UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Terminal Evaluation of UNIDO project:

Energy efficient low carbon transport in Malaysia

UNIDO SAP ID: 120309
GEF Project ID: 5741

STEFAN MELNITZKY
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Contents

Acknowledgement

The Evaluation team wants to sincerely thank UNIDO team in HQ and at PMU in Malaysia for great cooperation in preparing and conducting this Terminal evaluation for "Energy Efficient Low Carbon Mobility in Malaysia (EELCT)".

Furthermore, we want to express our gratitude to all stakeholders at MESTECC, MOT, MIGHT, MARii and that gave their time for valuable discussions to share feedback and respective learnings from EELCT project. The team from MGTC supported and accompanied us during our onsite visits to Langkawi and the PV charging station and to Prasarana BRT Sunway.

UNIDO staff responsible for the project

Position	***Current***	***At approval***
Project Manager(s):	Katarina Barunica Spoljaric	Khac-Tiep Nguyen
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Others involved in the project management in the HQ:	Nicholas Dehod, Julie Cruzat-Palang	n.a.

Table 1: UNIDO project staff

We received some additional feedback on the evaluation this week. The management team would like to see more specific details and examples in in the document in support of the analysis. This is in part to assist with capturing best practices for moving forward with new projects

Glossary of evaluation-related terms

Term	Definition
Results-Based Management (RBM)	A management strategy focusing on performance and achievement of outputs, outcomes and impacts.
Monitoring	A continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing development intervention with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds.
Review	An assessment of the performance of an intervention, periodically or on an ad hoc basis. Note: Frequently "evaluation" is used for a more comprehensive and/or more in-depth assessment than "review". Reviews tend to emphasize operational aspects. Sometimes the terms "review" and "evaluation" are used as synonyms.
External evaluation/review	The evaluation/review of a development intervention conducted by entities and/or individuals outside the donor and implementing organizations.
Formative evaluation/review	Evaluation/review intended to improve performance, most often conducted during the implementation phase of projects or programs.
Relevance	The extent to which the objectives of a development intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donors' policies. Note: Retrospectively, the question of relevance often becomes a question as to whether the objectives of an intervention or its design are still appropriate given changed circumstances.
Effectiveness	The extent to which the development intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance.
Efficiency	A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.
Sustainability	The continuation of benefits from a development intervention after significant development assistance has been completed. The probability of continued long-term benefits. The resilience to risk of the net benefit flows over time.
Institutional development impact	The extent to which an intervention improves or weakens the ability of a country or region to make more efficient, equitable, and sustainable use of its human, financial, and natural resources, for example through: (a) better definition, stability, transparency, enforceability and predictability of institutional arrangements and/or (b) better alignment of the mission and capacity of an organization with its mandate, which derives from these institutional arrangements. Such impacts can include intended and unintended effects of an action.
Logframe or Project Result framework	A management tool used to improve the design of interventions, most often at the project level. It involves identifying strategic elements (inputs, outputs, outcomes, impact) and their causal relationships, indicators, and the assumptions or risks that may influence success and failure. It thus facilitates planning, execution, monitoring and evaluation of a development intervention.
Results	The output, outcome or impact (intended or unintended, positive and/or negative) of a development intervention.
Impacts	Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended.
Outcome	The likely or achieved short-term and medium-term effects of an intervention's outputs.

Term	Definition
Outputs	The products, capital goods and services that result from a development intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes.
Indicator	Quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor. Means by which a change will be measured. Example: Total wastewater in t/yr.
Target	Definite ends to be achieved. Specifies a particular value that an indicator should reach by a specific date in the future. Example: Reduce by 50% the amount of wastewater in t/yr, between 2015 and 2020.
Milestones	Interim targets; points in the lifetime of a project by which certain progress should have been made. They provide an early warning system and are the basis for monitoring the trajectory of change during the lifetime of the project.
Baseline	The situation before a development intervention against which progress can be assessed or comparisons made.
Assumptions	Hypotheses about factors or risks which could affect the progress or success of a development intervention. Necessary conditions for the achievement of results at different levels. These are conditions that must exist if the project is to succeed but which are outside the direct control of the project management. This is called the external logic of the project because these conditions lie outside the project's accountability and can be related to laws, political commitments, political situations, financing, etc.
Theory of change	Theory of change or programme theory is similar to a logic model, but includes key assumptions behind the causal relationships and sometimes the major factors (internal and external to the intervention) likely to influence the outcomes.
Conclusions	Conclusions point out the factors of success and failure of the evaluated intervention, with special attention paid to the intended and unintended results and impacts, and more generally to any other strength or weakness. A conclusion draws on data collection and analyses undertaken through a transparent chain of arguments.
Lessons learned	Generalizations based on evaluation experiences with projects, programs, or policies that abstract from the specific circumstances to broader situations. Frequently, lessons highlight strengths or weaknesses in preparation, design, and implementation that affect performance, outcome, and impact.
Recommendations	Proposals aimed at enhancing the effectiveness, quality, or efficiency of a development intervention; at redesigning the objectives; and/or at the reallocation of resources. Recommendations should be linked to conclusions.
Gender mainstreaming	The process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality

Abbreviations and acronyms

BAU	Business as Usual
BOP	Best Operating Practices
CDP	Continuous Development Programme
CO_2	Carbon dioxide
CC	Climate Change
COMOS	Cohesive Mobility Solution / CMS Consortium Ecotour Sdn Bhd
DSM	Department of Standards Malaysia
DOE	Department of Environment Malaysia
EA(R)	Energy Audit (Report)
EE	Energy Efficiency
EELCT	Energy Efficient Low Carbon Transport (project title)
EEVs	Energy Efficient Vehicles
EPU	Economic Planning Unit, Malaysia
ET	Evaluation Team
EVs	Electric Vehicles
EVSE	Electric Vehicle Supply Equipment
FDI	Foreign Direct Investment
FI	Financial Intermediary
FMM	Federation of Malaysian Manufacturers
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gases
GREENTECH	Malaysian Green Technology Corporation
HDI	Human Development Index
HQ	Headquarters
IED	Inclusive Economic Development
IoT	Internet of Things
ISID	Inclusive and Sustainable Industrial Development
KWh	Kilo Watt hour
LED	Light Emitting Diode
LCM	Low Carbon Mobility
LCMB	Low Carbon Mobility Blueprint
KeTTHA	Ministry of Energy, Green Technology and Water (old name)
MIDA	Malaysian Investment Development Authority
MGTC	Malaysia Green Technology Corporation / Green Tech Malaysia
MIGHT	Malaysian Industry-Government Group for High Technology
MITI	Ministry of International Trade and Industry
MNRE	Ministry of Natural Resources and Environment
MOF	Ministry of Finance
MoM	Minutes of Meetings
MOSTI	Ministry of Science, Technology & Innovation
MESTECC	Ministry of Energy, Science, Technology, Environment and Climate Change

MOT	Ministry of Transport Malaysia
MARii	Malaysia Automotive, Robotics & IoT Institute (former MAI)
MEA	Ministry of Economic Affairs
Mtoe	Million tons of oil equivalent
NAP	National Automotive Policy
NEEMP	National Energy Efficiency Masterplan 2006 – 2020
NOSS	National Occupational Skills Standard
NPD	National Project Director (in MESTECC)
NSC	National Steering Committee
NPSC	National Project Steering Committee
ODG/EVQ/IED	UNIDO Independent Evaluation Division
OVI	Objectively Verifiable Indicators
PSC	Project Steering Committee
PMU	Project Management Unit
PV	Photovoltaic
PRF	Project Results Framework
RECP	Resource Efficiency and Cleaner Production
SDGs	Sustainable Development Goals
SEDA	Sustainable Energy Development Authority Malaysia
SERI	Solar Energy Research Institute (at UKM)
SIRIM	SIRIM Berhad, (formerly known as the Standard and Industrial Research Institute of Malaysia)
SME	Small and Medium-Sized Enterprises
ST	Energy Commission
TNB	Tenaga Nasional Berhad (Electricity Utility)
TOC	Theory of Change
TOR	Terms of Reference
TSSM	Transportation Science Society of Malaysia
TE	Terminal Evaluation
UM	Universiti Malaya (University of Malaya)
UKM	Universiti Kebangsaan Malaysia (National University of Malaysia)
UIA	Universiti Islam Antarabangsa (International Islamic University)
UN	United Nations
UNDAF	United Nations Development Assistance Framework
UNIDO	United Nations Industrial Development Organization
UNSDF	United Nations Sustainable Development Framework
UMPEDAC	Universiti Malaya Power Energy Dedicated Advanced Centre
VFD	Variable frequency drive
W	Watt
WB	World Bank

I. Executive summary

This Terminal Evaluation (TE) is covering the whole duration of the project "**Energy Efficient Low Carbon Mobility in Malaysia (EELCT)"** from its starting date up to the date of the evaluation. It has assessed project performance against the evaluation criteria: relevance, effectiveness, efficiency, sustainability and impact. It is covering the project activities from 28/10/2015 to 31/03/2020 that is the 2 main components plus the project management component. With actual situation on COVID 19, the closing event will be postponed to September and therefore the project will continue until September 2020 with an overall duration of 61 months. [1]

The Evaluation Team ET consists of Mr. Stefan Melnitzky and Dr. Chin Haw Lim who have been closely cooperating with UNIDO's Project team in Vienna and in Malaysia. The overall objective of the project is **to catalyse and accelerate widespread use of electric vehicles (EVs)** as part of energy efficient low carbon transport and low-carbon cities initiatives of Malaysia.

The general framework of the project is organized into **three components**:

(i) to promote the use of electric vehicles (EVs) by improving relevant policy and regulatory frameworks, developing incentive schemes and support programmes and strengthening the capacity of concerned institutions, as well as raising public awareness;

(ii) to promote local manufacturing of EVs and development of adequate EV infrastructure and demonstration of photo-voltaic (PV)-based, off-grid and fast charging stations;

(iii) Monitoring and Evaluation. The project will assist Malaysia in the implementation of the National Automotive Policy that was adopted in 2014 with the vision to become a regional automotive hub in energy efficiency vehicles with a particular focus on e-mobility.

The TE was conducted in accordance with the UNIDO Evaluation Policy[2], UNEG Norms and Standards for evaluation and the UNIDO Guidelines for the Technical Cooperation Project and Project Cycle[3]. In addition, the GEF Guidelines for GEF Agencies in Conducting Terminal Evaluations, the GEF Monitoring and Evaluation Policy[4] and the GEF Minimum Fiduciary Standards for GEF Implementing and Executing Agencies[5] utilizing Annex 2: 'Definition of evaluation criteria including key evaluation questions' have been followed.

The evaluation was carried out as **a terminal in-depth evaluation** using a participatory approach whereby all major key parties associated with the project have been informed and consulted throughout the evaluation.

The project design, through close partnership with the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC), the location of the Project Management Unit (PMU) within UNIDO and working with technical experts GreenTech Malaysia (MGTC) supports project outcomes and incorporating learnings into government programmes and finance schemes.

The design of the "**Energy Efficient Low Carbon Mobility in Malaysia (EELCT)"** project is well done and strategies to promote Energy Efficient Transport to reduce GHG emission are still valid and highly needed. Project extension has even worked in favour of the project, as results came timely to support future plans

1 This decision was made after the TE mission and UNIDO HQ has informed all stakeholders.

2 UNIDO. (2018). Director General's Bulletin: Evaluation Policy (DGB/2018/08, dated 1 June 2018)

3 UNIDO. (2006). Director-General's Administrative Instruction No. 17/Rev.1: Guidelines for the Technical Cooperation Programme and Project Cycle (DGAI.17/Rev.1, 24 August 2006)

4 GEF (2010) The GEF Monitoring and Evaluation Policy (Evaluation Office, November 2010)

5 GEF (2011). GEF Minimum Fiduciary Standards: Separation of Implementation and Execution Functions in GEF Partner Agencies (GEF/C.41/06/Rev.01, 3 November 2011, prepared by the Trustee)

from various ministries. The multi stakeholder approach and the high number of workshops, technical meetings and expert's discussion has created **a strong ownership for project results** and leads to advanced knowledge and awareness for LCM among all relevant stakeholders. **All major outcomes are in place and appreciated** by the interviewed stakeholder and will be utilized after funded project period.

Project implementation, project structure and management are functioning. Annual reporting (PIR) is carried out and results are regularly traced against overall objectives and discussed with the main stakeholders. The Project Steering Committee (NSC) meets annually and takes decisions as mandated; this is well documented in meeting minutes (MoM). Participation by GEF focal point (in person and by accepting the MoMs) ensures that changes are mutually agreed.

Project efficiency is high. Around 98% of project funds is spent, the 2% will be utilized for remaining activities (i.e. closing and promotion event in March), i.e. USD 1,967,645. The **cost efficiency can rated as very high**, as the impact of the EELCT project for future policies on LCM and on the infrastructure and visibility for E-charging stations is excellent. **Most of the indicators will be achieved or even overachieved** (for details refer to table 4: Progress towards expected results and the project status per 20th of February 2020).

Sustainability of project outcomes

Project structure and design – PMU and experts team located in MGTC with close cooperation with concerned ministries is already supporting EELCT measures and will support the uptake even more after funded project period. Multiple ministries and their respective departments emphasised the use of EELCT project outcomes for future work/planning and their strategy papers. A jointly prepared document will eventually go to Malaysian Cabinet for endorsement under the 12th Malaysian Plan.

Main risk to at present is the price structure, with existing price structure for petrol and electricity (highly subsidised) and high purchase costs of EVs, E-mobility is not seen as a viable option, but more a sustainability strategy.

Conclusion:

The project has seen a view delays in the starting phase and a project extension was needed. This extension worked in favour of the project and **all results came well in time to feed into policy papers, the National Automotive Policy and the 12th Malaysian Plan.** Multiple best practices could be identified and will have a positive impact on future work in the field of Low Carbon Mobility (LCM).

With the strong involvement and following support from all stakeholders the project has even overachieved most of the project targets, leading to a high overall efficiency. **Malaysia has become a visible player when talking about E-mobility in South Asia** and GEF is supporting the country with their future plans to further enhance LCM.[6]

An official closing event is planned in the last month of the project to make the results more visible.

Recommendations:

- Make sure that decision for GEF 7 successor project is made in time, to enable roll – over project. It is crucial to ensure that project resources (HR and material) can be sustained to bridge the gap between EELCT (GEF 5) project and 12th Malaysian.
- **Develop a Business Model** for EV charging system

  At the moment users are not paying for charging their vehicles[7] and the programme is subsidised. On the long run the charging system has to be functioning without funding and subsidies.

6 When this report was prepared it was not clear whether GEF 7 successor project can be realized, but all stakeholder supported it

7 Registered members of ChargEV are paying annual membership at RM240 to get access to network of ChargEV charging stations nationwide.

- Professional marketing of project outcomes

  EELCT project has a very positive impact on the LCM Ecosystem in Malaysia, but it is not visible per se. If UNIDO and/or GEF want to ensure the visibility of the project itself, a focus on marketing has to be given.

- The **Project Logical Framework** (Outcomes, outputs and / or indicators) **should be used as a project management tool**

  Jointly agreed changes (in NSC meetings) should be incorporated, respective indicators and also the M&E has to be adapted to reflect these changes. At the moment changes are part of multiple meeting minutes only.

- Some indicators are not well formulated and cannot be easily monitored and furthermore do not reflect the agreed changes (see remark above).

