Independent Terminal Evaluation

GEF-UNIDO Cleantech Programme for SMEs in Malaysia

UNIDO Project No.: 120096
GEF Project No.: 5146

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO INDEPENDENT EVALUATION DIVISION

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ABBREVIATIONS AND ACRONYMS

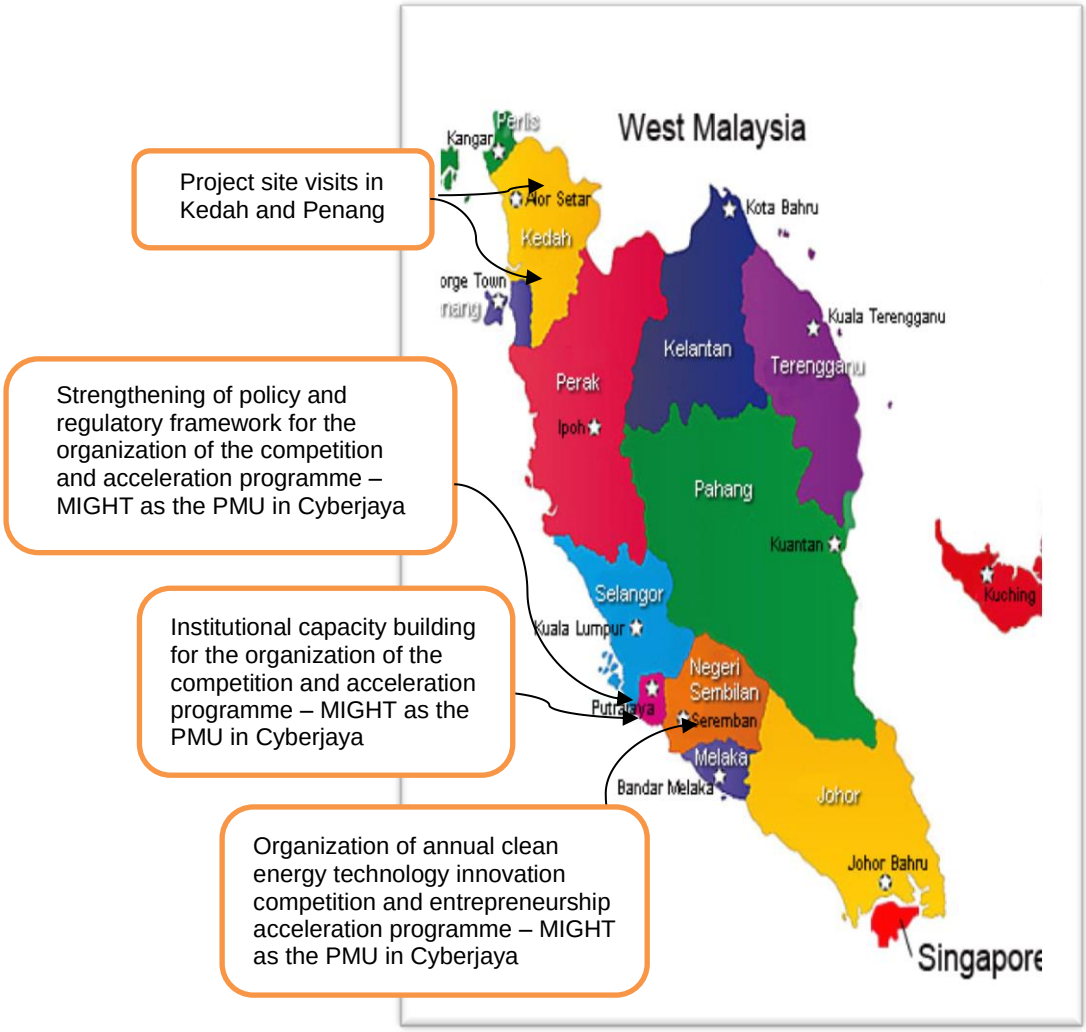
Abbreviation	Meaning
ASEAN	Association of SouthEast Asian Nations
CO2	Carbon Dioxide
COP21, 22	United Nations Climate Change Conference 21,22
CT	Cleantech
CTO	Cleantech Open
EUR	Euro
GEF	Global Environment Facility
GCIP	Global Cleantech Innovation Programme
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GTP	Government Transformation Programme
KeTTHA	Ministry of Energy, Green Technology and Water
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MIGHT	Malaysian Industry-Government Group for High Technology
MNRE	Ministry of Natural Resources and Environment
MOSTI	Ministry of Science, technology and Innovation
NEM	New Economic Model
NGO	Non-Governmental Organisation
OFP	Operational Focal Point
PIR	Project Implementation Report
PSC	Project Steering Committee
PMU	Project Management Unit
SDG	Sustainable Development Goals
SME	Small and Medium Enterprise
TE	Terminal Evaluation
UN	United Nations
UNIDO	United Nations Industry Development Organisation
UNFCC	United Nations Framework Convention for Climate Change
USD	United States Dollar

GLOSSARY OF EVALUATION-RELATED TERMS

Term	Definition
Baseline	The situation, prior to an intervention, against which progress can be assessed.
Effect	Intended or unintended change due directly or indirectly to an intervention.
Effectiveness	The extent to which the development intervention's objectives were achieved, or are expected to be achieved.
Efficiency	A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.
Impact	Positive and negative, intended and non-intended, directly and indirectly, long term effects produced by a development intervention.
Indicator	Quantitative or qualitative factors that provide a means to measure the changes caused by an intervention.
Lessons learned	Generalizations based on evaluation experiences that abstract from the specific circumstances to broader situations.
Logframe (logical framework approach)	Management tool used to facilitate the planning, implementation and evaluation of an intervention. It involves identifying strategic elements (activities, outputs, outcome, impact) and their causal relationships, indicators, and assumptions that may affect success or failure. Based on RBM (results based management) principles.
Outcome	The likely or achieved (short-term and/or medium-term) effects of an intervention's outputs.
Outputs	The products, capital goods and services which result from an intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes.
Relevance	The extent to which the objectives of an intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donor's policies.
Risks	Factors, normally outside the scope of an intervention, which may affect the achievement of an intervention's objectives.
Sustainability	The continuation of benefits from an intervention, after the development assistance has been completed.
Target groups	The specific individuals or organizations for whose benefit an intervention is undertaken.

MAP: GEF-UNIDO CLEANTECH PROGRAMME FOR SMEs

GEF-UNIDO CLEANTECH PROGRAMME FOR SMEs IN WEST MALAYSIA AND PROJECT LOCATIONS



EXECUTIVE SUMMARY

Evaluation background and methodology

The GEF-UNIDO project "Cleantech for SMEs in Malaysia", focusing on the promotion of clean energy technologies and innovative clean energy technology entrepreneurship in Malaysia through a Clean Energy Technology Innovation Competition and an Entrepreneurship Accelerator Programme, started in April 2013 and and came to a conclusion in March 2018.

This Terminal Evaluation assesses project performance against the evaluation criteria: relevance, effectiveness, efficiency, sustainability, management and M&E. The TE has an additional purpose of drawing lessons and developing recommendations for UNIDO and the GEF that may help improving the selection, enhancing the design and implementation of similar future projects and activities in the country and on a global scale upon project completion.

In accordance with GEF and UNIDO guidelines, this TE was carried out by an independent evaluation team that liaised with the UNIDO Independent Evaluation Division on the conduct of the evaluation and methodological issues.

The evaluation team used different methods to ensure that data gathering and analysis deliver evidence-based qualitative and quantitative information, based on diverse sources: desk studies and literature review, individual interviews, data reviews and direct observation. A one-week mission to Malaysia to meet with stakeholders was implemented, with follow-up exchanges at UNIDO HQ.

The main objective of the proposed project is the promotion of clean energy technology innovations and innovative clean energy technology entrepreneurship in Malaysia through a Clean Energy Technology Innovation Competition and Entrepreneurship Accelerator Programme.

Three project components have been developed, in addition to monitoring and evaluation, to achieve the project objectives:

Component 1: Policy and regulatory framework: Strengthening of the policy and regulatory framework for the organisation of the competition and acceleration programme

Component 2: Institutional capacity building for the organisation of the competition and acceleration programme

Component 3: Organization of three annual Cleantech competition and entrepreneurship acceleration programmes ion 2014, 2015 and 2016.

Summary of the main evaluation findings

Project design

The Cleantech Malaysia project was the first one of a series of global Cleantech projects to be developed, and the design shows signs of this early development. In the PD, the objective is stated

in a generic way, and there is no clear description on how the project components, their outputs and outcomes will contribute to the objective, and what activities are needed to do so, except through the standard results Logframe. The activities per component are described in a very generic way and do not show a clear understanding of the intricate and complex avenues towards (cleantech) SME innovation. The baseline for GHG emission reduction is missing and the basis for the top-down causality factor used is not explained. The indicators set in the proposal to measure the expected outcomes are not specific enough, and do not indicate to what extent the outcomes are reached. Most indicators are "numbers of" – improved policies, staff trained; experts participating etc. These simple numerical indicators do not really inform us whether the results on outputs and outcomes (like policies needed, capacity developed, success of competitions and accelerator programmes) are actually achieved.

The project is consistent with the goal of the GEF Climate Change mitigation focal areas, National policies of Malaysia, and details several of the related policies and plans. The project document refers to an already selected set of directly involved stakeholders and beneficiaries, as well as their specific or general role in the project. There are references to international initiatives, and the involvement of CTO as in all other GCIP projects.

Relevance

The project is in line with key sectoral and development priorities and plans of Malaysia. The most important of these are the following. The National Green Technology Policy (NGTP) sets development priorities for the energy sector, building sector, water and waste management and transportation sectors. The GCIP project also meets the goals of the 10th Malaysia plan (increased role of SMEs in application of green technology) and is in line with the 11th plan (development of green products).

The project results have been input on relevant national priorities and plans, and companies have showcased in IGEM 2014 and 2015 exhibitions. Government counterparts were active in the project; Ministry representatives participated in the PSC, there was representation at events, MIGHT was hosting the PMU. University involvement was also strong. Several participating companies are spin-off projects from the university. Other companies worked closely together with local communities. The project was well established in the Malaysia start-up innovation ecosystem. All executing partners were working closely to support each other's expertise and complementing resources to promote the competitions and acceleration programme.

Effectiveness

On the first outcome, strengthened policy and regulatory framework for the competitions, the project has established a model with relevant agencies (MaGIC, Cradle, TPM, and SME Corp) to co-host several of the GCIP events. This good networking and ecosystem position of the project has facilitated the successful organization of 3 consecutive competitions and accelerators. A 4th competition is planned for September 2017 – Feb 2018. However, apart from active networking, the project has not led to creating a formal policy and regulatory environment for the promotion of cleantech business in Malaysia.

On the second outcome, institutional capacity, the project was successful in mobilizing the local ecosystem, building capacity at host MIGHT and organizing yearly competitions plus accelerator programs. Hwoevcer, the original 3-4 staff of MIGHT was reduced over time to one staff member. The project has established a wide platform with related organisations in which the PMU, so currently only the Project Coordinator, plays a crucial connecting role. In 2016, 6 general mentors and 18 specialist mentors were registered, which is sufficient for the number of 25 companies entering yearly in the accelerator programme

The programme did not produce any formalized methodologies on the accelerator programme and the follow-up stages on investments and company establishment. Experience with other countries was partly build in the project, being part of the GCIP Global programme. Next to this companies were exposed to several international events.

On the third outcome, in total 3 National GCIP competitions were successfully organized (2014, 2015 and 2016), over 150 applications were received (recruitment took place mostly via partners in the ecosystem), with 60 'semi-finalists' or alumni who entered the yearly accelerator training programmes. National winners were selected in the categories Energy Efficiency, Renewable Energy, Waste to Energy and Water Efficiency. Finalists/national winners joined the yearly Cleantech Open Forum in California, US. A large number of meetings, workshops, events have been organized in conjunction with the competitions and accelerator programmes. 7 companies received investment grants after the accelerator. No detailed information is available on the actual or projected GHG emission reduction of the participating companies.

Efficiency

The project was implemented within the planned project period (including extension) and with an additional third and fourth edition of the competition organised, cost efficiency was maintained as planned. Project activities have been in line with the generic schedule of overall activities, and project disbursements in general were in line with these activities. The financial inputs of UNIDO and the GEF grant have been provided as planned, and were adequate to meet the requirements of the project.

The Malaysian government (MIGHT) and counterparts co-financing was provided at the rate and to the extent that was envisioned, but from different sources than originally expected.

Sustainability of project outcomes

Although MIGHT has expressed strong interest in continuation of the project, funding is not yet secured. Co-financing of almost 2 M USD by the alumni companies shows strong sustainability. Although governmental support has been provided, full ownership of the project by the government has not yet occurred.

Socio-political or environmental risks are low and will not hamper sustainability of the project.

Assessment of M & E system and management

Design of the M & E system was generic at best, and during implementation the expected detailed M & E plan was not adopted. Evaluation activities were performed in a very generic way. A systematic monitoring system to track the projects' progress was in place. However, the project did not have a component on the monitoring of long-term changes (for instance GHG reduction assessments) in the design or implementation.

Processes affecting achievements of project results

Partnership arrangements with governmental organizations were properly identified, and the roles were defined as part of the project design. Actual involvement of these entities was somewhat less than anticipated. The project has involved all stakeholders and the broader public though manifold information meetings, competition award functions and other outreach and public events.

The delay in the start-up phase of the project is connected to staff recruitment and preliminary organization of the PMU and project ecosystem. This initial delay did not influence project

outcomes or potential sustainability of the project.

Rating of project performance

Criterion	Evaluator's summary comments	Evaluator's rating*
Attainment of project objectives and results (overall rating), sub criteria (below)		S
Project implementation		S
Effectiveness	Successful in mobilizing ecosystem, building capacity at host MIGHT and organizing yearly competitions plus accelerator programs. Unclear on contribution to GHG emission reductions	S
Relevance	Relevant for Malaysian priorities and plans; outcomes contribute to these. Relevant government and society participation. In line with GEF and UNIDO objectives.	HS
Efficiency	3 competitions with accelerators well organized, above minimum requirements (2), within budget. Capacity build and ecosystem in place. Co-financing requirements by government and partners met.	S
Sustainability of project outcomes (overall rating), sub criteria (below)		ML
Financial risks	Interest and willingness by Malaysian Government after 2017, however funding not yet secured at time of TE.	ML
Sociopolitical risks	Clear mandate from government, fits within Malaysian policies	L
Institutional framework and governance risks	Start-up Ecosystem within Malaysia in place and mobilized. Government involved but low level of direct ownership.	ML
Environmental risks	Fits within environmental and climate change policies of Malaysia.	L
Monitoring and evaluation (overall rating), sub criteria (below)		MS
M&E Design	Detailed M & E plan not prepared.	MS
M&E Plan implementation (use for adaptive management)	Monitoring implementation consistent and sufficient. Evaluation activities limited.	MS
Budgeting and Funding for M&E activities	Apart from TE no other budget for M & E	MS
Project management - UNIDO specific ratings		S

Criterion	Evaluator's summary comments	Evaluator's rating*
Quality at entry / Preparation and readiness	Similar model as in other GCIP countries. Clear involvement of executing partner MIGHT from beginning.	S
Implementation approach	Managed by UNIDO HQ staff in professional way, with motivated and professional PMU at MIGHT	S
UNIDO Supervision and backstopping	UNIDO staff supervised overall project consistently, with regular missions and follow-up to Malaysia. Frequent changes in UNIDO PM.	S
Gender Mainstreaming	Award for best women entrepreneurs. No further activities implemented.	MS
Overall rating		S

*** Ratings:**
HS = Highly Satisfactory; S = Satisfactory; MS = Moderately Satisfactory;
MU = Moderately unsatisfactory; U = Unsatisfactory; HU = Highly Unsatisfactory L = Likely; ML = Moderately Likely; MU = Moderately Unlikely; U = Unlikely

Summary of recommendations and lessons learned

For MIGHT and the Malaysian Government

on relevance:

Follow, assess and document the influences and relevance of the project on policy development more explicit.

on project effectiveness

It is recommended that MIGHT increases either their own knowledge and experience on the specific area of Cleantech to increase the effectiveness of future Cleantech project.

on project M & E:

For future projects, MIGHT should design, adopt and implement a solid M & E programme and report on this to the donor, next to the internal M & E procedures that are in place.

For PMU and UNIDO

on final assessment, analysis reporting

In finalizing this project, it is recommended that UNIDO and PMU together ensure that there is a solid final report produced including:

- analysis and reporting the potential indirect GHG emissions reduction;
- the results of the use of approaches, methodologies and experiences on entrepreneurship development

on efficiency

the pledged co-financing sources, as well as new sources acquired during project implementation, should be continuously tracked in a systematic manner.

For UNIDO

on project design

Investigate the possibilities on how to improve the design and implementation of ongoing projects.

on project effectiveness

Increase the effectivity of future projects by managing and influencing more strongly on project outcomes that have a higher change and impact on environmental outcomes in general, and in the case of this project on GHG reductions specifically.

on gender mainstreaming

Gender mainstreaming topics should be considered and managed systematically in future projects, following the UNIDO and National guidelines, rules and regulations that are in place.

on project M & E

As project implementation agency, UNIDO should pay closer attention if national implementing agencies do not arrange for M & E implementation. Also, projects where M & E is not included sufficiently in the design should be amended.

on the Global CI Programme

UNIDO should consider widening the key international expert input and contribution in the project from only CTO to other global and regional expert centers and consultants.

on GCIP programme evaluation

Since several of the GCIP project are coming to an end, UNIDO should organize a GCIP programme evaluation focused on the long-term transformation process required.

linkages with related concepts

UNIDO can strengthen the linkages with related projects with different concepts like SCP, eco-innovation, climate innovation and circular economy.

I. EVALUATION OBJECTIVES, METHODOLOGY AND PROCESS

1.1. Introduction and background on the terminal evaluation

The GEF-UNIDO project "Cleantech for SMEs in Malaysia", focusing on the promotion of clean energy technologies and innovative clean energy technology entrepreneurship in Malaysia through a Clean Energy Technology Innovation Competition and an Entrepreneurship Accelerator Programme of the project, an independent terminal evaluation (TE) has been planned at the end of the project, covering the whole duration of the project from its starting date in April 2013 to the completion date in 2017.

1.2. Scope and Objectives of the terminal evaluation

This TE assesses project performance against the evaluation criteria: relevance, effectiveness, efficiency, sustainability, management and M & E. The TE has an additional purpose of drawing lessons and developing recommendations for UNIDO and the GEF that may help improving the selection, enhancing the design and implementation of similar future projects and activities in the country and on a global scale upon project completion. The terminal evaluation should provide an analysis of the attainment of the project objective(s) and the corresponding technical components or outputs.

