLG to implement the actions. At the decision-making level, the governance structure overseeing the implementation of NLCCM will leverage the Malaysian Climate Change Action Council (MyCAC), which the Prime Minister chairs.[12] While MGTCC has the technical capacity for low carbon measures, it may not have the 'government muscle' to promote the sustainability of GTALCC outcomes at the operational level. For a successful roll-out, the Masterplan also needs vertical linking with appropriate State entities and dedicated divisions in the local authorities, which is spelt out in GTALCC's *Study on Institutional Framework for Low Carbon Cities*.

While emerging market players such as Climate Governance Malaysia and youth-led groups such as KAMY (Klima Action Malaysia) are encouraging trends, a social movement to force widespread low-carbon action is still a long way off. Stakeholders believe that the successful aspects of the GTALCC project need to be translated to a policy platform so that awareness continues to grow in the wider society. They believe that the role of politicians is also crucial. Malaysia needs younger politicians who understand the low-carbon agenda to promote it at the national level..

While GTALCC has developed the essential institutional capacity in terms of expertise and staff, it has not yet established the appropriate systems and structures that will be self-sufficient after the project closure date. Hence, the sustainability rating for institutional framework and governance is **Moderately Unlikely**.

4.3.6.4 Environmental

Malaysia recently suffered flood events with extensive damage to properties and lives. Scientific studies suggest some flood zones will increase their area by more than 200 percent in the next two decades. The latest IPCC scenarios also indicate the increasing frequency of 'water bombs' extreme events in Southeast Asia, including Malaysia. The growing focus on adaptation to climate change may reduce the emphasis on climate mitigation and low carbon measures within the country.

The environmental sustainability rating is **Moderately Likely**.

[11] According to the *Ministers of the Federal Government (No. 3) Order 2021*.

[12] Menteri Besar and the Chief Ministers of every state are the Malaysian Climate Change Action Council members, providing the vertical linkage at the decision-making level. For horizontal integration, the proposed governance structure outlined in the NLCCM document also includes key ministries such as KPKT, Ministry of Energy and Natural Resources (KeTSA), Ministry of Federal Territories, Ministry of Transport, and Ministry of Works. As proposed in the NLCCM document, MGTC will report the progress of NLCCM implementation in this established platform.

4.3.6.5 Overall likelihood

The summary of sustainability ratings and the overall likelihood of sustainability are given in Table 4-13.

Table 4-13 – Assessment of Sustainability

Sustainability	Rating
Financial resources	Moderately Likely (ML)
Socio-political	Moderately Likely (ML)
Institutional framework and governance	Moderately Unlikely (MU)
Environmental	Moderately Likely (ML)
Overall Likelihood of Sustainability	Moderately Likely (ML)

4.3.7 Country Ownership

The design, initiation and implementation of the GTALCC project are taking place within the right enabling national environment. Sustainable development efforts were one of the key points of the Eleventh Malaysian Plan (11 MP) for 2016-2020 and the recently adopted Twelfth Malaysian Plan (12 MP) for 2021- 2025. The project was designed to address the lack of a policy or master plan for low carbon (urban) development in Malaysia. The project supports the formulation of an institutional framework that will streamline coordination among relevant agencies and authorities at the national level and promote effective vertical coordination at the state and city levels. The project also contributes to the updated NDC target announced in early 2021. In it, the country commits to reducing its economy-wide carbon intensity (as measured against GDP) by 45% by 2030 compared to 2005 levels.

Throughout the project implementation, relevant representatives from government departments and agencies at national, state and city levels, civil society and private sector organisations have been actively involved in the project as members of the NSC and PTC. The Government of Malaysia and the participating cities have maintained their interests and financial commitment to the project despite the restructuring in 2018 and 2020.

The National Low Carbon City Masterplan (NLCCM), developed under the GTALCC project, is considered the key guiding document for the transition of cities in Malaysia to a low carbon path. The NLCCM was referred to in the KASA declaration at the COP -26 conference in Glasgow, UK, in November 2021. Overall, the country's ownership of the GTALCC project is evident in the official government documents and in the feedback from the interviews with government and private sector stakeholders.

4.3.8 Gender Equality and Women's Empowerment

Gender aspects are not particularly addressed in ProDoc. It should be noted that at the time of project design (2012-2015), gender mainstreaming was not clearly defined in the GEF-5 UNDP Project Document. Consequently, the GTALCC ProDoc did not include a section on gender and activities did not specifically target women and girls. The original indicators in the project's results framework are not gender relevant. The project's SESP states that "By taking in account different gender roles, needs and preferences, the project will further harness the capacities of communities, particularly women, on low-carbon development policies and activities", but this has not been reflected in the project's subsequent progress reports. The PIRs (2018, 2017) contain some references to gender considerations. For example, it mentions that "project interventions are taking

into account the roles of women and men through a consultative process to ensure that interventions are designed for the benefit of both women and men".

Following the recommendation of the MTR, gender-related indicators were included in the project's results framework. The project promotes women's ability to use, develop and protect natural resources, as demonstrated by the urban agriculture activities implemented in the participating cities. The PIR 2021 reports that the project has paid attention to gender balance in all its activities and has made a conscious effort to have women participate in the MyL3C conference. This is evident from the list of facilitators moderators and panellists. About 44% of the beneficiaries/participants of the GTALCC training and capacity building sessions are women. The project has ensured gender representation at GTALCC events, both in the planning of such events and in the staffing of panel discussions, in order to provide a level playing field for qualified women and to counter gender bias in relation to the topic under discussion.

However, the TE team found that many of the government and private sector actors interviewed had limited knowledge of gender-responsive approaches and activities. Considering that gender requirements were not part of the original project design, the gender-specific measures and targets in GTALCC should have been made clear to UNDP's project.

4.3.9 Cross-Cutting Issue

The GTALCC project is aligned with the Country Programme Action Plan for 2016-2020 between the Government of Malaysia and UNDP as discussed under Priority 1 – Inclusive development and growth, and Priority 2 – Sustainable and resilient development. The project outcomes also contribute to the climate change mitigation targets as highlighted in the 2021 NDC. Waste reduction and management related activities and urban farming implemented in participating cities have strengthened the capacity and knowledge of households in low carbon and sustainable development and contributed to sustainable livelihoods in the targeted areas. Other cross-cutting impacts generated by the project would include a reduction in fossil fuels and improved air quality through greater utilisation of EVs and biofuel vehicles.

4.3.10 Catalytic Role/ Replication Effect

NLCCM has laid a solid foundation for Malaysia to transform its cities towards a low carbon pathway after the completion of the GTALCC project. NLCCM focuses on 4 key sectors that cities need to address to achieve a low-carbon transition, i.e. spatial planning and development, transport, energy and waste, and provides a timeline and absolute carbon reduction targets for 33 local and regional governments selected as target cities to implement the action plans.

The GTALCC project has focused on 3 of the above 4 key sectors, i.e. transport, waste and energy, and several knowledge products on different topics in these 3 key sectors have been produced and disseminated to specific target groups in the low carbon cities sector. The main highlights of these knowledge products include:

- Low Carbon Island Model Report
- Institutional Framework for Low Carbon Cities Report
- Module for Train the Trainer Curriculum on Low Carbon Cities
- Review of the Low Carbon City Framework
- Iskandar Malaysia Bus Rapid Transit Peer Review
- On-Site Waste Management in Cyberjaya Report
- Green Technology Incentive Schemes for Households and SMEs Report

- Scaling Up Financing and Viable Business Cases for Low Carbon Public Transport (Bus)
- Putrajaya Waste Minimisation and Management Action Plan

The project has utilised its information-sharing platforms (e.g., www.gtalcc.gov.my , www.ghgportal.my) and the events it has organised or participated in to disseminate information from the knowledge products. One of the events include the Asia Pacific Urban Forum, where GTALCC was an event partner and booth and centre stage slot to share about the GTALCC project and initiatives: https://www.apuf7.org/all-events/seda.

Through knowledge transfer, lessons learned and experience, other Malaysian cities have initiated low carbon development and implementation. These initial replications will lead to further investment and replication of low carbon activities in other cities.

4.3.11 Progress to Impact

The project has successfully implemented all project activities that contributed to the achievement of the project outcomes and outputs as indicated in the revised project results framework. The approval of the National Low Carbon Cities Masterplan (NLCCM) by the Malaysian government in July 2021 is a significant achievement of the project in removing policy and regulatory barriers at the national level, and will pave the way for further LCC interventions at the state and city levels. Knowledge products, capacity building and awareness raising activities, and knowledge sharing platforms created by all project components are clearly contributing to greater awareness and capacity for low carbon technologies in the 5 participating cities.

Although action plans for financing low-carbon technologies are included in the NLCCM, the financial barrier of low investment was not properly addressed by the project. As a result, low-carbon investment is still likely to rely on the annual government budget and funding from donor agencies after the completion of the GTALCC project. The project has achieved its objectives with a number of low-carbon projects in transport, energy and waste management, but most low-carbon investment projects, with the exception of IMBRT, are small and their contribution to direct emission reductions is relatively limited. Based on the IRDA presentation and site visits, the IMBRT project will be operational in late 2023 to early 2024. Therefore, the project will not achieve the direct emission reduction target stated in the ProDoc.

According to PIR 2021, the project claimed to have achieved a cumulative direct GHG emission reduction of 340,573.17 tCO_2eq, of which approximately 92% is attributable to the IMBRT project. With the delay of the IMBRT project, the project team engaged an international consultant to assess the GHG emission reduction of the GTALCC project. The updated value of cumulative direct emission reduction as a result of GTALCC project activities from 2018 to 2021 is 2,022 tCO_2eq and the lifetime direct emission reduction from low-carbon investments during the project period is 27,270 tCO_2eq.

However, the TE team noted that the GTALCC project has been instrumental in integrating humanised features into the IMBRT project and that GEF funds will contribute to significant GHG emission reductions upon completion of the GTALCC project. In addition, the NLCCM, which has been formally adopted by the Malaysian government for transforming cities towards a low-carbon pathway, will help reduce GHG emissions through future low-carbon investments in at least 33 cities over the next 30 years (2021 - 2050). The TE team concluded that the GTALCC project has made satisfactory progress towards the expected impacts, with minor shortcomings in addressing the financial barrier.

5 MAIN FINDINGS, CONCLUSIONS, RECOMMENDATIONS & LESSONS

5.1 MAIN FINDINGS

5.1.1 Project Design/Formulation

The GTALCC project was designed to remove the key barriers: 1) incomplete policy and regulatory frameworks to promote low-carbon planning and development, particularly at the sub-national level; 2) lack of awareness and institutional capacity for evidence-based low-carbon planning at the sub-national level; and 3) lack of capacity of cities to mobilise finance and incentives and the availability of financial mechanisms to promote low-carbon investments. Although the political and economic environment has changed during project implementation, the project design is still relevant, clear and country-driven. Its relevance was confirmed by government and private sector stakeholders interviewed by the TE team. However, the TE team found that the project outcomes and outputs do not sufficiently address the gaps in the policy and institutional framework at the state level. Note that at the time of project design (2012-2015), gender mainstreaming was not clearly stated in the GEF-5 UNDP Project Document. As a result, the GTALCC ProDoc did not include a section on gender and activities were not targeted at women and girls.