  It is advised to crosscheck indicators regularly during project work and either revise them or to define/prepare a procedure how to monitor them in an unarguable manner

UNIDO HQ and PMU:

- Prepare a checklist for implementation of GEF projects to ease the execution, including needs and respective means for monitoring project results, such as GHG reduction and different levels of co-finance.
- Develop and agree on a scheme to monitor co-finance, investments and In-kind contribution. Start monitoring the same from project start.
- Translate the PRF into a day-to-day monitoring tool to help keep track of overall objective along with activities being implemented. As the project has seen several changes throughout the full project period, these changes should be included in the PRF (either in an actual version or by adding some columns to the original PRF).
- Develop improved bidding procedure together with local Executing Partners

MESTECC

- Come to a decision regarding the planned GEF 7 project as quick as possible, to avoid a time gap between these project. If the decision is positive, ensure continuity from involved person. Assign a team with clear roles responsibilities and ensure information flow.
- Support UNIDO team in monitoring of in-kind contribution

MGTC:

- Support UNIDO team in monitoring of in-kind contribution
- With all the data collected so far and including the vast knowledge of involved experts, work on how to create the business case for charging infrastructure should be started. This includes in depth knowledge on 'real life' running costs for EV users and promotion of the same.

GEF focal point:[8]

- Support the project teams with clear and agreed rules for monitoring the co-finance (in-kind and cash) in an unarguable manner. The monitoring scheme should be jointly agreed from the very beginning of the project and aligned with all involved stakeholders.

8 Meeting with GEF FOP could not take place, so no detailed discussion with them was possible. For more details see footnote 26 and Annex 9.

II. Country and project background and context

Country and project background

Ideally, transportation systems should be "green," in that they are energy efficient and rely on environmentally-friendly energy sources that do not pollute as much as fossil fuels. The transport sector is responsible for one quarter of energy-related greenhouse gas (GHG) emissions worldwide, with its emissions increasing at a faster rate than any other sectors. Malaysia's CO_2 emissions amounted to 250.3 million tonnes in 2018 and one of the main sources of the emissions is also from transportation sector. Based on Paris Climate Conference and Conference of Parties (COP) 21, held in Paris, France, Malaysia has committed to reduce its GHG emissions intensity per GDP by 45% in 2030 from level in 2005. Since the transport sector is the second-largest CO_2 emitter in the country (28% of total), and since car ownership and thereby CO_2 emission due to gasoline/diesel combustion is expected to rise in a future, it is crucial to implement an appropriate policy to reduce CO_2 in this sector.

Thus, in the year 2015, as one of the initiatives towards the reduction of its CO_2, the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) administered The Energy Efficient Low Carbon Transport (EELCT) project through GEF 5 Climate Change Focal Area Objective 4, with the main objective of promoting energy efficient low carbon transport in Malaysia. Referring to research conducted by Economic Research Institute for ASEAN and East Asia (ERIA), the deployment of energy-efficient vehicles has the largest potential to reduce CO_2 emissions, followed by electric vehicle, public transport and biofuels. Hence, the EELCT project is a pioneering project by the transport sector which will embark on the acceleration of widespread use of electric vehicles (EVs) as part of the energy efficient low carbon transport and low carbon initiatives in Malaysia.

In order for the project to be successful, a holistic approach must be adopted which combined interventions at both on policy and institutional level coupled with market instruments to push forward the land transport vision to shift towards low carbon mobility. The EELCT project will be a catalyst for widespread replication of low carbon mobility initiatives by the government and private sector through two main project components, firstly is the improvement of policy and regulatory framework which seek to mitigate through improvement and development of a national level enabling policies in close coordination with national partners and building of institutional awareness and capacity to aid adoption and implementation of the new policies. Secondly, is the development and demonstrations of infrastructure which seek to aid infrastructure standard development via design, installation and testing of PV-based charging stations and help to raise awareness and increased adoption of EVs in Malaysian market.

Overall a very supportive climate for LCM in Malaysia exists and many stakeholder of the EELCT are showing high interest to support project activities. An announcement made by the Prime Minister of Malaysia for NAP2020 on Friday 21st February to turn Malaysia into Next Generation Hub (NxGV) that is also include the development for EV and EEVs which also sees the project results feeding into 12th Malaysian plan. In the NAP 2020, the government of Malaysia will be seen to focus on the incentives for NxGV that include for EVs and EEVs. Besides that, the policy also pushes towards the development and manufacturing of EEVs and EVs critical parts and components. This initiative also includes development of charging infrastructure to support EVs and PHEVs Cross Country the country. Towards this, MITI through MARii will be the implementing agency for NAP2020 intitatives.

Project factsheet

Project title	**Energy efficient low-carbon transport in Malaysia**
UNIDO project No. and/or ID	**Project ID: 120309**
GEF project ID	**5741**
Region	**Asia and the Pacific**
Country(ies)	**Malaysia**
Planned implementation start date	**08 October 2015**
Planned implementation end date	**27 October 2018**
Actual implementation start date	**28 October 2015**
Actual implementation end date	**31 March 2020**[9]
GEF Focal Areas and Operational Project (in addition, also indicate whether the project is linked to a GEF programme)	**GEF 5 Climate Change Focal Area Objective 4**
Implementing agency(ies)	**United Nation Industrial Development Organization (UNIDO)**
Executing partner(s)/entity(ies)	**Ministry of Energy, Science, Technology, Environment and Climates (MESTECC), Malaysia Green Technology Corporation (MGTC/GreenTech Malaysia)**
Donor(s):	**GEF**
Total project allotment (for GEF: project grant)	**USD 2,000,000**
Total co-financing at design (in cash and in-kind)	**Cash: USD 6,050,000** **In-kind: USD 22,670,000**
Materialized co-financing at project completion (in cash and in -kind)	**Cash:** **In-kind:**
Mid-term review date	**N/A**

Table 2: Project fact sheet[10]

9 Due to the actual Covid 19 crisis an extension till September 2020 was agreed to enable conducting the final workshop with all stakeholders in September

10 Extracted from 5741_LCT_ToR_TE_Dec2019

Project objectives

The overall objective of the project is to catalyze and accelerate widespread use of electric vehicles (EVs) as part of energy efficient low carbon transport and low-carbon cities initiatives of Malaysia.
The general framework of the project is organized into **three components**:

(iv) to promote the use of electric vehicles (EVs) by improving relevant policy and regulatory frameworks, developing incentive schemes and support programmes and strengthening the capacity of concerned institutions, as well as raising public awareness;

(v) to promote local manufacturing of EVs and development of adequate EV infrastructure and demonstration of photo-voltaic (PV)-based, off-grid and fast charging stations;

(vi) Monitoring and Evaluation. The project will assist Malaysia in the implementation of the National Automotive Policy that was adopted in 2014 with the vision to become a regional automotive hub in energy efficiency vehicles with a particular focus on e-mobility.

The following **three project components** have been developed, to achieve the project objectives:

Project Component 1: Improvement of policy and regulatory frameworks for EV use and local manufacturing; strengthened capacity of concerned institutions built and awareness raising.
This component aims at accelerating the development of an enabling national policy and regulatory framework, strengthening institutional capacity and raising awareness to promote early demand for and supply of EVs.

Expected Outcomes

Enabling policies and regulatory framework, strengthened institutional capacity and enhanced awareness catalyze and accelerate widespread use of EVs in Malaysia, resulting in GHG reductions, local manufacturing, job and income creation and environmental improvements.

Project Component 2: Development and demonstration of infrastructure for EVs and local EV manufacturing capacity.
This component aims at technology transfer, deployment and the demonstration of PV-based charging stations, building local EV manufacturing capacity, and development of standards and regulations for EV infrastructure.

Expected Outcomes

Adequate infrastructure and skilled personal to locally manufacture EV parts and components facilitate widespread utilization of EVs.
The following are, in brief, some of the expected results of the project/program:

- Development of a Low Carbon Mobility Blueprint and Action Plan
- Electric Vehicle Roadmap
- Final report baseline study and data collection on energy, environment and socio-economics of Langkawi, Malaysia
- Training needs, standards and capacity building assessment for EV value chain completed with training modules developed, standards proposed and code of practice for EV charger installation
- 10 charging stations installed on Langkawi Island
- 5 PV integrated EV charging stations installed on Malaysian peninsula
- 1 solar PV-ESS to complement charger at Sunway BRT for e-bus operation installed

Component 3: Monitoring and Evaluation and Knowledge Management
Efficient project management including M&E and knowledge management will ensure smooth project execution and uptake of the learnings.

Expected Outcomes

5.1. Project's progress towards goals confirmed and/or necessary adjustments made

III. Evaluation objectives, methodology and process

Scope and purpose of the evaluation

The TE was conducted in accordance with the UNIDO Evaluation Policy[11] UNEG Norms and Standards for evaluation and the UNIDO Guidelines for the Technical Cooperation Project and Project Cycle[12].

In addition, the GEF Guidelines for GEF Agencies in Conducting Terminal Evaluations, the GEF Monitoring and Evaluation Policy[13] and the GEF Minimum Fiduciary Standards for GEF Implementing and Executing Agencies[14] utilizing Annex 2 'Definition of evaluation criteria including key evaluation questions' have been followed.

The evaluation was carried out as a terminal in-depth evaluation using a participatory approach whereby all major key parties associated with the project have been informed and consulted throughout the evaluation. The ET consists of Mr. Stefan Melnitzky and Dr. Chin Haw Lim who are closely cooperating with UNIDO's Project team in Vienna and in Malaysia on preparation and conduct of the evaluation and methodological issues on the conduct of the evaluation and methodological issues. The cooperation is defined in the TOR for this TE[15].

In line with its objectives, the evaluation had two main components. The first component focused on an overall assessment of performance of the project, whereas the second one focused on the learning from the successful and unsuccessful practices in project design and implementation.

The evaluation used mixed methods to collect data and information from a range of sources and informants. It paid attention to triangulating the data and information collected before forming its assessment. The ET has identified causal and transformational pathways from the project outputs to outcomes and longer-term impacts, and drivers as well as barriers to achieve them. The learning from this analysis should be utilized to feed into the design of the future projects

In preparing this TE report the ET has reviewed the documentation of the project provided by the UNIDO's Project team. The review included the project documents, records related to meetings of the project steering committee (including technical meetings), annual progress update reports and monitoring report (from 2016 -2019) and annual work plans (see Annex 4). The ET has also been in regular contact with the project coordinating units in Malaysia and Vienna and has requested documents to fill in information gaps and information where ever needed and jointly prepared the schedule for the country visit.

A 12-day mission in Malaysia to meet stakeholders, experts and project beneficiaries and to discuss the results in details with local team was conducted in second half of February and preliminary findings have been presented to stakeholders on 25th of February.

The ET has also been in regular contact with the project coordinating units in Malaysia and Vienna and has requested documents to fill in information gaps and information where ever needed.

11 UNIDO. (2018). Director General's Bulletin: Evaluation Policy (DGB/2018/08, dated 1 June 2018)

12 UNIDO. (2006). Director-General's Administrative Instruction No. 17/Rev.1: Guidelines for the Technical Cooperation Programme and Project Cycle (DGAI.17/Rev.1, 24 August 2006)

13 GEF (2010) The GEF Monitoring and Evaluation Policy (Evaluation Office, November 2010)

14 GEF (2011). GEF Minimum Fiduciary Standards: Separation of Implementation and Execution Functions in GEF Partner Agencies (GEF/C.41/06/Rev.01, 3 November 2011, prepared by the Trustee)

15 UNIDO (13th Jan 2020) JD_International Evaluation Consultant_MAL_LCT051219

Overall evaluation approach

As per the Terms of Reference (TOR) for the evaluation, the purpose of the TE was to independently assess the project to help UNIDO improve performance and achieve the expected outcomes as foreseen in the project document. The Terminal Evaluation has been conducted in accordance with the UNIDO Evaluation Policy, by an external independent ET using a participatory approach whereby all key parties associated with the project have been kept informed and consulted during the evaluation. The ET is closely working with the UNIDO project managers (PMU and MESTECC) in Selangor and UNIDO HQ in Vienna on the conduct and methodology of the evaluation.

The ET has developed interview guidelines. Field interviews have taken place either in the form of focus-group discussions or one-to-one consultations (see attached visit schedule – Annex 5). The methodology was based on the following:

1. **A desk review** of project documents, including, but not limited to:
   a. The original project document, monitoring reports, such as progress and financial reports to UNIDO and Donor(s)/Partners, annual Project Implementation Reports (PIRs), Project status report, and other project-related material produced by the project.
   b. The evaluation team was checking the validity of the project's results-chain in the project Logframe and discuss barriers and risks for the project.
   c. Counterfactual / Missing information: In cases where baseline information for relevant indicators was not consistent (or not available), the evaluation team discussed it with the Project Team and check other available sources (e.g. stakeholder, experts).
2. **Interviews**
   a. at UNIDO headquarters in Vienna: Project Manager
   b. with the project team in Malaysia: Project Management Unit (PMU), National Project experts, Technical Advisors, supplier, key local experts,
   c. with lead executing agency GreenTech Malaysia, involved Ministries and with Members of the Project Steering Committee
3. **Country visit**: The evaluation has visited relevant stakeholders, selected industries and respective associations and beneficiaries as it will be determined at the inception phase. At the end of the field mission, there was a presentation of preliminary findings, conclusions, and recommendations to the key stakeholders on 25th of February.

The following sites have been visited (see also Annex 3):

Demonstration Sites

- Ayer Keroh OBR, Melaka
- Langkawi EV Chargers / COMOS
- Prasarana BRT Management, PV charger
- Green Tech ChargEV and charger
- PLUS Highway:
  Seremban
  Dengkil

Overall ET Team could meet 39 people (16 of them female) representing the main stakeholders and project beneficiaries

Limitations

Few of the planned meetings with key stakeholders could not be undertaken due to unforeseen reasons (time constraints, not able to arrange a suitable time for a meeting) during the review mission.

The meeting with GEF OFP was cancelled at very short notice. Dr. Nagulendran Kangayatkarasu - who is actually Head of GEF in Malaysia – chaired the presentation of preliminary findings, but in his function of the National Project Director. He gave a very positive feedback about the project, also from GEF view point, but a detailed discussion of OFP related questions (see Annex 3) could not take place.

At the end of the mission, some unforeseen political event occurred with major changes on the present country administration. However, this did not have on impact on the mission itself, but might have an impact on the people involved in the project and the cooperation within the ministries and government bodies and especially the just-in-time endorsement of the planned GEF 7 project. [16]

Evaluation Calendar

The TE took place from 20th February 2020 to 30th March 2020. Annex 3 presents the visit and interview schedule for the country visit in Malaysia. Tasks and dates of deliverables for the rest of the contract are agreed as follows:

Activity/deliverable	Indicative timing
Desk review	20th – 5h February 2020
Briefing with UNIDO headquarter (Vienna)	30th January 2020
Evaluation Framework - (Draft) Inception report	11th February 2020 (Draft) 14th February 2020
Fieldwork in Malaysia (Details see Annex 3)	16th - 27th February 2020
Debriefing meeting in UNIDO HQ (to be confirmed)	6th April 2020 (conducted online via zoom)
Preparation of the first draft of the report	16th March 2020 (Draft)
Feedback from stakeholders	6th April 2020
Final Report	10th April 2020

Table 3: TE schedule

16 Feedback from MGTC 6th April:
With the new government announcement, the existing ministries and government officers are not authorized to make endorsement until their new structure and posting are confirmed

IV. Project assessment

IV.1 Findings on project specific questions

Key Evaluation Questions[17]

(a) What are the key drivers and barriers to achieve the long-term objectives? To what extent has the project helped put in place the conditions likely to address the drivers, overcome barriers and contribute to the long-term objectives?
(b) How well has the project performed? Has the project done the right things? Has the project done things right, with good value for money?
(c) What have been the project's key results (outputs, outcome and impact)? To what extent have the expected results been achieved or are likely to be achieved? To what extent the achieved results will sustain after the completion of the project?
(d) What lessons can be drawn from the successful and unsuccessful practices in designing, implementing and managing the project?