Through its assessments, the terminal evaluation should enable the Government, the national GEF Operational Focal Point (OFP), project counterparts, the GEF, UNIDO and other stakeholders and donors to verify prospects for development impact and promoting sustainability, providing an analysis of the attainment of global environmental objectives, project objectives, delivery and completion of project outputs/activities, and outcomes/impacts based on indicators, and management of risks. The assessment includes re-examination of the relevance of the objectives and other elements of project design.

The key focus of this TE is whether the project has achieved or is likely to achieve in the nearby future its main objective of promoting clean energy technology innovations and innovative clean energy technology entrepreneurship in Malaysia, and whether a Clean Energy Technology Innovation Competition and Entrepreneurship Accelerator Programme is the most suitable approach for this, and has contributed to this.

1.3. Methodology

The terminal evaluation was conducted in accordance with the UNIDO Evaluation Policy, the UNIDO Guidelines for the Technical Cooperation Programme and Project Cycle, the GEF Guidelines for GEF Agencies in Conducting Terminal Evaluations, the GEF Monitoring and Evaluation Policy and the GEF Minimum Fiduciary Standards for GEF Implementing and Executing Agencies. (see annex 4 for references)

The TE was carried out by the independent evaluation team, consisting of Dr. Marcel Crul, International terminal evaluation consultant and Prof. Dr. Raja Suzana Binti Raja Kasim, National terminal evaluation consultant. The evaluation team liaised with the UNIDO Independent Evaluation Division (ODG/EVQ/IEV) on the conduct of the evaluation and methodological issues.

The evaluation team used different methods to ensure that data gathering and analysis deliver evidence-based qualitative and quantitative information, based on diverse sources: desk

studies and literature review, individual interviews, data reviews and direct observation. This approach will not only enable the evaluation to assess causality through quantitative means but also to provide reasons for why certain results were achieved or not and to triangulate information for higher reliability of findings. The specific mixed methodological approach is as follows:

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 UNIDO-GEF annual Project Implementation Reports (PIRs)), mid-term review (MTR) report, output reports (case studies, action plans, sub-regional strategies, etc.), back-to-office mission report(s), end-of-contract report(s) and relevant correspondence (see annex 4).
   (b) Notes from the meetings of steering committee of the project
   (c) Other project-related material produced by the project.
2. The evaluation team used the available model of theory of change for the different types of interventions (enabling, capacity, investment, demonstration). The validity of the theory of change was examined through specific questions in interviews and possibly through a survey of stakeholders. The model used for the theory of change is the Logframe approach (see Annex 1) to assess the outputs, outcomes of the project in relation to the objectives and activities.
3. Interviews with project management and technical support including staff and management at UNIDO HQ and in the field and staff associated with the project's financial administration and procurement.
4. Interviews with project partners and stakeholders, including, among others, government counterparts, GEF OFP, project stakeholders, and co-financing partners as shown in the corresponding sections of the project documents.
5. On-site observation of results achieved by the competition and accelerator programme, including interviews of actual and potential beneficiaries of improved technologies.
6. Interviews and telephone interviews with intended users for the project outputs and other stakeholders involved in the project.
7. Other interviews, surveys or document reviews as deemed necessary by the evaluation team and/or UNIDO, ODG/EVQ/IEV for triangulation purposes.
8. Interviews addressed the main evaluation topics as described in 4.2 in a flexible way, depending on the role and expertise and experience from the individual interviewees. In Annex 3, the list of persons and organisations interviewed is presented.

1.4. Project evaluation parameters

The evaluation team assessed the project performance guided by the parameters and evaluation questions as provided extensively in section VI of the ToR (see Annex 1), which is not repeated here. In addition to the qualitative assessment based on the evidence gathered in the evaluation, the evaluation team will rate the project based on the rating criteria for the parameters on the following topics:

A. Project identification and design

B Implementation performance:

- Relevance and ownership

- Effectiveness
- Efficiency
- Sustainability of project outcomes
- M & E systems
- Long term changes
- Processes affecting achievement of project results
- Project coordination and management
- Gender mainstreaming

Ratings are presented in the form of tables with each of the criteria / aspects rated separately and with brief justifications for the rating based on the findings and the main analyses - see the templates in the ToR for summarizing the overall ratings.

Next to this, as per the GEF's requirements, the evaluation report provides information on project identification, time frame, actual expenditures, and co-financing in the format presented in the ToR, which is modeled after the GEF's project identification form (PIF).

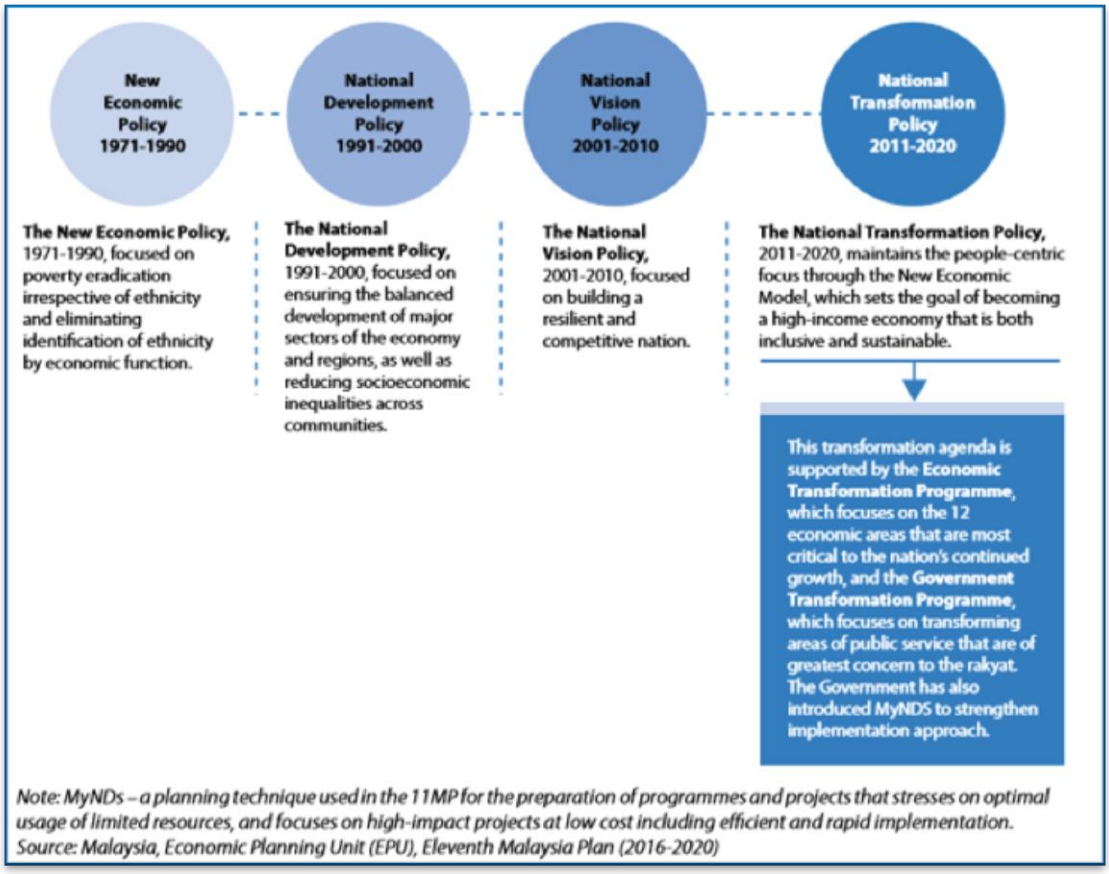
II. COUNTRY AND PROJECT BACKGROUND

2.1. National economic and development context

National Policy Development

Malaysia is ambitious in transforming to a fully developed nation. There have been four policies, with the first being the New Economic Policy (NEP) and the latest being the National Transformation Policy or more popularly, the New Economic Model (NEM). The National Vision Policy (NVP, 2001-2010) built upon and maintained the efforts of the NEP, NDP and incorporated the Vision 2020. A major change in development strategy is seen in the NEM with three main goals of the NEM are high income (USD15,000 to USD20,000 per capita), inclusiveness (enables all communities to fully benefit from the wealth of the country), and sustainability (meets present needs without compromising future generations). The quality of life of the Malaysian people is the ultimate objective of the NEM. This policy laid out a roadmap as outlined in Figure 1; with radical strategies to achieve the goals of Vision 2020 through four pillars that included the 1 Malaysia concept, a Government Transformation Programme (GTP), Economic Transformation Programme (ETP), and the 10th Malaysia Plan (10MP).

Figure 1
Overview of Malaysia's development planning framework



Source: Eleventh Malaysia Plan (2015)

Socioeconomic Development

On 21 May, 2015, the Government has tabled its next move towards 2020 in the 11th Malaysian Plan. In the perspective of the recent year on the socioeconomic growth in Malaysia, there were ten achievements that the country was proud of. First, the GDP has increased from 71.1 billion ringgit in 1970, to 1.1 trillion ringgit in 2014. Malaysia was proud of registering one of the highest economic growth rates in Asia, with an average growth of 6.2 percent per annum over the past five decades.

Second, in terms of economic structure, Malaysia has shifted from being a predominantly agriculture-based economy, contributing 31.8 percent to GDP in 1970, to a manufacturing and services based economy, contributing 76.5 percent to GDP. The agriculture sector, however contracted to 9.2 percent in 2014. Third, the average monthly household income increased by more than 20 times, that is, from 264 ringgit per month in 1970 to 6,141 ringgit in 2014. Whereas, the median monthly household income increased from 166 ringgit in 1970 to 4,585 ringgit in 2015.

Fourth, in the Tenth Plan period, 76.1 percent of all households have become home owners. Even among poor households, 75.3 percent own their own homes. Fifth, as of today, 95.1 percent of the population have access to clean water, and 97.6 percent have access to electricity supply. Sixth, in 1970, only 75 percent of Malaysians could read and write. Presently, the literacy rate has increased to 98 percent.

Seventh, 27 percent of the labor force now has tertiary education, a fourfold increase compared with 6 percent in 1980, at the end of the Third Malaysia Plan. Eighth, the unemployment rate has declined from 7.4 percent in 1970 to only 2.9 percent in 2014. Ninth, Bumiputera equity ownership in the corporate sector increased 10 times, from 2.4 percent in 1970 to 23.5 percent in 2011. And tenth, the poverty rate declined from 49.3 percent in 1970, to a mere 0.6 percent in 2014. Thus, Malaysia is on the view that, hardcore poverty has been successfully eradicated.

In short, the Government of Malaysia had urged that the nation needs to be developed towards a holistic civilisation, where people have high values, morals, are knowledge seekers and avid readers, appreciate arts, culture and heritage as well as have mindsets that reflect the people of a developed nation. Visualizing Malaysia in 2030, among others, the population would have reached about 36 million, the urbanization rate would have increased to 80 percent, the GDP at 2.6 trillion ringgit, GDP per capita of more than 117 thousand ringgit and world trade would have exceeded 44 trillion US dollars.

2.2. Sector-specific issues and Business environment

Over the years, the Malaysian government has introduced several initiatives to promote cleantech agenda through innovative technology and by shifting energy efficiency initiatives into high gear. Responding to the green environment and energy efficiency, in the Eleventh Plan, Malaysia focuses on reducing GHGs emission intensity of GDP by up to 40% compared to 2005 levels by 2020, in line with the voluntary target announced by the YAB Prime Minister at the 15th Conference of the Parties to the United Nation Framework Convention of Climate Change in 2009; and secondly, improving Malaysia's ranking to top 20 in the Environmental Performance Index (EPI).

The Cleantech SME programmes is aligned with the objectives of the Eleventh Malaysia Plan in developing socio-economic values in sustainable manner (see Annex 1). The promotion of the development and deployment of clean technologies appears to have been relevant in the context the United Nations Millennium Declaration in 2000 at the United Nations Millennium Summit (see annex 1)

Another relevant area is on the consumption of ozone depleting substances. Specific pre-2010 targets for ozone depleting substances under the Montreal Protocol have been achieved. Malaysia is on track to comply with the post-2010 targets of the Montreal Protocol. Another factor affecting energy policy is the pledge by Prime Minister Datuk Seri Najib Tun Razak that Malaysia will achieve a 40% reduction carbon emissions intensity, from 7.57 tons per capita to 4.54 tons, benchmarked against 2005 levels, by 2020. This promise was made during the 2009 United Nations Climate Change Conference in Copenhagen, and has contributed to the increased focus on renewable sources of energy including hydropower, solar power and biomass.

As part of the push towards renewables, the Renewable Energy Act 2011 was passed, which opened the door for the feed-in tariff (FiT) system where individuals and private corporations generate electricity using renewable sources (such as solar and biomass). The FiT participants then sell this power to the main utility provider – Tenaga Nasional Berhad (TNB) – who pays them a premium of almost four-times the going rate for electricity. Malaysia is enhancing its energy security by ensuring fuel diversity. As indicated in the Generation Development Plan 2014-2024, the current fuel mix for electricity generation is highly dependent on natural gas and coal. Two fuel-types account for 52% and 43% of capacity respectively, with the rest being hydro-power (5%), and renewables such as solar and biomass (1%). This dependence on coal and gas presents long-term problems as it makes the country too reliant on a limited source of fuel feedstock. In fact, in 2011, a severe gas shortage forced gas-fired power plants in the country to switch to more expensive petroleum-derived distillates, such as diesel, increasing cost by nearly fivefold.

The recent initiatives on the National Green Technology Policy focus on four pillars: energy, environment, economy and society. Under the 10th Malaysia Plan 2011-2015 (10MP), the country places emphasis on the use of renewable energy and on increasing energy efficiency to ensure the sustainability of the environment. Various measures such as guidelines, standards and laws have been introduced to ensure efficient use of energy, and to reduce greenhouse gas emissions. In 2011, Malaysia adopted the Renewable Energy Act, which stimulated the establishment and operation of the feed-in-tariff, and the Renewable Energy Fund. Both are managed by the newly established Sustainable Energy Development Authority, SEDA.

Malaysia has taken several mitigation and adaption measures. In achieving the voluntary target of reducing GHGs emission intensity of GDP by up to 40% by 2020, compared to 2005 levels, various mitigation measures were carried out in several areas such as energy, transportation, waste and forestry. As of 2013, implementation of mitigation measures in these areas resulted in reduction of GHGs emission intensity of its GDP by 33%. Among measures undertaken include enforcement of the Renewable Energy Act, 2011, implementation of the Feed-in Tariff (FiT) mechanism, gazetting of EURO 4M fuel standards, introduction of the biodiesel B7 programme, conversion of empty palm oil fruit brunches to energy and gazetting of Permanent Reserved Forests.

The GCIP Cleantech Ecosystem

An appropriate ecosystem for Cleantech is present, since SMEs have coinfirmed during the interview that they were offered several ways of access to various type of support to drive the green industry forward. For example, the GCIP which was conducted as satellite event for IGEM 2015, IGEM 2016, and 1ASEAN programme on cleantech had offered opportunities for SMEs to gain invaluable insights on the latest green technology products and investments. This in turn has inspired and influenced the business growth strategy. SMEs organization had experienced an exposure of audience to 23,932 visitors from 50 countries during IGEM 2015 according to the IGEM 2015 statistics post show report.

In the recent trend of circular and capital economy around the globe, along with existing local business environment and its associated development, Malaysia is responding to the People's Economy where the GCIP has contributed into one of the initiatives under the National Blue Ocean Strategy (NBOS). These cleantech SMEs have shown potential outcomes to improve associated impact towards socio-economic well-being of the *rakyat* (citizen). For example; in the case of the Free the Seed—their biomass production targeted the bottom 40% paddy farmers and assisted them by generating better income, and more job opportunities in the country. This development has another potential on the innovation ecosystem of entrepreneurship as the outcomes of the GCIP has changed the life of the B40 paddy farmers to become middle-class as well as building capacity to participate in high-productivity, innovative and creative economic activities.

Other important developments in the business environment during the project implementation period were the green energy incentives and the Bio Economy Transformation Programme that assisted potential green and cleantech SMEs. Here, various support on the value-added bio-based technology, investments and jobs creation were provided. The green energy incentives put an emphasis on providing investments into the green technology industries for business purposes or self-consumption and the adoption of green technology by selected services/system providers. In the GCIP project, SMEs appear to be qualified into areas of green projects and green tech services; in particular, the renewable energy, energy efficiency, electric vehicle, green building.

2.3. Project summary

2.3.1 Project objective and structure

The main objective of the proposed project is the promotion of clean energy technology innovations and innovative clean energy technology entrepreneurship in Malaysia through a Clean Energy Technology Innovation Competition and Entrepreneurship Accelerator Programme.

2.3.2 Background

In 2011, the Government of South Africa, with the support of the Global Environmental Facility (GEF) and the United Nations Industrial Development Organization (UNIDO), successfully implemented the 'Greening the COP17' project. One of the four components of the project focused on the design and implementation of the first South Africa Clean Technology Competition (2011 SA Cleantech) for green entrepreneurs and small and medium size enterprises (SMEs) with innovative ideas and concepts in the areas of energy

efficiency, renewable energy and green building practices; the competition was a great success.

Building on this success and the lessons learned, the GEF and UNIDO have agreed to develop a global flagship programme to promote Cleantech innovations and Cleantech entrepreneurs around the world. This is in line with the GEF Council's Revised Strategy for Enhancing Engagement with the Private Sector, Modality 3, namely "SME Competition Pilot: Encouraging Entrepreneurs and Innovators," which provides support to entrepreneurs and innovators seeking to establish commercial ventures in the field of clean technologies.

In July 2009, Malaysia introduced its National Green Technology Policy, which focuses on four pillars: energy, environment, economy and society. Under the 10th Malaysia Plan 2011-2015 (10MP), the country places emphasis on the use of renewable energy and on increasing energy efficiency to ensure the sustainability of the environment. Various measures such as guidelines, standards and laws have been, and will be, introduced to ensure efficient use of energy, and to reduce greenhouse gas emissions. In 2011, Malaysia adopted the Renewable Energy Act, which stimulated the establishment and operation of the feed-in-tariff, and the Renewable Energy Fund. Both are managed by the newly established Sustainable Energy Development Authority, SEDA.

2.3.3 Project Components

The following **3 project components** have been developed, in addition to monitoring and evaluation, to achieve the project objectives:

Component 1: Policy and regulatory framework: Strengthening of the policy and regulatory framework for the organisation of the competition and acceleration programme

Component 2: Institutional capacity building for the organisation of the competition and acceleration programme

Component 3: Organization of three annual Cleantech competition and entrepreneurship acceleration programmes ion 2014, 2015 and 2016.