The MTR recommended a revision of the project results framework to better reflect the quantity and quality of key project activities and outputs, such as the formulation and preparation of the National Low Carbon Cities Masterplan (NLCCM), which was recognised by stakeholders as one of the key achievements of the project. The indicators in the original project results framework are not gender specific, and following the recommendation of the MTR, gender specific indicators have been included in the project results framework. However, the proposed revisions to the project results framework in 2019 were unable to predict the significance of the COVID -19 pandemic in 2020 and 2021, resulting in significant delays in project implementation and deliverables, and directly impacting the direct emission reductions achieved by the project.

Towards the end of the project, most assumptions proved correct, with the exception of the progress of the Green Mobility Fund, and the Malaysian economy was disrupted by the unprecedented impact of the global pandemic COVID -19. All key stakeholders identified in the project formulation phase were engaged throughout the project implementation. The restructuring of the relevant ministries and agencies and the appointment of new National Project Directors have not had a significant impact on project implementation and stakeholder engagement. The project has established linkages with several ongoing low-carbon initiatives being implemented at regional and city level.

5.1.2 Project Implementation

The practise of adaptive management is reflected throughout the project implementation period. In 2018, procurement by all government agencies, including the project team, was temporarily suspended by order of the government (as a result of government restructuring following the general elections in the same year), and UNDP provided procurement support to the project team. Project procurement tasks were later divided between SEDA and UNDP Malaysia to ensure effectiveness. The MTR recommendations were reviewed, finalised and approved by the NSC meeting before being implemented by the project team.

Despite local political changes and the impact of the COVID -19 pandemic, key national government officials recognised the importance of the GTALCC project and continued to participate in the

project. All 5 participating cities that were envisaged in the planning phase have participated in the implementation phase. Regular NSC and PTC meetings were crucial in maintaining effective project management and inter-ministerial coordination even during the COVID -19 pandemic.

In terms of financial planning effectiveness, the project team was not able to meet the annual target expenditure. As of 31 December 2021, the project had a cumulative expenditure balance of 66% and a balance of USD 1,483,412.79. According to the project team, project expenditure of USD 388,847.81 is still outstanding for 2021, which should be disbursed in 2022. Therefore, the remaining balance of the GEF budget for 2022 is USD 1,094,564.98. Based on the updated project status as of May 2022, the team at TE estimated that the total cumulative expenditure of the project will reach 87% of the total GEF budget by the EOP (1 June 2022). The Project Implementation Report (PIR) of September 2021 shows that while activities are on track, financial expenditures are far below expectations, mainly due to the inability to travel, hold events, and engage stakeholder services in 2020 and 2021 due to the ongoing COVID -19 pandemic. Planned physical meetings and engagements were replaced by online platforms, resulting in additional cost savings for the project. The total EOP co-financing amounts to USD 48,182,793, which is approximately 87% of the indicative co-financing value at the time of project approval.

The TE team notes that the implementation of the project's M&E system has met progress and financial reporting requirements, including timeliness of reports. The project has used the feedback from the M&E system, such as progress reports, project implementation reviews (PIR) and the MTR report, to adjust the project implementation approach and improve project performance.

The identified risks were effectively addressed by the project management unit, the implementing partner and UNDP. Most risk probabilities were correctly identified, with the exception of political and economic risk probabilities arising from government changes and COVID -19. However, the project team managed these political, economic and operational risks and did not significantly affect the quality of project outputs and outcomes. The adaptive project management strategy mentioned earlier has effectively mitigated the impact of political risk.

The project includes activities with minimal or no risks of negative social or environmental impacts. Although the project includes physical interventions such as the installation of electric vehicle charging stations and solar panels, as well as the demonstration of BRT technologies, these are carried out in accordance with the rules and regulations issued by the relevant authorities. The BRT project has undergone a Social and Environmental Impact Assessment (SIEA) in accordance with the Malaysian government's standard requirements for infrastructure projects and the risk has been assessed as insignificant.

5.1.3 Project Results

The GTALCC project has made significant progress towards the expected outcome. It met the target level of each indicator under all the project outcomes. However, due to delays in the implementation of several pilot projects, the IMBRT, the Putrajaya cycle track and the B100 for public transport, it has been challenging for the project to capture direct emission reductions. Over the life of the project, the actual low-carbon investments will generate about 2,000 tCO2eq, which is far below the direct emission reduction target of 346,442 tCO2eq as stated in the ProDoc. Considering that the GEF has not provided clear guidance on how to estimate emission reductions when an investment has been committed but delayed beyond the project period, indirect emission reductions could be considered as an alternative to measure the extent to which the project is achieving its objective.

All key government and private sector stakeholders interviewed confirmed that the project is aligned with national priorities and that it has been formulated according to the needs and interests of affected and relevant stakeholders. The alignment has been proven throughout the project planning and implementation. All participating cities have actively participated in the project despite government restructuring in 2018 and 2020 and the unprecedented impact of the COVID -19 pandemic in 2020 and 2021. The project has also delivered project outputs and outcomes as planned, with moderate shortcomings due to implementation delays caused by the above-mentioned political and COVID -19 pandemic constraints.

The National Low Carbon Cities Master Plan (NLCCM) is considered the most important achievement by all government and private sector stakeholders interviewed. Its importance to low-carbon development in Malaysia and the effectiveness of the GTALCC project were reaffirmed by the Malaysian government's statement at COP 26 to achieve waste reduction and the transformation of cities into low-carbon cities through the NLCCM developed under the GTALCC project.

With a disbursement of GEF funds and a co-financing of close to 90%, the project is considered efficient in the use of financial resources to achieve its results. The project management structure described in the ProDoc is considered efficient in achieving the expected results. The MTR recommendations also help to streamline the implementation and monitoring of activities under Component 3 and to clarify indicators and targets. Overall, stakeholders interviewed have shown their satisfaction with project management and timeliness. However, the MCO and WFH measures imposed by the Government of Malaysia in 2020 and 2021 have resulted in unintended cost savings and it is unlikely that the project will meet its disbursement target by June 2022. The TE team believes that the delay and extension of the project due to the COVID -19 pandemic is beyond the control of the project.

The GTALCC project has shifted its focus from securing additional funding from NAMA and GEF for post-EOP low carbon investments to the annual government budget and relevant action points to establish financial mechanisms for low carbon investments as outlined in the NLCCM. The project has also succeeded in improving the institutional framework for low-carbon project development and implementation, as well as GHG accounting and reporting in the 5 participating cities. The Malaysian Green Technology and Climate Change Corporation (MGTC) was appointed as the focal agency for the implementation of the NLCCM. MGTC was recognised for its strengths in providing technical assistance to cities and facilitating inter-ministerial coordination, which is critical to the successful implementation of the NLCCM.

Overall, country ownership of the GTALCC project is evident in official government documents and in feedback from interviews with government and private sector stakeholders. The project has been mindful of gender balance in all its activities and has made a conscious effort to have women participate in the MyL3C conference. These efforts can be seen in the list of facilitators and panellists. About 44% of the beneficiaries/participants of the GTALCC training and capacity building sessions are women. The project has ensured that gender is represented at GTALCC events, both in the planning of such events and in the staffing of panel discussions.

The waste reduction and management and urban agriculture activities implemented in the participating cities have strengthened households' capacity and knowledge on low-carbon and sustainable development and contributed to sustainable livelihoods in the targeted areas. Other overarching impacts of the project include reduced fossil fuel consumption and improved air quality through increased use of electric and biofuel vehicles.

The GTALCC project has focused on the three key sectors critical to the low-carbon pathway, i.e. transport, waste and energy. Several knowledge products on different topics in these three key sectors have been produced and distributed to specific target groups in the low-carbon cities sector. The project has used its information sharing platforms (e.g. www.gtalcc.gov.my , www.ghgportal.my) and the events it has organised or participated in to disseminate the information from the knowledge products. One of the events was the Asia Pacific Urban Forum, where GTALCC was an event partner with a stand and had a centre stage space to provide information about the GTALCC project and its initiatives: https://www.apuf7.org/all-events/seda

5.2 CONCLUSIONS

Overall, the GTALCC project was found to be effective in removing barriers to the transformation of Malaysian cities into low-carbon cities (see Appendix L for the evaluation of the extent to which barriers were removed). The project has achieved most of its outcomes. The National Low Carbon Cities Masterplan (NLCCM) prepared under the project and approved by the Malaysian government is considered the project's greatest achievement. Through the NLCCM and the communication and outreach activities supported by the project, awareness of low carbon policies and implementations has increased. The 5 participating cities have all actively participated in the project and have shown a high level of ownership. Although the formal adoption of the NLCCM by the Malaysian government has to some extent ensured the sustainability of the low-carbon cities programme in Malaysia, its sustainability could be further enhanced through the establishment of additional funding mechanisms that could provide cities with alternatives for financing their low-carbon investments. As for the implementation of the NLCCM, the Malaysian Green Technology and Climate Change Corporation (MGTC) has been entrusted with the roll-out of the Masterplan. While MGTC has the technical capacity for low-carbon measures, the implementation of the NLCCM often falls under the purview of ministries or government agencies, and MGTC has to rely on other agencies and authorities to implement specific measures to achieve the required outcomes. In addition, a more robust vertical linkage between government agencies and specific departments in local authorities is needed to ensure the successful implementation of the NLCCM.

5.3 RECOMMENDATIONS

The TE team proposes to divide the recommendations into two sets. The first set of recommendations aims at ensuring timely completion and quality of the remaining project deliverables and sustaining the impacts of the GTALCC project after EOP. The second set of recommendations aims at promoting effective implementation of NLCCM in the long term.

5.3.1 Recommendations for timely/quality deliverables and sustainable impacts of GTALCC

The recommendations are listed with the responsible entity(ies) identified in brackets.

1. **Extend the project completion date to ensure robust impact measurements of project activities under the Continuity and Sustainability Plan and low carbon investment projects under Component 3 [GTALCC Project Management Unit]:** The project implementation schedules have been delayed due to the COVID-19 pandemic, and multiple project activities under the Continuity and Sustainability Plan (CSP) and low carbon investment projects under Component 3 have just commenced in May 2022. It is recommended to extend the project completion date for at least 6 months to ensure that impacts of project activities are measure and documented. It is important for the pilot project to apply the robust

measurement, reporting and verification (MRV) and GHG inventory protocol in accordance with international mechanisms, such as GPC and the International Performance Measurement and Verification Protocol (IPMVP), so that all relevant GHG emission reductions attributable to GTALCC are accounted for and reported.

2. **Continue populating data for the City Greenhouse Gas Emission Inventory Reporting System [GTALCC Project Management Unit/ 5 Participating Cities]:** The project should continue coordinating with the 5 participating cities and updating the GHG Portal website, www.ghgportal.my, with more up-to-date data. Updated inventory reports produced by the system should be disseminated to all 154 local authorities in Malaysia.