IV.2 Findings on standardized review issues and questions

A. Project design assessment

1. Project Design

The original project design which is to create awareness and understanding for Low Carbon Transport initiatives is highly relevant to the country context. Most of the project outputs and activities are also in line with Malaysian Government priorities as well as with UNIDOs and GEFs focus on SDG 9 and 8 and GHG reduction.

The outcomes of EELCT project will be utilized for inclusion in the preparation of the "12th Malaysian Plan" and have already influenced NAP 2020. Project results will be used to support enhanced goals on GHG reduction for Malaysia.

2. Project Results Framework

Project components and activities are well-targeted, clear and consistent, but not all components as per endorsement document are fully reflected in the Project Results Framework (PRF). For example the facilitation of private sector investment in local manufacturing capacities and attracting Foreign Direct Investment (FDI) is not mentioned in PRF nor reflected in any indicators.

The PRF, which includes OVIs at the outcome level, is well designed, but has some weak points. Feasible indicators are provided for outputs; the targets provided are consistent with the activities described. The resulting chain from outputs, outcomes to impact is logical and most objectives are formulated 'SMART'.

Some of the indicators are formulated unhandy, e.g. for outcome 2.1 E. "6-7% increase in local manufacturing of EV parts". It is unclear how to read this figure (for all manufacturers or only selected once?) and difficult to monitor. A specific baseline and method for calculation of these figures should have been agreed at early project stage. These indicators have not been in the focus of projects M&E throughout the project and to find an unarguable way to determine fulfilment at end of project is challenging.

17 Specific questions as per TOR for the Terminal Evaluation

M&E design

M&E design included the Project Results Framework (PRF) which includes indicators at outcome level and M&E system is functioning well. Feasible indicators are provided for most outputs. Most of targets provided are consistent with activities described. But not all outputs are clearly reflected in the PRF, for a few activities no proper indicators are given (see also 3 M&E implementation, page 22).

Project Progress update and the Annual Work Plan is used for planning and corrective actions and is discussed with stakeholders in NSC meeting.

Calculations for CO2/GHG reductions have been discussed in detail during TE mission and are feasible. The indirect emission reduction is part of the LCMB and utilizing different scenarios.

PRF was never revised/adapted since project start in 2015 and is not used as a project management tool. Any agreed change (discussed in NSC meeting and documented in Meeting minutes) is not reflected in the PRF. Adding a few columns to the PRF would enable PMU team to easily monitor the progress.

B. Project performance and progress towards results

1. Ownership and Relevance

The project is very relevant to the target group and project stakeholder. Project extension has even worked in favour of the project, as results came timely to support future plans from various ministries. The multi stakeholder approach and the high number of workshops, technical meetings and experts discussion has created a strong ownership for project results and leads to advanced knowledge and awareness for LCM among all relevant stakeholders. All stakeholders interviewed, emphasized on the usability of the project results.

2. Effectiveness and progress towards expected results

Low Carbon Mobility Blueprint (LCMB) is ready and extensively utilized by multiples ministries and stakeholders to feed into their respective policy and/or strategy papers.

Awareness events have over achieved the targeted numbers by far with 30+ events and 300+ participants, with more than 30% female participation.

Experts and user trainings have been prepared and conducted as planned, (improved) training material and customized tools are in place. Actually, project team is awaiting the approval under the NOSS programme to give the trainings as planned.

All major outcomes are in place and appreciated by the interviewed stakeholder. TE could also identify several unintended positive outcomes. For example, kick-started the project a platform for interaction between different ministry and enabled a fruitful discussion within industries and experts.

Table 4: Progress towards expected results (based on the PRF)

Expected results	Indicator	Baseline	Terminal Evaluation		Rating	Justification for rating
			Target	Actual		
Impact on Low carbon transport and low carbon cities initiative	A) Direct energy saving and GHG reduction: • Electric personal cars • Electric buses • Electric 2-wheelers B) Indirect bottom-up and top-down emission savings	15 E-Buses Around 200 E-cars and 900 e-2-wheelers 38 charging stations (not fast) No PV stations 0	A) - 14,262 tCO_2/year due to E-cars 2,590 tCO_2 due to E-Buses 2,788 tCO_2 due to 2-wheelers B) Indirect: B-Up: 506 $ktCo_2$ B-down: 1,293 $ktCo_2$	185 t in 2019 years by ChargeEV 110.720 t in 2019 through use of PHEV and EVs 6.710 t in 2019 through use of motorbikes 200 t in 2019 through use of electric buses see calculation in LCMB		The project had a very strong impact on all subject related policy papers in the respective project period and has also created a lot of cash and in-kind co-finance. Therefore it is not easy to evaluate the direct and indirect GHG emissions. But it is correct to state, that these targets have been even overachieved! Details on the calculation for the direct emissions have been shared by MGTC and discussed during TE mission and are part of the LCMB document.
Outcome 1.1.: **Enabling policies and regulatory framework, strengthened institutional capacity, and enhanced awareness catalyse and accelerate widespread use of EVs in Malaysia, resulting in GHG reductions, local manufacturing, job and income creation and environmental improvements.**	C) Number of policy papers on low-carbon transportation by stakeholders D) Number of financial incentive schemes established and endorsed by stakeholders	A number of initiatives on the promotion of low-carbon transport exist, but endorsement by large number of stakeholder has been limited, thus resulting in limited coordination	C) 3 policy papers on Low Carbon transportation endorsed D) 2 financial incentive schemes established and endorsed	4 policy papers endorsed 3 financial incentive schemes endorsed		LCMB, Langkawi baseline and EV roadmap was and are the base for multiple policy and strategy papers. It is likely that local teams are not able to name/collect all those documents. But it is fair to state, that these targets have been overachieved! Efficiency for this outcome is very high! In addition to these 3 financial schemes, EELCT triggered (and most likely) will trigger even more incentive schemes (e.g. see the recently announced NAP 2020).

Output 1.1.1: National policy and regulatory framework to ctalyze and accelerate widespread se of EVs, both public and private; EV strategy and roadmap, business models and favourable tax/incentive schemes for local manufacturing, safety standards, etc, improved or developed;	1) number of policy papers developed (that include gender dimension)	A number of initiatives on the promotion of low-carbon transport exist, but endorsement by large number of stakeholder has been limited, thus resulting in limited coordination	1) At least 3 policy papers on Low Carbon transportation developed (at least 2 include gender dimension)	4		See above. LCM is affecting both gender in a very similar manner, so gender dimension is included (at least indirectly) in those policy papers.
Output 1.1.2: Institutional capacity built and awareness on EVs raised	2) Awareness raising material developed (should be gender aware) 3) Number of workshops and seminars organized (% of female participation) 4) % of counterpart taking part in the development of policy papers report having benefitted from built and raised awareness	2) there are currently no trainings specifically targeting awareness raising /capacity building on low-carbon transportation	2) Awareness raising materials on EVs (should be gender aware) 3) At least 5 Workshops and Seminars organized (at least 25% female participation) 4) at least 70% of counterpart taking part in the development of policy papers report having benefitted from built and raised awareness	2) ChargeEV webpage and App, Visibility of EV charging stations 3) 30 WS and Seminars conducted (30+% of female participation 4) for most of the events feedback has been collected and evaluated.		The feedback collected from participants and also all feedback from stakeholders during TE mission stated clearly that participants have benefitted from project work. MoMs and participants list (gender segregated) are available The percentage was not monitored in detail, but most likely the target was also overachieved.
Outcome 2.1: **Adequate infrastructure and skilled personal to locally manufactures EV parts and components facilitate widespread utilization of EVs**	E) 5 increase in local manufacturing of EV parts and components F) Number of charging stations and % of PV based	E) Proton is expected to introduce their EV to the market in late 2015; 1 Malaysian company already manufacturing e-	E) 6-7% increase in local manufacturing of EV parts and components	Figure is not monitored in detail, but achievement can be stated		There is no baseline given from the project start. And this figure was only monitored for some manufacturers. E.g. for motorcycle ECLIMO. The Eclimo locally assembled the battery units of the electric motorcycle which they produce, representing almost 40% of the motorcycle cost. Another locally manufactured component will include wire harness, energy

		motorcycles. In BAU scenario 2-3% growth can be estimated F) 38 EV charging stations are in operations, 2 fast charging	F) 300 – 600 fast charging stations, 20% of which are PV based are foreseen in Malaysia	300 plus are there from ChargeEV only, out of those 6 are based on PV 20% target for PV was changed in NSC meeting		management system, wheels and signalling equipment which are almost common to the conventional motorcycles which are locally assembled.
Output 2.1.1: At least 6 PV based charging stations (fast and off-grid) for EVs designed, installed and tested; used for demonstration and further studies; 3 stations will be installed in Melaka and the other 3 tentatively in KL, Putrajaya and Cyberjaya	5) Number of PV based fast charging stations designed, installed and tested under this project 6) Percentage of ESIAs, if required, that include gender dimension	5) Only a few PV charging stations for demonstration	5) 6 PV based charging stations designed, installed and tested under this project 6) 100% of ESIA, if required, include gender dimension	6 PV based *Was not required for EELCT project*		It was agreed in NSC meeting to focus on 6 PV based station. 5 of them are functioning well. The first PV-based station in the country is currently not working. Also BRT PV charger is not functioning and discussion on how to repair it with supplier is ongoing. EELCT project has learned from these failures and improved procedure for other stations. This situation is showcasing a problem of procurement procedures.
Output 2.1.2: Enhanced standards and regulations for EV infrastructure, including charging stations, safety, and support applications developed.	7) number of enhanced standards and regulations for EV infrastructure developed	7) a technical committee of GreenTech Malaysia is currently working on the improvement of such standards	7) a minimum of 4 enhanced standards and regulations for EV infrastructure developed	7) achieved of 5 enhanced standards and regulations for EV infrastructure		EELCT has directly and indirectly influenced multiples standards to create a conducive environment for LCM, especially focusing on Charging infrastructure. So it can be stated that the target has been overachieved. The following are the Standards that have been identified and developed: 1. EC61851-1 (Electric vehicle conductive charging system – Part 1: General requirements) 2. IEC 61851-21-2 (EMC requirements for OFF board charging systems) 3. IEC 61851-22 (AC electric vehicle charging station)

						4. IEC 62196-1 & 2 (AC plug, socket-outlet, connector, inlet) 5. IEC 62196-1 (Plugs, socket-outlets, vehicle connectors and vehicle inlets – conductive charging of electric vehicles) Especially the recently introduced NAP 2020 includes a vast range of incentives and support programmes.
Output 2.1.3: Local manufacturing of EV bus and motorcycle components supported through development of enabling support programmes; enhanced incentives and industry support encourage Foreign Direct Investment in the sector developed;	8) number of enabling support programmes developed 9) number of enhanced incentives developed 10) percentage of 'enabling support programmes' or 'enhanced incentives' that have specific recommendations or specifications for women	8) A number of programmes/incentives focusing on low-carbon transport have been developed, but none are specifically tailored to supporting the local manufacturing of EV bus and motorcycle components	8) 2 enabling support programmes developed 9) 3 enhanced incentives developed 10) 50% of 'enabling support programmes' or 'enhanced incentives' that have specific recommendations or specifications for women	Charge EV programme, PV chargers demonstrated for Cars and buses. Input for NAP2020 ------		This intervention in Malaysia has been classified as a project with "limited gender dimensions". LCMB, EV roadmap and Langkawi study have quite similar impact for both men and women.
Output 2.1.4: Effective capacity building and technology transfer to enable EV manufacturing facilitated	11) number of capacity building trainings facilitated for EV manufactures	11) there are currently no trainings specifically targeting EV manufacturers	11) 5 of capacity building trainings facilitated for EV manufactures (at least 10% female participation)	This target has been jointly changed in NSC. The actual focus was on the development on the EVSE training		Training needs assessment was done in great details and based on the feedback, the focus was jointly shifted towards EVSE. The developed training material is tested (several 'test-trainings' have been conducted and is now ready, waiting for NOSS approval

Traffic-light assessment:

Green = Achieved	*Yellow = On track to be achieved*	*Red = Not on target/ not to be achieved during give project period*

Project status (20th February 2020)
provided by PMU

.

Approved projects	Expected Outcome	Progress Status
1. Development of Low Carbon Mobility & Action Plan (USD400k)	1a. LCMB & AP 1b. EV Roadmap	**Completed**
2. Training Needs, Standards and Capacity Building for EV Value-chain (USD300k)	1. TNA and training pathway 2. Training module 3. Training session (5) 4. Technical parameters (Code of Practice/Guideline/Standards)	**Completed**
3. Baseline Study and Data Collection on Energy, Environment & Socio-Economics on Langkawi, Malaysia (USD100k)	1. Final Report Baseline Study and Data Collection on Energy, Environment & Socio-Economics on Langkawi, Malaysia	**Completed**
1. One unit Solar PV-ESS Fast Charger at Ayer Keroh OBR (USD205k)	Complete installation	**Completed** (DLP until Sep 2019)
2. One unit Solar PV-ESS to complement charger at Sunway BRT for e-Bus operation (USD155k)	Complete installation	**Completed** (DLP until Aug 2020)
3a. Thirty units EV Charger at Langkawi Island (USD188k)	10 ChargEV at Langkawi Island	**Completed** **Rescope** • Phase 2 & 3
3b. Rescoped of Phase 2 & 3 to Solar Carport outside of Langkawi Island	5 Solar Roof Chargers	**Physically Completed** Pending Completion Report 1 to 3 and invoice submission by MGTC.
3c. Purchase of EVs for Langkawi Island (USD 85K)	1 EV and 10 e-motorcycles	Tender closing on 16th Jan 2020 As at reporting time 2 bidders have submitted tender document

3. Efficiency

Timeliness of Inputs/outcome

Although the project has been extended for 17 months, stakeholders did not raise any serious issues regarding the timing of delivery. Project extension worked in favour of the project, for the main beneficiaries those results came timely to support future plans from various ministries.

Level of finance

Around 98% of project funds is spent, the 2% will be utilized for remaining activities (i.e. closing and promotion event in March), i.e. USD 1,967,645. The cost efficiency can be rated as very high, as the impact of the EELCT project for future policies on LCM is excellent.

Details for of grant money spent (from UNIDO HQ perspective)[18] see Annex 6

Financial management and co-finance

UNIDO team (with support from Headquarter) could display the financial information, and it is appropriately reported. Changes to fund allocations as a result of actual planning and budget revisions took place, are documented properly and are appropriate

In kind contribution from involved MGTC and involved government agencies are significant; it seems that objective has been even overachieved. Co-financing from ChargeEV (Mesita - fund), Prasarana BRT Sunway and getting access to EV user data has supported project outcome and allowed EELCT to leap frog forward.

The actual status of co-finance is unclear, as proper monitoring of co-finance and in-kind contribution is not in place and not jointly agreed with GEF focal point (see also footnote 26 and GEF OFP reply Annex 9). An estimation provided by the project team showed a very high ratio for co- finance, especially the user data that comes out of the Charge EV system have a very high value. But the figures cannot be proven.

This topic was highlighted during presentation of preliminary findings and kick-started a productive discussion with GEF OFP and should be solved soon, especially when looking into upcoming GEF 7 project.

4. Project Coordination and management

The project faced some changes at outcome level during the project period to meet various stakeholder demands and to adapt to the actual situation in the country.