2.3.4 Stakeholders, partners and target groups

Stakeholders and mandate	Role in the project
Malaysian Industry-Government Group for High Technology (MIGHT) Under the purview of the Prime Minister's Office, MIGHT is a membership-driven organization with members from industry, government and academia to promote high technology development and industrial advancement	MIGHT is the lead executing agency of the proposed project, and its capacity will be strengthened to conduct the competition and acceleration programmed during the project and after the project. MIGHT will appoint a National Project Director. The Advisor for Science at the Prime Minister's Office will act as the Chairman of the PSC
Ministry of Energy, Green Technology and Water (KeTTHA) KeTTHA's mission is to formulate policies and establish the legal framework and effective regulation as well as setting the direction for the energy industry, green technologies and the	KeTTHA is a member of the PSC and participate in the policy component

Stakeholders and mandate	Role in the project
water industry in line with national development goals. Regarding energy, the mandate includes promoting energy efficiency and renewable energy	
Ministry of Science, Technology and Innovation (MOSTI) Ministry of Science, Technology and Innovation (MOSTI) MOSTI seeks to increase productivity and competitiveness in agriculture, manufacturing and services sectors, generate new sources of wealth in technology and knowledge-intensive sectors and to raise the country's capacity for knowledge, creativity and innovation.	MOSTI is a member of the PSC and participate in the policy component
Ministry of Natural Resources and Environment (MNRE) MNRE is the GEF Focal point in Malaysia and its major areas are as follows: (i) Natural resources management (ii) Conservation and management of environment and shelters and (iii) Management of land survey and mapping administration.	MNRE is a member of the PSC and participate in the policy component.
Technology Park Malaysia (TPM) TPM (based in Kuala Lumpur) is an organization established to accelerate the development and implementation of innovative technologies by providing advanced infrastructure and service to facilitate growth of knowledge-based enterprises	TPM assists MIGHT to organize the competition and implement acceleration programme. TPM will provide facilities and venues for various training programmes, if necessary
Energy Commission, EC and Sustainable Energy Development Authority	The Energy Commission (Suruhanjaya Tenaga, ST) and SEDA are members of the PSC
Ministry of Higher Education (MOHE) Universiti Kebangsaan Malaysia (UKM) Universiti Teknologi Malaysia (UTM)	MOHE, UKM and UTM assist in providing training, evaluating and judging
Federation of Malaysian Manufacturers (FMM)	FMM assists in reaching out to the industries
SME Corp Malaysia Responsible for SME development and organizer of	SME Corp assists in reaching out to its members and provide assistance in

III. PROJECT ASSESSMENT

3.1. Project formulation and design

The Cleantech Malaysia project was the first one of a series of global Cleantech projects to be developed. This Global Cleantech Innovation Programme (GCIP) is launched by UNIDO together with GEF in 8 countries by now; Malaysia, Armenia, Turkey , India, Morocco, Pakistan, Thailand and South Africa. This programme for SMEs tries to leverage the power of entrepreneurs to address the energy, environmental and economic problems. The programme helps cleantech startups and tries to build or strengthen the local entrepreneurial ecosystem. Each project is led by a local executing agency, MIGHT in the case of Malaysia, supported by local stakeholders and advisers.

The startups in each country participate in a competitive national programme that trains, mentors, promotes them as well as connects them with potential investors, customers and partners. As the best cleantech companies progress, they are developed and assessed. The very best startups from each country are brought together to the Cleantech Open Global Forum in Silicon Valley, California for recognition and awards, where they have the opportunity to be connected with potential partners, customers and investors from around the world.

CTO, CleanTech Open, a not for profit US consultancy, runs US cleantech accelerator programmes and has a strong advisory role in the global GCIP, including all UNIDO-GEF projects. CTO delivers the basic content for the National programmes and hosts the international Forum.
An integral part of GCIP is the development of the institutional capacity of local implementing partners, typically government agencies focused on SMEs development, clean technology and innovation.

The request for CEO approval was submitted September 2012 to GEF, and was approved in December 2012. The project implementation start date was 08 April 2013 and the original expected implementation end date was set on 07 April 2016, and extended until March 2018. to accommodate the third run of the programme as well as the evaluation process.

The project objective was defined as the promotion of clean energy technology innovations and of innovative clean energy technology entrepreneurship through a competition and accelerator programme. This objective is very generic and in itself not measurable, and there is little elaboration in the Project Document on the mechanisms to reach the objective other than organizing the competition and the accelerator programme. It is assumed this will lead to more CT innovations and CT enterprise/SME development. The intervention logic of components, outcomes and outputs is limited as well. The components are:

1. Strengthening of policy and regulatory framework *for the organization of the competition and acceleration programme*
2. Institutional capacity building *for the organization of the competition and acceleration programme*
3. *Organization* of annual clean energy technology innovation competition and entrepreneurship acceleration programmes

(*italic* emphasis by TE authors)

There is no clear description on how these components, their outputs and outcomes will contribute to the objective, and what activities are needed to do so, except through the standard results Logframe (Annex to the Project Document).

The activities per component are described in the Logframe in a very generic way and do not show a clear understanding of the intricate and complex avenues towards (cleantech) SME innovation. The proposal is justified based on the GEF focal area of Climate Change mitigation, and in particular on Objective 1 of GEF 5 – Climate Change Mitigation Framework, promoting the demonstration, deployment and transfer of innovative low-carbon technologies. To verify this, a baseline is established to calculate the GHG emission reduction potential of project in Malaysia regarding the energy sector. At the time of submitting the proposal, the estimate for the energy sector reductions in Malaysia over a ten-year period was estimated at 84.9 Million Tons for CO2 equivalent (indirect savings). For the project, given the cross-sectoral impact of cleantech energy innovations, it was estimated the project can contribute to 0.5 – 1.0 % of the total savings in the Malaysian energy sector – thus the total indirect savings from the project would be in the range of 415,000 tot 849,000 Tons.

The basis of this estimation seems to be missing – there is no description of the (sub) sectors, company clusters or innovations that will or can be addressed in the targeted sectors, the current energy efficiency of their technologies offered and the theoretical and applied evidence of the improvements and innovations to be expected in the relatively short period of the ten years to come. In case a top-down causality factor was applied, the basis of this is not explained.

Further, in the proposal there is no mentioning of approaches or activities to measure the (indirect, lifetime) emission reductions for this key indicator “Tons of GHG emissions avoided”. Based on the technological innovations expected during the project, some kind of estimation of technological life-time direct or indirect CO2 equivalent emissions reductions would have been possible, but this type of estimations is not included in the project design, nor was it encountered in assessing the project implementation (see below).

The indicators set in the proposal to measure the expected outcomes are not specific enough, and do not indicate to what extent the outcomes are reached. The key indicator” Tons of CO2 eq. avoided” was already discussed above. In many cases, the only indicators mentioned are “numbers of” – improved policies, staff trained; experts participating etc. These type of simple numerical indicators does not seem sufficient to inform on whether the results on outputs and outcomes (like policies needed, capacity developed, success of competitions and accelerator programmes) are actually achieved. Also, identical indicators are formulated at related outcome/output levels which means no additional levels are defined for the assessment. Overall, the attainment of, or at least contribution to the project objective cannot be determined by the indicators alone as presented in the project document, which means the evaluation team will include other qualitative aspects of the project in its assessment to determine whether the project results contributed to the objective.

The project document indicates a basic timeframe(Annex E to the Project Document), that was reviewed and revised on an annual basis as part of the PIR process. Reference is made that during the project “two or three national cleantech competitions” will be organised (three were implemented) of which the first one will take place in 2013. During implementation, the competitions were held in 2014, 2015 and 2016. The timing of the first competition in 2014 was decided in order to have a simultaneous launch in a number of countries.

The project is consistent with the goal of the GEF Climate Change mitigation focal areas, which supports economies in transition towards a low-carbon development path, and in particular Objective 1 of the GEF-5 Climate Change Mitigation Framework – promoting the demonstration, deployment and transfer of innovative low-carbon technologies. Also, the project is in line with Modality 3 of the revised strategy (November 2011) of GEF for enhancing engagement with the public sector. However, no insight is given in the project proposal on what kind of clean tech innovations the project can or should be focusing. The only content description given is in the broad categories of the competition/accelerator programme – energy efficiency, renewable energy, waste to energy and water efficiency.

The project is also consistent with the National priorities in Malaysia as described in Chapter 2 of this report, and below (section on Relevance). The project document details several of these national priorities in energy, technology, economic and environmental policy plans.

The document also describes two competition schemes that are closely linked to the proposed Cleantech for SME scheme: The SME Innovation Award and the National Green Awards. The differences with these schemes are described, but no strategy is provided for linkages and synergy.

The project document refers to an already selected set of directly involved stakeholders and beneficiaries, as well as their specific or general role in the project. The consultation meetings which led to this set-up are not described. MIGHT (Malaysian Industry-Government Group for High Technology), a multi-actor membership driven organization under the purview of the Prime Minister's Office, is assigned as the lead executive agency. All relevant ministries are described and participate in the Project Steering Committee, but no further details of their possible involvement are formulated. Further, relevant industry federations and SME development organisations and universities are involved. The international consultant for the GCIP, CleanTech Open, is mentioned as technical adviser of related initiatives but not as the key technical advisor of the project, although their CleanTech Open Academy is mentioned in the proposal. This seems to be an omission in the proposal since this was planned from the start.

There are some references to related international initiatives such as the GCIP, Cleantech Open US, linkage to the UNIDO Green Industry Platform, linkages to other ASEAN countries, but overall the proposal is vague on possible partnerships and synergetic activities, and no project activities are formulated aimed at this, except for the standard involvement of the national winners in the Global Cleantech Open competition.

Risk assessment was described in which most risks were rated as low, for all identified risks a general mitigation strategy was described.
No detailed M & E plan was included, but M & E is mentioned in general in section H of the project document and resourced in the financial breakdown of the project. (see further 3.7)

The overall rating for project formulation and design is "Moderately satisfactory".

3.2. Relevance and ownership

The UNIDO programme in promoting clean energy technology innovations aims to achieve several outcomes. In assessing the policy and regulatory framework; the institutional capacity

building; and the competition and entrepreneurship accelerator programmes, the GCIP had offered its own relevance; but it works in different context, and its qualifying activities for green projects and green tech services. This includes transforming the economy which appears to be circular in nature; and meeting areas in conversation with issues relevant to the United Nations Framework Convention for Climate Change (UNFCCC). Further, the GCIP support various national initiatives, laws and framework associated with National Green Technology Policy, elements and enables of low carbon community, and offer relevant fiscal incentives as enabler for low carbon community.

As the Malaysian government is committed to meeting its target of 40% greenhouse gas emissions by 2020, the GCIP for SMEs in Malaysia Project is relevant indirectly; as there were notable evidences on areas of strengthening the flow of resources to renewable energy, energy efficiency, and energy conservation. In the GCIP Project Steering Committee Meeting No. 2/2015; which was chaired by the Secretary General of KeTTHA, it was minuted that the Malaysia's net carbon emission per year recorded a 33% reduction. The launch of the National Green Technology is another relevant initiative where Malaysia is supporting any projects that commit towards a low carbon economy. Ultimately, the GCIP for SMEs in Malaysia and the UNIDO's role as an international partner in bringing international experience and expertise is very relevant and has strengthened the adoption of green technology and SMEs in this area in Malaysia.

The GCIP is also relevant in a time where Malaysia moves towards the Startup and SME Promotion agenda where innovative ideas, leading future is the tagline sets to gather all vibrant entrepreneurs' eco-system to move forward together. Startups and SMEs appear to play a vital role in the Malaysian nation's growth with an evidence of 97.3% had registered themselves as SMEs. The SME had contributed 36.3% to the GDP with 65.5% of labor force being employed by SMEs. Some amount of 17.6% of Malaysia's export value were contributed by SMEs. In this year, there are nine clusters include biotech and agriculture, social innovation, greentech and smart cities, creative, education and learning, finance and capital market, healthcare and wellness, supply chain and logistics and lifestyle and consumer. This has spurred the development and accelerator programmes of SMEs and startups in the areas that are relevant to green technology.

3.2.1 Relevance to national development and environmental priorities

UNIDO project coverage is focused solely on the promotion of clean energy technology innovations and entrepreneurship through the Cleantech Accelerator Programme for SME in Malaysia. This is an indication of considerable relevance to the development of environmentally friendly practices where Malaysia had committed to specific targets to the UN Framework Convention on Climate Change in December 2015.

There are several indicators that clearly shape the relevancy of the GCIP project concept for SMEs in Malaysia. Firstly, the GCIP project is in line with the implementation of the National Green Technology Policy (NGTP) in which important development priorities are set; namely, energy sector, building sector, water and waste management and transportation sectors. This is relevant in GCIP categories which sets the participations of SMEs from—renewable energy, energy efficiency, waste to energy and water efficiency.

Secondly, the GCIP projects have met the short-term goals of the 10th Malaysia Plan (2011-2015) in the aspect of the increased roles among SMEs, communities and public awareness

and commitment for the adoption and application of green technology For instance: S.I.T Schiffs-& Industries Technik (M) Sdn Bhd; Pakar Go Green Sdn Bhd; iCEE International Sdn Bhd..; Eclimo Sdn Bhd); widespread availability and recognition of GT (products, appliances, equipment, green tech services and systems) in local market—Thinking Green; Ecoclay, Free The Seed Sdn Bhd; and expansion of local research institutes and institutions of higher learning. This is in the case in) spin-offs projects like Zymeratics Sdn Bhd with UPM Holdings Sdn. Bhd.; and the Pakar Go Green Sdn Bhd.

Thirdly, the GCIP projects also offer some success stories. There is abundance of initiatives that can be tapped in the areas of increasing the production of the local green technology products, in the area of research development and innovation by local universities and research institutions; and expansion of local SMEs and SMIs on green technology into global markets and to most economic sectors.

Fourthly, in relation to the Malaysia long standing history with other programmes with United Nations, in particular the Millennium Development Goals (MDG). It was further relevant in the context of green initiatives and its contributions on Malaysia's efforts towards environmental sustainability. In ensuring environmental sustainability, there are opportunities for Malaysia to reduce its ecological and carbon footprint and to find newer means and partnerships to conserve and protect its natural resources.

Next, The participation of SMEs in the accelerator programme and entrepreneurship is in line with the green technology policy and masterplan. The UNIDO project here appears to contribute to become a driver to accelerate the national economy and promote sustainable outcomes and development in the cleantech sector. The GCIP is regarded as one of many programmes that can directly and indirectly contribute towards the promotion and adoption of green technologies and has all its relevance in the forecasted outcomes of the 11th Malaysia Plan for energy efficiency sector.

The GCIP is also relevant in the context of the national programme under the Science to Action (S2A) initiative. The vision it sets is in line with the S2A which is to lift local cleantech innovation and register Malaysia as an integral hub for innovation, addressing the issue of climate change, and spurring industry to grab opportunities in green technology as an emerging market.

Important development areas at national level were seen in the Minutes of Meetings No. 2/2015 indicating the project outcomes had contributed towards the new policies in the 11th Malaysian Plan. When verifying the 11th Malaysia Plan, there appears to be in line with the GCIP SMEs' projects in the aspect of general indicators:

1. Development of green product
2. Roadmaps and guidelines to support low carbon development
3. Obligations to the UN Framework Convention on Climate Change
4. Aligned with GEF's focal area strategy under climate change mitigation
5. Aligned with the Bioeconomy Transformation Programme (BTP) and the Bioeconomy Community Development Programme (BCDP)

Despite some of the relevant indirect contributions, there appears to be no indicator on the part of SMEs project progress reports; mid-term and final project evaluation reports. However, as a general understanding of acknowledging the project outcomes, it has indirectly

and potentially contributed to the national development plan for the policy and regulatory framework. In attaining the next level of project outcomes on number of successful competitions organized, there were evidences recorded. Successful years in which IGEM2014, IGEM2015 and GCIP 2016 accomplished and were notable. For example, in 2014 implementation, 49 applications were received. Throughout the Accelerator Programme, 17 teams managed to complete the accelerator programmes in 2015. A number of important agencies, ministries and other green mentors and funding agencies were seen in the documents, websites, minutes of meetings and press deck detailing these activities.

The UNIDO and GEF programme also provides some proof of on the ground activities applying innovative solutions towards economy, environment and society. Relevant programmes connecting the initiatives throughout ASEAN member countries appear to accelerate the potential of enterprise networking and wide application of innovative technologies of SMEs in Malaysia to other vast areas across the globe. In 2015, Malaysia was hosting ASEAN Chairmanship and promotion of the SMEs cleantech in Malaysia is gaining its momentum during the 1ASEAN agenda and the International Green Technology and Eco-Products Exhibition & Conference Malaysia 2015 (IGEM2015).

Several other important associations at global level promoting SMEs in Malaysia in global context were found. This includes the participation in the Vienna Energy Forum (VEF) in June, 2015 and May 2017; and the COP22 in Morocco. These participations had brought relevance in the context of Malaysia's exposure on promoting green and the joint-effort with the UNIDO to showcase the south-south and north-south cooperation, which is driven strongly by UNIDO towards inclusive development.

On the number of staff of the lead agencies and other counterpart trained, it was evidenced that there was participation of these individuals. It was verified from the minutes of meetings and the interview session with relevant individuals. Experts both at the international (the Cleantech Open Global Forum; webinars and evidence of online modules) and national levels were found. The Accelerator Programme enabled the entrepreneurs to receive mentoring, training, access to funding, as well as showcasing opportunities. These were delivered through direct and indirect engagement with the experts in technology and business areas, e.g. GCIP Academy, Biz Clinics, Mock Judging, webinars and online worksheet submissions.

Government counterparts were very active in the project; Ministry representatives participated in the PSC, there was representation at events, MIGHT was hosting of the PMU. University involvement was also strong. Zymeratics and Pakar Go Green Sdn Bhd are examples of spin-offs projects from the university. Both had participation of country representatives from government as they are associated with the public university via their private arm vehicles; UPM Holdings Sdn. Bhd. Zymeratics has also been given a cash injection valuing at RM 0.7 million by Platcom Ventures. Indirectly, Platcom Ventures is the venture capital (the vehicle under the company limited by guarantee for the Ministry of Finance). While, Thinking Green has been given the opportunity to work with the Melaka State and City Council to implement the Green Nomad concept.

In the case of the Free the Seed, the organization associates closely with the local community via Pertubuhan Peladang Kebangsaan (PPK) Pendang Selatan, Kedah, Malaysia. Here, the waste of the paddy rusks from the local paddy farmers were collected by the PPK which acted as the enabler for collaboration between the local communities and the SME organization. The above evidences were verified during the interviews, site visits, post show report by KeTTHA, the Annual Report 2016 of the MOSTI , the Bioeconomy Transformation Programme

report by Bio Economy Malaysia; and record from the Minutes of Meetings No. 2/2015 of the GCIP.