3. **Enhance awareness and knowledge on gender mainstreaming with provision of technical assistance [UNDP/ GTALCC Project Management Unit]:** The TE team found that awareness and knowledge on gender mainstreaming of stakeholders involved in design and implementation of low carbon activities in the 5 participating cities are somewhat limited. A dedicated awareness and training programme on the concepts of gender mainstreaming with low carbon cities related case studies should be developed and implemented for authorities and actors at all levels (Federal, State and Local). UNDP should also consider hiring a gender expert to support the 5 participating cities in ensuring that future low carbon activities and investments are gender sensitive.

5.3.2 Recommendations for effective implementation of NLCCM

1. **Strengthen the Implementation Mechanisms of the NLCCM [MGTCC and Plan Malaysia]:** Create a joint implementation task force by combining the technical strength and industrial network of MGTCC with the legally-binding power of KPKT through PlanMalaysia. Although PlanMalaysia is already one of the strategic partners of MGTCC in the implementation and monitoring of low carbon cities initiatives nationwide through the Low Carbon Cities 2030 Challenge and GeRAK programmes, the joint implementation arrangement will enable the duo is to play the role of an aggregator and an ecosystem architect at the national level. Together they can proactively broker partnerships between the cross-cutting networks of local authorities, Federal agencies and State governments on the one hand and with the private sector and academia on the other.

2. **Communicate the NLCCMP at the State Planning Committee Meetings [MGTCC and Plan Malaysia]:** Initiate a roadshow to present the content of the NLCCM to the State Planning Committees (SPC) for endorsement by the Chief Ministers of States. A fixed SPC agenda on low carbon mainstreaming will ensure urban planning mechanisms are used as a tool to enforce compliance with the NLCCMP. Alternative State-level mechanisms such as a low carbon or green economy council or Executive Committee portfolio can help sharpen the focus on low carbon pathways.

3. **Expedite the creation of an alternative funding scheme to finance LC initiatives at the local government level [Ministry of Finance and UNDP]:** A key obstacle to applying climate lens to city development is economics. The Federal government, with the help from UNDP, is to fast-track the creation of a suitable financing mechanism to suit the unique features of local authorities in Malaysia and expedite the financial mechanism to support LC initiatives at the local government level.

4. **Accelerate peer-to-peer learning by creating planning tools for local authorities [KPKT and UNDP]:** Federal government provide planning tools to local governments to help them develop the know-how to access and implement a range of financing strategies available internationally. The tools include a best practice guide from the GTALCC experience, searchable resource lists, and funding databases. The GHG Portal and the online learning platform – the Malaysia Low Carbon Cities Network (MyLCCN) need continuous resourcing for peer-to-peer learning to continue flourishing.

5. **Enhance the expertise and professional competency on low carbon approaches [Public Service Department, KASA and Human Resource Ministry]:** Create a certification scheme for Subject Matter Experts on low carbon. Also necessary is the development of procedures to verify and accredit the SMEs. The first batch of SMEs may include GTALCC stakeholders who had completed some fundamental competencies through the various trainings. These SMEs will develop the basic analytics needed for low-carbon planning in Malaysian cities.

5.4 LESSONS LEARNED

1. For the GTALCC project, the Sustainable Energy Development Authority Malaysia (SEDA) was appointed to manage and implement the project activities on behalf of the Malaysian government. SEDA's status as a statutory body established under the Sustainable Energy Development Authority Act 2011 has to some extent provided immunity from political instability at the federal level in Malaysia. This arrangement could be considered by UNDP for countries where political changes are expected during project implementation.

2. A review of the performance indicators should have been carried out in a balanced manner. The revised performance indicators proposed by the MTR for the project have provided more clarity on the targets to be achieved and have enabled better project performance. However, there was little correlation between the extent of achievement at the outcome level and the extent of GHG emission reduction at the objective level. As a result, the GTALCC project is not able to achieve the target achievement for direct emission reduction with only a few investment projects, namely the IMBRT and the Putrajaya bicycle pathway, experiencing delays in operational milestones. Therefore, a pragmatic and reasonable assessment of the indicators should be undertaken to ensure that the performance targets are achievable.

3. Although the GTALCC project has taken some initiatives to ensure gender balance in all its activities and has made a conscious effort to ensure that women have participated in its communication and outreach activities, such as the MyL3C conference, GTALCC does not have a dedicated gender expert to support the project management unit and participating cities in designing and implementing low-carbon activities and investments in a gender-sensitive manner.

6 APPENDICES

Appendix A	Terms of Reference
Appendix B	CV of Evaluation Team
Appendix C	PowerPoint Presentation for TE Kick-Off
Appendix D	Strategic Results Framework
Appendix E	Detailed Mission Plan
Appendix F	List of Documents Reviewed
Appendix G	Summary of Field Visits
Appendix H	Evaluation Question Matrix
Appendix I	Signed Code of Conduct
Appendix J	TE Rating Scales
Appendix K	Cities' Wishlist on Low Carbon Activities
Appendix L	Evaluation of Barrier Removal
Appendix M	TE Report Clearance Form
Appendix N	TE Audit Trail (as a separate file)

- Signed Evaluation Consultant Agreement form
- Annexed in a separate file: relevant terminal GEF/LDCF/SCCF Core Indicators or Tracking Tools, as applicable

6.1 APPENDIX A: TERMS OF REFERENCE

1. BACKGROUND

In accordance with UNDP and GEF M&E policies and procedures, all full- and medium-sized UNDP-supported GEF-financed projects are required to undergo a Terminal Evaluation (TE) at the end of the project. This Terms of Reference (ToR) sets out the expectations for the TE of the full- sized project titled Green Technology Application for the Development of Low Carbon Cities (GTALCC) (PIMS #4283) implemented through the Ministry of Environment and Water Malaysia. The project started on 1 June 2016 and is in its final year of implementation. The TE process must follow the guidance outlined in the document 'Guidance For Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects' available at (http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf).

Project Description

The objective of the project is to facilitate the implementation of low carbon initiatives in at least five Malaysian cities and showcase a clear and integrated approach to low carbon development. The objective will be achieved by removing barriers to integrated low carbon urban planning and development through 3 components: 1) policy support for the promotion of integrated low carbon urban development, which will enable cities to implement and adopt integrated low carbon urban development plans and programmes; 2) awareness and institutional capacity development, which will expedite appraisal, approval and the implementation of strategic urban development, and ensure cities are aware of and planning and implementing low carbon technology applications, and; 3) low carbon technology investments in cities, where there is an increase in investment in low carbon technologies with more low carbon projects implemented. The project will be implemented over 5 years in Cyberjaya, Iskandar Malaysia, Melaka, Petaling Jaya, and Putrajaya. It is expected to generate direct GHG emission reductions of 346,442 tCO2eq by End of Project and 2,152,032 tonnes CO2eq over the lifetime of project investment. Key details of the project are as below:

Start Date:	1 June 2016	**Lead Consultant:**	Sustainable Energy Development Authority
End Date:	1 June 2021	**GEF Financing:**	USD 4,354,794
Revised End Date:	1 June 2022 (with 12-month extension)	**Other Financing (In-Kind & Cash):**	• Federal & Local Government (USD 55,258,266) • UNDP (USD 354,000) • Cost Sharing (USD 50,000)
Implementing Partner:	Ministry of Environment and Water	**Leveraged Co-Finance**	• Private Sector (USD 164,136,278)

The current COVID-19 situation in Malaysia has seen the total number of COVID-19 cases rise to 566 thousand, with total deaths of 2,729 as of 31 May 2021. Since March 2020, Malaysia has implemented various forms of movement control orders to prohibit mass movements and gatherings across the countries as well as restrictions in certain types of economic and social activities. Malaysia is currently in a total lockdown phase from 1 June 2021-14 June 2020. To a certain extent, the COVID-19 pandemic has impacted the progress of certain activities under the GTALCC projects which require stakeholder consensus building and engagement.

TE Purpose

The TE report will assess the achievement of project results against what was expected to be achieved and draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall

enhancement of UNDP programming. The TE report promotes accountability and transparency and assesses the extent of project accomplishments. The TE findings also will be used by the UNDP country office to synthesize lessons that can help improve the selection, design, and implementation of future UNDP-supported initiatives.

2. SCOPE OF WORK, RESPONSIBILITIES AND DESCRIPTION OF THE PROPOSED WORK

Detailed Scope of the TE

The TE will assess project performance against expectations set out in the project's Logical Framework/Results Framework (see TOR Annex A). The TE will assess results according to the criteria outlined in the Guidance for TEs of UNDP-supported GEF-financed Projects (*http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf*).

The Findings section of the TE report will cover the topics listed below. A full outline of the TE report's content is provided in ToR Annex C.
The asterisk "(*)" indicates criteria for which a rating is required.

Findings:

i. Project Design/Formulation

- National priorities and country driven-ness
- Theory of Change
- Gender equality and women's empowerment
- Social and Environmental Safeguards
- Analysis of Results Framework: project logic and strategy, goal, objective, and outcomes, as well as the corresponding indicators
- Analysis of the outputs of each project component as to whether these will collectively bring about the expected component outcome
- Assumptions and Risks
- Lessons from other relevant projects (e.g. same focal area) incorporated into project design
- Planned stakeholder participation
- Linkages between project and other interventions within the sector
- Management arrangements

ii. Project Implementation[13]

- Adaptive management (changes to the project design and project outputs during implementation)
- Actual stakeholder participation and partnership arrangements
- Project Finance and Co-finance
- Monitoring & Evaluation: design at entry (*), implementation (*), and overall assessment of M&E (*)
- Implementing Agency (UNDP) (*) and Executing Agency (*), overall project oversight/implementation and execution (*)
- Risk Management, including Social and Environmental Standards

iii. Project Results[1]

[13] Evidentiary documents must be collected and verified for use in the assessment of the various aspects of the project implementation and of the project results.

- Assess the achievement of outcomes against indicators by reporting on the level of progress for each objective and outcome indicator at the time of the TE and noting final achievements
- Relevance (*), Effectiveness (*), Efficiency (*) and overall project outcome (*)
- Sustainability: financial (*) , socio-political (*), institutional framework and governance (*), environmental (*), overall likelihood of sustainability (*)
- Country ownership
- Gender equality and women's empowerment
- Cross-cutting issues (poverty alleviation, improved governance, climate change mitigation and adaptation, disaster prevention and recovery, human rights, capacity development, South-South cooperation, knowledge management, volunteerism, etc., as relevant)
- GEF Additionality
- Catalytic Role / Replication Effect
- Progress to impact

iv. Main Findings, Conclusions, Recommendations and Lessons Learned

- The TE team will include a summary of the main findings of the TE report. Findings should be presented as statements of fact that are based on analysis of the data.
- The section on conclusions will be written in light of the findings. Conclusions should be comprehensive and balanced statements that are well substantiated by evidence and logically connected to the TE findings. They should highlight the strengths, weaknesses, and results of the project, respond to key evaluation questions, and provide insights into the identification of and/or solutions to important problems or issues pertinent to project beneficiaries, UNDP and the GEF, including issues in relation to gender equality and women's empowerment.
- Evidentiary documents should be checked and verified by the TE team to support the conclusions and ratings that the team will make regarding the accomplishments of the GTALCC project.
- Recommendations should provide concrete, practical, feasible and targeted recommendations directed to the intended users of the evaluation about what actions to take and decisions to make. The recommendations should be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation. For each recommendation, the TE team has to provide the "how to' aspects, i.e. steps to be taken, as well as requirements to implement the recommendation.
- The TE report should also include lessons that can be taken from the evaluation, including best and worst practices in addressing issues relating to relevance, performance and success that can provide knowledge gained from the particular circumstance (programmatic and evaluation methods used, partnerships, financial leveraging, etc.) that are applicable to other GEF and UNDP interventions. When possible, the TE team should include examples of good practices in project design and implementation.
- It is important for the conclusions, recommendations and lessons learned of the TE report to include results related to gender equality and empowerment of women.