Unlike the original project design MGTC hosted the PMU in first project year only. After this period MGTC requested UNIDO to organize and employ PMU. National Project Coordinator (hired by UNIDO) came on board in Feb 2018. The PMU is responsible for project management and is running the project with 2 fully employed experts, the National Project Coordinator and the Project assistant. Implementation of PMU by UNIDO was a smart move, MGTC is giving space for PMU, this eases communication and project work and professional project management – independent from various other project implementations done by MGTC – and helped to create several positive synergies.

UNIDO HQ is giving the needed support, and reporting towards the GEF focal point is done as mandated. PIRs and Project Progress Update Reports are available and up to date.

18 Source: UNIDO: shared by UNIDO PMU 20th February 2020

Results-based work planning, monitoring and evaluation, reporting

Workplans and project status are regularly updated and jointly agreed, and the process is result based. The information given there is well structured and enables proper project controlling. Identified actions and project progress is monitored through regular meetings.

However, Results and Outcome are presently not always monitored against the PRF. Project planning and implementation may be strengthened with the use of the PRF, which will also need to be translated into day-to-day planning and monitoring activities. None of the active project team members was involved in the development of the original ProDoc, the project objectives and the PRF.

Equally, as the project has seen several changes in outcomes (e.g. training needs assessment) there is a need to revise the present PRF Framework according to the present objectives and needs of the project. Based upon this, a revised list of indicators would have helped to guide project monitoring (e.g. to monitor the outcome of the trainings and built capacity).

M&E implementation

The project has a functioning M&E system; activities are appropriately monitored (monthly project status), minutes, attendance sheets are available. The NSC meets annually as mandated and is chaired by the National Project Director (NPD) namely the Deputy Secretary General (Environment and Climate Change) actually [19] Dr. Nagulendran Kangayatkarasu, MESTECC.

Several technical committees have been established and several meetings took place as mandated (MoM including participants lists are available).

Annual reporting on Project Implementation Reports (PIRs) and Project Progress updates is carried out at the outcome and output level and shared with NSC members and experts from technical committees.

Stakeholder engagement

As the objective of the project is in-line with the national priorities, the government stakeholders support the objective of the project. The government stakeholders played a very active role in the project decision-making and supported project implementation.

The roles and responsibilities of each stakeholder have been assigned during the initial period of the project. The cooperation is functioning smoothly and efficient. In all ministries there has been fluctuation in key personnel and there was also a significant change in the political landscape of Malaysia ('re-shuffling' of ministries). But these changes did not have a negative impact on cooperation and project work. Due to the change of the political landscape for example, the focus of delivering more charging stations has been changed to Langkawi Island instead of the mainland in the first project phase, as it was planned to establish a fleet of E-Taxis there. This plan did not come true, so the focus was reshifted to the mainland again and the project is looking for a different use for the 10 Langkawi chargers, that have been already implemented.

Communication

Minutes and reports are properly circulated, and feedback mechanisms are functioning.

There was no specific focus on external communication (beyond main stakeholder and potential beneficiaries) on the project per se. EELCT has contributed a lot towards LCM in Malaysia, but is not visible as a project by itself. For example the LCMB, as one of the major outcomes of the project, does not mention EELCT project name, the participation of UNIDO or GEF (as funding source).[20] The visibility for the project results (e.g. ChargeEV and their respective infrastructure) is good and has created awareness for EV and LCM amongst all stakeholders, especially car users.

19 Chair has seen several changes most of NSC meetings have been chaired by Y. Bhg. Datin Badriyah Binti Hj Abd Malek Deputy Secretary General (Energy & Green Technology). These changes are not seen as a major problem by the stakeholders.

20 As per feedback from MGTC (see Annex 9):
The latest report containing the acknowledgement part was shared with UNIDO PMU on 18th February 2020 and stated 'LCMB development was funded by GEF5-UNIDO under Energy Efficient Low Carbon Transport project'.

5. Sustainability

Sustainability of Project outcomes

Project structure and design – PMU and experts team located in MGTC with close cooperation with concerned ministries – is already supporting EELCT measures and will support the uptake even more after funded project period.

An entity to further push LCM is needed. MGTC is already seen as one of the 'focal point' for LCM and has also a budget to continue with the ChargeEV programme. The planned GEF 7 proposal (follow up project) will support this, but without the GEF 7 project sufficient budget to continue with LCM activities has to be secured.

Awareness creation in Ministries has already ensured take up of LCMB and respective strategies and will do so in future. Take up from state agencies including municipalities will need some extra focus, Langkawi baseline studies is a good showcase how municipalities can start to implement LCM. As the the government has recognized Langkawi to be the first Low Carbon Island in Malaysia, the Langkawi Development Authority (LADA) is now looking into further developing Electric Mobility on the Island. By the implementation of Electric Mobility for its transportation, the government hopes that it will contribute to Langkawi into becoming a role model for a Low Carbon Island by 2030.

Awareness of potential user of EVs has started, but needs to be expedited. With the actual 'environment' (e.g. cost structure) in Malaysia, only very few consumers opt for a battery driven car

UNIDO will utilize learnings from EELCT project in their UNIDO E-Mobility brochure, this will ensure the sustainability and visibility of most of the project outcomes.

Main risks to sustainability

Financial Risk:

Selected pilot project models are not viable for industries and therefore the business case for end users is not visible (buying an EV is mostly part of SCR strategies). Charge EV is a successful, subsidised programme to install infrastructure and to create awareness, but does not have a plan yet on how to become a self-sustaining business model.

At present, with existing price structure for petrol and electricity highly subsidised and high purchase costs of EVs, electric driving range, battery charging time, uncertainties of battery life and cost, few choices of vehicle models, charging infra-structure, E-mobility is not seen as a viable option. Purchase cost and potential range of EVs is main driver for buying decision, car buyers of PHEV and EVs and do not calculate the total cost of Ownership (TCO). The TCO concept is not familiar to car buyers.

Socio political risks:

The NAP 2020 addresses specifically education, capacity building, job and income creation, so the socio-political risk from LCM is very low at the moment. Not only the main stakeholder, but also the majority of the people from Malaysia will be benefitting from LCM.

Lack of education and awareness programs among stakeholders to see the potential of EVs, especially state government agencies has been observed. The lack of awareness is obvious as many of the state government officers have not actually experienced the use of EVs. Direct exposure in utilizing EVs is vital as one of the state government officers that ET met during the mission to Langkawi expressed the importance of his experience there, where he did have his first-hand ride in an EV.

Environmental risks

In general the environmental risk of LCM is quite low, as these strategies especially address environmental improvements (e.g. air quality in cities, GHG reduction).

One major risk might be a "Rebound effect": EV is seen as a very convenient option not to change our commuting habits, i.e. using individual cars and motorbikes. If there is a focus on EV only, they mode shift towards public transport may not take place.

At the moment the production of batteries (exploration of needed raw materials) and also the end of life use of these batteries is seen as a risk, but a lot of improvements are already on the way (e.g. utilization of used batteries as storage devices and proper collection and reuse (of components) of old batteries).

Especially for the Cities in Malaysia urban sprawl is the biggest issue, public transport is hardly available and inappropriate spatial planning is hindering the use of bicycles or to walk for short distances (e.g. to LRT/BRT). Walkways and proper option to cross roads do not exist (even close to shopping malls and bus/train stations). In newly built/constructed townships (e.g. Putrajaya), planning to reduce motorized transport has just started and several projects/initiatives to reduce the usage of motorized private vehicles and to increase public transport usage.[21]

Without working on spatial planning in urban areas and inclusion of public transport in planning of new townships, LCM will be not achievable. The actual National Transport Policy 2019-2030 [22] – that is also supported by EELCT outcomes – has a strong focus on this topic.

C. Gender mainstreaming

In general this intervention in Malaysia was expected to have limited direct influence over gender equality and/or women's empowerment in the country and therefore has been classified as a project with "limited gender dimensions"[23].

The project endorsement document states several gender related activities (e.g. involvement of gender expert from CSOs) and gender strategies, but this component was not visible.

Some documents include gender figures (female participation in events and training), these numbers are monitored and targets have been overachieved.

21 For example (feedback from MOT, see Annex 9):

- Sungai Buloh-Serdang-Putrajaya MRT which is expected to be completed by 2022 will provide services along a corridor of 2 million residents starting from Sungai Buloh, through Kuala Lumpur to Putrajaya.
- The LRT3 project, which connects Bandar Utama to Klang which is expected to be completed by 2024 to improve travel efficiency and help reduce traffic congestion for 2 million residents along the Bandar Utama-Klang corridor en route to downtown Kuala Lumpur.
- East Coast Rail Link (ECRL) - expected to be completed by December 2026 with a re-alignment of routes that will cover cities in Selangor, Putrajaya, Negeri Sembilan, Pahang, Terengganu and Kelantan.

22 See for example (feedback from MOT, see Annex 9): National Transport Policy 2019-2030:
It contains various strategies and comprehensive plans to improve the transport system, including plans to reduce the usage of motorized vehicles (under Policy Thrust #4)

23 See 1.1 PRODOC-CEO AR Energy Efficient Low Carbon Transport in Malaysia, page 26 - 27

IV. 3 Overall rating

#	Evaluation criteria	Definition	Rating
A	**Progress to impact**	**Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended, including redirecting trajectories of transformational process and the extent to which conditions for trajectory change are being put into place.**	6
B	**Project design**	**Formulation of the intervention, the plan to achieve a specific purpose.**	6
1	Overall design	Assessment of the design in general.	6
2	Logframe	Assessment of the logical framework aimed at planning the intervention.	5
C	**Project performance**	**Functioning of a development intervention.**	6
1	Relevance	The extent to which the aid activity is suited to the priorities and policies of the target group, recipient and donor.	6
2	Effectiveness	The extent to which the development intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance.	6
3	Efficiency	A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.	6
4	Sustainability of benefits	The continuation of benefits from a development intervention after major development assistance has been completed. The probability of continued long-term benefits. The resilience to risk of the net benefit flows over time.	6
D	**Cross-cutting performance criteria**	**Other important criteria that cut across the UNIDO intervention.**	
1	Gender mainstreaming	The extent to which UNIDO interventions have contributed to better gender equality and gender related dimensions were considered in an intervention.	5
2	M&E	Refers to all the indicators, tools and processes used to measure if a development intervention has been implemented according to the plan (monitoring) and is having the desired result (evaluation).	5
3	Results-based management (RBM)	Assessment of issues related to results-based work planning, results based M&E and reporting based on results.	5
E	**Performance of partners**	**Assessment of partners' roles and responsibilities engaged in the intervention.**	**Yes**
1	UNIDO	Assessment of the contribution of partners to project design, implementation, monitoring and reporting, supervision and backstopping and evaluation. The performance of each partner will be assessed individually, based on its expected role and responsibilities in the project life cycle.	6
2	National counterparts		6
3	Donor		5
F	**Overall assessment**	**Overarching assessment of the project, drawing upon the analysis made under Project performance and Progress to Impact criteria above but not an average of ratings.**	**6**

Table 5: Rating table

Score		Definition*	Category
6	Highly satisfactory	Level of achievement presents no shortcomings (90% - 100% achievement rate of planned expectations and targets).	SATISFACTORY
5	Satisfactory	Level of achievement presents minor shortcomings (70% - 89% achievement rate of planned expectations and targets).	
4	Moderately satisfactory	Level of achievement presents moderate shortcomings (50% - 69% achievement rate of planned expectations and targets).	
3	Moderately unsatisfactory	Level of achievement presents some significant shortcomings (30% - 49% achievement rate of planned expectations and targets).	UNSATISFACTORY
2	Unsatisfactory	Level of achievement presents major shortcomings (10% - 29% achievement rate of planned expectations and targets).	
1	Highly unsatisfactory	Level of achievement presents severe shortcomings (0% - 9% achievement rate of planned expectations and targets).	

Table 6: UNIDO evaluation rating scale

V. Lessons Learnt , Best Practice and Recommendations

Lessons learnt

The following lessons can be deducted from actual project status documents and discussions and interviews for project stakeholders:

- Creating a sustainable marketing demand is essential to ensure long term LCM uptake after project period. Therefore multiple 'viable and locally created' showcases are needed and long-term support for new technologies and services has to be ensured.
- Multiple product and spare part suppliers and maintenance options are needed to create a competitive and conducive environment. For example, the Tesla Cars (tested by MGTC) create a lot of visibility for EVs, but without a locally available service station, will not become a viable option.
- Electro mobility has to fit into local needs and the local climate and technology has to be adapted accordingly. Malaysian climate is challenging for new technologies. The hot climate seems to have a negative impact on durability and capacity of the batteries (Renault Zoe user in Langkawi) and other parts (displays from Tesla S are leaking).
- Electro mobility is seen as an attractive and convenient technology to reduce transport emissions ("Cool EV cars" are driving the change), but most of existing EVs do not focus on high efficiency. For some companies the decision to utilize EVs is seen as part of their sustainability strategies and not as business case (Prasarana BRT Sunway).
- Trained experts (mostly technicians) are not well 'equipped' to sell new strategies to Policy Makers and Top Management; EELCT could successfully bridge this gap.
- The project proposal (i.e. Prodoc) was written by experts, who have not been included later on in project work. None of the team members ET could meet, was involved in the project from the very beginning. A handover of interim outcomes to new team members is not happening. Also a discussion with experts involved in preparation of the proposal, to deepen a joint understanding for outcomes and indicators did not take place.
- EELCT has contributed to create a platform for cooperation between ministries, respective departments, industries and experts/consultants. The open discussions increased the quality of the outcome and also the ownership for the results.
- Procurement procedure between project partners led to delays and suboptimal procurement of equipment. But EELCT project has learned from these shortcomings and improved its procedures as procurement was done locally by MGTC in second half of the project.
- Data collected from 7000 ChargeEV users (i.e consumer behaviour) is one of the most important outcomes of the EELCT project. Data evaluation has a high value even beyond the funded project.

Best practices

- **Multi stakeholder approach** to develop LCMB. For example a brainstorming session (in March 2018) with 120+ participants was organized, the minutes for this session and the results from group works, served as valuable resource for the project documents.
- **Experts meeting and workshop** enabling open and transparent discussions. Experts from ministries and academia do not often get the opportunity to interact with industries and vice a versa. EELCT has enabled a base for open dialogue.
- **Training course Electric Vehicle Support Equipment** (EVSE) and new standards for Malaysia, to ensure the quality of infrastructure for e- mobility. The EVSE courses are locally developed which take consideration of the local needs and demand. The training modules cover both theory and practical sides and the training equipment to be provided by MOHR and Greentech. NOSS will be approving all the 3 level of training programs starting from module for beginners, intermediate and advanced which will also be used by polytechnics, colleges and universities. There is also discussion with local automotive player like BMW to collaborate in the training program.
- The **use of local experts** with international education for training development and studies to improve local expert's capacity. This is crucial for sustainable use of outcomes and could also ensure that studies and trainings really fit to local needs. Especially the strong involvement of NSC member and feedback given during the development of studies and trainings has ensured high quality and usability of the outcomes.
- **Combining a New Technology with trainings and awareness activities**. Only when accompanied by creation of local expertise and the abilities to 'service' a new technology, it will be sustainably successful and able to penetrate the market.
- **Data mining and evaluation** to understand user needs and behaviours. Langkawi study and LCMB define 'the baseline' for future implementations towards LCM and user date from ChargeEV programme will enable the efficient development of needed infrastructure and the integration into smart grids and IoT.
- **Linking the EV projects** and respective experts **from different countries** by organizing a joint event in Vienna at UNIDO HQ. The project experts from China, South Africa and Malaysia could meet and exchange their experiences in a 2 days event.