Despite the formal involvement of GEF OFP in the project design and during. implementation as part of the PSG, , there is little evidence on further involvement of the GEF OFP in particular areas of coordination, and the documentation process of each of the accelerator programmes. MIGHT, as executing government partner of the project, has maintained its financial commitment to the project and has achieved the level of co-financing that was proposed in the Project Document (see further 3.4 on Efficiency).

Malaysia is on track to achieving its carbon emission targets, having seen a 33% reduction between 2005 and 2015. This indicator is highlighted in almost all major reports relating to the National Green Technology Policy. It appears that the government has facilitated the growth of the green tech industry and the GCIP project success has indirectly enhanced its contribution to the economy. The approved policies or related regulatory framework is in line with the mandate of the UNIDO's project objectives and clearly spelled out in the 11th Malaysia Plan where several key priorities and project targets were identified. This includes the National Energy Efficiency Master Plan (NEEMP) 2011-2020.

3.2.2 Target groups

The evaluation of the target groups and relevant stakeholders (inclusive of the leading executing agency, the executing partners, the startups and SMEs in the cleantech sectors) were conducted during March to April, 2017. Among important executing partners at the policy and regulatory levels involved MIGHT; KeTTHA; MOSTI; MOF/Cradle Fund Sdn Bhd; MITI/SME Corp; and TeAM.

A wide platform with all stakeholders of the competition established, methodologies and programmes for competition and acceleration agreed, various panels established and trained, mentors recruited and trained were examined throughout the evaluation period.

Interviews with representatives of the Ministry of Energy, Green Technology and Water (KeTTHA) and the Ministry of Science, Technology and Innovation (MOSTI) suggest that there is a high level of familiarity with UNIDO's key areas of expertise, commitment with UNIDO agenda and hence substantial ownership. In Malaysia the SME Innovation Award is the Premier Award to acknowledge and recognize the most innovative SME. It's an annual event, and eligible only for SMEs certified as 1-InnoCERT company. It is organized by SME Corp in cooperation with SIRIM and MIGHT. With the national innovation and accelerator programmes organised under UNIDO project in 2015 and 2016, Malaysia is making its first step to promote and extend this project into the SME innovation award and is relevant in the context of supporting innovative cleantech startups SMEs.

The appointed stakeholders were interviewed and visits at their premises were made. These involved Cradle Sdn Bhd, PlaTCOM Ventures, Proficeo, Technology Park Malaysia and Malaysian Technology Development Centre. When asked on the cooperation and support given to the lead agencies, all executing partners claimed they were working closely to support each other expertise and complementing resources to promote the programmes for the competitions and acceleration. This includes the needs of the mentor, experts and advisory services to the programme.

3.2.3. Relevance for GEF Focal areas and strategic priorities and UNIDO objectives

In retrospect, the project outcomes of strengthened policy, institutional capacity, implementation of competitions and accelerator programmes and the support of cleantech SME entrepreneurs are relevant for the goal of the GEF Climate Change mitigation focal areas, which supports economies in transition towards a low-carbon development path, and in particular Objective 1 of the GEF-5 Climate Change Mitigation Framework – promoting the demonstration, deployment and transfer of innovative low-carbon technologies. Also, the project outcome of strengthened policy and strengthening of the cleantech innovation ecosystem in Malaysia is relevant for Modality 3 of the revised strategy (November 2011) of GEF for enhancing engagement with the public sector.

Reporting of the technologies developed by the competition winners and semifinalists over the three competitions (see overview in 3.3.3) gives a general indication of cleantech innovations that are being developed by them which are in various stages of technical and commercial development. At the time of this TE report, none of the companies have commercialized their technologies fully, although some are close to the stage of introducing their products to the markets on a larger scale.
However, estimations of technological life-time direct or indirect CO2 equivalent emissions reductions based on projections of commercial developments cannot be made due to the lack of reporting and data on this in all company cases.
The project outcomes are relevant and in line with UNIDO's mandate and objectives. The Malaysia Cleantech for SME projects is part of UNIDO's GCIP programme launched in partnership with GEF, and the Malaysia project has delivered successful participants in the Global competitions over the years.

The overall rating for project relevance and ownership is "Highly Satisfactory".

3.3. Effectiveness

Effectiveness of the project is primarily assessed by the achievements, both qualitatively and quantitatively, of the (expected) outcomes and related outputs, based on the information on the indicators for these.

3.3.1. Outcome 1 – Strengthened policy and regulatory framework will facilitate smooth and successful organization of cleantech competitions and acceleration programmes.

Two *outputs* are defined in the PD that will lead to this outcome:

1.1 Necessary policies and regulations required for the cleantech competition identified and developed, intellectual property right protection, sponsorship agreement etc.

1.2 Guidelines developed for the organisation of cleantech competitions

For both outcomes, indicators were *numbers of* (policies, guidelines) and verification means were monitoring and project progress reports.

Key sources for the progress on outputs and outcomes are the yearly Project Implementation Reports (PIR) 2014, 2015 and 2016 by the respective UNIDO PMs. No yearly progress reports were produced by the PMU. No formal policies and regulations for cleantech competitions are

developed by the project during the implementation. Guidelines for applicants and jurors of the competition have been developed.

In the PIRs of 2015 and 2016, on the policy environment topic the importance is noted of the establishment of the Project Steering Committee (PSC), advising the PMU on strategic linkages and initiatives as well as approve the annual implementation of the project. The PSC is chaired by the Ministry of Energy, Green Technology and Water (KeTTHA), with participation of all other relevant ministries and other parties.
It is also noted that the project (known locally as GCIP Malaysia or simply GCIP) is part of the high profile International Green Technology & Eco-Products Exhibition and Conference 2016 in Malaysia (IGEM2016) as one of the taskforces for the largest green technology congregation in South East Asia. As part of the taskforce, the GCIP works closely with various members to positively impact the industry, innovators and community on green practice. The GCIP anchors the innovation area during the IGEM2016 to showcase the GCIP Alumnus and GCIP 2016 Semifinalists, and host the Investor Connect as part of the IGEM2016 side-events.

Further illustrations of the high profile of the project is the inclusion of GCIP as a flagship programme under Science 2 Action (S2A) as well as its inclusion in the Global Science Innovation & Advisory Council (GSIAC) for the green future of Malaysia.

Connected to the topic of 1.2 output (Guidelines), the 2015 PIR emphasizes the embeddedness of the project in the innovation and entrepreneurship ecosystem in Malaysia. These ecosystem project partners have actively supported the organization of the Cleantech competition, in particular events. The project has established a model with relevant agencies (MaGIC, Cradle, TPM, and SME Corp) to co-host several of the GCIP events. This approach was expanded upon in 2016 with the project actively seeking out sponsorship opportunities to not only reduce costs, but also actively engage the private sector and attract sustainable resources. Interviews with the organisations in this ecosystem confirmed the relevance of the project, the appreciation for the contribution and the emphasis of the project on clean technologies, and the synergies that were found with the different related programmes.

Also, the PIR states that the project adhered to the requirements established by the Global programme, and has followed the guidelines for the competition and accelerator programme throughout the implementation period of the project. Interviews with PMU and competition coaches clarified that, apart from the generic guidelines of the global programmes, specific locally relevant adjustments and improvements to the accelerator training and tutoring were made based on the experience with other national accelerator programmes such as “Coach for Growth”.

The overall assessment on Outcome 1 is that the formal policy and regulatory framework appears not to have been strengthened, however the good networking and ecosystem position of the project has facilitated the successful organization of 3 consecutive competitions and accelerators. However, apart from active networking, the project has not led to creating a formal policy and regulatory environment for the promotion of cleantech business in Malaysia. There has been no assessment on the need for this considering ongoing other programmes.

3.3.2. Outcome 2 – Adequately strengthened institutional capacity will result in successful organization [of cleantech competitions and accelerators] beyond the project lifetime.

This outcome is connected to three outputs:

2.1. Capacity of the host institutions MIGHT

2.2. A wide platform with all stakeholders established, methodologies and programmes agreed, panels, mentors etc. trained.

2.3. Experience shared with other countries.

The indicators defined are number of MIGHT staff trained, number of local partners, mentors, trainers and judges; and number of international workshops organized.

Although in the 2015 and 2016 PIRs the capacity of MIGHT is reported as 3-4 staff trained and involved in the project, the actual involvement of MIGHT staff at the time of the TE mission was reduced to one full-time staff, the Project Coordinator. The other staff had, at that time, moved to other positions outside MIGHT. Of course the built-up knowledge and capacity of these staff is not lost for Malaysia, but the focus on Cleantech has been diluted. During the mission, no interview could be scheduled with the MIGHT management, which gives the impression to the Evaluation team that the internal priority for the Cleantech project is not very high. However, this was not substantiated by any opinion of MIGHT.

The team therefore has to rely on information in the PIRs:
In 2015, the PIR noted that MIGHT management strongly supports the programme and have expressed interest in continuing implementation of the Competition and Accelerator Programme beyond 2016. Therefore, MIGHT has submitted proposals to the Government of Malaysia via the Economic Planning Unit and the Ministry of Energy, Green Technology and Water (KeTTHA) to secure continuous developmental costs from 2016-2020. However, in 2016 the PIR noted that MIGHT's submission to the Government of Malaysia was not endorsed. As such, MIGHT is now rebranding the GCIP as GCIP 2.0 and to be named as Sustainable Technology for Resilient, Innovative and Knowledgeable Entrepreneur (STRIKE). The new model will focus on thematic areas such as Smart City, Electric Vehicle and Biodegradable Industry as the immediate spillover effect from the GCIP.

The project has established a wide platform with related organisations such as MaGIc, Cradle, Platcom, Proficeo and the relevant ministries, in which the PMU, so currently only the Project Coordinator, plays a crucial connecting role. There is a clear danger that this will fall apart after the project funding ends, since most of the arrangements are informal and based on direct personal contact. From the interviews the involvement and role of the ministries seemed to be quite active involvement in the PSC and several events, and the connection to several other programmes that are relevant for the project.

In 2016, 6 general mentors and 18 specialist mentors were registered, which is sufficient for the number of 25 companies entering yearly in the accelerator programme. In the start of the project, Cleantech Open consultants were hired to train the PMU and support them in building capacity for the mentors. In the last year of the project, the mentors were still working with the general framework of Cleantech Open, but at the same time have enriched the programme with the growing local knowledge and experience on supporting entrepreneurs. This is seen as a very valuable improvement of the local entrepreneurship and innovation ecosystem in Malaysia.

The programme did not produce any formalized methodologies on the accelerator programme and the follow-up stages on investments and company establishment. A number of brochures, promotional materials and magazines were developed on the programme. Further information retrieved consisted of short (powerpoint) presentations to the PSC and presentations delivered

in various meetings. The information of the international Cleantech Open programme (webinars, modules) is proprietary and only available to the participants in the accelerator programme. The evaluation team did not have access to this, so no assessment on the quality of effectiveness of this project element was made. The evaluation team assesses the lack of publication of methodologies as an unsatisfactory result for this output. Clearly, Cleantech Open has a commercial interest to keep this information proprietary, but for the development of the cleantech innovation ecosystem in Malaysia it is very important to have the methodologies and experiences available in open source.

The overall evaluation of the participating companies on the accelerator programme was positive, and almost all companies that were interviewed state that the programme has helped them in setting up their business and connecting to the ecosystem of knowledge providers, investors and policy. Evaluation of the Cleantech Open webinars and modules was neutral to positive, evaluation of the hands-on support and tutoring by the mentors and the workshop, trainings and meetings in the local ecosystem was very positive.

The third output, experiences shared with other countries, is partly built into the project by default because of the engagement of the winning companies in the yearly international Cleantech Open Forum in the US. Malaysian companies performed well during these events. A unanimous feedback from the most recent Forum by the participating companies was, that the added value for finding international/American funding did not materialize, since the investors present were mostly focused on funding of American start-ups. It is unconfirmed whether this is a recent trend because of the changes in American politics, or a long-term trend. Further, international exposure of the project was arranged during the COP22 in Morocco and the VEF 2017 in Vienna.

The evaluation team sees the importance of strengthening regional ASEAN cooperation. Exposure of the winners in the international IGEM exhibition is already mentioned. Next to this the project the PMU hosted the ASEAN Cleantech Innovation Hub, a long-term strategy to the institutionalisation of clean technology innovation nurturing in the region, while also encouraging cooperation amongst the countries during the 1 ASEAN Entrepreneurship Summit (1AES) in November 2015. The PMU also participated in an ADB hosted Cleantech event in The Philippines, and visited Myanmar to promote knowledge sharing on Cleantech/GCIP. The draft proposal for phase II of the GCIP project covers the development of an ASEAN CT hub.

No systematic evaluation on the accelerator programme has been made in the project, so this assessment is solely based on the interviews during the mission of the evaluation team.

3.3.3 Outcome 3

Three outputs are formulated that will lead to this outcome:

Output 3.1: Two to three national clean energy technology innovations competitions organized

Output 3.2: Two to three associated entrepreneurship accelerator programmes implemented across four cleantech sectors

Output 3.3: Participation in regional and global events.

Indicators are operationalized as numbers (of entries, finalists, boot camps, sessions etc.)

Next to these indicators for outcome 3, a similar indicator for outcome 1 is mentioned as the

number of successful competitions organized (related to the overall indicator of number of winners, and number of new businesses created).

In total 3 National GCIP competitions were successfully organized (2014, 2015 and 2016), over 150 applications were received (recruitment took place mostly via partners in the ecosystem), with 60 'semi-finalists' or alumni who entered the yearly accelerator training programmes. Some companies continued in this programme for a second year to improve their business development further. National winners were selected in the categories Energy Efficiency, renewable energy, Waste to energy and Water efficiency. Finalists /national winners joined the yearly Cleantech Open Forum in California, US.

A large number of meetings, workshops, events have been organized in conjunction with the competitions and accelerator programmes. No detailed overview of these is provided by the PMU, but the overall impression is that these were professionally organized and successful in their implementation, Participants appreciated these networking and learning activities.

Seven companies received investment grants after the accelerator. The indicator "number of new businesses created" is harder to assess. The semi-finalists/alumni are in different stages of business development, and an overview report is missing on the accelerator results, the phase the companies are in, and the potential for the future.

During the TE mission, 9 companies were interviewed, and the assessment is that most of them are still in the initial stages of commercializing their technologies, products and services. An overview is given in Table 1 below.

Table 1. Cleantech entrepreneurs interviewed

Name of CleanTech entrepreneur	Category	Business Model	Contribution to GHG reduction objective
S.I.T Schiffs-& Industries Technik (M) Sdn Bhd	EE	Manufactures Residual Oil homogenizer systems (water/diesel emulsion) for Diesel Engines on Ships and Power Plants	System delivers Improved combustion (no data), reduced emissions (no data)
Pakar Go Green Sdn Bhd	EE	Produces Biomass Microwave Carbonizer (BMC) with innovative clean technology	Saves up to 90% compared with conventional pyrolysis. Compared to coal fired plants, 32 % more efficient, 90 % less CO2 emission.
iCEE International Sdn Bhd	EE	Energy Efficiency, Chiller Energy Savings & Operational Optimization	Safes up to 20 % of energy consumption of buildings (offices, malls etc.)
Zymeratics Sdn Bhd	Green solution	Offers customized enzyme boutique manufacturer that produces high quality enzymes for the Malaysian industries.	Enzymes can make processes much more efficient, for instance waste water treatment processes can be twice as efficient. No data on GHG reductions
Syngas Sdn Bhd	RE	Offers conversion of waste produce into highly commercial renewable energy products such as petroleum, diesel, kerosene, naphthalene, ethanol and methanol	Synthesized products avoid use of fossil fuels. No data on GHG reductions

Name of CleanTech entrepreneur	Category	Business Model	Contribution to GHG reduction objective
Neutrinos Engineering Sdn Bhd	EE	Offers Smart hydrogen carbon-clean that helps mechanics diagnose engine problem while restore vehicle performance with refillable hydrogen gas (stored in metal hydride to ensure safety	Improved fuel efficiency of vehicles after cleaning. Savings up to 10 % possible. No data available.
Free The Seed Sdn Bhd	Green and Biomass	processes winnowed paddy-husks into fibre to produce biodegradable packaging materials such as egg cartons and cup holders	Biodegradable packaging from biobased materials replace plastic packaging. UNIDO PIR 2015 stated reduction of 600 T CO2 by avoided paddy field burning in 2014-2015.
Eclimo Sdn Bhd	EE	manufactures electric motorcycles (ES11 and EB25) and Lithium Ion battery packs (Eclimo Power) and modules.	Can reduce GHG emissions depending on the source of electricity generation. Reduces local air emissions by traffic. No data.
SunCrox Solar Sdn Bhd	RE	Offers standalone solar projects by eliminating grid power dependency for home basic electrical appliances such as light, fan, and charging	Can reduce GHG emissions when replacing other (fossil) energy sources for electricity. No data.

The participation in regional and global networking activities is already covered in section 3.3.2.

3.3.4. Overall objective indicators

Two indicators are set for verification of the overall project objective achievements.

1. *Tons of GHG emissions avoided.*
The baseline for this was set between 425,000 and 849,000 tons of indirect GHG emission reduction. However, the only saving stated as a result of the project stated in the PIR is 600 T by avoided paddy field burning in the case of Free the Seed. It should be noted that rice straw harvested in that action until now has not been used by the company yet, awaiting completion of the production process technology. Meanwhile the company uses another, imported source material for their products. Overall, as already stated in the project design section, the project period of three years is too short to see implementation of the technologies, since investments, production process and startup company establishment takes much more time.

Beyond this timing issue, also no company data are available or have been provided to the team that allow for detailed analysis and estimations of potential GHG emission savings over the lifetime of technologies, production processes or products/services.

Related to this, the *selection* of companies, semi-finalists and winners is not geared towards maximizing GHG emission reduction technologies. Main selection criteria that are used are related to entrepreneurship viability and innovation. Criteria like potential for overall GHG reduction or replicability of new technologies and products through sectors, clusters or regions are not included. This type of criteria is often used in for instance RECP projects and programmes of UNIDO.

2. *Number of winners, runners up and finalists – number of new businesses created.*
Overall, the target numbers of companies were reached and the achievements of the competitions and related accelerator programme are satisfactory. No detailed information is available on the content, experience and evaluation of competitions and accelerators, nor on the status of the newly formed or newly to be formed companies from the alumni.

The overall rating for project effectiveness is "Satisfactory".