The TE report will include an Evaluation Ratings Table, as shown in the ToR Annex.

3. Expected Outputs and deliverables

The TE team shall prepare and submit:

- TE Inception Report: TE team clarifies objectives and methods of the TE no later than 2 weeks before the TE mission. TE team submits the Inception Report to the Commissioning Unit and project management. Approximate due date: (8 September 2021)
- Presentation: TE team presents initial findings to project management and the Commissioning Unit at the end of the TE mission. Approximate due date: (22 October 2021)
- Draft TE Report: TE team submits full draft report with annexes within 3 weeks of the end of the TE mission. Approximate due date: (15 November 2021)

- Final TE Report* and Audit Trail: TE team submits revised report, with Audit Trail detailing how all received comments have (and have not) been addressed in the final TE report, to the Commissioning Unit within 1 week of receiving UNDP comments on draft. Approximate due date: (10 December 2021)

*The final TE report must be in English. If applicable, the Commissioning Unit may choose to arrange for a translation of the report into a language more widely shared by national stakeholders.

All final TE reports will be quality assessed by the UNDP Independent Evaluation Office (IEO). Details of the IEO's quality assessment of decentralized evaluations can be found in Section 6 of the UNDP Evaluation Guidelines.[14]

Duration of the Work

The total duration of the TE will be approximately (35 working days) over a time period of (20 weeks) starting 1 September 2021) and shall not exceed five months from when the TE team is hired. The tentative TE timeframe is as follows:

- 13 August 2021: Application closes
- 18 August 2021: Selection of TE Team
- 1 September 2021: Prep the TE team (handover of project documents)
- –1-8 September 2021 (4 working days within the given period): Document review and preparing TE Inception Report
- 9-15 September 2021 (3 working days within the given period): Finalization and Validation of TE Inception Report
- 1-21 October 2021 (12 working days within the given period): TE mission: stakeholder meetings, interviews, field visits
- 22 October 2021: Mission wrap-up meeting & presentation of initial findings- earliest end of TE mission
- 25 October 2021- 12 November 2021 (8 working days within the given period: Preparation of draft TE report
- 15 November 2021: Circulation of draft TE report for comments
- 29 November-10 December 2021 (5 working days within the given period): Incorporation of comments on draft TE report into Audit Trail & finalization of TE report
- 19 December 2021: Preparation & Issue of Management Response
- 7 January 2022: Concluding Stakeholder Workshop
- 31 January 2022: Expected date of full TE completion

The expected date start date of contract is 1 September 2021.

4. Institutional arrangements/reporting lines

The principal responsibility for managing the TE resides with the Commissioning Unit. The Commissioning Unit for this project's TE is the UNDP Malaysia Country Office. The TE team will report to the Commissioning Unit.

The Commissioning Unit will contract the consultants and ensure the timely provision of travel arrangements within the country for the national consultant, depending on whether travel is permitted at the time of the TE mission. The Project Team will be responsible for liaising with the TE team to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

5. Experience and qualifications

[14] Access at: http://web.undp.org/evaluation/guideline/section-6.shtml

A team of two independent evaluators will conduct the TE – one international consultant (with experience and exposure to projects and evaluations in other regions) and national consultant from Malaysia. The international consultant will act as the team leader and will be responsible for the overall design and writing of the TE report, etc.) The national consultant will support the international consultant in drafting the TE report, provide local industry insights, help to contextualize local issues and achievements, and will assist in data collection through field missions.

The evaluators cannot have participated in the project preparation, formulation and/or implementation (including the writing of the project document), must not have conducted this project's Mid-Term Review and should not have a conflict of interest with the project's related activities.

The international consultant should have the following experience and qualifications:

I. Academic Qualifications:

- Master's degree in environmental science, environmental engineering, town planning, engineering, climate change or other closely related field;

II. Experience:

- Relevant experience with results-based management evaluation methodologies (10%);
- Experience applying SMART indicators and reconstructing or validating baseline scenarios (5%);
- Competence in adaptive management, as applied to climate change, urbanisation, transportation, or energy (10%);
- Experience in evaluating projects (20%);
- Experience working in Asia (5%);
- Experience in relevant technical areas for at least 10 years (15%);
- Demonstrated understanding of issues related to gender and climate change); experience in gender responsive evaluation and analysis (5%);
- Excellent communication skills (5%);
- Demonstrable analytical skills (5%);
- Project evaluation/review experience within United Nations system will be considered an asset (10%);
- Experience with implementing evaluations remotely will be considered an asset (10%).

III. Language:

- Fluency in written and spoken English.

6.4 APPENDIX D: PROJECT RESULTS FRAMEWORK

Table 6-1 –Project Results Framework (Revised after MTR)

Objective/ Outcome	Description of Indicator	Baseline Level	End of project target level
Objective: To facilitate the implementation of low carbon initiatives in at least five Malaysian cities and showcase a clear and integrated approach to low carbon development	Cumulative Direct GHG Project emission reductions (ER) resulting from the Project technical assistance and investments by end-of-project, tCO2 eq.	0	346,442
Outcome 1.1: Major cities implemented and adopted integrated low carbon urban development plans and/or programmes.	Status of national low-carbon planning and institutional framework	No Framework	Framework developed and adopted
	GHG Online Portal established and used by cities	0	5
	Number of cities with adopted GHG reduction targets	0	3
Outcome 2.1: Expedient appraisal, approval and implementation of strategic urban development plans/program and projects	Status of institutional framework for low carbon city urban development	No Framework	Framework developed and adopted
Outcome 2.2: Major cities are aware of, and are planning and implementing low carbon technology applications for integrated urban development	Number of cities with clear organisational setup for low carbon planning	0	5
	Number of cities with low carbon urban development plans	0	5
	Number of trainees trained in integrated low carbon planning (% of women)	0 (0%)	200 (40% women)
	Status of Low Carbon Cities Network	None	Established and operational
Outcome 3.1: Increased investment in low carbon technology applications in cities	Total amount of investments leveraged funding for low carbon projects	0	$185 million
Outcome 3.2: More low carbon projects implemented in Malaysian cities	Investment projects in low carbon transportation	0	2
	Investment projects in low carbon energy	0	2
	Investment projects in low carbon waste management	0	2

6.5 APPENDIX E: DETAILED TE MISSION PLAN

Restrictions of local and international travels during the COVID-19 pandemic has impacted the progress of certain activities under the GTALCC project, including the field missions required by the TE exercise. Various constraints were discussed during the project kick-off meeting on 26th October 2021. UNDP, PMU and the TE team agreed to adopt a similar meeting approach as in the MTR where meetings with project stakeholders will be organized at a centralized venue in Putrajaya, and various key project partners and stakeholders will be invited to participate in these meetings led by the National Evaluator. Given the ongoing international travel restriction and quarantine requirements, the Lead Evaluator will participate in these meetings through an online platform.

For strategic insights on the long-term impact of the GTALCC project, the TE team would also like to interact with the top echelons (e.g. Secretary-Generals) from the Ministry of Environment and Water, Ministry of Energy and Natural Resources, and the Ministry of Housing and Local Government.

The visits to the five sites are scheduled to take place from 22nd November 2021 to 6th December 2021. Information/data will be gathered from these project sites, and evaluated to clarify attribution of energy savings and GHG emission reductions that have been realized to the GTALCC project.

The proposed schedules for stakeholder meetings and site visits are detailed in Table 6-2 and Table 6-3 on the following pages.

Table 6-2 – Proposed Schedules for Stakeholder Meetings (15th -25th November 2021)

Week 1 (15- 19 November 2021)

Date	Time	Agenda	Location
15 Nov 2021 (Mon) DAY 1	9.30-10.30	Putrajaya (Putrajaya Corporation) – Participating City 1. TPr (Ms) Wang Tze Wee (Town Planner, Green City Section) 2. Dr. Mohd. Helmi Abdul Hamid (Director of Health, Urban Services Department)	Putrajaya Marriott Hotel Microsoft TEAMs (Online)
	10:30-11:30	Cyberjaya (Sepang Municipal Council) – Participating City 1. Mr Muhammad Syahir Muhammad Syaref (Landscape Architect, Town Planning Department) 2. Mr Adham Mahmood (Town Planner, Town Planning Department)	
	11:30 – 12.30		
	12:30 – 14:30	Lunch & Zohor Prayer	
	14:30-15:30	Iskandar Malaysia (Iskandar Regional Development Authority) - Participating City / Region 1. Ms. Choo Hui Hong (Assistant Vice President) 2. Mrs. Sharifah Shahidah Syed Ahmad (Assistant Vice President) 3. En Safwan Shaari (Town Planning Officer, Sustainable & Research Unit, Iskandar Puteri City Council)	
	15.30-16.30	Hang Tuah Jaya (Hang Tuah Jaya Municipal Council) – Participating City 1. Mr Rozaidi Mahat (Town Planner, Green Unit) 2. Mrs Nor Dalilah Mohd Zamri (Assistant Engineer, Green Unit)	
	16.30-17.30	GTALCC & TE Day 1 Wrap Up	
16 Nov 2021 (Tue) DAY 2	10:30-11:30	PLANMalaysia - NSC Member 1. TPr Dr Alias Rameli (Director, R&D) 2. Mrs Nor Zaliza Mohd Puzi (Town Planner, Environment and Risk Management)	Putrajaya Marriott Hotel Microsoft TEAMs (Online) and In-Person
	11:30 – 12.30	EPU – International Cooperation Division - NSC Member 1. Mrs Ashikin Abd Razak (Director, International Cooperation Division) 2. Mrs Zanita Mukhtar (International Cooperation Division)	
	12:30 – 14:30	Lunch & Zohor Prayer	
	14:30-15:30	Ministry of Federal Territories 1. Dr Khairul Nizam Othman (Deputy Under Secretary, Urbanisation Section)	