During TE, it was visible that all involved stakeholders fully support the project and understand relevance of project objectives and best practices. The next weeks will be very crucial to keep up this momentum and to initiate/start the planned follow up project under GEF 7 cycle.

Recommendations

- Existing statistics for registered cars do not distinguish between company and private owned cars, nor on gender.

  To develop appropriate incentive mechanism, it is crucial to know who buys/owns and utilizes EVs. Private owner (male or female) and companies are attracted by different incentive schemes

- Make sure that decision for GEF 7 successor project is made in time, to enable roll – over project. It is crucial to ensure that project resources (HR and material) can be sustained to bridge the gap between EELCT (GEF 5) project and 12th Malaysian.

- Standardized and efficient signage for visibility for charging stations[24]

  At the moment charging stations can be found via ChargeEV App only

- Develop a Business Model for EV charging system

  At the moment users are not paying for charging their vehicles and the programme is subsidised. On the long run the charging system has to be functioning without funding and subsidies.

- Professional marketing of project outcomes

  EELCT project has a very positive impact on the LCM Ecosystem in Malaysia, but it is not visible per se. If UNIDO and/or GEF want to ensure the visibility of the project itself, a focus on marketing has to be given.

- The Project Logical Framework (Outcomes, outputs and / or indicators) should be used as a project management tool

  Jointly agreed changes (in NSC meetings) should be incorporated, respective indicators and also the M&E has to be adapted to reflect these changes. At the moment changes are part of multiple meeting minutes only.

- Some indicators are not well formulated and cannot be easily monitored and furthermore do not reflect the agreed changes (see remark above).

  It is advised to crosscheck indicators regularly during project work and either revise them or to define/prepare a procedure how to monitor them in an unarguable manner

  This is particularly true for monitoring of co-finance, a method should be jointly agreed with GEF focal point at project start and all stakeholders should share the needed data to enable proper monitoring.

UNIDO:

- Prepare a checklist for implementation of GEF projects to ease the execution, including needs and respective means for monitoring project results, such as GHG reduction and different levels of co-finance

- Develop and agree on a scheme to monitor co-finance, investments and In-kind contribution. Start monitoring the same from project start. This is a strict requirement from GEF (see also footnote 26 and GEF OFP reply in Annex 9).

- Translate the Prodoc and PRF into a day-to-day monitoring tool to help keep track of overall objective along with activities being implemented. As the project has seen several changes throughout the full project period, these changes should be included in the PRF (either in an actual version or by adding some columns to the original PRF). This should be jointly discussed/agreed with GEF focal point.

24 During final discussion with MGTC team it was disclosed, that signage's are already agreed and highway/service station operators will start to utilize them soon.

- The proposal for EELCT Project was designed and prepared by experts, that did not participate in project execution later and - as most projects – EELCT faced some fluctuation in their team members. Therefore, a specific focus has to be given to knowledge management and data storage. Handover of (formal as well as informal) information from 'old' to 'new' team members has to be ensured.
- Include an expert on Gender Mainstreaming to monitor the gender specific dimension of the project components and adapt activities accordingly.
- EELCT project has been very successful, it would be interesting to explore those success factors in detail and create/present (UNIDO internally) a showcase to enable cross project learnings.
- Several stakeholders raised issues with the procurement procedures. Those have been either delayed (a problem raised in several stakeholder/NSC meetings) or did not ensure the needed quality and/or service and repair given in an acceptable timeframe. For example:
  For the first PV charger at the highway service station, repair and maintenance is not viable. It takes several weeks to replace a broken cable.
  For the Prasarana BRT PV charger repair and replacement is not functioning at all. The service provider is not able/willing to give the needed support

  It is highly recommended to include local available and reliable service and maintenance into all bidding procedures

MESTECC:

- Come to a decision regarding the planned GEF 7 project as quick as possible, to avoid a time gap between these projects. If the decision is positive, ensure continuity from involved person. Assign a team with clear roles responsibilities and ensure information flow.

MGTC:

- Support UNIDO team in monitoring of in-kind contribution
- With all the data collected so far and including the vast knowledge of involved experts, work on how to create the business case for charging infrastructure should be started. This includes in depth knowledge on 'real life' running costs for EV users.

GEF focal point:[25]

- Support the project teams with clear and agreed rules for monitoring the co-finance (in-kind and cash) in an unarguable manner. The monitoring scheme should be jointly agreed from the very beginning of the project and aligned with all involved stakeholders.[26]
- GEF focal point is included in NSC meetings and therefore informed about all changes agreed during these meetings. In addition to these 'official' meetings it would support an efficient project execution to include these changes in the PRF and also to jointly review objectives and indicators on how these changes are impacting them, respectively whether any revision is needed.

MOT:

- Support UNIDO team in monitoring of in-kind contribution

25 Meeting with GEF OFP could not take place, so no detailed discussion with them was possible.

26 GEF OFP feedback sent on 6th of April (see ANNEX 9):
"The main ministries had issued a letter of commitment and indicate their co-financing values. Agencies are required to track sources of co-financing. Whenever, questions, concerns or difference of views exist, the OFP ready to seek advice, clarification and guidance from the GEF Secretariat. OFP also ready to facilitate discussion if any misunderstanding happens."
Remark from ET: Nevertheless, obviously this did not happen and a monitoring of co-finance is not done

General Overview and Suggestions for UNIDO Project[27]

- EELCT was successful because the political situation was supportive[28] (even after changes in government all stakeholders from politics and ministries supported strategies to foster LMB) and the executing agency (MGTC) was the ideal project partner.

  Careful analysis and selection of the actual local (Experts, anchor points), political (mid- / long-term programmes) situation at PIF stage and while preparing ProDocs. Start each project with an additional short inception phase to crosscheck the assumption from the ProDoc.

- EELCT worked well, because it showed flexibility and was open for adaption of new priorities from stakeholders. For example, the Langkawi Island study has accommodated shift of EV chargers to and from Langkawi. It is very likely in 5+ year project to see these changes.

  Be ready to adapt and have an open ear for potential changes in government and their respective priorities already from the beginning of project.

- 5+ years projects normally face several changes; these changes have to be included in the project monitoring tool. Use the PRF as an active monitoring tool to help keep track of overall objectives and all jointly agreed changes along the project period.

  Any significant change should be jointly discussed/agreed with GEF focal point.

- EELCT has contributed to create a platform for cooperation between ministries, respective departments in ministries, industries and experts/consultants. The open discussions were fostered by the project team, but is always subject to the individual persons being present in the meetings/workshops and the composition of participants is not under PMUs control. Especially delegates from ministries are subject of frequent changes and PMU/executing agency cannot insist on a specific person to work for a project.

  It might be an option to plan for an 'on-boarding' procedure for new participants, to give time to explain project and its objectives upfront to ensure their commitment.

- EELCT in-kind contributions showed significant support from all stakeholders but there was lack of proper monitoring procedure and system at the PMU level.

  Proper monitoring procedure and system for in-kind contributions should be introduced and jointly agreed by all stakeholders during commencement of project.

27 During and after online presentation of the findings of this TE (6th of April) to UNIDO HQ, management team requested to add this chapter.

28 **Remark from ET:** Projects undertaken by UNIDO and funded by GEF have to - be first of all - in line with their respective priorities. If a country government has different priorities (e.g. LCM is not on their main Agenda) a project will not have the same impact! Nevertheless, it seems necessary to conduct this kind of projects also to support SDGs on the long run. The GEF 4878 on "GHG Emissions Reductions in Targeted Industrial Sub-Sectors through EE and Application of Solar Thermal Systems in Malaysia" might be an example. Policy priorities and economic conditions do not work in favor of this technology and therefore the overall impact will be limited. But the technology per se has a huge impact to reduce GHG emissions.

VI. Annexes

Annex 1: Project Results Framework [29]

ANNEX A: PROJECT RESULTS FRAMEWORK

Project Narrative	Indicator	Baseline	Target	Sources of Verification	Assumptions/Risks
Project Objective: To catalyze and accelerate widespread use of electric vehicles (EVs) as part of energy efficient low-carbon transport and low-carbon cities initiatives of Malaysia	A) Direct GHG emission savings (see the calculations and estimates of Annex G): • Electric personal cars • Electric buses • Electric 2-wheelers B) Indirect bottom-up and top-down emission savings	By mid-2015 about 15 e-buses are planned to be in operation. Number of electric cars is about 200 in 2014 and around 900 electric 2-wheelers. 38 charging stations have been built, but most of these are not fast-charging Level III type and none use solar as source of energy	A) Direct GHG emission reduction of • 14,262 tCO_2/yr, due to E-cars: (9,000 of which 300 PV-charged); 2,590 tCO_2/yr E-buses (120, of which 20 PV-charged) and 2,788 tCO_2/yr due to electric 2-wheelers (30,000, of which 1,500 PV-charged) • Total cumulative direct: 168,525 tCO_2 B) Indirect emission reduction: • Bottom-up: 506 $ktCO_2$ • Top-down: 1,293 $ktCO_2$	Validated energy savings from project reports and surveys	Willingness of state, industry and financial institutions to support the programme and invest time and money in its implementation
Component 1: Improvement of policy and regulatory frameworks for EV use and local manufacturing; strengthened capacity of concerned institutions and awareness raising					
Outcome 1.1 Enabling policies and regulatory framework, strengthened institutional capacity, and enhanced awareness catalyze and accelerate widespread use of EVs in Malaysia, resulting in GHG reductions, local manufacturing, job and income creation and environmental improvements.	C) Number of policy papers on low-carbon transportation endorsed by stakeholders; D) Number of financial incentive schemes established and endorsed by stakeholders.	A number of policy initiatives on the promotion of low-carbon transportation exist, but endorsement by a large range of stakeholders has been limited, thus resulting in limited coordination.	C) 3 policy papers on low-carbon transportation endorsed by stakeholders; D) 2 financial incentive schemes established and endorsed by stakeholders.	Official documents Websites of organizations Publicity given in media	National authorities are willing to adopt specific regulations; Interest by stakeholders to promote low-carbon transportation exists and can be maintained.
Output 1.1.1 National policy and regulatory framework to catalyze and accelerate widespread use of EVs, both public and private: EV strategy and roadmap, business models, favorable	1) Number of policy papers developed (number of policy papers that include gender dimensions);	1) A number of policy initiatives on the promotion of low-carbon transportation exist, but endorsement by a large range of stakeholders has been limited, thus resulting in limited coordination.	1) At least 3 policy papers on low-carbon transportation developed (at least 2 policy papers should consider gender dimensions).	Technical reports Project progress reports Workshop	National authorities are willing to adopt specific regulations.

29 Excerpt from PRODOC-CEO AR Energy Efficient Low Carbon Transport in Malaysia, UNIDO 13.07.2015

Project Narrative	Indicator	Baseline	Target	Sources of Verification	Assumptions/Risks
tax/incentive schemes for local manufacturing, safety standards, etc. improved or developed;				proceedings	
Output 1.1.2 Institutional capacity built, and awareness on EV use raised.	2) Awareness raising materials developed (materials should be gender aware); 3) Number of workshops and seminars organized (% of female participants); 4) % of counterparts taking part in the development of policy papers report having benefitted from built capacity and raised awareness;.	2) There are currently no trainings specifically targeting awareness raising/capacity building on low-carbon transportation.	2) Awareness raising materials available on EVs (materials should be gender aware); 3) At least 5 workshops and seminars organized (at least 25% female participants); 4) At least 70% of counterparts taking part in the development of policy papers report having benefitted from built capacity.	Technical reports Workshop proceedings Publicity in media Project progress reports	
Component 2: Development and demonstration of infrastructure for EVs, and local EV manufacturing capacity					
Outcome 2.1 Adequate infrastructure and skilled personnel to locally manufacture EV parts and components facilitate widespread utilization of EVs.	E) % increase in local manufacturing of EV parts and components; F) Number of charging stations and % of PV based.	E) Proton is expected to introduce their EV to the market in late-2015; 1 Malaysian company already manufactures electric motorcycles. In the BAU scenario, local manufacturing growth in this field can be estimated around 2-3%; F) 38 EV charging stations are in operation in Malaysia, 2 of which are fast-charging (see Annex J).	E) 6-7% increase in local manufacturing of EV parts and components; F) 300-600 (fast-)charging stations, 20% of which are PV-based, are foreseen in Malaysia.	Evaluation reports Website of organizations and companies Project progress reports	Availability and willingness of experts to receive training; Willingness of companies and vendors to receive expert training.
Output 2.1.1 At least 6 PV-based charging stations (fast and off-grid) for	5) Number of PV-based charging stations designed,	5) Only a few PV charging stations for demonstration (e.g. at UTM).	5) 6 PV-based charging stations designed, installed and tested;	Design and installation plans	

Project Narrative	Indicator	Baseline	Target	Sources of Verification	Assumptions/Risks
EVs, designed, installed, and tested; used for demonstration and further studies; 3 stations will be installed in Melaka and the other 3 tentatively in Kuala Lumpur, Putrajaya and Cyberjaya;	installed and tested under the project; 6) Percentage of ESIAs, if required, that include gender dimension.		6) 100% of ESIAs, if required, include gender dimension.	and reports.	
Output 2.1.2 Enhanced standards and regulations for EV infrastructure, including charging stations, safety, and support applications, developed;	7) Number of enhanced standard and regulations for EV infrastructure developed.	7) A technical committee of the GreenTech Malaysia is currently working on the improvement of such standards.	7) A minimum of 4 enhanced standards and regulations for EV infrastructure developed.	Technical reports Project progress reports Workshop proceedings	National authorities are willing to adopt specific standards/ regulations.
Output 2.1.3 Local manufacturing of EV bus and motorcycle components supported through development of enabling support programmes; enhanced incentives and industry support to encourage Foreign Direct Investment in the sector developed;	8) Number of enabling support programmes developed; 9) Number of enhanced incentives developed; 10) Percentage of "enabling support programmes" or "enhanced incentives" that have specific recommendations or specifications for women.	8) A number of programmes/incentives focusing on low-carbon transport have been developed, but none are specifically tailored to supporting the local manufacturing of EV bus and motorcycle components.	8) 2 enabling support programmes developed; 9) 3 enhanced incentives developed; 10) 50% of "enabling support programmes" or "enhanced incentives" that have specific recommendations or specifications for women.	Technical reports Project progress reports Workshop proceedings	National authorities are willing to adopt specific standards/ regulations.
Output 2.1.4 Effective capacity building and technology transfer to enable EV manufacturing facilitated.	11) Number of capacity building trainings facilitated for EV manufacturers.	11) There are currently no trainings specifically targeting EV manufacturers.	11) 5 capacity building trainings facilitated for EV manufacturers (at least 10% female participants).	Technical reports Workshop proceedings Project progress reports	

Annex 2: Mid Term Review TORs[30] for International/National Evaluator

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT (ISA)

Title:	International evaluation consultant, team leader
Main Duty Station and Location:	Home-based
Missions:	Missions to Vienna, Austria and Malaysia
Start of Contract (EOD):	20 January 2020
End of Contract (COB):	31 March 2020
Number of Working Days:	35 working days spread over 2.4 working months

ORGANIZATIONAL CONTEXT

The UNIDO Independent Evaluation Division (ODG/EIO/IED) is responsible for the independent evaluation function of UNIDO. It supports learning, continuous improvement and accountability, and provides factual information about result and practices that feed into the programmatic and strategic decision-making processes. Evaluation is an assessment, as systematic and impartial as possible, of a programme, a project or a theme. Independent evaluations provide evidence-based information that is credible, reliable and useful, enabling the timely incorporation of findings, recommendations and lessons learned into the decision-making processes at organization-wide, programme and project level. ODG/EIO/IED is guided by the UNIDO Evaluation Policy, which is aligned to the norms and standards for evaluation in the UN system.