3.4. Efficiency

Project budget allocations followed the description in the project document. the latest disbursement overview of UNDO confirmed the amounts per project component.
Budget disbursement has followed regular intervals as planned (see Table 2).

Table 2. UNIDO-GEF grant disbursement breakdown.

UNIDO GEF-grant disbursement breakdown:

Budget Line per Output		2013 Expenditure USD	2014 Expenditure USD	2015 Expenditure USD	2016 Expenditure USD	Total Expenditure (as of end November 2016)	Committed Budget (until 28 February 2017)
120096-1-01-01	**Policy Framework**						
1100	Staff & Intern Consultants		6,171.70	2,384.92		8,556.6	
1500	Local travel			5,324.87	-1,611.76	3,713.1	
1700	Nat.Consult./Staff		16,067.69	16,382.32	14,242.92	46,692.9	
2100	Contractual Services	35,217.54	0.00	42,000.00	0.00	77,217.5	
3000	Train/Fellowship/Study		0.00			0.0	
3500	International Meetings					0.0	10,000
5100	Other Direct Costs	33.24	-267.02	2,751.67	-0.69	2,517.2	
Result		35,250.78	21,972.37	68,843.78	12,630.47	138,697.4	10,000
120096-1-01-02	**Capacity Building**						
1100	Staff & Intern Consultants					0.0	
1500	Local travel	1,974.78	-20.52		2,426.99	4,381.3	
1700	Nat.Consult./Staff					0.0	
2100	Contractual Services		19,252.71	13,031.69	70,433.86	102,718.3	30,000
3000	Train/Fellowship/Study				7,323.71	7,323.7	
3500	International Meetings				9,722.19	9,722.2	
4500	Equipment	3,328.50				3,328.5	
5100	Other Direct Costs	663.18	1,674.45	447.84	-55.29	2,730.2	
Result		5,966.46	20,906.64	13,479.53	89,851.46	130,204.1	30,000
120096-1-01-06	**Cleantech Competition**						
1100	Staff & Intern Consultants				796.18	796.2	
1500	Local travel	4,619.79	16,270.55	26,791.70	1,390.76	49,072.8	
1700	Nat.Consult./Staff					0.0	
2100	Contractual Services	97,538.20	206,908.06	83,581.33	104,342.33	492,369.9	50,000
3000	Train/Fellowship/Study		3,298.49	102.38		3,400.9	
3500	International Meetings					0.0	5,000
4500	Equipment	7,650.90				7,650.9	
5100	Other Direct Costs	6,046.49	-846.00	11,186.99	9,408.56	25,796.0	
Result		115,855.38	225,631.10	121,662.40	115,937.83	579,086.7	55,000
120096-1-05-01	**Project Management**						
1100	Staff & Intern Consultants				6,955.56	6,955.6	
1500	Local travel					0.0	
1700	Nat.Consult./Staff					0.0	15,000
2100	Contractual Services			3,500.00	0.00	3,500.0	
5100	Other Direct Costs	1,285.56				1,285.6	
Result		1,285.56	0.00	3,500.00	6,955.56	11,741.1	15,000
120096-1-04-01	**Monitoring & Evaluation**						
1100	Staff & Intern Consultants						5,000.00
1500	Local travel						1,500.00
1700	Nat.Consult./Staff						5,000.00
5100	Other Direct Costs						8,500.00
Result		0.00	0.00	0.00	0.00	0.0	20,000
	Total	158,358.18	268,510.11	207,485.71	225,375.32	859,729.3	130,000

Source: SAP database, 30 November 2016

Since the project has implemented 3 competitions plus accelerator programmes, including project management activities required for this, which is more than the minimum requirement of 2 competitions with accelerators as stated in the PD, we can state that the project has used the budget in a cost-efficient way.

The project was implemented within the planned project period (including extension) and with a third edition of the competition, so cost efficiency was maintained as planned. Project activities have been in line with the generic schedule of overall activities, although no detailed yearly planning was submitted, and project disbursements in general were in line with these activities.

The financial inputs of UNIDO and the GEF grant have been provided as planned, and were adequate to meet the requirements of the project. Malaysian government (MIGHT) and counterparts co-financing was provided also timely, and were disbursed according to the following overview provided by the PMU (status April 2016). Based on this declaration by the PMU, the total co-financing of 3 M USD can be expected to materialize by the end of the project. Notably, the sources of co-financing are different than the ones that were confirmed in the Project Document. The largest part of the co-financing reported is the total of investment grants raised by the GCIP alumni (almost 2 M USD). This implies that financial organizations are more involved in the project implementation than considered in the design stage.

Table 3: co-financing by Malaysian government and project partners.

No	Organization	Value (RM)	Description of Service(s)
1	Ministry of Energy, Green Technology & Water (KeTTHA)	94.400	Hosting of Project Steering Committee;Discount Fee for IGEM Participation; Experts Hours;
2	SME Corporation Malaysia	15.000	
3	Malaysian Global Innovation & Creativity Centre (MAGIC)	29.875	Hosting of Events; Expert Hours
4	Cradle Fund Sdn Bhd	41.000	Discount Fee for Event Services; Expert Hours; Database Sharing; Co-Promotion
5	Ministry of Higher Education	1.500	Hosting of Events; Expert Hours
6	Technology Park Malaysia	7.000	Hosting of Events; Expert Hours
7	Ministry of Science Technology Innovation	4.000	Hosting of Events; Expert Hours
8	Malaysian Industry Government Group for High Technology (MIGHT)*	1.524.340	Hosting of Events; Capital Development; System and Operations; Prizes; Promotions and Outreach
9	University of Malaya	3.000	Hosting of Events; Expert Hours
10	University Malaysia Perlis	3.000	Hosting of Events; Expert Hours
11	University of Technology Malaysia	4.500	Hosting of Events; Expert Hours
12	University of Tenaga Nasional	3.000	Hosting of Events; Expert Hours
13	National University of Malaysia	3.000	Hosting of Events; Expert Hours
14	Felda Travel Sdn Bhd	7.000	Sponsorship Deals
15	Malaysian Technology Development Corporation (MTDC)	5.000	Expert Hours
16	Axile Consultancy Sdn Bhd	15.000	Expert Hours
17	Investment Raised by Alumni	7.300.000	Cash contribution
	Total (RM)	9.060.615	(= USD 2.265.153, exchange rate of USD 1 = RM 4)

No financial coordination took place with other UNIDO or donor projects, as far as reported by UNIDO or the PMU.

Cost efficiency was built into the project design by combining from the start the function of the PMU with that of the competition development and management unit within MIGHT. Coordination and overlap with the other Cleantech programmes and involvement in the similar international framework of Cleantech Open also reduces cost and increase impacts.

The project implementation commenced later than planned, due to start up delays and staff recruitment delays that are not uncommon in such type of projects. Once the project organization was up and running in 2013, no significant delays were encountered. Once the third round of competition plus accelerator were implemented in 2016 and project budget was still available, an extension was accepted that accommodated the international CleanTech Open Forum participation in 2017.

The overall rating for project efficiency is "Satisfactory".

3.5 Sustainability of project outcomes

3.5.1 Financial risks

- MIGHT as the PMU strongly supported the programme and had expressed their interest to continue the implementation of the Competition and Accelerator Programme beyond 2016. Evidence was provided based on the proposal to the Government of Malaysia via the Economic Planning Unit and the Ministry of Energy, Green Technology and Water (KeTTHA) to secure continuous developmental costs from 2016-2020. Despite this has not materialized, the interview with the PMU indicated that some budget was allocated amounting to RM750,000 for 2017 to initiate the Technopreneurship Excellence (a programme on rebranding of MIGHT development on Cleantech initiatives) and to extend similar GCIP initiatives and enhancement activities. This was reported in the PMU management meeting in November, 2016.
- MIGHT has put several intensive outreach programmes into place to potential sponsors and investors beyond the Malaysian context via their enhancement programme. This is to prepare SMEs to participate at the global level and enhance its industry network beyond the initiative to access for funding. The enhancement programme aimed to reach as many technology partners as possible and start collaborative efforts with other global cleantech players, in particular those in Silicon Valley, USA.
- Based on this declaration by the PMU, the total co-financing of 3 M USD was expected to materialize by the end of the project by June 2017. The support from the alumni organisations amounting to almost 2 M USD implies the continuation of the project and its sustainability[2]. However, no indication was given on funding sustainability of a similar programme beyond 2017 from relevant other ministries and government agencies both at the federal and state levels.
- There is an emerging trend on the part of the universities in sustaining entrepreneurship and innovation centers. There were nine universities involved. During the site visit to one of the spin-off (Universiti Putra Malaysia)[3], there was evidence of funding

[2] Indicators on the support of policy and institutional framework were highlighted and under the direct mandate of GCIP as a flagship programme under Science 2 Action (S2A) and development of guidelines for competition and accelerator programme

[3] Zymeratics and Pakar Go Green Sdn Bhd are the examples of spin-offs projects from the university. Both had participation of country representatives from government as they are associated with the public

possibilities for scaling-up opportunities.

- Mentors and judges that were interviewed had shown their support with the incentives via an ad-hoc fee/honorarium. However, the mentoring relationship beyond the GCIP project was not made clear in particular to their involvement in the future programme of Technopreneurship Excellence under the PMU (MIGHT).

The rating for sustainability of outcomes with regard to financial risks is "Moderately likely".

3.5.2 Sociopolitical risks

- Meeting the growing Cleantech demand could be a great challenge for the Malaysian government in the future with the continually evolving global situation. Evidences of participation from 5 ministerial engagements, 18 government agencies, 9 universities and numbers of judges and mentors from private sectors and NGOs indicated level of commitment and support from the political level. Ownership in the aspect of political support is not a critical issue. For example, PMU had worked with the Government of Malaysia to rebrand MIGHT via the approved cleantech programmes under the Technopreneurship Excellence.
- Evidences on establishing sponsorship deal to attract financial institutions locally and funding support to be part of the ASEAN Cleantech Innovation Hub shown a clear mandate and the financial means to support and sustain the project initiatives. Some of the Cleantech competition winners were offered investment from a local venture capitalist, and corporate investors after the project's closure.
- The GCIP Malaysia has benefited 1,300 small farmers with additional income through its green environment and waste to wealth project.

The rating for sustainability of outcomes with regard to sociopolitical risks is "likely".

3.5.3. Institutional framework and governance risks

- Existing policies for the promotion of clean energies were being reviewed and a guideline for the Global Cleantech Innovation Programme for SMEs (GCIP) was established.
- The existing requirements established by the GCIP are continuously adhered to. GCIP is also part of the International Green Technology & Eco-Products Exhibition and Conference 2016 (IGEM2016) as one of the taskforce for the largest green technology congregation in South East Asia. The technology categories currently in use are aligned with national priority areas; renewable energy, energy efficiency, waste to wealth and water efficiency.
- The PSC is chaired by the Ministry of Energy, Green Technology and Water (KeTTHA) supported strategic linkages, initiatives and approved the annual implementation of the GCIP project. The programme continues to receive endorsement under the Science to Action (S2A) initiative and the PMU established Technopreneurship Excellence (rebranding MIGHT development) **to extend similar** GCIP **initiatives.**

The rating for sustainability of outcomes with regard to institutional framework and governance risks is "Moderately likely"

university via their private arm vehicles; UPM Holdings Sdn. Bhd. Zymeratics has also been given a cash injection valuing at RM 0.7 million by Platcom Ventures

3.5.4. Environmental risks

- Fully in line with Malaysian policies on environment and climate change, so little environmental risks.
- Despite absence of clear evidence on the base-line data for GHG emissions, data on the global environmental objectives has indicated that the GCIP Malaysia has benefited 47,000 hectares of paddy field removed from open burning = 600,000kg of CO2.
- The GCIP-Malaysia nurtured 25 semifinalists per year, with a positive view that the project has achieved its development on environmental objectives. It was further noted that the GCIP is to develop a tool to quantify the potential emissions avoided through the support given to the development of these technologies, as compared to conventional applications.

The rating for project sustainability with regard to environmental risks is "Likely".

The overall rating for sustainability of outcomes is "Moderately Likely ".

3.6. Project coordination and management

3.6.1. Malaysian project management

The project management and coordination was entrusted to the Project Management Unit within MIGHT, which was supervised by the Steering Committee chaired by Y. Bhg. Datuk Loo Took Gee, Secretary General of KeTTHA. Participating in the PSC were representatives from all other relevant ministries, MIGHT, UNIDO, Technology Park Malaysia, Malaysian Green Corporation, SME Corporation and Malaysian Environmental NGO's. The PMU consisted of 3 full time staff, the national project coordinator, a technical executive and a support/admin executive. Director of the PMU is Norida Abdul Rahman, senior Vice President of MIGHT.

Figure 2: Project implementation arrangements

The day to day management of the project is assessed as adaptive, agile and intelligent. Reduction of the staff to one person only in the last year of the project is seen as a strong reduction of the management capacity. Still, the PMU has organised and managed the implementation of three yearly cleantech competitions and accelerator programmes in a timely, qualitative good and innovative way. The team has become well versed in especially the hands-on innovation and entrepreneurship aspects of the project and have built an impressive network of organizations with whom they work closely together on their respective projects and activities in a mutually beneficial way. Within this platform with all stakeholders of the competition, methodologies and programmes for competition and acceleration were agreed, various panels established and trained, mentors recruited and trainees were examined throughout the evaluation period.

Financial and administrative management of the project within MIGHT has been handled professionally, and as assessed in 3.3. and 3.4, good management and coordination has contributed to the satisfactory effectiveness and efficiency of the project.

The project has been implemented according to a general planning, which was detailed internally in a rolling planning system.

3.6.2 UNIDO project management

UNIDO is acting as the sole GEF implementing agency for this project, holding the overall responsibility for the timely and high quality implementation of the project.
The position of Project Manager at HQ in Vienna has moved to different persons during the implementation phase of the project which challenged the continuity of the project management somewhat, but this has been arranged in a correct and professional way.

Presence of UNIDO during key periods and visibility during key events, as well as presence in the PSC meetings, shows deep commitment of UNIDO and facilitated the guidance and advice on the projects activities.

Within UNIDO, the Malaysia Cleantech project is one of the 7 projects within the Global Cleantech Innovation Programme UNIDO is implementing for GEF, ensuring exchange of knowledge, experience and facilitating international networking between the global participants. Financial and administrative management by UNIDO has been timely and correct.

Supportive action was received from UNIDO's regional office in Bangkok, Thailand.

The rating for Project coordination and management is "Satisfactory ".

3.7. Assessment of M&E systems

3.7.1. M&E design

The Project Document includes a generic M & E plan to monitor results and track progress towards achieving project objectives. Expected outcome of this component is 'Adequate monitoring and evaluation facilitating smooth and successful project implementation'. Expected outcomes are: regular monitoring exercises conducted, PIRs prepared, mid-term and terminal evaluations conducted.

A further mentioning in the PD is under the heading Institutional Coordination, where it is mentioned that the PMU, as secretariat of the PSC, is responsible for M & E.

Referring to the GEF minimum requirements standard for M & E design, most of the requirements were not met, because:

- Indicators for project implementation and results were not defined SMART
- Baseline of the project not well defined
- Identification of results and evaluations not stated
- M & E budget very limited (requirement met).

The rating for M&E design is "moderately Satisfactory".

3.7.2. M&E implementation

During the implementation of the project, a generic monitoring mechanism was put into place to facilitate tracking of progress towards project objectives by collecting information on indicators throughout project implementation. However, substantive evaluation (reports) are not available. This means that there are no direct ways of following or assessing the quality, content development, methodologies and approaches of the project.

The final responsibility to overview Monitoring and Evaluation implementation lies with the Project Steering Committee of the project. As far as the Evaluation team can check, no substantive documents, progress and financial report were submitted to the PSC before their annual meeting. According to the minutes of those meetings, the discussion as based on the powerpoint presentation of the yearly progress by the Project coordinator. This means the PSC did not check any M & E activities, since these were not reported to them. In practice, the PSC therefore functioned as a high level Advisory Board for the project.

The project management team therefore followed a practical, ad-hoc and adaptive approach to M & E of the project, which, looking at the positive results of the project, was functioning on an adequate level for day-to-day decisions and adaptations. In interviews with the former and current project coordinators it became clear that they had ongoing discussions on the quality and content of the activities and adapted and improved these continuously based on internal and external feedback from MIGHT management, partners and participants.
Within the ministerial and MIGHT M&E systems, the project progress was reported according to their standards. Detailed financial monitoring took place within the MIGHT internal admin and financial system, and feedback from UNIDO on the grant disbursement, contracting and other administrative affairs was continuously considered.

UNIDO PMs and financial staff continuously monitored the project based on their internal regulations and rules. Project Implementation Reports were submitted yearly and several missions to the project were implemented. Staff contracting and subcontracting was monitored according to in house UNIDO standards. Financial disbursement of the GEF and UNIDO funding was continuously monitored and reported. However, substantive evaluations on methodologies or approaches were not requested from the PMU.

A mid-term evaluation, as announced in the PD, was not performed because the project budget was below the USD 1 M threshold for this.

The Terminal Evaluation is currently being performed.

With regard to the minimum GEF requirements for M & E application, several of these were not met, because:

- SMART indicators for implementation and results were not actively used
- A project baseline was not established nor were data compiled to review progress, nor were evaluations undertaken
- the organizational set-up for M & E was limited, especially on evaluation, and the budget allocated was not sufficient.

The rating for M&E implementation is "moderately satisfactory ".

3.7.3. Budgeting and funding for M&E activities

The budget allocated for M & E is 20.000 USD, which does not cover for the Terminal Evaluation and does include any other M &E activities. Apart from covering the TE, no changes in this budget were implemented.

The rating for budgeting and funding for M&E activities is " moderately Satisfactory ".

The overall rating for M&E is "Moderately Satisfactory".

3.8. Monitoring of long-term changes

The project did not have a component on the monitoring of long-term changes in the design or implementation. For instance, it could have included a monitoring system on potential and actual reductions of GHG emissions, using the GEF tracking system for that. Or it could have included a long-term monitoring system on the development, establishment, growth and challenges of the alumni companies, preferably in combination with similar Malaysian entrepreneurship programmes like MAGIC, Cradle and others, and in combination with the other Global Cleantech Innovation programmes.
In the opinion of the evaluation team, it would have been beneficial for the sustainability of the project if such monitoring components would have been included.

3.9. Assessment of processes affecting achievement of project results

3.9.1. Preparation and readiness

The project's' components and objective were clear, practicable and feasible within the timeframe of the project. The minimum of two competitions/accelerator programmes was met and one additional edition was implemented. The project was the first to be defined in a series of similar projects in the GCIP, apart from the South African pilot project that was implemented before. A learning curve regarding the quality of the following projects (proposals) was established.