		NSC Member	
	15.30-16.30	State Economic Planning Unit of Johor - NSC Member 1. Johor – Mr Gurpreet Singh Dhaliwal (Officer, Environment and Green Technology	
	16.30-17.30	Petaling Jaya (Petaling Jaya City Council) - Participating City 1. Mr Lee Lih Shyan (Director, Solid Waste Management and Public Cleaning) 2. Mrs Nur Wahidah Zakaria (Senior Assistant Director, Administration & Green Technology) 3. Mrs Mahzura Mohd Amin (Senior Assistant Director, Health)	
	16.30-17.30	GTALCC & TE Day 2 Wrap Up	
17 Nov 2021 (Wed) DAY 3	10:30-11:30	Ministry of Transport - NSC Member 1. Ir Tengku Kahar Muzaffar Tengku Mohd Yusof Anuar (Senior Principal Assistant Secretary)	Putrajaya Marriott Hotel (In-Person) OR Microsoft TEAMs (Online)
	11:30 – 12.30	Urbanice Malaysia - Event Partner/Consultant 1. TPr. Ts Norliza Hashim (Chief Executive)	
	12:30 – 14:30	Lunch & Zohor Prayer	
	14:30-15:30	Malaysia Green Technology & Climate Change Corporation - PTC Member 1. Mrs Norhasliza Mohd Mokhtar (Senior Director, Cities and Industry Division) 2. En Huzaimi Nor Omar (Senior Director, Mobility, New Energy & Innovation) 3. Mr Muhammad Fendi (Lead Analyst, Cities and Industry Division)	
	15.30-16.30	Ministry of Environment & Water - NSC Chair & PTC Member 1. Mr Yusmazy Md Yusup (Deputy Under Secretary, Climate Change) 2. Pn Falisya Noor Azam (Principal Assistant Secretary) 3. En Muhammad Fakhruddin Hj Safian Shuri (Assistant Secretary)	
	16.30-17.30	Ministry of Energy & Natural Resources - NSC Member 1. Mr Hazery Tomyang (Under Secretary, Renewable Energy)	
	16.30-17.30	GTALCC & TE Day 3 Wrap Up	
18 Nov 2021 (Thu) DAY 4	9.30-10.30	Centre for Technology, Development & Environment, Malaysia (CETDEM) - PTC Member 1. Mr Gurmit Singh (Chairman)	Putrajaya Marriott Hotel (In-Person) OR Microsoft TEAMs (Online)
	10.30-11.30	SEDA Malaysia - PTC Chair and NSC Member 1. Ts. Steve Anthony Lojuntin (Director, Technology Development & Facilitation, Division – TECH) 2. Mr. Mohd Shah Hambali Arifin (Deputy Director, TECH Division)	
	11:30 – 12.30	Eco-Ideal Sdn Bhd - Consultant for MRT GHG Benefits Study, Putrajaya Waste Management Action Plan & Low Carbon Cities Webinar Series.	

		1. Mr Soon Hun Yang (Chief Executive Officer)	
	12:30 – 14:30	Lunch & Zohor Prayer	
	14:30-15:30	Green Urban Matters Solutions Sdn Bhd - Consultant for Cities GHG Online Portal & National Low Carbon Cities Network 1. Mr Kevin Hor (Project Manager) 2. Mr Lionel Lee (Project Manager)	
	15.30-16.30	Total Power Solutions Sdn Bhd - Consultant for Solar PV at Public Spaces / Facilities 1. Mr Kavilan Sadacharamani (Engineer) 2. Mr Erman Irsyadi (Engineer)	
	19.30-20.30	Project Management Team 1. Nasha Lee (former Environment Analyst - Climate Change) 2. Nornazwah (Programme Assistant)	
	16.30-17.30	GTALCC & TE Day 4 Wrap Up	
19 Nov 2021 (Fri) DAY 5	9:30-10:30	Mass Rapid Transit Corporation Initiative - Partner for B100 Biodiesel & Solar PV 1. Ir Major (Rtd) Mr Mohamed Shuhaidi Omar (Head, Asset Management)	Putrajaya Marriott Hotel (In-Person) OR Microsoft TEAMs (Online)
	12:30 – 14:30	Friday Prayer & Lunch	
	14:30-15:30	PETRONAS-ROVR - Initiative Partner & Fuelling Solutions for B100 Biodiesel 1. Mr Low Kang Sheng (Operations Manager, ROVR Project) 2. Mr Purushothaman R Magaindran (Head, Sales and Asccount management, ROVR)	
	15.30-16.30	PRASARANA / RapidKL - Initiative Partner & Operator of MRT Feeder Bus for B100 Biodiesel 1. Mr Syed Mohd Faisal Syed Kamarudin (Officer)	
	16.30-17.30	GTALCC & TE Day 5 Wrap Up	

Week 2 (22 - 25 November 2021)

Date	Time	Agenda	Location
22 Nov 2021 (Mon) DAY 6	2.30-3.30	Malaysia Biodiesel Association - Initiative Partner & Fuel Supplier for B100 Biodiesel 1. Mr. U.R. Unnithan (President) 2. Mr Tee Lip Teng (Deputy President)	Putrajaya Marriott Hotel Microsoft TEAMs (Online)
	3:30-4:30	Ministry of Environment and Water (KASA) & Ministry of Energy and Natural Resources (KeTSA) - Present and Former National Project Director of GTALCC	

		1. Dr Sugumari Shanmugam (Under Secretary, Climate Change) 2. En Asdirhyme Abd Rasib (Senior Under Secretary, Sustainable Energy)	
23 Nov 2021 (Tue) DAY 7	9.30-10.30	Iskandar Malaysia (Iskandar Regional Development Authority) - Participating City (IMBRT International Peer Design Review) 1. Pn Kamisah Mohd Ghazali (Senior Vice President, Resilient Environment)	Microsoft TEAMs (Online)
24 Nov 2021 (Wed) DAY 8	10:00-11:00	Malaysian Institute of Planners - PTC Member, NLCCM, and On-Road Bike Lane Putrajaya 1. Datin TPr Noraida Saluddin (President) 2. Datin TPr Mazrina Khalid (Honorary Secretary)	Microsoft TEAMs (Online)
25 Nov 2021 (Thurs) DAY 9	10.00-11.00	United Nations Development Programme Malaysia - Programme Manager 1. Ms Gan Pek Chuan (Interim Head of SRD)	Microsoft TEAMs and Zoom (Online)
	11.00-12.00	United Nations Development Programme Malaysia 1. Manon Bernier (Deputy Resident Representative)	
	4.00-5.00	Scania Malaysia - Initiative Partner & Technology Provider for B100 Biodiesel 1. Mr David Lantz (Sustainability Manager) 2. Mr Aliff Syahadat Mat Dan (Manager)	
	8.00-9.00 (PM)	Global Environment Fund (GEF) 1. Mr Manuel Soriano (Regional Technical Advisor)	Zoom (Online)

Note: NSC – National Steering Committee PTC – Project Technical Committee

Table 6-3 – Proposed Schedules for Site Visit (23rd November 2021 – 6th December 2021)

Date	Sites	Project Supported by GTALCC
23 Nov 2021 (Tue) 11.00 – 2.00	Putrajaya (Putrajaya Corporation) Cyberjaya (Sepang Municipal Council)	Bike Access Ramp for Putrajaya Cycling Network Community Garden Program
29 Nov 2021 (Mon)	Hang Tuah Jaya Municipal Council	GHG Metering System

11.00 -1.00		
Between 1st - 6th Dec (Date TBC by IRDA)	Iskandar Malaysia BRT Iskandar Malaysia (IRDA)	IMBRT (International Peer Design Review) IMELC (Iskandar Malaysia Eco-Life Challenge)

6.6 APPENDIX F: LIST OF DOCUMENTS REVIEWED

The relevant documents reviewed by the TE team are listed below.

1. Project Identification Form (PIF)
2. Project Preparation Grant (PPG) letter
3. CEO Endorsement Request
4. Final UNDP-GEF Project Document with all annexes
5. UNDP Social and Environmental Screening Procedure (SESP)
6. UNDP Country Programme Document 2016-2020
7. Inception Workshop Report
8. Mid-Term Review Report, 2019
9. Project Implementation Review (PIR) Reports, 2017 – 2021
10. Minutes of National Steering Committee (NSC) Meetings, 2017 – 2021
11. Minutes of Project Technical Committee (PTC) Meetings, 2018 -2021
12. Progress Reports (Annual Progress, Mid-Year and Component Progress Reports)
13. Annual Work Plans (AWP)
14. GEF Tracking Tools
15. Audit Reports
16. Co-Financing Letters and other financial data
17. Electronic copies of project outputs (including but not limited to the National Low Carbon Cities Masterplan (NLCCM), the Evaluation of GHG Emission Reduction Report, Low Carbon Mobility Blueprint 2021-2030)
18. Technical consultancy reports and training materials
19. Presentation materials prepared by the project team and participating cities
20. City Greenhouse Gas Emission Inventory Reporting System (https://www.ghgportal.my/)
21. GTALCC Project Website (http://gtalcc.gov.my/)
22. Relevant news, and government official notifications and announcements (including but not limited to NDC, 12th Malaysia Plan, Official Statement by Malaysia for COP26)

6.8 APPENDIX G: SUMMARY OF FIELD VISITS

6.8.1 Putrajaya Corporation

On **23 November 2021**, the National Evaluator (NE) visited two sites within the jurisdiction of Putrajaya Corporation. The first site is located at the two bridges crossing the Putrajaya Lake, whereby the bicycle access ramps from Saris Infrastructure (based in Minneapolis) were installed at the stairways. There were wear and tear signs on the ramp structure, indicating that the cyclists regularly used the ramps for easy access from the housing areas along the lake to Putrajaya Central Business District.

The second site was the car park location belonging to Putrajaya Corporation). The project had proposed the installation of solar panels on the roof of the car park, but the beneficiary was a Ministry tower nearby. Despite the two government buildings being so close in the distance, the idea could not materialise because the existing government regulation only permits the installation of solar panels on a building with the same owner. There are many opportunities whereby the government can simplify its regulatory landscape to promote the adoption of low carbon measures.

6.8.2 Hang Tuah Jaya Municipality

On **29 November 2021**, the NE visited the Hang Tuah Jaya Municipality to interact with its officials and GTALCC project stakeholders[15]. The NE also had the chance to interact with the Municipality Councilors who sit on the Sustainable Development Committee. The NE was shown the Taman Tasik Utama community garden, partly funded by the project. The active members of the garden project are mainly government pensioners who are very committed to the urban farming initiative.

The Hang Tuah Jaya municipality houses many government buildings. A significant area is earmarked as a low carbon area. GTALCC provided three government buildings with energy and carbon monitoring tools under the Energy Online Monitoring System for Buildings. However, when we visited one of the three buildings (Wisma Negeri), we found that the device was no longer functioning because of the leakage in the building. The staff in charge had retired, and nobody seemed to know how to operate the meter reading digitalisation machine. Ensuring ownership of low carbon technologies and processes can be a challenge at the operational level.

The highlight of the visit was the leadership demonstrated by the headmistress of Sekolah Dato' Demang Husin in implementing the rainwater harvesting system under the Eco-School Carbon Inventory programme. She has managed to mobilise the participation of students and teachers by combining the low carbon demonstration project with the school syllabus. GTALCC has excelled in picking winners or champions of the low carbon measures with only minimal funding.

6.8.3 IRDA Region

On **6 December 2021**, the National Evaluator visited the Iskandar Regional Development Authority[16] or IRDA headquarters and the municipality of Iskandar Puteri. The Lead Evaluator also joined the briefing session virtually. The briefing provided detailed updates on the assistance received by IRDA from GTALCC, including for the Building and Energy Monitoring System (BERMS), CASBEE, Kawan Iskandar Malaysia, Eco-Life Challenge and the IMBRT project. As one of the pioneers of a low carbon society in Malaysia, IRDA has many concrete low carbon projects on the ground.

[15] Out of over 300 staff, six are currently serving the *Unit Teknologi Hijau* or Green Technology Unit, strategically placed under the Mayor's jurisdiction.