PROJECT CONTEXT

Detailed background information of the project can be found the terms of reference (TOR) for the terminal evaluation.

The international evaluation consultant/team leader will evaluate the project in accordance with the evaluation-related terms of reference (TOR). He/she will perform, inter alia, the following main tasks:

MAIN DUTIES	Concrete/ Measurable Outputs to be achieved	Working Days	Location
Undertake a desk review of project documentation (incl. familiarization with the GEF programmes and strategies, and with relevant GEF policies such as those on project cycle, M&E, co-financing, fiduciary standards, gender, and environmental	• Division of evaluation tasks with the National Consultant • An adjusted table of evaluation questions, depending on country specific context	5 days	Home-based

1

[30] 5741_LCT_ToR_TE_Dec2019

MAIN DUTIES	Concrete/ Measurable Outputs to be achieved	Working Days	Location
and social safeguards) and relevant country background information (national policies and strategies, UN strategies and general economic data); determine key data to collect in the field and adjust the key data collection instruments accordingly (if needed); Assess the adequacy of legislative and regulatory framework relevant to the project's activities and analyze other background info.	• A draft list of stakeholders to be interviewed during the evaluation field mission • A brief assessment of the adequacy of the country's legislative and regulatory framework		
Prepare an inception report which streamlines the specific questions to address the key issues in the TOR, specific methods that will be used and data to collect in the field visits, detailed evaluation methodology confirmed, draft theory of change, and tentative agenda for field work	Inception report submitted to the evaluation manager	3 days	Home-based
Briefing with the UNIDO Independent Evaluation Division, project managers and other key stakeholders at UNIDO HQ.	• Detailed evaluation schedule with tentative mission agenda (incl. list of stakeholders to be interviewed and planned site visits) submitted to evaluation and project manager	2 days	Vienna, Austria
3. Undertake evaluation field mission[1] to consult field project stakeholders, partners and beneficiaries to verify and complete preliminary evaluation findings from desk review and assess the institutional capacities of the recipient country	• Field mission conducted • Evaluation/debriefing presentation of the evaluation's preliminary findings prepared, draft conclusions, recommendations and lessons learnt to stakeholders in the country, at the end of the mission • Agreement with the National Consultant on the structure and content of the evaluation report and the distribution of writing tasks	10 days	Malaysia

[1] The exact mission dates will be decided in agreement with the Consultant, UNIDO HQ, and the country counterparts.

MAIN DUTIES	Concrete/ Measurable Outputs to be achieved	Working Days	Location
4. Debriefing mission: Present preliminary findings, recommendations and lessons learnt to project stakeholders at UNIDO HQ for factual validation and comments Hold additional meetings with and obtain additional data from evaluation/project manager and other stakeholders as required	• Power point presentation • Feedback from stakeholders obtained and discussed • Additional meetings held as required	2 days	Vienna, Austria
5. Prepare the draft evaluation report, with inputs from the National Consultant, and in accordance with the evaluation TOR Submit draft evaluation report to the evaluation manager for feedback and comments	• Draft evaluation report submitted to evaluation manager for review and comments	8 days	Home-based
6. Revise the draft evaluation report based on comments and suggestions received through the evaluation manager and edit the language and finalize the evaluation report according to UNIDO Independent Evaluation Division standards Prepare a two pages summary of a take-away message from the evaluation	Final evaluation report submitted to evaluation manager Two pages summary take-away message from the evaluation submitted to the evaluation manager	5 days	Home-based
	TOTAL	**35 days**	

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced degree in environment, energy, engineering, development studies or related areas

Technical and functional experience:

- Minimum of 10 years' experience in environmental/energy project management and/or evaluation (of development projects), including social safeguards and gender
- Knowledge about GEF operational programs and strategies and about relevant GEF policies such as those on project life cycle, M&E, incremental costs, and fiduciary standards
- Experience in the evaluation of GEF projects and knowledge of UNIDO activities an asset
- Knowledge about multilateral technical cooperation and the UN, international development priorities and frameworks
- Working experience in developing countries

Languages: Fluency in written and spoken English is required.

Reporting and deliverables:

1) At the beginning of the assignment the Consultant will submit a concise Inception Report that will outline the general methodology and presents a concept Table of Contents
2) The country assignment will have the following deliverables:
   - Presentation of initial findings of the mission to key national stakeholders
   - Draft report
   - Final report, comprising of executive summary, findings regarding design, implementation and results, conclusions and recommendations
3) Debriefing at UNIDO HQ:
   - Presentation and discussion of findings
   - Concise summary and comparative analysis of the main results of the evaluation report

All reports and related documents must be in English and presented in electronic format.

Absence of conflict of interest:

According to UNIDO rules, the consultant must not have been involved in the design and/or implementation, supervision and coordination of and/or have benefited from the programme/project (or theme) under evaluation. The consultant will be requested to sign a declaration that none of the above situations exists and that the consultants will not seek assignments with the manager/s in charge of the project before the completion of her/his contract with the UNIDO Independent Evaluation Division.

Annex 3: Evaluation questions

(see Inception Report)

No.	Evaluation criteria
A	**Progress to impact**
1	✓ Likelihood to contribute to the expected impact ✓ Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended, including redirecting trajectories of transformational process and the extent to which conditions for trajectory change are being put into place. ✓ Replication: To what extent the project's specific results (e.g. methodology, technology, lessons, etc.) are reproduced or adopted ✓ Mainstreaming: To what extent information, lessons or specific results of the project are incorporated into broader stakeholder mandates and initiatives such as laws, policies, regulations and project? ✓ Scaling-up: To what extent the project's initiatives and results are implemented at larger geographical scale? ✓ What difference has the project made to the beneficiaries? ✓ What is the change attributable to the project? To what extent? ✓ What are the social, economic, environmental and other effects, either short-, medium- or long-term, on a micro- or macro-level? ✓ What effects are intended or unintended, positive or negative? [The three UNIDO impact dimensions are: ✓ Safeguarding environment: To what extent the project contributes to changes in the status of environment. ✓ Economic performance: To what extent the project contributes to changes in the economic performance (e.g. finances, income, costs saving, expenditure) of individuals, groups and entities? ✓ Social inclusiveness: To what extent the project contributes to changes in capacity and capability of individuals, groups and entities in society, such as employment, education, and training?]
B	**Project design**
1	• Overall design[31] ✓ The project design was adequate to address the problems at hand?

31 All GEF-4 and GEF-5 projects have incorporated relevant environmental and social considerations into the project design / GEF-6 projects have followed the provisions specified in UNIDO/DGAI.23: UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP); is it in line with GEF Minimum Fiduciary Standards: Separation of Implementation and Execution Functions in GEF Partner Agencies? (GEF/C.41/06/Rev.01)).

No.	Evaluation criteria
	✓ Is the project consistent with the Country's priorities, in the work plan of the lead national counterpart? Does it meet the needs of the target group? Is it consistent with UNIDO's Inclusive and Sustainable Industrial Development? Does it adequately reflect lessons learnt from past projects? Is it in line with the donor's priorities and policies? ✓ Is the applied project approach sound and appropriate? Is the design technically feasible and beased on best practices? Does UNIDO have in-house technical expertise and experience for this type of intervention? ✓ To what extent the project design (in terms of funding, institutional arrangement, implementation arrangements…) as foreseen in the project document still valid and relevant? ✓ Does the project document include a M&E plan? Does the M&E plan specify what, who and how frequent monitoring, review, evaluations and data collection will take place? Does it allocate budget for each exercise? Is the M&E budget adequately allocated and consistent with the logframe (especially indicators and sources of verification)? ✓ Were there any changes in project design and/or expected results after start of implementation. ✓ Did the project establish a baseline (initial conditions)? Was the evaluation able to estimate the baseline conditions so that results can be determined? ✓ Risk management: Are critical risks related to financial, social-political, institutional, environmental and implementation aspects identified with specific risk ratings? Are their mitigation measures identified? Where possible, are the mitigation measures included in project activities/outputs and monitored under the M&E plan?
2	• <u>Logframe</u> ✓ Expected results: Is the expected result-chain (impact, outcomes and outputs) clear and logical? Does impact describe a desired long-term benefit to a society or community (not as a mean or process), do outcomes describe change in target group's behaviour/performance or system/institutional performance, do outputs describe deliverables that project will produce to achieve outcomes? Are the expected results realistic, measurable and not a reformulation or summary of lower level results? Do outputs plus assumptions lead to outcomes, do outcomes plus assumptions lead to impact? Can all outputs be delivered by the project, are outcomes outside UNIDO's control but within its influence? ✓ Indicators: Do indicators describe and specify expected results (impact, outcomes and outputs) in terms of quantity, quality and time? Do indicators change at each level of results and independent from indicators at higher and lower levels? Do indicators not restate expected results and not cause them? Are indicators necessary and sufficient and do they provide enough triangulation (cross-checking)? Are they indicators sex-diaggregated, if applicable? ✓ Sources of verification: Are the sources of verification/data able to verify status of indicators, are they cost-effective and reliable? Are the sources of verification/data able to verify status of output and outcome indicators before project completion?
C	**Project performance**
1	• <u>Relevance</u> ✓ How does the project fulfil the urgent target group needs? ✓ To what extent is the project aligned with the development priorities of the country (national poverty reduction strategy, sector development strategy)? ✓ How does project reflect donor policies and priorities? ✓ Is the project a technically adequate solution to the development problem? Does it eliminate the cause of the problem?

No.	Evaluation criteria
	✓ To what extent does the project correspond to UNIDO's comparative advantages? ✓ Are the original project objectives (expected results) still valid and pertinent to the target groups? If not, have they been revised? Are the revised objectives still valid in today's context?
2	• <u>Effectiveness</u> ✓ What are the main results (mainly outputs and outcomes) of the project? What have been the quantifiable results of the project? ✓ To what extent did the project achieve their objectives (outputs and outcomes), against the original/revised target(s)? ✓ What are the reasons for the achievement/non-achievement of the project objectives? ✓ What is the quality of the results? How do the stakeholders perceive them? What is the feedback of the beneficiaries and the stakeholders on the project effectiveness? ✓ To what extent is the identified progress result of the project rather than external factors? ✓ What can be done to make the project more effective? ✓ Were the right target groups reached?
3	• <u>Efficiency</u> ✓ How economically are the project resources/inputs (concerning funding, expertise, time…) being used to produce results? ✓ To what extent were expected results achieved within the original budget? If no, please explain why. ✓ Are the results being achieved at an acceptable cost? Would alternative approaches accomplish the same results at less cost? ✓ What measures have been taken during planning and implementation to ensure that resources are efficiently used? Were the project expenditures in line with budgets? ✓ To what extent did the expected co-financing materialize, in cash or in-kind, grants or loan? Was co-financing administered by the project management or by some other organization? Did short fall in co-financing or materialization of greater than expected co-financing affected project results? ✓ Could more have been achieved with the same input? ✓ Could the same have been achieved with less input? ✓ How timely was the project in producing outputs and outcomes? Comment on the delay or acceleration of the project's implementation period. ✓ To what extent were the project's activities in line with the schedule of activities as defined by the Project Team and annual Work Plans? ✓ Have the inputs from the donor, UNIDO and Government/counterpart been provided as planned, and were they adequate to meet the requirements?
4	• <u>Sustainability of benefits</u> ✓ Will the project results and benefits be sustained after the end of donor funding? ✓ Does the project have an exit strategy? *Financial risks:* ✓ What is the likelihood of financial and economic resources not being available once the project ends? *Socio-political risks:*

No.	Evaluation criteria
	✓ Are there any social or political risks that may jeopardize the sustainability of project outcomes? ✓ What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? ✓ Do the various key stakeholders see that it is in their interest that project benefits continue to flow? ✓ Is there sufficient public/stakeholder awareness in support of the project's long-term objectives? *Institutional framework and governance risks:* ✓ Do the legal frameworks, policies, and governance structures and processes within which the project operates pose risks that may jeopardize the sustainability of project benefits? ✓ Are requisite systems for accountability and transparency and required technical know-how in place? *Environmental risks:* ✓ Are there any environmental risks that may jeopardize the sustainability of project outcomes? ✓ Are there any project outputs or higher level results that are likely to have adverse environmental impacts, which, in turn, might affect the sustainability of project benefits?
5	• <u>Monitoring of long-term changes</u> The M&E of long-term changes is often incorporated in GEF-supported projects as a separate component and may include determination of environmental baselines; specification of indicators; and provisioning of equipment and capacity building for data gathering, analysis, and use. This section of the evaluation report will describe project actions and accomplishments towards establishing a long-term monitoring system. The evaluation will address the following questions: ✓ Did the project contribute to the establishment of a long-term monitoring system? If it did not, should the project have included such a component? ✓ What were the accomplishments and shortcomings in establishment of this system? ✓ Is the system sustainable — that is, is it embedded in a proper institutional structure and does it have financing? How likely is it that this system continues operating upon project completion? ✓ Is the information generated by this system being used as originally intended?
D	**Cross-cutting performance criteria**
1	• <u>Gender mainstreaming</u> ✓ Did the project design adequately consider the gender dimensions in its interventions? Was the gender marker assigned correctly at entry? ✓ Was a gender analysis included in a baseline study or needs assessment (if any)? Were there gender-related project indicators? ✓ Are women/gender-focused groups, associations or gender units in partner organizations consulted/ included in the project? ✓ How gender-balanced was the composition of the project management team, the Steering Committee, experts and consultants and the beneficiaries? ✓ Do the results affect women and men differently? If so, why and how? How are the results likely to affect gender relations (e.g., division of labour, decision-making authority)?

No.	Evaluation criteria
	✓ To what extent were socioeconomic benefits delivered by the project at the national and local levels, including consideration of gender dimensions?
2	✓ Environment and socio-economic aspects
3	• M&E: ***(focus on Monitoring)*** ✓ ***M&E design*** o Was the Monitoring plan at the point of project approval practical and sufficient? o Did it include baseline data and specify clear targets and appropriate indicators to track environmental, gender, and socio economic results? o Did it include a proper M&E methodological approach; specify practical organization and logistics of the M&E activities including schedule and responsibilities for data collection; o Did it include budget adequate funds for M&E activities? ✓ ***M&E implementation*** o How was the information from M&E system used during the project implementation? Was an M&E system in place and did it facilitate timely tracking of progress toward project results by collecting information on selected indicators continually throughout the project implementation period? Did project team and manager make decisions and corrective actions based on analysis from M&E system and based on results achieved? o Are annual/progress project reports complete and accurate? o Was the information provided by the M&E system used to improve performance and adapt to changing needs? Was information on project performance and results achievement being presented to the Project Steering Committee to make decisions and corrective actions? Do the Project team and managers and PSC regularly ask for performance and results information? o Are monitoring and self-evaluation carried out effectively, based on indicators for outputs, outcomes and impact in the logframe? Do performance monitoring and reviews take place regularly? o Were resources for M&E sufficient? o How has the logframe been used for Monitoring and Evaluation purposes (developing M&E plan, setting M&E system, determining baseline and targets, annual implementation review by the Project Steering Committee…) to monitor progress towards expected outputs and outcomes? o How well have risks outlined the project document and in the logframe been monitored and managed? How often have risks been reviewed and updated? Has a risk management mechanism been put in place?
4	• Project management ✓ Review overall effectiveness of project management as outlined in the Project Document. Have changes been made and are they effective? Are responsibilities and reporting lines clear? Is decision-making transparent and undertaken in a timely manner? Recommend areas for improvement.