The capacities of the executing agency MIGHT were properly taken into consideration during the design phase. Since other similar projects in GCIP started later, the project had a pioneering role in this. However, the growing international GCIP network provided feedback and experiences in the later project stages.

Partnership arrangements with governmental organizations were properly identified, and the roles were defined as part of the project design. Actual involvement of these entities was somewhat less than anticipated. On the other hand, collaboration and synergies with the fast-growing entrepreneurship ecosystem in Malaysia was very beneficial for the effectivity of the project implementation

3.9.2. Country ownership

The project concept was well in line with the sectoral and development priorities and plans of Malaysia, as described in section 2 of this report. Outcomes are relevant for and contributing to the national development priorities and plans of the country, as also indicated in section 2.
Relevant country representatives were involved in the Steering Committee of the project, as well as represented in the jury, mentoring and trainer system of the project. the GEF OPF also participated in the PSC. The co-financing from MIGHT and other Malaysian sources was maintained. No direct policies or regulatory frameworks emerged from the project, but the existing and new policies and entrepreneurship support in Malaysia were beneficial for the project implementation.

3.9.3. Stakeholder involvement and consultation

The project has involved all stakeholders and the broader public though manifold information meetings, competition award functions and other outreach and public events. Governmental organizations were mainly involved as members of the PSC. Partners from the entrepreneurship ecosystem, including universities, facilitating organizations and the financial and private sector were actively involved in the implementation of the competition and accelerator programme, including direct involvement in the jury and mentoring programme. Linkages with other entrepreneurship programmes were thus very strong. Less connection has been made with other environmental and cleantech/RECP programmes.

3.9.4. Financial planning

Internal MIGHT financial admin, as well as UNIDO financial control was in order. Co-financing materialized, though from different sources than initially expected. During the final year of the project there was some budget left which was provided for organization of a fourth competition.

3.9.5. UNIDO support

UNIDO staff from HQ Vienna followed the project in a timely and professional manner, and were aware of the minor problems that the project faced. UNIDO Staff was present during PSC meetings and major events and phases of the project. Regular advice to the project, contact with major stakeholders and connection to the global programme was provided timely.

However, since UNIDO was co-responsible for M & E and reporting, some of the weaker points on these aspects should have been addressed when identified.

3.9.6. Co-financing on project outcomes and sustainability

The co-financing amount expected is mobilized by the project, but from different sources than expected, and mostly consisting of investment funding for the alumni companies. Although this is a positive outcome of the project with good project sustainability effects, this funding is of

course predominantly available for the companies and not for direct project activities or follow-up initiatives outside the alumni companies.

3.9.7. Delays and project outcomes and sustainability

The delay in the start-up phase of the project is connected to staff recruitment and preliminary organization of the PMU and project ecosystem. This type of delays is quite usual in GEF projects. After this was overcome, implementation of the project was done in a timely fashion, and three yearly rounds of competitions and accelerator programmes were executed. The initial delays did not influence project outcomes or potential sustainability of the project.

3.9.8. Implementation and execution approach

The implementation and execution approach chosen for this project is similar to approach taken by UNIDO in many GEF projects, and follows the required GEF standards and relevant UNIDO regulations. The execution by MIGHT was done in accordance with the contractual arrangements with UNIDO in a timely, efficient and effective manner.

3.9.9. Environmental and social safeguards

The project did not encounter environmental risks. In general it can be assumed that clean tech innovation will have a positive effect on the environment, although no detailed analysis was made of the potential (side) effects of the new clean technologies, products and services developed by the companies.
Some relevant social risks such as lack of interest (by public, industry, mentors, trainers) were identified in the design of the project, and mitigation strategies formulated. No (other) social risks were encountered during project implementation.

3.10 Gender mainstreaming

In the project setup, it is mentioned that special consideration will be made to mainstream gender aspects into cleantech open by promoting women entrepreneurs. The project would strive to create a specific prize category for best women contestant/entries, or specific criteria will be formulated to promote jobs for women or create more opportunities for women entrepreneurs etc. (project document page 11).

A special award for women entrepreneurs was provided in the last competition. Also gender was considered in choice of the Malaysian delegation for the Morocco COP22 event.
Further activities on gender mainstreaming were not planned or implemented.

One informal observation was, that in the projects/start-ups that were typically geared towards environmental solutions and/or solutions geared towards society, the number of women involved tends to be relatively high. This is observed not only in Malaysia, but also in other programmes worldwide.

IV. CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

4.1. Conclusions

The project aims to promote clean energy technology innovations and innovative entrepreneurs in this area through a competition and accelerator programme. To do so, it will strengthen the policy and regulatory framework and the institutional capacity for the organization of competition and accelerator. It is the first project in a row of similar GCIP projects worldwide.

The project is highly relevant for Malaysia, it fits within the targets of the government to reduce GHG emissions by 40 % in 2020, and also fits the startup and SME Promotion agenda of the country. In the short term, it fits with the 10th Malaysia Plan goal to increase the role of SMEs for the adoption of green technologies and the 11th on green products. Relevant government counterparts, as well as universities and the start-up ecosystem of the country, were closely involved in the project.

The project has successfully and efficiently implemented three rounds of competitions and accelerator programmes, involving over 60 companies, of which 7 have received investment grants after the accelerator. The best companies of the participants were exposed to the international CTO competition. Capacity at executing agency MIGHT was build, and guidelines, programmes and publicity for the competition and accelerators were implemented. The project interacted with regional and global similar initiatives. Further, the project earned a respected place within the national innovation and start-up ecosystem.

The contribution of the project to the overall objective of GHG emission reduction is unclear. No company data or projections are available, and no systematic evaluation on the indirect lifetime reduction potential of the targeted technologies has been made. This fits in the overall observation that the evaluation activities within the project have been weak compared to the capacity building and implementation activities.

The design of the project shows signs of being an early project in the series of global GCIP projects. UNIDO has improved the design in consecutive projects. Especially the M & E activities of the project can be improved. Management by UNIDO and PMU was professional, agile and adaptive.

Sustainability and follow-up of the project have not yet been secured at the time of the TE, although the interest of the Malaysian government and the local ecosystem is high. Regional ASEAN follow-up activities and other South-South cooperation look promising.

4.2. Overall assessment ratings

Table 4. Rating criteria for Quality of project identification and formulation process (LFA Process)

Evaluation issue	Evaluator's comments	Ratings
1. Extent to which the situation, problem, need / gap is clearly identified, analysed and documented (evidence, references).	Project formulation standard for GCIP countries. General need analysis only	MS

2. Adequacy and clarity of the stakeholder analysis (clear identification of end-users, beneficiaries, sponsors, partners, and clearly defined roles and responsibilities in the project(s)).	Limited stakeholder analysis, generic description end users and sectors.	MS
3. Adequacy of project monitoring and evaluation (M&E) design.	No specific M & E programme described	MU
4. Overall LFA design process.		MS

Table 5. Quality of project design (LFM)

Evaluation issue	Evaluator's comments	Rating
1. Clarity and adequacy of **outcome** (clear, realistic, relevant, addressing the problem identified). Does it provide a clear description of the benefit or improvement that will be achieved after project completion?	Unclear how and to what extent outcomes will contribute to objective	MS
2. Clarity and adequacy of **outputs** (realistic, measurable, adequate for leading to the achievement of the **outcome**).	Realistic outputs to realise outcomes	S
3. Clarity, consistency and logic of the **objective tree**, and its reflection in the LFM results hierarchy from **activities** to **outputs**, to **outcome** and to **overall objective**.	Intervention logic not presented coherently	MS
4. **Indicators** are SMART for Outcome and Output levels.	No SMART indicators	MU
5. Adequacy of **Means of Verification and Assumptions** (including important external factors and risks).	Limited means of verification	MU
6. Overall LFM design quality.		MS

Table 6. Quality of project implementation performance

Evaluation criteria	Rating
7. **Ownership and relevance**	S
8. **Effectiveness**	S
9. **Efficiency**	S
10. **Impact**	S
11. **Likelihood of/ risks to sustainability**	MS
12. **Project management**	S
13. **M&E**	MS

Criterion	Evaluator's summary comments	Evaluator's rating
Attainment of project objectives and results (overall rating), sub criteria (below)		S
Project implementation		S
Effectiveness	Successful in mobilizing ecosystem, building capacity at host MIGHT and organizing yearly competitions plus accelerator programs. Unclear on contribution to GHG emission reductions	S
Relevance	Relevant for Malaysian priorities and plans; outcomes contribute to these. Relevant	HS

Criterion	Evaluator's summary comments	Evaluator's rating
	government and society participation. In line with GEF and UNIDO objectives.	
Efficiency	3 competitions with accelerators well organized, above minimum requirements (2), within budget. Capacity build and ecosystem in place. Co-financing requirements by government and partners met.	S
Sustainability of project outcomes (overall rating), sub criteria (below)		ML
Financial risks	Interest and willingness by Malaysian Government after 2017, however funding not yet secured at time of TE.	ML
Sociopolitical risks	Clear mandate from government, fits within Malaysian policies	L
Institutional framework and governance risks	Start-up Ecosystem within Malaysia in place and mobilized. Government involved but low level of direct ownership.	ML
Environmental risks	Fits within environmental and climate change policies of Malaysia.	L
Monitoring and evaluation (overall rating), sub criteria (below)		MS
M&E Design	Detailed M & E plan not prepared.	MS
M&E Plan implementation (use for adaptive management)	Monitoring implementation consistent and sufficient. Evaluation activities limited.	MS
Budgeting and Funding for M&E activities	Apart from TE no other budget for M & E	MS
Project management - UNIDO specific ratings		S
Quality at entry / Preparation and readiness	Similar model as in other GCIP countries. Clear involvement of executing partner MIGHT from beginning.	S
Implementation approach	Managed by UNIDO HQ staff in professional way, with motivated and professional PMU at MIGHT	S
UNIDO Supervision and backstopping	UNIDO staff supervised overall project consistently, with regular missions and follow-up to Malaysia. Frequent changes in UNIDO PM.	S
Gender Mainstreaming	Award for best women entrepreneurs. No further activities implemented.	MS
Overall rating		S

* Ratings:

HS = Highly Satisfactory; S = Satisfactory; MS = Moderately Satisfactory;

MU = Moderately unsatisfactory; U = Unsatisfactory; HU = Highly Unsatisfactory
L = Likely; ML = Moderately Likely; MU = Moderately Unlikely; U = Unlikely

4.3.Recommendations

For MIGHT and the Malaysian Government

on relevance

Although there is indirect evidence of the relevance and contribution of the GCIP project on the development of national priorities and plans, the recommendation to MIGHT and the Malaysian government for future projects is to follow, assess and document this kind of influences and relevance much more transparent and explicit. For MIGHT, as the main execution partner, this should be included in a clear and explicit M & E system for future projects.

on project effectiveness

It is recommended that MIGHT increases either their own technical and environmental knowledge and experience in the specific area of Cleantech to increase the effectiveness of future Cleantech project, or liaises more intensely with other ministries and organizations that can deliver that expertise. Their current expertise is mainly focused on business development. This can increase future effectivity, connected to the already acquired expertise in entrepreneurship and innovation.

on project M & E

For future projects, MIGHT should design, adopt and implement a solid M & E programme and report on this to the donor, next to the internal M & E procedures that are in place.

For PMU and UNIDO

on final assessment, analysis reporting

In finalizing this project, it is recommended that UNIDO and PMU together ensure that there is a solid final report produced in the remaining project period (or a brief extension of this), using the remaining project funding to ensure high quality reporting on at least:

- analysis and reporting the potential indirect GHG emissions reduction over the technology lifetime, on the technologies developed by all the projects' alumni companies.
- approaches, methodologies and experiences with the entrepreneurship development through accelerator programmes by analyzing the case studies of the project's alumni, both successful and unsuccessful.
- an overall final report of the project, following the standard UNIDO requirements and quality guidelines.

on efficiency

the pledged co-financing sources, as well as new sources acquired during project implementation, should be continuously tracked in a systematic manner, and implications for budgets and expenditures should be taken into consideration on a regular basis.

For UNIDO

on project design

The Malaysian project was the first to be formulated and designed in a series of Cleantech SME projects by UNIDO, and hence the design not surprisingly showed some shortcomings and weaknesses. A learning curve has been observed within UNIDO in the years after, but the Malaysia project was not revisited with this new knowledge. Is it recommended that UNIDO investigates the possibilities on how to improve the design and implementation of ongoing projects by either amending the PD (according to GEF guidelines for amendment) or improving the project implementation mechanisms.

on project effectiveness

UNIDO can increase the effectivity of future projects by managing and influencing more strongly on project outcomes that have a higher change and impact on environmental outcomes in general, and in the case of this project on GHG reductions specifically. By ensuring that a good baseline study is performed, by steering company and technology selection stronger in the direction of technologies that can have a high impact and/or a high mainstreaming and replication potential in the country.

on gender mainstreaming

Gender mainstreaming topics should be considered and managed systematically in future projects, following the UNIDO and National guidelines, rules and regulations that are in place.

on project M & E

As project implementation agency, UNIDO should pay closer attention if national implementing agencies do not arrange for M & E implementation and take timely corrective action in this. Also, projects where M & E is not included sufficiently in the design should be amended and corrected on this topic, including the (re)allocation of sufficient budget.

on management

UNIDO is recommended to improve the transfer of tasks and information from one PM to the next during project implementation, to optimize the continuity and quality of project management

on the Global CI Programme

UNIDO should consider widening the key international expert input and contribution in the project from only CTO to other global and regional expert centres and consultants.

On GCIP programme evaluation

Since several of the GCIP project are coming to an end, UNIDO should organize a GCIP programme evaluation focused on the long-term transformation process required.

4.4. Lessons learned

This project can be seen as the start of a longer-term transition of local SMEs and start-ups in Malaysia in the direction of green, clean and innovative technologies and products. It should be noted that development, upscaling and mainstreaming of these technologies, products and services will take multiple related efforts in the country, region and global context.

The Cleantech concept is not isolated from other related concepts such as Resource Efficiency and Cleaner Production (UNIDO Environment, UNEP), Eco-Innovation (UNEP) Climate Innovation (World Bank), Sustainable Consumption and Production (EC and UNEP), Eco-Industrial Parks (UNIDO and others) and the emerging approach on circular economy and circular design (Ellen McArthur Foundation). Linkages with these development within Malaysia, regional and globally should be strengthened and taken into account in future project and programme development.

For future initiatives, the input and role of CleanTech Open as the key international hub and consultant of the project should be reconsidered. In the case of Malaysia (the evaluation team has not enough insight in the other GCIP projects) the contribution of CTO was not of high added value, compared with the knowledge, network and capacity that is currently available in the national Malaysian entrepreneurship network which can deliver the same services, knowledge and training. The added value of the CTO Forum participation in California was not very high according to the Malaysian participants.

Further, there are international networks that can deliver similar information, training and services on an *open source* basis, which is preferable for public funded projects. As an example, the European Climate KIC network is the largest global Cleantech entrepreneurship network, and since it is completely funded with public funding, basically open source.

Since several of the first batch of UNIDO GEF GCIP projects are coming to an end, UNIDO has an excellent opportunity to organize a program wide evaluation for GCIP, focusing on systems thinking as a guiding principle to guide the development of future projects in this area. The focus should be much more on the long-term transformations that the projects should contribute to, and the design and implementation elements that are needed to accomplish this. Attention should be given to the root cause of the problems identified in GCIP, necessary conditions across domains and scales, the comparative advantage of Cleantech innovations for adopters, and the role of emerging qualities, adaptive learning and management in this type of innovation projects.

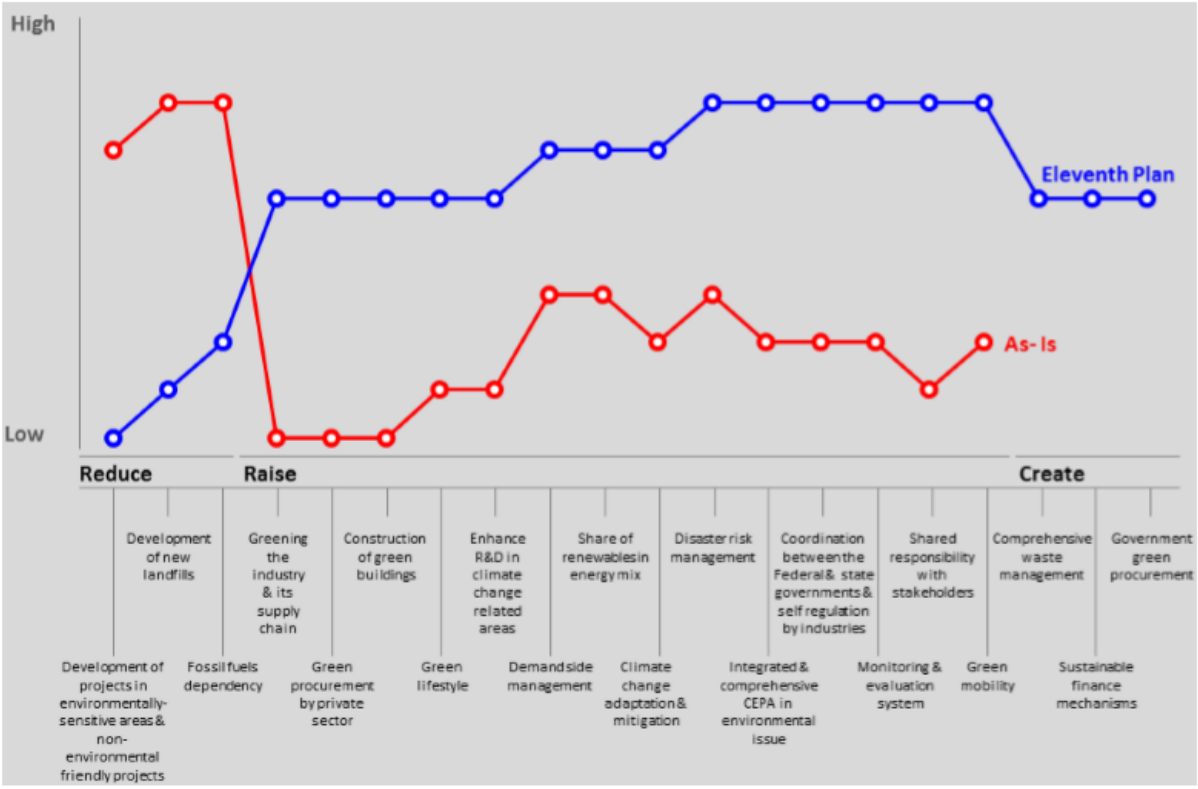
ANNEXES

Annex 1. Assessment of Malaysia's legislative and regulatory framework for Cleantech in SMEs

Over the years, the Malaysian government has introduced several initiatives to promote cleantech agenda through innovative technology and shifting energy efficiency initiatives into high gear. Responding to the green environment and energy efficiency, Malaysia had set its legislative direction and focuses its regulatory framework on firstly, reducing GHGs emission intensity of GDP by up to 40% by 2020. This was in line with the voluntary target announced by the YAB Prime Minister at the 15th Conference of the Parties to the United Nation Framework Convention of Climate Change in 2009; and secondly, improving Malaysia's ranking to top 20 in the Environmental Performance Index (EPI).