[16] IRDA is a significant region covering 12% of the size of the State of Johore, an area 3 times the size of Singapore.

In the afternoon, the resident of Flat Kenari in Pulai shared with the NE their commendable green community carbon reduction programme. Members of Flat Kenari mainly belong to the low-income group. Their enthusiasm for the community garden project is exemplary and demonstrate the possibility of combining climate mitigation with livelihoods empowerment measures. Their initiative has also encouraged the Johor State administration to replicate the same initiative elsewhere.

6.8.4 Petaling Jaya City Council

On **5 January 2022**, the National Evaluator visited the Petaling Jaya City Council (MBPJ) headquarters to receive the briefing on Apps Development for the Green Rebate E-System. GTALCC provided the City Council RM150,000 matching grant for this initiative. The Green Rebate System was launched in 2011. After ten years, the paper-based documentation for the system started to take a toll on the staff of MBPJ. With digitalisation, the system's management will be simplified while allowing the programme to be scaled-up. MBPJ plans to integrate the Green Rebate system with the tax assessment system moving forward. They are looking at the possibility of incorporating it with TNB electricity consumption data, which will further simplify identifying and rewarding the residents who live a sustainable lifestyle.

6.8.5 Sepang Municipal Council

On **21 January 2022**, the National Evaluator was hosted by the staff of Sepang Municipal Council to share their initiatives on low carbon measures. GTALCC supported the Council with a number of its initiatives, including the provision of four pedal-assisted E-bikes for low carbon mobility. The staff uses the E-bikes for micro-mobility. GTALCC also provided some funding for urban farming and helped the Council run several workshops and training on low carbon pathways. Beyond this funding, the Council has also pursued other green initiatives such as solar panels installation and a programme on tree-tagging for O_2 and CO_2 measurement. Environmental outcomes are a priority for the Council with numerous Committees and Divisions looking at the different aspects of low carbon and sustainable development:

- Division of Sustainable Development and Transportation
- Division of Smart City, Green Technology, Landscape and Investments
- Committee on Sustainable Smart Selangor @ Sepang
- Coordinating Meeting for Cyberjaya Development

6.9 APPENDIX H: EVALUATION QUESTION MATRIX

Table 6-4 – Proposed Questions for Evaluation Criteria

Evaluative Criteria	Questions	Indicators	Sources[17]	Methodology[18]
Relevance: How does the project relate to the main objectives of the GEF focal area, and to the environment and development priorities at the local, regional and national levels? These may include but not limited to alignment with national priorities, alignment with UNDP/GEF strategic priorities, addressing needs and interests of relevant stakeholders, and complementarity with other initiatives				
Relevance	• Is the project designed and implement to address country priorities and be country-driven?	• Participation of the stakeholders and beneficiaries • National policy and regulatory framework developed and approved	• PIR, Field reports and UNDP CO • National policy frameworks, regulations and plans	• Document analysis and stakeholder interviews
	• Is the project consistent with the GEF focal area, UNDP country program in Malaysia?	• Extent to which GEF focal area and UNDP country program incorporated	• GEF, UNDP CO	• Document analysis and stakeholder interviews
	• Does the project adequately take into account the national realities, both in terms of institutional and policy framework in its design and its implementation?	• National and city level policy and institutional frameworks strengthened	• PIR, Field reports and UNDP CO • National and city level policy and institutional frameworks, regulations and plans	• Document analysis and stakeholder interviews
	• Does the project support and facilitate the needs and interests of cities in Malaysia in terms of low carbon developments?	• Participation of the stakeholders and beneficiaries	• PIR, Field reports and UNDP CO	• Document analysis and stakeholder interviews

[17] Various sources, but not limited to project document, project reports, national policies & strategies, key project partners & stakeholders, needs assessment studies, data collected throughout monitoring and evaluation, data reported in project annual & quarterly reports etc.

[18] Various methodologies, but not limited to Data analysis, Documents analysis, Interviews with project team, Interviews with relevant stakeholders etc.

Evaluative Criteria	Questions	Indicators	Sources[17]	Methodology[18]
		• Relevant impacts on low carbon development and implementation in cities		• Field visits and inspections
	• How gender issues (strategy and action plan) are addressed by the project after 2019 (following the MTR recommendations)?	• Gender related outputs reported	• PIR, PMU report, UNDP CO • Key project partners and stakeholders	• Document analysis and stakeholder interviews
Design	• Are there logical linkages between expected results of the project (log frame) and the project design (in terms of project components, choice of partners, structure, delivery mechanism, scope, budget, use of resources etc.)?	• Number/degree of changes in the log frame and targets	• PMU Reports, MTR report, UNDP CO	• Document analysis and stakeholder interviews
	• What was the level of stakeholder participation in project design and ownership in project implementation?	• Degree of involvement of stakeholders in the design process • Expectation and satisfaction of the stakeholders and beneficiaries	• PIR, Field reports and UNDP CO	• Document analysis and stakeholder interviews
	• Are lessons from other relevant projects properly incorporated in the project design?	• Extent to which experience and lessons learned considered in the project design • Degree of complementarity with other initiatives	• ProDoc, PMU reports, PIR, Field reports and UNDP CO	• Document analysis and stakeholder interviews

Evaluative Criteria	Questions	Indicators	Sources[17]	Methodology[18]
	• Were the revisions to the result framework (per MTR recommendations) sound and complimentary to the project context?	• Improvement in project performance and deliveries as a result of the revisions	• PMU reports, MTR report, UNDP CO	• Document analysis and stakeholder interviews
Effectiveness: The extent to which an objective has been achieved or how likely it is to be achieved? Actual outcomes/outputs vs. planned				
Result & Effectiveness	• Has the project been effective in achieving the expected outcomes/outputs per what were planned?	• Achievement of targets under each outcomes – to be rated • Explanation of non-achievement and shortfalls	• ProDoc, MTR report, PIR, UNDP CO	• Document analysis and stakeholder interviews • Field visits and inspections
	• Areas in which the project has had the greatest and fewest achievements?	• Achievement rated • Explanation of achievement rating	• PMU reports, MTR report, PIR, UNDP CO	• Document analysis and stakeholder interviews • Field visits and inspections
	• What are the key factors that contribute to the achieving or not achieving intended outcomes?	• Contributing factors identified	• PIR, PMU reports, MTR report, UNDP CO • Publicly available information (news, government notifications)	• Document analysis and stakeholder interviews • Field visits and inspections
	• Are there any alternative strategies that would have been more effective in achieving the project's objectives?	• Alternative strategies identified with indicators and targets	• PMU reports, MTR report, PIR, UNDP CO	• Document analysis and stakeholder interviews

Evaluative Criteria	Questions	Indicators	Sources[17]	Methodology[18]
				• Field visits and inspections
Constraining Factors	• How well are risks, assumptions and impact drivers being managed?	• Risks identified and managed	• PIR, PMU reports • Project risk logs	• Project Risk logs Document analysis and interviews
	• What was the quality of risk mitigation strategies developed? Were these sufficient?	• Quality assessment	• PIR, PMU reports • Project risk logs	• Document analysis and stakeholder interviews
	• Are there clear strategies for risk mitigation related with long-term sustainability of the project?	• Risk mitigation done	• PIR, PMU reports • Project risk logs	• Document analysis and stakeholder interviews
Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards and delivered results with the least costly resources possible? resource allocation and cost effectiveness, project management and timeliness				
Resource Allocation	• Are financial and human resources and their allocations efficiently and economically utilized to achieve the project outcomes?	• Extent to which resources have been utilized (e.g., timely delivery of fund) to achieve the project outcomes • Level of satisfaction of partners and beneficiaries in the use of funds	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• Were counterpart resources and adequate project management arrangement in place at the project commencement?	• Extent to which resources have been utilized (e.g., timely delivery of fund) to achieve the project outcomes	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews

Evaluative Criteria	Questions	Indicators	Sources[17]	Methodology[18]
	• Details of co-funding provided and its impact on the activities	• Ratio of co-financing actually realized vs. committed values	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
Management	• How did the project management systems, including progress reporting, administrative and financial systems and monitoring and evaluation system were operating as effective management tools, aid in effective implementation and provide sufficient basis for evaluating performance and decision making?	• Problems identified and addressed	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• How effective was the adaptive management practiced under the project and lessons learned?	• Adaptive management actions reported and results	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• How the changes per MTR recommendations impact the expected project outcomes?	•	• PIR, PMU report, MTR report, UNDP CO • Key project partners and stakeholders	• Document analysis and stakeholder interviews
	• Has the project produced results (outputs and outcomes) within the expected timeframe?	• Extent to which results have been achieved (compared with LogFrame and work plans)	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• Did the project result framework and work plans and any changes made to them used as management tools during implementation?	• Satisfaction by the PMU and co-operating agencies in using the LogFrame as management tool	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews

Evaluative Criteria	Questions	Indicators	Sources[17]	Methodology[18]
	• How does the APR/PIR process helped in monitoring and evaluating the project implementation and achievement of results?	• Satisfaction of the PMU and UNNP CO in using it as management M&E tool	• Assessment reports of PIRs	• Document analysis and stakeholder interviews
M&E	• Was M&E sufficiently budgeted?	• Share of M&E in the budget	• PIR, MTR report, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• Were progress reports produced accurately and timely?	• Quality and quantity of progress reports	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• Has the information provided by the M&E system been used to improve performance and to adapt the changing needs?	• Actual utilization of the M&E system to change or improve decision-making/ adaptive management	• PIR, MTR report, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
Partnership Arrangement	• How efficient are partnership arrangements for the project?	• Extent to which project partners committed time and resources (level of partnership developed vs. committed level)	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• Did each partner assign roles and responsibilities?	• Evidence of clear roles and responsibilities of project partners • Level of satisfaction of project partners and beneficiaries	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• Did each partner fulfill its roles and responsibilities?	• Evidence of clear roles and responsibilities for operation and management • Level of satisfaction by PMU	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews

Evaluative Criteria	Questions	Indicators	Sources[17]	Methodology[18]
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results? Financial, socio-political, institutional and environmental				
Financial	• Are there any financial risks that may jeopardize the sustainability of project outcomes?	• Extent to which risks, and assumptions are adequate and reflected in the project document	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• What is the likelihood that financial resources will be available after EOP? Any financial instruments and mechanisms established?	• Extent to which project stakeholders plan to commit financial resources	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• What additional factors are needed to create an enabling environment for continued financing?	• Enabling factors identified	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
Socio-Political & Environmental	• What social or political risks that can undermine the longevity of project outcomes?	• Extent to which risks, and assumptions are adequate and reflected in the project document	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• Is there sufficient public/ stakeholder awareness in support of the long-term objective of the project?	• Level of commitment through results realized	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• Are there any environmental risks that may jeopardize sustainability of project outcomes?	• Extent to which risks, and assumptions are adequate and reflected in the project document	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
Institutional Framework and Governance	• Appropriateness of the institutional arrangement and whether there was adequate commitment to the project.	• Level of commitment through results realized	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews

Evaluative Criteria	Questions	Indicators	Sources[17]	Methodology[18]
	• Do the governance structure and processes pose risks that may jeopardize sustainability of the project outcomes?	• Extent to which risks, and assumptions are adequate and reflected in the project document	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
	• How has the project developed appropriate institutional capacity? (e.g., staff, expertise, etc.)	• Extent to which project stakeholders plan to commit human resources	• PIR, PMU reports, UNDP CO	• Document analysis and stakeholder interviews
Impact: Are there indications that the project has contributed to, or enabled progress towards maximizing environmental benefits? GHG emission reduction, etc.				
	To what extent has the project contributed to the following? (a) Policy/legal/regulatory frameworks (b) Institutional frameworks (c) Stakeholder capacity (d) Effective information dissemination program	• Policy/legal/regulatory framework strengthened • Institutional framework strengthened • Stakeholder capacity enhanced • Effective information dissemination program developed and implemented	• PIR, PMU reports, UNDP CO • Field visits	• Document analysis and stakeholder interviews
	What are indirect positive and negative impacts of the project?	• Indirect impacts identified with assessment of overall scopes and implications	• PIR, PMU reports, UNDP CO • Field visits	• Document analysis and stakeholder interviews

Evaluative Criteria	Questions	Indicators	Sources[17]	Methodology[18]
	• To what extent did the dissemination activities facilitate the progress towards project impacts?	• Level of dissemination of results achieved	• PIR, PMU reports, UNDP CO • Field visits	• Document analysis and stakeholder interviews

6.10 APPENDIX I: SIGNED CODE OF CONDUCT

Independence entails the ability to evaluate without undue influence or pressure by any party (including the hiring unit) and providing evaluators with free access to information on the evaluation subject. Independence provides legitimacy to and ensures an objective perspective on evaluations. An independent evaluation reduces the potential for conflicts of interest which might arise with self-reported ratings by those involved in the management of the project being evaluated. Independence is one of ten general principles for evaluations (together with internationally agreed principles, goals, and targets: utility, credibility, impartiality, ethics, transparency, human rights and gender equality, national evaluation capacities, and professionalism).

Evaluators/Consultants:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings, and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.
8. Must ensure that independence of judgement is maintained, and that evaluation findings and recommendations are independently presented.
9. Must confirm that they have not been involved in designing, executing, or advising on the project being evaluated and did not carry out the project's Mid-Term Review.

Evaluation Consultant Agreement Form

Agreement to abide by the Code of Conduct for Evaluation in the UN System:

Name of Evaluator: Sommai Phon-Amnuaisuk

Name of Consultancy Organization (where relevant): _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at Bangkok, Thailand (Place) on 25 May 2022 (Date)

Signature: 

6.10 APPENDIX I: SIGNED CODE OF CONDUCT

Independence entails the ability to evaluate without undue influence or pressure by any party (including the hiring unit) and providing evaluators with free access to information on the evaluation subject. Independence provides legitimacy to and ensures an objective perspective on evaluations. An independent evaluation reduces the potential for conflicts of interest which might arise with self-reported ratings by those involved in the management of the project being evaluated.
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Evaluators/Consultants:

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8. Must ensure that independence of judgement is maintained, and that evaluation findings and recommendations are independently presented.
9. Must confirm that they have not been involved in designing, executing, or advising on the project being evaluated and did not carry out the project's Mid-Term Review.

Evaluation Consultant Agreement Form

Agreement to abide by the Code of Conduct for Evaluation in the UN System:

Name of National Evaluator: Dr Ahmad Hezri Adnan
Name of Consultancy Organization (where relevant): -

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at Kuala Lumpur on 31 May 2022

Signature: 

6.11 APPENDIX J: TE RATING SCALE

Table 6-5 – Monitoring & Evaluation Ratings Scale

Ratings	Description
6 = Highly Satisfactory (HS)	There were no shortcomings; quality of M&E design/ implementation exceeded expectations
5 = Satisfactory (S)	There were no or minor shortcomings; quality of M&E design/ implementation met expectations
4 = Moderately Satisfactory (MS)	There were some shortcomings; quality of M&E design/ implementation more or less met expectations
3 = Moderately Unsatisfactory (MU)	There were significant shortcomings; quality of M&E design/ implementation was somewhat lower than expected
2 = Unsatisfactory (U)	There were major shortcomings; quality of M&E design/ implementation was substantially lower than expected
1 = Highly Unsatisfactory (HU)	There were severe shortcomings in quality of M&E design/ implementation
Unable to Assess (UA)	The available information does not allow an assessment of the quality of M&E design/ implementation

Table 6-6 – Implementation/Oversight and Execution Rating Scale

Ratings	Description
6 = Highly Satisfactory (HS)	There were no shortcomings; quality of implementation/ execution exceeded expectations
5 = Satisfactory (S)	There were no or minor shortcomings; quality of implementation/ execution met expectations
4 = Moderately Satisfactory (MS)	There were some shortcomings; quality of implementation/ execution more or less met expectations
3 = Moderately Unsatisfactory (MU)	There were significant shortcomings; quality of implementation/ execution was somewhat lower than expected
2 = Unsatisfactory (U)	There were major shortcomings; quality of implementation/ execution was substantially lower than expected
1 = Highly Unsatisfactory (HU)	There were severe shortcomings in quality of implementation/ execution
Unable to Assess (UA)	The available information does not allow an assessment of the quality of implementation and execution

Table 6-7 – Outcome Ratings Scale – Relevance, Effectiveness, Efficiency

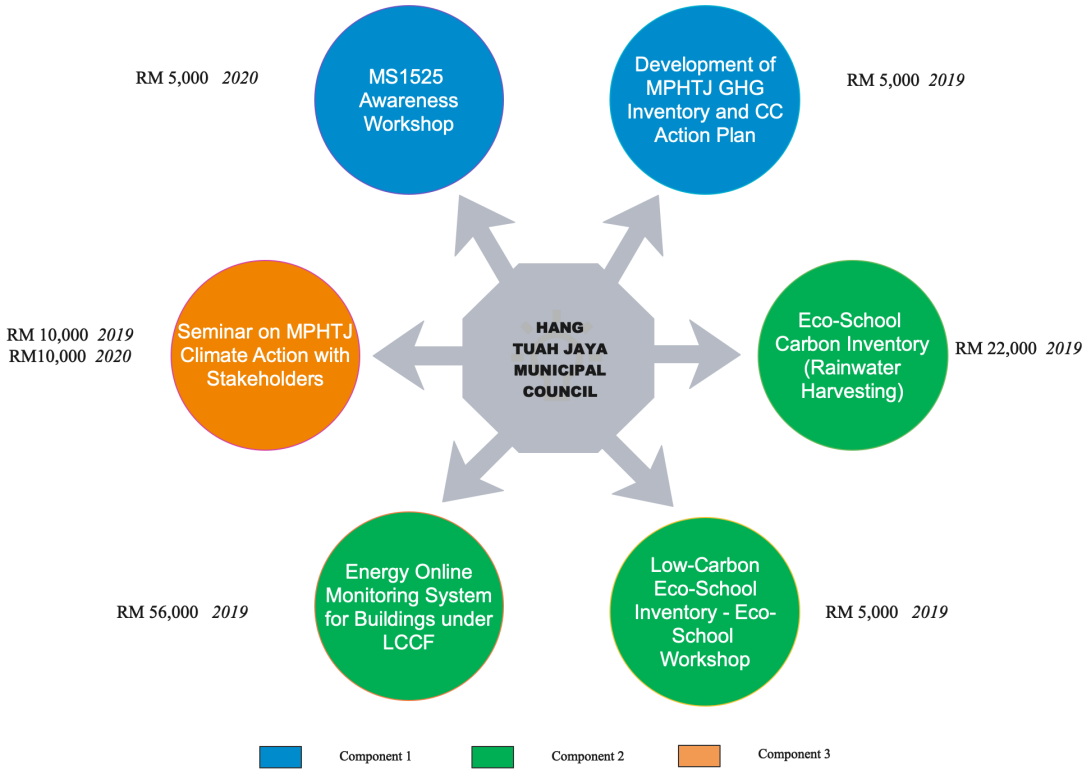
Ratings	Description
6 = Highly Satisfactory (HS)	Level of outcomes achieved clearly exceed expectations and/or there were no shortcomings
5 = Satisfactory (S)	Level of outcomes achieved was as expected and/or there were no or minor shortcomings
4 = Moderately Satisfactory (MS)	Level of outcomes achieved more or less as expected and/or there were moderate shortcomings
3 = Moderately Unsatisfactory (MU)	Level of outcomes achieved somewhat lower than expected and/or there were significant shortcomings
2 = Unsatisfactory (U)	Level of outcomes achieved substantially lower than expected and/or there were major shortcomings
1 = Highly Unsatisfactory (HU)	Only a negligible level or outcomes achieved and/or there were severe shortcomings

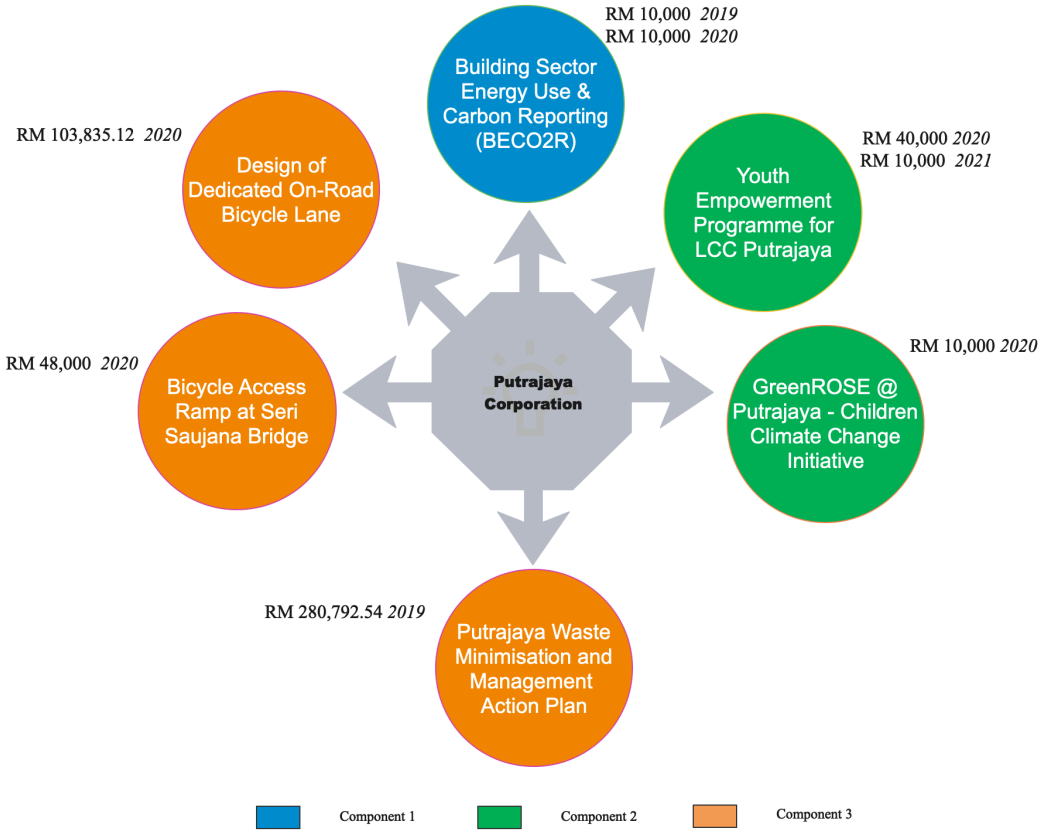
Ratings	Description
Unable to Assess (UA)	The available information does not allow an assessment of the level of outcome achievements