No.	Evaluation criteria
	✓ Review whether the national management and overall coordination mechanisms have been efficient and effective? Did each partner have assigned roles and responsibilities from the beginning? Did each partner fulfil its role and responsibilities (e.g. providing strategic support, monitoring and reviewing performance, allocating funds, providing technical support, following up agreed/corrective actions)? ✓ The UNIDO HQ-based management, coordination, monitoring, quality control and technical inputs have been efficient, timely and effective (e.g. problems identified timely and accurately; quality support provided timely and effectively; right staffing levels, continuity, skill mix and frequency of field visits)? ✓ The project implemented outreach and public awareness campaigns. Outreach and public awareness materials produced are in line with the relevant UNIDO and donor advocacy guidelines?"
E	**Performance of partners**
1	• <u>UNIDO</u> ✓ ***Design*** o Mobilization of adequate technical expertise for project design o Inclusiveness of project design (with national counterparts) o Previous evaluative evidence shaping project design o Planning for M&E and ensuring sufficient M&E budget ✓ ***Implementation*** o Timely recruitment of project staff o Appropriate use of funds, procurement and contracting of goods and services o Project modifications following changes in context or after the Mid-Term Review o Follow-up to address implementation bottlenecks o Role of UNIDO country presence (if applicable) supporting the project o Engagement in policy dialogue to ensure up-scaling of innovations o Coordination function o Exit strategy, planned together with the government
2	• <u>National counterparts</u> ✓ ***Design*** o Responsiveness to UNIDO's invitation for engagement in designing the project ✓ ***Implementation*** o Ownership of the project o Support to the project, based on actions and policies

No.	Evaluation criteria
	○ Counterpart funding ○ Internal government coordination ○ Exit strategy, planned together with UNIDO, or arrangements for continued funding of certain activities ○ Facilitation of the participation of Non-Governmental Organizations(NGOs), civil society and the private sector where appropriate ○ Suitable procurement procedures for timely project implementation ○ Engagement with UNIDO in policy dialogue to promote the up-scaling or replication of innovations
3	✓ ***Donor*** ✓ Timely disbursement of project funds ✓ Feedback to progress reports, including Mid-Term Evaluation ✓ Support by the donor's country presence (if applicable) supporting the project for example through engagement in policy dialogue
F	**Overall project achievement** ✓ Overarching assessment of the project, drawing upon the analysis made under Project performance and Progress to Impact criteria above but not an average of ratings.

Annex 4: List of documents reviewed[32]

1. **Project Document EELCT ProDoc 2015** (Folder Link: ProDoc)
2. **Annual Project Report** (Folder Link: Annual Project Report)
3. **Annual Work Plan (2018/2019)** (Folder Link: AWP)
4. **National Steering Committee Meetings** (Folder Link: NSC MOMs & Presentations)
5. **Supporting Documents** (Folder Link: Supporting Docs)

Component 1 (Policy related, Trainings and Capacity Building)

1. **Baseline Study Langkawi Low Carbon Island**
   - 1.1.1 Project Document (Folder Link: Project Document)
   - 1.1.2 MOM (Folder Link: MOMs)
   - 1.1.3 (1) Invoices (Folder Link: Invoices)
     (2) MESTECC Approvals (Folder Link: MESTECC Approvals)
   - 1.1.4 Reports (Folder Link: Reports)
   - 1.1.5 Supporting Documents (Folder Link: Supporting Docs)

2. **Low Carbon Mobility Blueprint**
   - 2.1.1 Project Document (Folder Link: Project Document)
   - 2.1.2 MOM (Folder Link: MOM)
   - 2.1.3 (1) Invoices (Folder Link: Invoices)
     (2) MESTECC Approvals (Folder Link: MESTECC Approvals)
   - 2.1.4 Reports (Folder Link: Reports)
   - 2.1.5 Supporting Documents (Folder Link: Supporting Docs)

3. **Training Needs, Regulation Compliance and Standards/ EV Roadmap**
   - 3.1.1 Project Document (Folder Link: Poject Document)
   - 3.1.2 MOM (Folder Link: MOM)
   - 3.1.3 (1) Invoices (Folder Link: Invoices)
     (2) Mestecc Approvals (Folder Link: MESTECC Approvals)
   - 3.1.4 Reports (Folder Link: Reports)
   - 3.1.5 Supporting Documents (Folder Link: Supporting Documents)

[32] All documents have been prepared by PMU and all files stored in 1drive and sent well in time before country mission.

Component 2 (Demonstration)

1. **Langkawi Island 30 Chargers**
   - 1.1.1 Project Document (Folder Link: Project Document)
   - 1.1.2 Reports (Folder Link: Reports)
   - 1.1.3 Supporting Documents (Folder Link: Supporting Docs)

2. **PV ESS BRT Sunway**
   - 2.1.1 Project Document (Folder Link: Project Document)
   - 2.1.2 Reports (Folder Link: Reports)
   - 2.1.3 Supporting Documents (Folder Link: Supporting Docs)

3. **PV ESS Air Keroh OBR**
   - 3.1.1 Project Document (Folder Link: Project Document)
   - 3.1.2 Reports (Folder Link: Reports)
   - 3.1.3 Supporting Documents (Folder Link: Supporting Docs)

Evaluation information:

- UNIDO Evaluation Policy (May 2015)
- UNIDO gender policy. April 2009
- DAC Evaluation Quality Standards (2006)
- DAC Glossary of Key Terms in Evaluation and Results Based Management (2002)

Annex 5: Field Visit Programme

GEF:5 Energy Efficient Low Carbon Transport Project
External Terminal Evaluation Mission Schedule
Date: 18th February to 27th February 2020

Activities

DATE	TIME/VENUE	MEETING
18/02/2020 Tuesday	9.00 am to 3.00 pm @ Bilik Tenaga 4, MGTC	1. PMU briefing on project implementation and structure 1.1 Project Overview on ProDoc 1.1.1 NSC roles and responsibility/TOR 1.1.2 Project Co-financing 2.1 Project Management/Governance 2.1.1 Committee SC/TOR/ Approval Process 2.1.2 AWP 2018/2019 2.1.3 Budget Expenditure 2.1.4 Overall Project Status
	4.00 pm @ MESTECC	2. Audit briefing by External Auditors to Mr Saifuddin Abdul Karim (Principal Assistant Secretary), Eco-Innovation Unit, MESTECC
19/02/2020 Wednesday	Bilik Tenaga 3, MGTC	1. Project Presentation by Greentech/consultants 1.1 Low Carbon Mobility Blueprint @ 10.00 am 1.2 EV Roadmap @ 11.30 am 1.3 Training Needs and Standard Compliance 1.4 Langkawi Island Baseline Study
	4.00 pm	2. Courtesy meeting with CEO MGTC
20/02/2020 Thursday	9.30 am 10.30 am 2.00 pm 4.00 pm	1. Stakeholder, individual meetings 1.1 MOT – Strategic Planning & International Division 1.2 MESTECC EI Hartini Mohd Nasir (Undersecretary), Eco-Innovation Unit 1.3 GEF OFP (was cancelled on short notice 1.4 DOE

DATE	TIME	MEETING
21/02/2020 Friday	Pick up from Le Meridien at 10 am 21:00	1. Visit to demonstration sites 1.1 Dengkil @ 1030 am 1.2 Ayer Keroh OBR, Melaka & ChargEV Stations @ 12 pm 1.3 Seremban @ 2 pm LUNCH KL Departure to Langkawi: 18:50 - 20:00 Dinner with Prof. Anthony Wong, Ressort owner and EV enduser
22/02/2020 Saturday		1. Visit to demonstration sites 1.1 Langkawi EV Chargers 1.2 COMOS 1.3 BPEN
23/02/2020 Sunday	10.00 am 12.00 pm	1. EcoWalk Hotel FrangiPani Summary of finding and preparation of presentation Langkawi Departure to Kuala Lumpur: LGK - SZB, 20:15 - 21:30
24/02/2020 Monday	 10.00 am 2.30 pm 3.30 pm	1. Stakeholder, individual meetings 1.1 MARii 1.2 MIGHT 2. Preparation of presentation by Evaluator team Discussion with PMU and MGTC team on GHG red. And events/WS
25/02/2020 Tuesday	9.30 am 1.30pm	2. GreenTech ChargEV presentation 3. Presentation of audit finding to Dr. Nagulendran, Deputy Secretary General, Eco-Innovation Unit, MESTECC and NSC members
26/02/2020 Wednesday	 9.00 am 11.30 am 1.30 pm	1. Visit to demonstration sites 1.1 Prasarana Sunway BRT Management 1.2 Proton (cancelled on short notice) 1.3 Sync R & D (Tentative) 2. Wrap-up meeting with PMU and GreenTech
27/02/2020 Thursday	10.00 am to 3.00 pm	1. Internal discussion & report writing Closing of mission

Annex 6: Financial Data and table of Expenditure

Financial Status and Expenditure

EELCT Expenditure By Component as of 20 February 2020					
	Comp 1 (USD)	Comp 2 (USD)	Comp 3 (USD)	Project Management (USD)	Total (USD)
Budget Approved In 2015	**600,000.00**	**1,145,000.00**	105,000.00	150,000.00	**2,000.000.00**
Expenditure 2015	7.56	-	-	-	7.56
Expenditure 2016	3,219.20	360,481.72	-	77,414.57	441,115.49
Expenditure 2017	10,716.94	310,926.74	-	27,674.60	349,318.28
Expenditure 2018	397,933.43	430,379.22	7,542.03	1,397.79	837,252.47
Expenditure 2019	41,048.92	151,998.42	64,755.95	28,356.36	286,159.65
Expenditure 2020	-	2,381	32,315.36	19,095.87	53,792.23
OVERALL EXPENDITURE	**452,926.05**	**1,256,167.10**	**104,613.34**	**153,939.19**	**1,967,645.68**
Balance up to 31 March 2020	**177.07**	**4,054.37**	**21,669.66**	**6,453.22**	**32,354.32**

Total Overall Approved Expenditure as of February 2020 : USD 1,967,645.68 (98%)

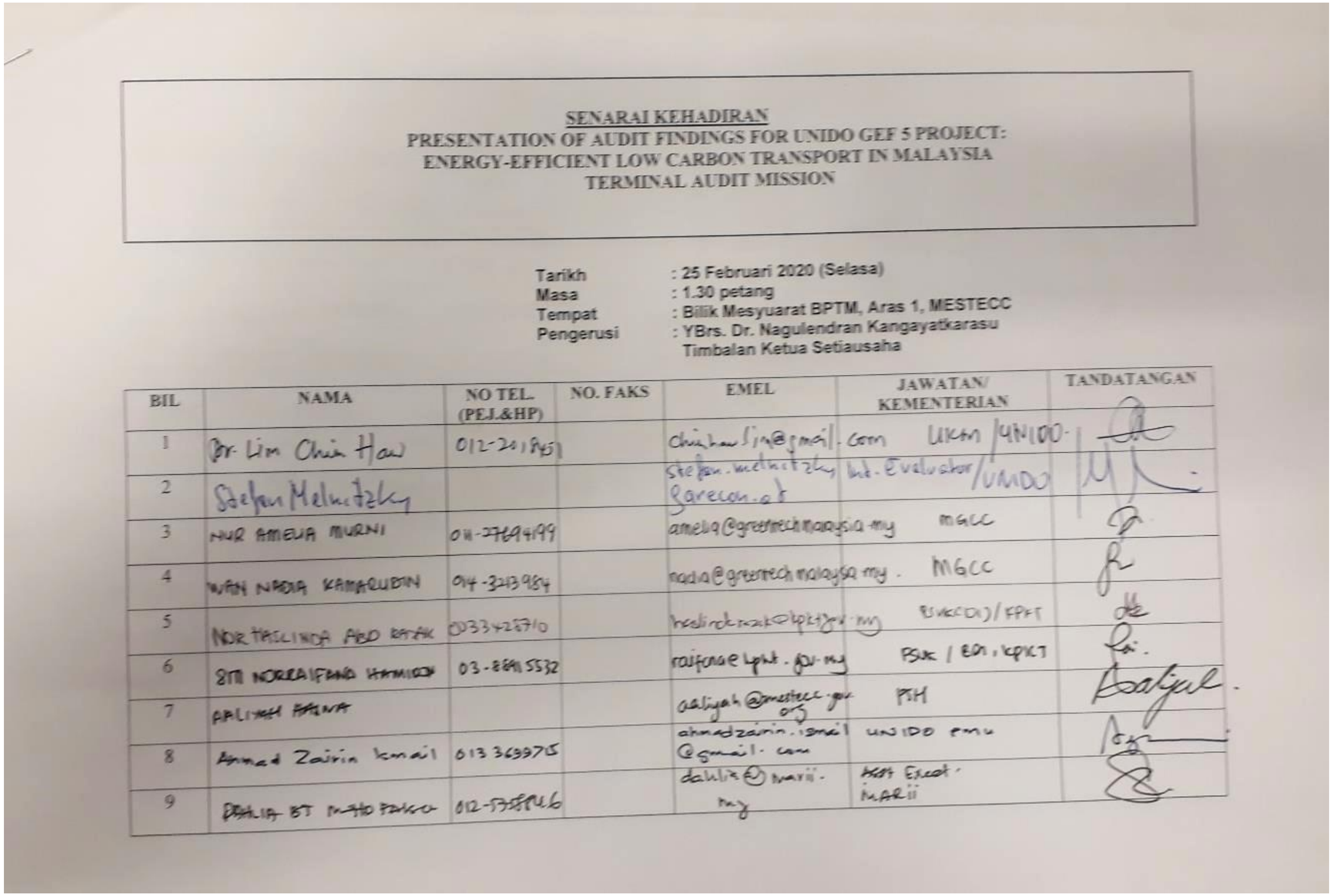
Annex 7: List of persons interviewed / met

No	Name	Gender	Designation	Organisation
1	Ahmad Zairin Ismail	Male	National Project Coordinator	PMU
2	Salmah Sharuwan	Female	National Project Assistant	PMU
3	Katarina Barunica	Female	Industrial development officer	UNIDO
4	Nicholas Dehod	Male	Project Associate	UNIDO
5	Shamsul Bahar Mohd Nor	Male	CEO	GreenTech Malaysia
6	Kaljeet Singh a/l Ambra Singh	Male	Senior Analysis	GreenTech Malaysia
7	Huzaimi Nor Omar	Male	Director	ChargeEV: GreenTech Malaysia
8	Wan Nadia Kamarudin	Female	Lead Analysis	GreenTech Malaysia
9	Prof. Ir. Dr. Nasrudin Abd Rahim	Male	Director	UMPEDAC
10	Dr. Che Hang Seng	Male	Researcher	UMPEDAC
11	Assoc. Prof. Dr. Md Hasanuzzaman	Male	Researcher	UMPEDAC
12	Dr. Onn Chiu Chuen	Male	Researcher	TSSM /Uni. Malaya
13	Dr. Muhammad Saifuddin	Male	Researcher	TSSM / International Islamic University Malaysia
14	Assoc. Prof. Dr. Ing Masria Mustafa	Female	Researcher	TSSM / UiTM
15	Hartini Binti Mohd Nasir	Female	Under Secretary	MESTECC / Sektor Alam Sekitar & Perubahan Iklim – Bahagian Eko Inovasi
16	Saifuddin Abdul Karim	Male	Ketua Penolong Setiausaha / Principal Assistant Secretary	MESTECC / Sektor Alam Sekitar & Perubahan Iklim – Bahagian Eko Inovasi
17	Suhana binti Shamshudin	Female	Penolong Setiausaha / Assistant Secretary	MESTECC / Sektor Alam Sekitar & Perubahan Iklim – Bahagian Eko Inovasi
18	Marhaini binti Mat	Female	Principal Assistant Secretary	MESTECC / Sektor Alam Sekitar & Perubahan Iklim - Bahagian Dasar Perubahan Iklim
19	Ryan Ooi Chean Weai	Male	Principal Assistant Director	Department of Environment