Apart from fulfilling its main objectives towards GEF and UNIDO' project outcomes, the Cleantech SME programme is aligned with the Eleventh Malaysia Plan in developing socio-economic values in sustainable manner. There are three associated key strategies, namely, strengthening the enabling environment for climate resilient development, strengthening resilience against climate change and natural disasters and harnessing economic value through sustainable consumption and production practices. In the Figure 1 below, these key strategies indicate the number of initiatives to address the issues of environmental degradation and mitigate climate change.

Figure 1
Climate Resilient Development Initiatives under 11TH Malaysian Plan



Source: Eleventh Malaysia Plan (2015)

The regulatory direction is also tackling issues on strengthening the development and deployment of clean technologies. This agenda appears to have been relevance in the context the United Nations Millennium Declaration in 2000 at the United Nations Millennium Summit. The outcomes of this cleantech SME programmes have indirectly meeting the Millennium Development Goals (MDG) Report 2015. There were eight goals adopted and 18 time-bound targets were monitored through 48 indicators. Of the eight goals, MDG 7 and MDG 8 are relevance in the context of

UNIDO project. MDG 7 considers the ability of the environment to continuously support human well-being and development. MDG 8 focuses on global partnerships that contribute towards development outcomes and which can be shared globally. Figure 2 provides the MDG 7 achievements from 1990 to 2015.

Figure 2

MDG 7 achievements from 1990 to 2015

Target 7.a: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources	Proportion of land area covered by forest	56.9 % (1990)	54.3 % (2010)	54.5 % (2012)	Malaysia is committed in ensuring at least 50 per cent of the country's land area remains as forest, as pledged in the Rio Summit in 1992.
	CO_2 emissions, total, per capita and per $1 GDP (PPP)	3.2 tonnes of CO_2 eq/ capita (1994)	7.2 tonnes of CO_2 eq/ capita (2006)	7.6 tonnes of CO_2 eq/ capita (2010)	Refers to carbon dioxide equivalent of all greenhouse gases. Malaysia adopted a voluntary reduction of up to 40 per cent in terms of carbon emission intensity of GDP by 2020 compared to 2005 levels, conditional on the provision of finance and technology transfer from developed countries.
	Consumption of ozone-depleting substances	**CFCs**: 3,383.4 ODP tonnes, **Halons**: 809.5 ODP tonnes; **Methyl bromide Non QPS**: 19.9 ODPT, **Methyl bromide QPS**: 14.5 ODPT, **Methyl Chloroform**: 17.2 ODPT, **HCFC**: 65.5 ODPT	**CFCs**: 105.2 ODP tonnes, **Halons**: 0 ODP tonnes, **Methyl bromide Non QPS**: 3.4 ODPT, **Methyl bromide QPS**: 37.9 ODPT, **Methyl Chloroform**: 1.9 ODPT, **HCFC**: 494.0 ODPT	**CFCs**: 0 ODP tonnes, **Halons**: 0 ODP tonnes **Methyl bromide Non QPS**: 4.1 ODPT, **Methyl bromide QPS**: 94.7 ODPT, **Methyl Chloroform**: 0 ODPT, **HCFC**: 445.8 ODPT (2013)	Specific pre-2010 targets for ozone depleting substances under the Montreal Protocol have been achieved. Malaysia is on track to comply with the post-2010 targets of the Montreal Protocol[10].

CFC, chlorofluorocarbons; HCFC, hydrochlorofluorocarbon; ODP, ozone depletion potential; QPS, quarantine and preshipment.

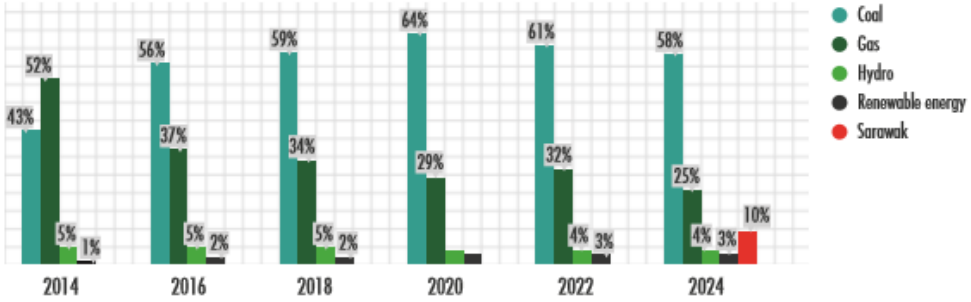
[10] The Montreal Protocol had the goals of phasing out chlorofluorocarbons and halons by 2010. The post-2010 goals were to phase out methyl bromide and methyl chloroform by 2015 and hydrochlorofluorocarbons by 2030.

Source: Eleventh Malaysia Plan (2015)

Another relevant area is on the consumption of ozone depleting substances. Specific pre-2010 targets for ozone depleting substances under the Montreal Protocol have been achieved. Malaysia is on track to comply with the post-2010 targets of the Montreal Protocol. Another factor affecting energy policy is the pledge by Prime Minister Datuk Seri Najib Tun Razak that Malaysia will achieve a 40% reduction carbon emissions intensity, from 7.57 tons per capita to 4.54 tons, benchmarked against 2005 levels, by 2020. This promise was made during the 2009 United Nations Climate Change Conference in Copenhagen, and has contributed to the increased focus on renewable sources of energy including hydropower, solar power and biomass.

As part of the push towards renewables, the Renewable Energy Act 2011 was passed, which opened the door for the feed-in tariff (FiT) system where individuals and private corporations generate electricity using renewable sources (such as solar and biomass). Malaysia is enhancing its energy security by ensuring fuel diversity. As indicated in Figure 3: The Generation Development Plan 2014-2024, the current fuel mix for electricity generation is highly dependent on natural gas and coal. Two fuel-types account for 52% and 43% of capacity respectively, with the rest being hydro-power (5%), and renewables such as solar and biomass (1%). This dependence on coal and gas presents long-term problems as it makes the country too reliant on a limited source of fuel feedstock. In fact, in 2011, a severe gas shortage forced gas-fired power plants in the country to switch to more expensive petroleum-derived distillates, such as diesel, increasing cost by nearly fivefold.

Figure 3 Generation Development Plan 2014-2024



Source: Energy Commission (2015)

The recent initiatives were on the National Green Technology Policy (NGTP) focuses on four pillars: energy, environment, economy and society. Malaysia also places emphasis on the use of renewable energy and on increasing energy efficiency to ensure the sustainability of the environment. Various measures such as guidelines, standards and laws have been introduced to ensure efficient use of energy, and to reduce greenhouse gas emissions. In 2011, Malaysia adopted the Renewable Energy Act, which stimulated the establishment and operation of the feed-in-tariff, and the Renewable Energy Fund. Both are managed by the newly established Sustainable Energy Development Authority, SEDA.

With a support on the regulatory side such as the NGTP, an appropriate cleantech ecosystem had encouraged more participations of SMEs cleantech. SMEs have ventured into various cleantech businesses and they were offered several access to various support to drive the green industry forward. The example of GCIP participants' involvement in the IGEM 2015, IGEM 2016, and satellite programme in the 1ASEAN on cleantech had offered opportunities for SMEs to gain invaluable insights on the latest green technology products and investments. This in turn has inspired and influenced the business growth strategy. For example, SMEs organization had experienced an exposure of audience to 23,932 visitors from 50 countries during IGEM 2015 according to the IGEM 2015 statistics post show report.

In the recent trend of the circular and capital economy around the globe, along with existing local business environment and its associated development, Malaysia is responding to the People's Economy where the GCIP has contributed into one of the initiative under the National Blue Ocean Strategy (NBOS). These cleantech SMEs had shown potential outcomes to improve associated impact towards socio-economic well-being of the *rakyat* (citizen). For example; in the case of the Free the Seed—their biomass production targeted the bottom 40% paddy farmers and assisted them by generating better income, and more job opportunities in the country. This development has another potential on the innovation ecosystem of entrepreneurship as the outcomes of the GCIP has changed the life of the B40 paddy farmers to become middle-class as well as building capacity to participate in high-productivity, innovative and creative economic activities.

The other important developments in the business environment during the project implementation period were the green energy incentives and the Bioeconomy Transformation Programme that assisted potential green and cleantech SMEs. Here, various support on the value-added bio-based technology, investments and jobs creation were provided. The green energy incentives put an emphasis on providing investments into the green technology industries for business purposes or self-consumption and the adoption of green technology by selected services/system providers. In the GCIP projects, SMEs appear to be qualified into areas of green projects and green tech services; in particular the renewable energy, energy efficiency, electric vehicle, green building.

Overview on Energy Demand in Malaysia

Malaysia has set the target of reducing energy use by 5% in over 25 government offices and it was surpassed, as the actual figure in 2015 stood at 5.6%. The new regulations known as Efficient Management of Electrical Energy Regulation 2008 (EMEER 2008) stipulates that any installations that consumes over 3 million kWh over a 6-month period has to hire a registered Energy Manager to monitor and improve the efficiency of their power use.

It was further supported by on-going event to promote EE where in 20th May, 2015, the Energy Commission organised the Summit of Liberalisation of Energy Efficiency (EE) to promote EE and to reduce Malaysia' carbon footprint. This is one of the on-going example of energy consumption and demand is meeting with all relevant regulations set by the Government. The final energy

demand increased from 41,476 kilo tons of oil equivalent (ktoe) in 2010 to 53,222 ktoe in 2013 and is expected to increase to 57,123 ktoe in 2015. The demand for all energy sources is expected to have an average annual growth rate of 6.6% from 2011 to 2015 as presented in Table 1. Final energy demand per capita increased from 1.5 toe/person in 2010 to 1.8 toe/person in 2013 and is expected to increase to 1.9 toe/person in 2015.

Table 1
Final Energy Demand[1] by Sources, 2010-2015

Source	Kilo Tonne of Oil Equivalent[2] (ktoe)			% of Total			Average Annual Growth Rate (%)
	2010	2013	2015[e]	2010	2013	2015[e]	2011-2015[e]
Petroleum Products	24,403	29,132	32,389	*58.8*	*54.7*	*56.7*	*5.8*
Natural Gas	6,254	12,015	10,225	*15.1*	*22.6*	*17.9*	*10.3*
Electricity	8,993	10,536	11,996	*21.7*	*19.8*	*21*	*5.9*
Coal and Coke	1,826	1,539	2,513	*4.4*	*2.9*	*4.4*	*6.6*
Total	**41,476**	**53,222**	**57,123**	***100***	***100***	***100***	***6.6***
Final Energy Demand per capita (toe/person)	1.5	1.8	1.9				*5.0*

Notes:
[1]Final energy demand refers to the quantity of energy delivered to final users including transformed energy
[2] One ton oil equivalent to 7.6 barrels
[e] Estimates
Source: Energy Commission and Economic Planning Unit

The transport sector consumed 42.3% of the final energy demand in 2013. This substantial amount of energy consumption was spurred by increase in private vehicle ownership which is the preferred mode of transportation. The second largest sector was industrial with 25.1% share followed by the non-energy use with 17.1%, as shown in Table 2.

Table 2
Final Energy Demand[1] by Sectors, 2010-2015

Sector	Kilo Tonne of Oil Equivalent[2] (ktoe)			% of Total			Average Annual Growth Rate (%)
	2010	2013	2015[e]	2010	2013	2015[e]	2011-2015[e]
Transportation	16,828	22,522	23,535	*40.6*	*42.3*	*41.2*	*6.9*
Industrial	12,928	13,384	13,367	*31.2*	*25.1*	*23.4*	*0.7*
Residential and Commercial	6,951	7,378	10,339	*16.8*	*13.9*	*18.1*	*16.4*
Non-Energy	3,696	9,111	8,968	*8.9*	*17.1*	*15.7*	*19.4*
Agriculture and Forestry	1,074	827	914	*2.6*	*1.6*	*1.6*	*-3.2*
Total	**41,476**	**53,222**	**57,123**	***100***	***100***	***100***	***6.6***

Notes:
[1]Final energy demand refers to the quantity of energy delivered to final users including transformed energy
[2] One tonne oil equivalent to 7.6 barrels
[e] Estimates
Source: Energy Commission and Economic Planning Unit

Maximizing National Development with Energy Efficiency

Malaysia's economic growth and advancement is highly dependent on the cumulative efforts of all its sectors—from manufacturing and transportation to logistics and construction. As its population grows, development ramps up and the economy progresses further, the toll will be on the demand and consumption of more energy to boost production, and the environment, which will suffer the effects of pollution and degradation. This is where the efficient use of energy comes in—the aim is to apply less power to accomplish the same level of tasks, or grow the economy without increasing carbon emissions.

It is important to note that the efficient use of energy has been a national priority since the Ninth Malaysia Plan (9MP), implemented between 2006 and 2010. However, since the 2000s, the country's energy intensity ratio (which indicates the efficient use of energy, if less than one) has been over 1.0. It was with this consideration that the government—spearheaded by the Ministry of Energy, Green Technology and Water (KeTTHA)—introduced the National Energy Efficiency Master Plan (NEEMP) in 2010, a ten-year plan created after consultations with more than 60 industry stakeholders, including government ministries, agencies, industry associations and the private sector.

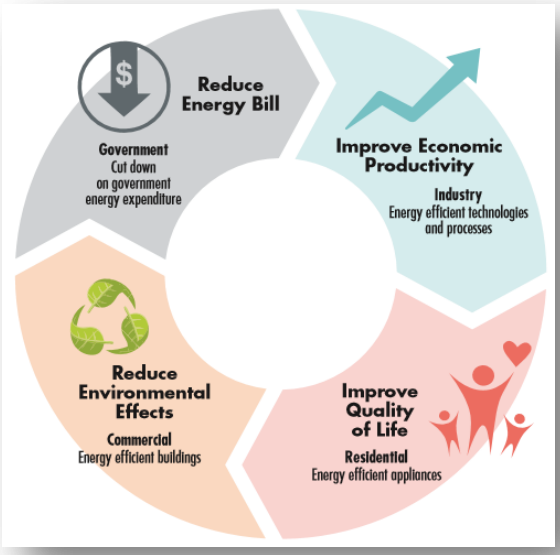
To improve on the NEEMP, KeTTHA proposed the National Energy Efficiency Action Plan (NEEAP) in January 2014, a more-effective initiative intended to address several barriers on energy efficiency (EE). Also designed to be implemented over a 10-year period, the NEEAP aims to cut consumption through a 6% reduction in electricity demand. To accomplish this, the plan is based on five core thrusts that will optimise the use of electricity and minimise waste to contribute to sustainable development and increased national competitiveness. Among its aims is to save 50,594GWh of electricity.

In addition to the five thrusts (that includes implementing EE programmes and encouraging commercial financial institutions to support EE), the NEEAP also outlines five strategic actions and five initiatives (such as energy efficient building designs, rating and labelling of appliances, and setting a Minimum Energy Performance Standard).

According to the NEEAP Draft Final Report published 2014, the plan is expected to reduce CO2 emissions by 40 million tons over 10 years and about 90 million tons of CO2 equivalent over the lifetime of energy efficient equipment purchased as part of the initiative. The relevance policy with regards to the UNIDO projects is on the principle that the NEEAP is adopting. The principle is targeting and involving small and medium enterprises (SMEs)— as they constitute more than 99% of companies in the country, in the decision making and initiative planning processes.

Others include creating incentives to encourage consumers to adopt EE measures, as well as improving the competitiveness of EE appliances, which will help users save more on their energy consumption. As shown in Figure 4 below, the overall aims of the NEEAP include encouraging sustainable consumption of electricity, which will result in enhanced economic productivity as energy efficiency solution enable greater output with lesser input.

Figure 4: The Big Picture in promoting and enhancing awareness of Energy Efficiency



Source: Energy Commission

Energy Supply in Malaysia

The data was reported from the Eleventh Malaysian Plan on the energy supply in Malaysia. The total supply of energy increased from 76,809 ktoe in 2010 to 89,605 ktoe in 2013 and is expected to increase to 95,802 ktoe in 2015, as shown in Table 3. Natural gas and crude oil will remain as the main sources of supply. In 2013, the total share of fossil fuels namely crude oil and natural gas as well as coal and coke declined, while the share of hydro had steadily increased. The changing share reflects the decreasing dependency on fossil fuel sources.

Table 3
Primary Energy Supply[1] by Sources, 2010-2015

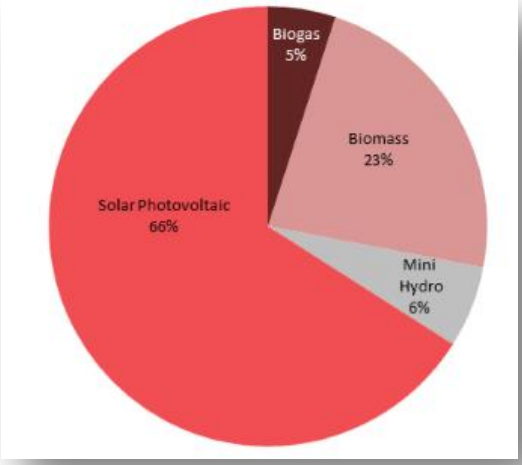
Sector	Kilo Tonne of Oil Equivalent[2] (ktoe)			% of Total			Average Annual Growth Rate (%)
	2010	2013	2015[e]	2010	2013	2015[e]	2011-2015[e]
Natural Gas	35,447	39,973	42,441	*46.1*	*44.6*	*44.3*	*3.7*
Crude Oil	25,008	31,877	29,507	*32.6*	*35.6*	*30.8*	*3.4*
Coal and Coke	14,777	15,067	20,118	*19.2*	*16.8*	*21.0*	*6.4*
Hydro	1,577	2,688	3,736	*2.1*	*3.0*	*3.9*	*18.8*
Total	**76,809**	**89,605**	**95,802**	***100***	***100***	***100***	***4.5***

Notes:
[1] Primary energy supply refers to the supply of commercial energy that has not undergone a transformation process to produce energy
[2] One ton oil equivalent to 7.6 barrels
[3] Natural gas excludes flared gas, re-injected gas and exports of liquefied natural gas
[e] Estimates
Source: Energy Commission and Economic Planning Unit

The Renewable Energy Development in Malaysia

The RE development was given an impetus after the Renewable Energy Act, 2011 was enforced on 1 December 2011 and the Feed-in Tariff (FiT) mechanism was introduced.
The FiT allows electricity to be generated from RE sources to be sold to utility companies at a fixed premium price for a specific duration. In 2014, RE sources contributed 243.4 MW or 1% of the total installed capacity in Peninsular Malaysia and Sabah, as shown in Figure 5. As of 2013, this initiative reduced GHGs emission by 432,000 tCO2eq.