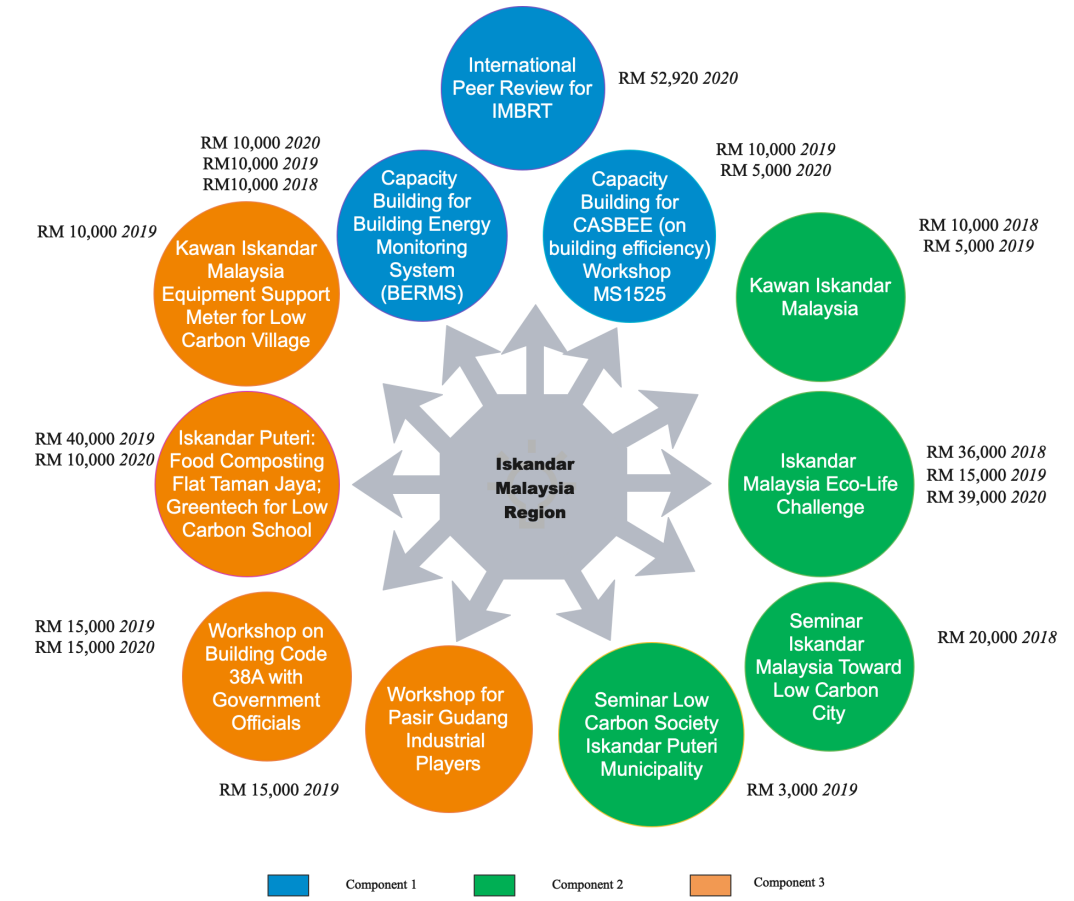
Table 6-8 – Sustainability Ratings Scale

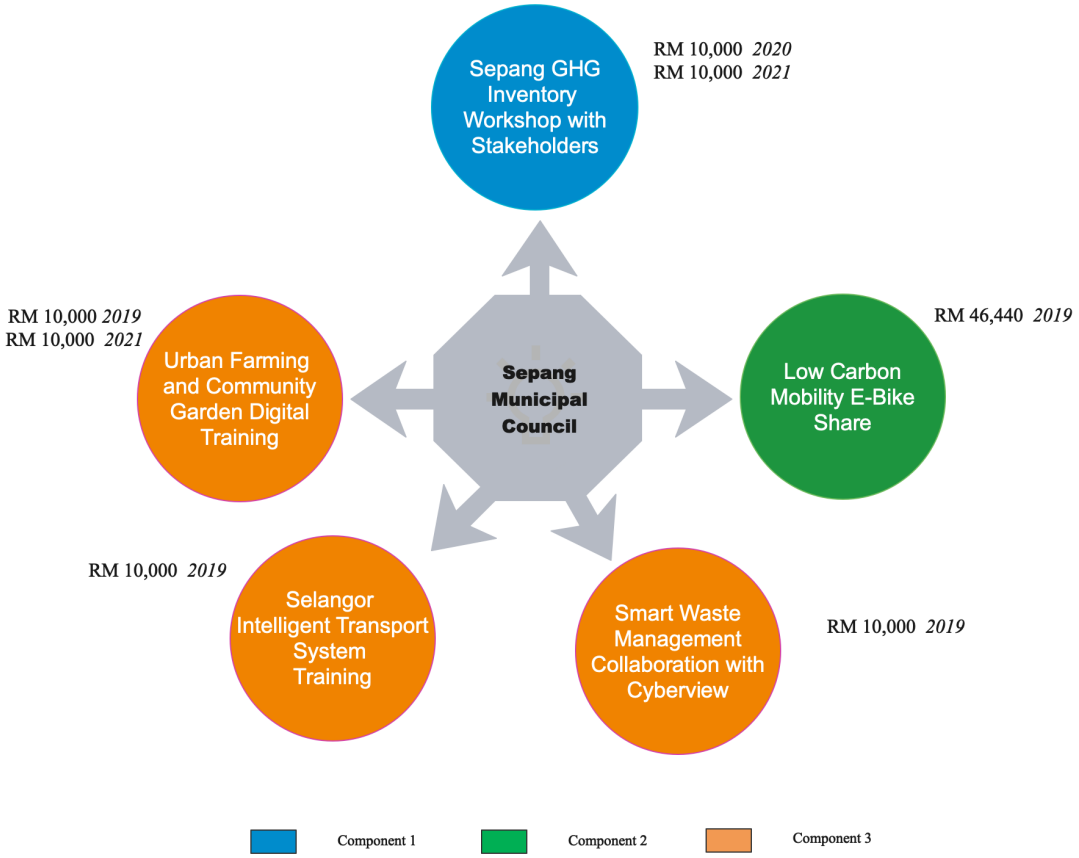
Ratings	Description
4 = Likely (L)	There are little or no risks to sustainability
3 = Moderately Likely (ML)	There are moderate risks to sustainability
2 = Moderately Unlikely (MU)	There are significant risks to sustainability
1 = Unlikely (U)	There are severe risks to sustainability
Unable to Assess (UA)	Unable to assess the expected incidence and magnitude of risks to sustainability

6.12 APPENDIX K: CITIES' WISHLIST ON LOW CARBON ACTIVITIES









6.13 APPENDIX L: EVALUATION OF BARRIER REMOVAL

The ProDoc outlines the following three key barriers in development of Low Carbon Cities in Malaysia: 1) incomplete policy and regulatory framework to promote low carbon planning and development, especially at the sub-national level; 2) lack of awareness and institutional capacity for evidence-based low carbon planning at the sub-national level; and 3) lack of capacity of cities to mobilise finance and incentives and availability of financial mechanisms to promote low carbon investments. Within these three key barriers, over twenty specific barriers that hinder the integrated development of low carbon cities in Malaysia were determined (see Figure 3-2). The TE team believes that GTALCC is instrumental in removing many Capacity and Awareness barriers. The project has also managed to remove important Policy and Regulatory barriers, especially in creating a national policy on low carbon cities and setting up clearer GHG accounting measures. However, GTALCC shows the slightest success in removing Financing and Investment barriers to implement low carbon city initiatives.

		Policy and Regulatory Barrier		**Capacity and Awareness Barrier**		**Financing and Investment Barrier**		**Rating**
	Project Outcomes	*Removed*	*Outstanding*	*Removed*	*Outstanding*	*Removed*	*Outstanding*	
Component 1	1.1 Major cities implemented and adopted integrated low carbon urban development plans	Absence of national policy.	Agencies operate without vertical and horizontal integration.	Sectoral targets are not linked with carbon reduction equivalent. Cities are unsupported during planning for LCC.	National level guidelines are issued but may not be implemented at the State or local level.	Potential collaboration with the private sector is under-utilized	Limited funds come from Federal and State governments.	S
Component 2	21. Expedient appraisal, approval, and implementation of strategic urban development plans, programmes and projects	Cities set targets not linked with national targets. Cities struggle to translate the national GHG emission	Most local governments have no single institutional structure to lead the LC initiatives.	Lack of human resources capable of developing LC strategies resulting in low buy-in from State and local governments.	Skills in carbon accounting are limited.	The life cycle costs of green technologies are not understood.		MS

		reduction agenda into local action.						
	2.2 Major cities are aware of, and are planning and implementing low carbon technology applications for integrated urban development	No effective system to monitor, gather, analyse and disseminate information and local innovation on low carbon progress.	Incomplete regulatory frameworks to promote low carbon planning at the sub-national level.	Lack of awareness and knowledge sharing on integrated urban development.		Capacity gap to appraise investments options.	Incentive mechanisms are not easily accessible or poorly targeted.	S
Component 3	3.1 Increased investments in low carbon technology applications in cities		The absence of dedicated funding due to unclear roles and responsibilities, limited collaboration between government entities and political issues resulted in a lack of project continuity.	Lack of data on low carbon technologies, investments and lifecycle costs, and practices limits the capacity of urban system providers to assess investment risks.			Public finance mechanisms have no provision for prioritizing low carbon options.	MS
	3.2 More low carbon projects implemented in Malaysian cities					Cities and their service providers unable to access finance or overcome high entry cost of	Despite a number of successful pilots and demonstrations of electric buses, Malaysia bus	MS

						green technologies.	operators have been unable to access affordable finance.	

6.14 APPENDIX M: TE REPORT CLEARANCE FORM

Terminal Evaluation Report for *(Project Title & UNDP PIMS ID*) Reviewed and Cleared By:

Commissioning Unit (M&E Focal Point)

Name: ling

Signature: DocuSigned by: E992E640DF87490... Date: 31-May-2022

Regional Technical Advisor (Nature, Climate and Energy)

Name: Manuel Soriano

Signature: DocuSigned by: Manuel Soriano B01FE800169D418... Date: 02-Jun-2022

DocuSign

Certificate Of Completion

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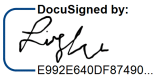
ling siow.ling.lee@undp.org UNDP Headquarters Security Level: Email, Account Authentication (None)	DocuSigned by:  E992E640DF87490... Signature Adoption: Drawn on Device Signed by link sent to siow.ling.lee@undp.org Using IP Address: 202.184.155.161	Sent: 5/31/2022 5:39:36 AM Viewed: 5/31/2022 5:40:00 AM Signed: 5/31/2022 5:40:36 AM
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