20	Mohd Khairul Nizam bin Abd. Latif	Male	Assistant Director	Kedah State Economic Planning Department, Kedah Darul Aman.
21	Mohd Firdaus bin Abidin	Male	Langkawi EcoRide Executive	CMS Consortium Ecotour Sdn Bhd
22	Anthony Wong	Male	Managing Director	Frangipani Resort Hotel Langkawi
23	Rosnina Yaacob	Female	Deputy Undersecretary	Ministry of Transport Malaysia (Strategic Planning & International Division)
24	YM. Tengku Kahar Muzaffar	Male	Principal Assistant Secretary	Ministry of Transport Malaysia (Strategic Planning & International Division)
25	Rosmizan Bakar	Male	Principal Assistant Secretary	Ministry of Transport Malaysia (Strategic Planning & International Division)
26	Mohd Sharulnizam Sarip	Male	Chief Technology Officer	MARii (Malaysia Automotive Robotics IoT Institute)
27	Fateha Aziz	Female	Manager	MARii (Malaysia Automotive Robotics IoT Institute)
28	Mahalil Amin Abdul Malek	Male	Senior Principal Analyst II	MiGHT (Malaysian Industry-Government Group for High Technology
25	Ts. Zulkifflee Mohamad	Male	Program Director / Senior Principal Analyst I	MiGHT (Malaysian Industry-Government Group for High Technology
26	Ir. Mohd Qaharuddin Abdullah	Male	Program Director	MiGHT (Malaysian Industry-Government Group for High Technology
27	Shahab Paracha	Male	Analyst	ChargeEV : Low Carbon Mobility GreenTech Malaysia
28	Norzafirah Ismail	Female	Senior Analyst	ChargeEV : Low Carbon Mobility GreenTech Malaysia
29	Azlan Merican	Male	CEO	Sync R & D Sdn Bhd
30	Suriani Johari	Female	Head of Environment & Sustainability	Prasarana BRT Sunway
31	Mohd Fadzil bin Busirun	Male	Head of Zone	Prasarana BRT Sunway
32	Nor Haslinda Abd Razak	Female		KPKT

33	Siti Norraifana Hamiran	Female		KPKT
34	Dahlia bt Mohd Falsa	Female	Assistant executive	MARii (Malaysia Automotive Robotics IoT Institute)
36	Nur Amelia Murni	Female		MESTECC
37	Sheela Inthirum	Female		MESTECC
38	Mohd Sharadnizam bin Sarip	Male		MITI / MARii
39	Mohammad Iliyas Hakim bin Ibrahim	Male		MEA Tenaga

Annex 8. Participants in Debriefing meeting
on 25th February 2020



SENARAI KEHADIRAN
PRESENTATION OF AUDIT FINDINGS FOR UNIDO GEF 5 PROJECT:
ENERGY-EFFICIENT LOW CARBON TRANSPORT IN MALAYSIA
TERMINAL AUDIT MISSION

Tarikh : 25 Februari 2020 (Selasa)
Masa : 1.30 petang
Tempat : Bilik Mesyuarat BPTM, Aras 1, MESTECC
Pengerusi : YBrs. Dr. Nagulendran Kangayatkarasu
Timbalan Ketua Setiausaha

BIL	NAMA	NO TEL. (PEJ.&HP)	NO. FAKS	EMEL	JAWATAN/ KEMENTERIAN	TANDATANGAN
1	Dr. Lim Chin Haw	012-2018451		chinhaw.lim@gmail.com	UKM /UNIDO.	[signature]
2	Stefan Melnitzky			stefan.melnitzky@arecon.at	Int. Evaluator/UNIDO	[signature]
3	NUR AMELIA MURNI	011-27694199		amelia@greentechmalaysia.my	MGCC	[signature]
4	WAN NADIA KAMARUDIN	014-3213984		nadia@greentechmalaysia.my.	MGCC	[signature]
5	NOR HASLINDA ABD RAZAK	0133428710		haslindarazak@kpkt.gov.my	[illegible]/KPKT	[signature]
6	SITI NORRAIFANA HAMIDON	03-88915532		raifana@kpkt.gov.my	PSK / EA, KPKT	[signature]
7	AALIYAH HANA			aaliyah@mestecc.gov.my	PSH	[signature]
8	Ahmad Zairin Ismail	013 3639715		ahmadzairin.ismail@gmail.com	UNIDO PMU	[signature]
9	DAHLIA BT MOHD FAKRI	012-5358846		dahlia@marii.my	Asst Exec. MARii	[signature]

10	MOHD SHARULNIZAM BIN SARIP	0182256386		sharulnizam@marii.my	MITI / MARii	
11	MOHAMMAD ILIYAS HAKIM BIN IBRAHIM	~~0388725~~ 0388725899		hakim.ibrahim@mea.gov.my	MEA Tenaga	
12	Ryan Ooi Chean Wei	0388712349		ow@doe.gov.my.	DOE	
13	Sheela Inthiran	0172151299		sheela@mestecc.gov.my	MESTEE, BPI	
14	SUHANA SHAMSHUDIN	012-4661906		suhana@mestecc.gov.my	MESTECC, BEI	
15	HUZAIMI OMAR	012-7799977		huzaimi@greentechmalaysia.my	MGTC	
16	Saifuddin A Karim	0196687603		saifuddin.ak@mestecc.gov.my	BEI	
17	SALMAH SHARUWAN	019-3910952			UNIDO	
18						
19						
20						
21						

Annex 9: Compiled stakeholder Feedback

shared on 6th of April[33]

Most of the proposed changes/amendments have been included in this report. Either inserted in the text or by adding respective footnotes

FEEDBACK ON DRAFT TERMINAL EVALUATION REPORT FOR GEF5741

1. MINISTRY OF TRANSPORT (MOT)

No	Page		Comments
1	25	Especially for the Cities in Malaysia urban sprawl is the biggest issue, public transport is hardly available and inappropriate spatial planning is hindering the use of bicycles or to walk for short distances (e.g. to LRT/BRT). Walkways and proper option to cross roads do not exist (even close to shopping malls and bus/train stations). Even in newly built/constructed townships (e.g. Putrajaya), planning to reduce motorized transport has not been done. Without a strong focus on spatial planning in urban areas and inclusion of public transport in planning of new townships, LCM will be not achievable.	The statement highlighted in yellow is not entirely true. There have been various plans/initiatives by the Government/Putrajaya Corporation/authority to reduce motorized transport in Putrajaya and other cities, for example: • **Park & Rides** facilities – to reduce number of cars on the road and encourage public transport usage. • **Putrajaya Green City 2025 (PGC2025)** - One of the focus area in turning Putrajaya into a green city is by focusing on planning, urban design & building. • Currently there are a few large-scale public transport projects under construction in the Klang Valley to increase public transport usage and reduce the usage of motorized private vehicles. For example: ○ **Sungai Buloh-Serdang-Putrajaya MRT** which is expected to be completed by 2022 will provide services along a corridor of 2 million residents starting from Sungai Buloh, through Kuala Lumpur to Putrajaya. ○ The **LRT3 project**, which connects Bandar Utama to Klang which is expected to be completed by 2024 to improve travel efficiency and help reduce traffic congestion for 2 million residents along the Bandar Utama-Klang corridor en route to downtown Kuala Lumpur. ○ **East Coast Rail Link (ECRL) -** expected to be completed by December 2026 with a re-

[33] Feedback was compiled by Ms Salmah Sharuwan (UNIDO PMU) and shared by Nick Dehoud (UNIDO HQ) on 6th of April

			alignment of routes that will cover cities in Selangor, Putrajaya, Negeri Sembilan, Pahang, Terengganu and Kelantan. • **National Transport Policy 2019-2030:** Contains various strategies and comprehensive plans to improve the transport system, including plans to reduce the usage of motorized vehicles (under Policy Thrust #4).

PAGE 47:

20/02/2020 Thursday	9.30 am 10.30 am 2.00 pm 4.00 pm	3. Stakeholder, individual meetings 3.1 MOT – Policy Planning 3.2 MESTECC EI Hartini Mohd Nasir (Undersecretary), Eco-Innovation Unit 3.3 GEF OFP (was cancelled on short notice 3.4 DOE

Propose to change to:

20/02/2020 Thursday	9.30 am 10.30 am 2.00 pm 4.00 pm	4. Stakeholder, individual meetings 4.1 MOT – Strategic Planning & International Division 4.2 MESTECC EI Hartini Mohd Nasir (Undersecretary), Eco-Innovation Unit 4.3 GEF OFP (was cancelled on short notice 4.4 DOE

PAGE 51:

23	Rosnina Yaakob	Female	Timbalan Setiausaha Bahagian	Ministry of Transport Malaysia (Bahagian Perancangan Strategik dan Antarabangsa)
24	YM. Tengku Kahar Muzaffar	Male	Ketua Penolong Setiausaha	Ministry of Transport Malaysia (Bahagian Perancangan Strategik dan Antarabangsa)
25	Rosmizan Bakar	Male	Ketua Penolong Setiausaha	Ministry of Transport Malaysia (Bahagian Perancangan Strategik dan Antarabangsa)

Propose to change to English version:

23	Rosnina Yaakob	Female	Deputy Undersecretary	Ministry of Transport Malaysia (Strategic Planning & International Division)

24	YM. Tengku Kahar Muzaffar	Male	Principal Assistant Secretary	Ministry of Transport Malaysia (Strategic Planning & International Division)
25	Rosmizan Bakar	Male	Principal Assistant Secretary	Ministry of Transport Malaysia (Strategic Planning & International Division)

2. MALAYSIAN GREEN TECHNOLOGY CORPORATION (MGTC)

No	Page		Comment
1	6	• Develop a Business Model for EV charging system At the moment users are not paying for charging their vehicles and the programme is subsidised. On the long run the charging system has to be functioning without funding and subsidies.	Registered member of ChargEV is paying annual membership at RM240 to enjoy access to network of ChargEV charging stations nationwide.
2	13	The meeting with GEF OFP was cancelled at very short notice. Dr. Nagulendran Kangayatkarasu - who is actually Head of GEF in Malaysia – chaired the presentation of preliminary findings, but in his function of the National Project Director. He gave a very positive feedback about the project, also from GEF view point, but a detailed discussion of OFP related questions (see Annex 3) could not take place. At the end of the mission, some unforeseen political event occurred with major changes on the present country administration. However, this did not have on impact on the mission itself, but might have an impact on the people involved in the project and the cooperation within the ministries and government bodies and especially the just-in-time endorsement of the planned GEF 7 project.	MGTC received the request for meeting with GEF OFP a week before the TE mission. Appointment with GEF OFP requires at least 2 or 3 weeks scheduling in advance. The Undersecretary of Climate Change Division (who is also GEF secretariat) was attending a meeting in Paris on the same time while his subordinate (who supposed to replace him) being hospitalized. With the new government announcement, the existing ministries and government officers not authorized to make endorsement until their new structure and posting are confirmed
3	21	Unlike the original project design MGTC could not host the PMU and requested UNIDO to employ PMU staff. The PMU is responsible for project management and is running the project with 2 fully employed experts, the National Project Coordinator and the Project assistant. Implementation of PMU by UNIDO was a smart move, MGTC is giving space for PMU, this eases communication and	To be more accurate, do include the phase that MGTC is the PMU for EELCT project. This is before Mr. Zairin came on board. To also take note there is vacuum period where MGTC were out of PMU contract and the National Project Coordinator role was yet to be filled in.

		project work and professional project management – independent from various other project implementations done by MGTC – and helped to create several positive synergies.	
4	22	For example the LCMB, as one of the major outcomes of the project, does not mention EELCT project name, the participation of UNIDO or GEF (as funding source).	The acknowledgement part of LCMB document stated 'LCMB development was funded by GEF5-UNIDO under Energy Efficient Low Carbon Transport project'. The latest report containing the acknowledgement part was shared with UNIDO PMU on 18th February 2020
5	27	Lesson learnt	To include procurement has to be done on local based (local tender). Example : Case like ZTT (international tenders) should be avoided in the future projects.

3. MALAYSIA AUTOMOTIVE, ROBOTICS AND IoT INSTITUTE (MARii)

No	Page		Comment
1	6	This extension worked in favour of the project and **all results came well in time to feed into policy papers, the National Automotive Plan and the 12th Malaysian Plan.**	Change the highlighted in yellow to: National Automotive Policy
2	8	An announcement made by the Prime Minister of Malaysia for NAP2020 on Friday 22nd March to turn Malaysia into EV hub which also see the project results feeding into 12th Malaysian plan. In the NAP 2020 policy, the government of Malaysia will be seen to focus on the incentives for EVs and EEVs. Besides that, the policy also pushes the development and manufacturing of EEVs and EVs critical components as well as the charging infrastructure to support EVs and PHEVs in the country.	Propose the highlighted paragraph to be as following: An announcement made by the Prime Minister of Malaysia for NAP2020 on Friday 21st February aim to turn Malaysia into Next Generation Hub (NxGV) hub that is also include the development for EV and EEVs which also sees the project results feeding into 12th Malaysian plan. In the NAP 2020, the government of Malaysia will be seen to focus on the incentives for NxGV that include for EVs and EEVs. Besides that, the policy also pushes towards the development and manufacturing of EEVs and EVs critical parts and components. This initiative also includes development of charging infrastructure to support EVs and PHEVs Cross Country the country. Towards this, MITI through MARii will be the implementing agency for NAP2020 intitatives.

4. MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION (MOSTI)

No	Page		Comment
1	7	Come to a decision regarding the planned GEF 7 project as quick as possible, to avoid a time gap between these project. If the decision is positive, ensure continuity from involved person. Assign a team with clear roles responsibilities and ensure information flow.	Malaysia has the institutional support of a GEF National Steering Committee where the main line ministries involved in GEF projects are represented. This committee take a decision on endorsing projects before OFP could issue any Letter of Endorsement.
2	7	Support the project teams with clear and agreed rules for monitoring the co-finance (in-kind and cash) in an unarguable manner. The monitoring scheme should be jointly agreed from the very beginning of the project and aligned with all involved stakeholders.	The main ministries had issued a letter of commitment and indicate their co-financing values. Agencies are required to track sources of co-financing. Whenever, questions, concerns or difference of views exist, the OFP ready to seek advice, clarification and guidance from the GEF Secretariat. OFP also ready to facilitate discussion if any misunderstanding happens.
3	8	Based on Paris Climate Conference and Conference of Parties (COP) 21, held in Paris, France, Malaysia has committed to reduce its CO_2 emissions by 45% in 2030 from level in 2005.	Based on Paris Climate Conference and Conference of Parties (COP) 21, held in Paris, France, Malaysia has committed to reduce its GHG emissions intensity per GDP by 45% in 2030 from level in 2005.
4	13	Few of the planned meetings with key stakeholders could not be undertaken due to unforeseen reasons (time constraints, not willing to give time for a meeting) during the review mission.	The highlighted statement could be misleading. It seems like agency is not willing to cooperate.
5	21	The actual status of co-finance is unclear, as proper monitoring of co-finance and in-kind contribution is not in place and not jointly agreed with GEF focal point	Please clarify this statement, could not jointly agreed with GEF focal point?

Annex 10: Examples, Best Practice and Lessons learnt

(shared in a separate document)