Figure 5
Renewable Energy Installed Capacity by Sources, 2014



Total installed capacity in 2014: 243.4 MW
Source: Sustainable Energy Development Authority

Managing Demand Side Management on Energy Efficiency

The Government has shifted focus from increasing supply to meet the demand to reducing consumption by introducing EE and conservation measures. Agencies such as Ministry of Energy, Green Technology and Water (KeTTHA), ST and Sustainable Energy Development Authority (SEDA) have carried out programmes and projects to implement EE and energy conservation. Among the programmes implemented were EE measures for buildings, Sustainability Achieved via Energy Efficiency (SAVE) and Minimum Energy Performance Standard (MEPS) as well as equipment labelling programmes.

Efficient designs were incorporated in new Government buildings while some existing buildings were retrofitted to reduce energy consumption. Four government buildings located in Putrajaya were retrofitted between 2011 to 2014 and successfully reduced electricity use ranging from 4% to 19% monthly, equivalent to RM7,000 to RM130,000 savings. Other measures promoted include setting air-conditioner temperature at minimum of 24oC and reducing 5% of electricity bills for all Government buildings. Uniform Building By-Law (UBBL), 1984 was also revised in 2012 to incorporate the Malaysian Standard: Code of Practice on Energy Efficiency and Renewable Energy for Nonresidential Buildings (MS1525).

In 2011, the SAVE programme was implemented to encourage utilisation of energy efficient equipment. A total of RM44.3 million was allocated for the programme to offer rebates for any purchase of new energy efficient refrigerators and air conditioners for domestic use as well as

chillers for industries. Total energy saved from these equipment for the period from 2011 to 2013 was 306.9 GWh, as shown in Table 4. This has resulted in GHGs avoidance amounting to 208,705 tCO2eq.

Table 4
SAVE Programme Output, 2011-2013

Sector	Kilo Tonne of Oil Equivalent[2] (ktoe)			% of Total			Average Annual Growth Rate (%)
	2010	2013	2015[e]	2010	2013	2015[e]	2011-2015[e]
Natural Gas	35,447	39,973	42,441	*46.1*	*44.6*	*44.3*	*3.7*
Crude Oil	25,008	31,877	29,507	*32.6*	*35.6*	*30.8*	*3.4*
Coal and Coke	14,777	15,067	20,118	*19.2*	*16.8*	*21.0*	*6.4*
Hydro	1,577	2,688	3,736	*2.1*	*3.0*	*3.9*	*18.8*
Total	**76,809**	**89,605**	**95,802**	***100***	***100***	***100***	***4.5***

Notes:
[1] RT refers to Refrigeration Ton
Source: Sustainable Energy Development Authority

Issues and Challenges on Energy Sector

Energy Sector

a. Governance issues

Fragmented governance and multiple agencies with overlapping roles, authorities, responsibilities and jurisdiction have created complexities in governing the energy sector. This has resulted in confusion and lack of holistic policies to the industry players and other stakeholders. Among the main issues are inconsistent policies, lack of clarity in demarcation of regulatory oversight as well as dual role of a single entity being the industry player and the regulator at the same time. Strong and effective governance is required to compel all stakeholders adhering to the proposed regiment to ensure the energy sector is managed efficiently.

b. Ineffective communication

There is a lack of coordination in communicating issues of public interests with respect to the energy sector. To bring profound and impactful overall awareness, an integrated approach by all stakeholders is essential.

Oil and Gas Subsector

The major issues in the domestic oil and gas subsector include security and reliability of supply, lack of competition, market distortion and lack of coverage of compressed natural gas (CNG) for transport and piped natural gas infrastructure. In addition, there is limited growth in the downstream subsector namely refining and petrochemical processing. In short, the issues faced by the oil and gas subsector during the Tenth Plan are as follows:

- Fragility of security and reliability of energy supply;
- Lack of regulatory framework for competition in gas business;
- Barrier to clean fuel usage;
- Lack of focus in the downstream subsector;
- heavy reliance of local players on domestic jobs in Oil and Gas Services Industry (OGSI);
- Uneconomic demand area for piped natural gas coverage; and
- Heavily discounted fuel price.

Electricity Subsector

The electricity subsector faces multi-dimensional challenges to deliver reliable and affordable

electricity supply to consumers as well as to support national development objectives. The key challenges are depleting indigenous energy resources, increasing costs of new planting up, volatile fuel prices, high consumption growth rate and strong public concerns on the issues of environment. The issues faced by the electricity subsector during the Tenth Plan are as follows:

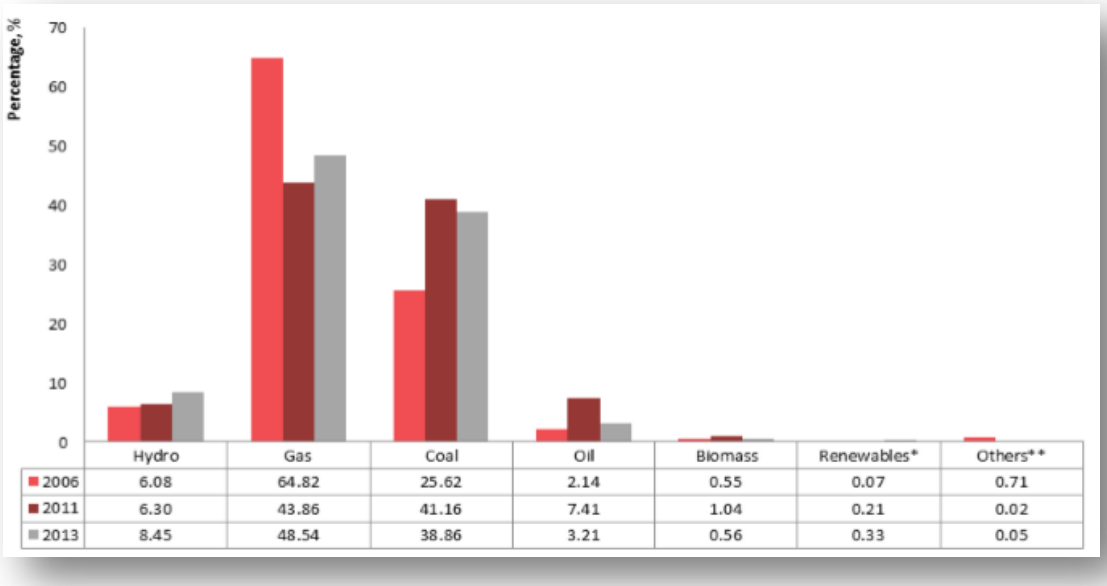
- Overdependence on fossil fuels;
- Impasse to comprehensively reform the electricity supply industry;
- Moderate growth in renewable energy; and
- Lack of holistic demand side management

Overdependence on fossil fuels

The generation mix for the electricity subsector continues to rely heavily on fossil fuel sources amounting to 92.6% in 2006, 92.4% in 2011 and 90.6% in 2013, as shown in Figure 6. Although the Government has introduced the Four-Fuel Diversification Policy in 1981 and Five-Fuel Diversification Policy in 2000, there are still economic constraints to reduce dependency on fossil fuels, particularly natural gas and coal. One of the factors contributing to the unbalanced energy mix is the highly subsidised natural gas, which is the preferred fuel for the electricity subsector as it incurs the least cost. On the other hand, by reducing subsidy for natural gas, coal would become a more economically attractive source. In addition, hydro sources potential is almost exhaustively developed except in Sabah and Sarawak. Apart from that, RE has limitation on the cost of the technology and stability of the energy supply system.

Figure 6

Generation Mix by Fuel, 2006–2013



	Hydro	Gas	Coal	Oil	Biomass	Renewables*	Others**
2006	6.08	64.82	25.62	2.14	0.55	0.07	0.71
2011	6.30	43.86	41.16	7.41	1.04	0.21	0.02
2013	8.45	48.54	38.86	3.21	0.56	0.33	0.05

Notes: * Renewables including solar PV, mini hydro, biogas, municipal solid waste except biomass
** Others refer to co-generation and self-generation
Source: Energy Commission

Highlights on adopted strategies, national programs and action plans in energy and environment sectors, as well as government's continuous efforts to improve legal and regulatory framework and to strengthen the SME sector are aimed to maximize the potential of small businesses in the context of economic and social development, promote innovative solutions in energy efficiency and ensure environmental sustainability. This helps Malaysia to better respond to climate change challenges.

Annex 2. List of interviewees

Name	Job Title/ Position in Company/ Organization	Name of Company/ Organization
Mr. Marizan Nor Basirun	Managing Director	S.I.T Schiffs-&Industrie Technik (M) Sdn Bhd
Mr. Alif Aiman Ahmad Othman	Programme Manager	Malaysian Global Innovation and Creativity Centre (MAGIC)
Dr. Ng Sing Kwei	Assistant Vice President	PlatCOM Ventures
Mrs. Atiyyah Ameenah	Managing Director	Pakar Go Green Sdn Bhd
Mr. Prabodh K Sheth	Chief Executive Officer	iCEE International Sdn Bhd
Mrs. Hidayah Shahidan	Chief Executive Officer	Zymeratics Sdn Bhd
Mr. Shamsul Bahar Mohd Nor	Chief Executive Officer	Syngas Sdn Bhd
Mrs. Norliza Muhammad	Chief Financial Officer	Syngas Sdn Bhd
Mr. Hazrey Tomyang	Principal Assistant Secretary	Ministry of Energy, Green Technology and Water (KETTHA)
Mr. Mohamad Noowawi MD Yasin	Senior Manager	Ministry of Finance
Mr.Jaya SIngam Rajoo	Under Secretary	Ministry of Natural Resources and Environment GEF Focal point
Dr. Nor Azlina Ariffin	Under Secretary	Ministry of Science, technology and Innovation
Mr. Andy Low	Founder	Neutrinos Engineering Sdn Bhd
Mr. Jaya Singam Rajoo	Under Secretary/ GEF Focal Point in Malaysia	Ministry of Natural Resources and Environment
Mrs. Eliza Elias	Vice President	Cradle Fund Sdn Bhd
Mrs. Raja Adrena Raja Aris	Manager	Cradle Fund Sdn Bhd
Mr. Adam Ramskay	Manager	Cradle Fund Sdn Bhd
Mr. Mohamad Johan Nasir	Vice President/Coach	Proficeo Sdn Bhd
Dr. Ramaness Parasuraman	Chief Executive Officer	Free The Seed Sdn Bhd
Mrs. Shahida Safirol	Head of Strategic Development	Free The Seed Sdn Bhd
YBhg. Datuk Dennis Chuah	Chairman	Eclimo Sdn Bhd
Mr. Liew Chung Peng	Managing Director	Eclimo Sdn Bhd
Mr. Nor Shahiwan Ismail	Founder	SunCrox Solar Sdn Bhd
Mr. Azlan Yaacob	Managing Director/ Coach	Azlan Yaacob
Mr Muhammad Hasif Hasan	Project coordinator Cleantech SME project	MIGHT
Interviews held with UNIDO staff during briefing: - Mrs Sunyuong Suh, Mr. Alois MHLANGA, (both UNIDO Global CT Programme), - Mr. Javier GUARNIZO (Chief Independent Evaluation Division) - Mrs Tonilyn LIM, PM - Mrs Pamela MIKSCHOFSKY , Associated GEF coordination expert		

Annex 3. Documents reviewed

- GEF Project Document UNIDO Cleantech Programme for SMEs in Malaysia (2012)
- Terms of reference Independent TE of the GEF UNIDO Project Cleantech Programme for SMEs in Malaysia (2016)

- UNIDO. (2015). Director General's Bulletin: Evaluation Policy (UNIDO/DGB/(M).98/Rev.1)
- 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)
- GEF. (2008). Guidelines for GEF Agencies in Conducting Terminal Evaluations (Evaluation Office, Evaluation Document No. 3, 2008)
- GEF. (2010) The GEF Monitoring and Evaluation Policy (Evaluation Office, November 2010)
- 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)

- Project Steering Committee meeting reports 2014, 2015
- Internal UNIDO PIR documents 2013, 2014, 2015
- Internal MIGHT reporting 2014, 2015
- Press releases, several project presentations
- in-green-d'ent – presentation of 2016 cohort companies
- Info and schedules of the accelerator programmes, mentoring & Biz-clinics, National Bootcamp.
- 2016 competition judging criteria
- Applicants guidelines
- Axile Commentaries 2014. 2015, report 2015
- Axile Mntor Contribution
- Cleantech open categories description
- 2013 Judging programme guide
- TOR Cleantech Open
- Cleantech Open worksheets 2015
- Cleantech Open final reports 2013, 2015

Annex 4. Summary of project identification and financial data

Project Factsheet

Milestone	Expected date	Actual date
Project CEO endorsement/approval date	11 December 2012	11 December 2012
Project implementation start date (PAD issuance date)	08 April 2013	08 April 2013
Original expected implementation end date (indicated in CEO endorsement/approval document)	07 April 2016	07 April 2016
Revised expected implementation end date (if any)	26 February 2017	31 August 2017
Terminal evaluation completion	30 June 2017	30 June 2017
Planned tracking tool date	Not Applicable	Not Applicable

Project budget

Project outcomes	GEF (USD)	Co-Financing (USD)	Total (USD)
1. Strengthening of policy and regulatory framework for the organization of the competition	75,000	150,000	**225,000**
2. Institutional capacity building for the organization of the competition and acceleration	125,000	350,000	**475,000**
3. Organization of the annual clean energy technology innovation competition and entrepreneurship acceleration	680,000	1,950,000	**2,630,000**
Project Management	90,000	500,000	**590,000**
Monitoring and Evaluation	20,000	50,000	**70,000**
Total	**990,000**	**3,000,000**	**3,990,000**

Annex 5. Terms of Reference

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

TERMS OF REFERENCE

Independent terminal evaluation of the UNIDO project:

GEF-UNIDO Cleantech Programme for SMEs in Malaysia

UNIDO SAP ID: 120096
GEF ID: 5146

DECEMBER 2016

Table of contents

I. Project background and overview

1. Project factsheet

Project Title	**GEF UNIDO Cleantech Programme for SMEs in Malaysia**
UNIDO project No. and/or SAP ID	**SAP ID: 120096**
GEF project ID	**5146**
Region	**Asia and Pacific**
Country(ies)	**Malaysia**
GEF focal area(s) **and operational programme**	**GEF-5: Climate Change**
GEF implementing agency(ies)	**UNIDO**
GEF executing partner(s)	**MIGHT, in cooperation with KeTTHA, MOSTI, MOHE, MITI, MNRE, TPM, Green Tech Malaysia, UKM, UTM**
Project size (FSP, MSP, EA)	**MSP**
Project CEO endorsement / Approval date	**11 December 2012**
Project implementation start date (First PAD issuance date)	**08 April 2013**
Original expected implementation end date (indicated in CEO endorsement/Approval document)	**07 April 2016**
Revised expected implementation end date (if applicable)	
Actual implementation end date	**26 February 2017**
GEF project grant (excluding PPG, in USD)	**990,000**
GEF PPG (if applicable, in USD)	
UNIDO co-financing (in USD)	**50,000 (cash) + 50,000 In-kind**
Total co-financing at CEO endorsement (in USD)	**3,000,000 (cash+in-kind)**
Materialized co-financing at project completion (in USD)	
Total project cost (excluding PPG and agency support cost, in USD; i.e., GEF project grant + total co-financing at CEO endorsement)	**3,990,000**
Mid-term review date	
Planned terminal evaluation date	**January to February 2017**

(Source: Project document)[4]

[4] Project information data throughout these TOR are to be verified during the inception phase.

2. Project background and context

In 2011, the Government of South Africa, with the support of the Global Environmental Facility (GEF) and the United Nations Industrial Development Organization (UNIDO), successfully implemented the 'Greening the COP17' project. One of the four components of the project focused on the design and implementation of the first South Africa Clean Technology Competition (2011 SA Cleantech) for green entrepreneurs and small and medium size enterprises (SMEs) with innovative ideas and concepts in the areas of energy efficiency, renewable energy and green building practices; the competition was a great success.

Building on this success and the lessons learned, the GEF and UNIDO have agreed to develop a global flagship programme to promote Cleantech innovations and Cleantech entrepreneurs around the world. This is in line with the GEF Council's Revised Strategy for Enhancing Engagement with the Private Sector, Modality 3, namely "SME Competition Pilot: Encouraging Entrepreneurs and Innovators," which provides support to entrepreneurs and innovators seeking to establish commercial ventures in the field of clean technologies.

In July 2009, Malaysia introduced its National Green Technology Policy , whichfocuses on four pillars: energy, environment, economy and society. Under the 10th Malaysia Plan 2011-2015 (10MP), the country places emphasis on the use of renewable energy and on increasing energy efficiency to ensure the sustainability of the environment. Various measures such as guidelines, standards and laws have been, and will be, introduced to ensure efficient use of energy, and to reduce greenhouse gas emissions. In 2011, Malaysia adopted the Renewable Energy Act, which stimulated the establishment and operation of the feed-in-tariff, and the Renewable Energy Fund. Both are managed by the newly established Sustainable Energy Development Authority, SEDA.

The main objective of the project is the promotion of clean energy technology innovations and innovative clean energy technology entrepreneurship in Malaysia through Clean Energy Technology Innovation Competition and Entrepreneurship Accelerator Programme.

Within UNIDO, potential synergies with other relevant departments, such as the Business, Investment and Technology Service Branch (BIT), Trade Capacity-Building Branch, Agri-Business Development Branch and Industrial Policy and Private Sector Development Branch were envisaged to be established.

The project is funded through a GEF grant, amounting to USD 990,000; a UNIDO contribution of USD 100,000 (50,000 cash + 50,000 in-kind); and the counterparts' co-financing of USD 2,900,000 (cash and in kind), which amount to total project budget of USD 3,990,000.

Project implementation started in April 2013 and the initial project end date was in April 2016. The same was revised to December 2016. Actual implementation end date is February 2017.

The project will be subject to GEF Monitoring and Evaluation rules and practices of the GEF and UNIDO. The terminal evaluation (TE) is scheduled to take place from January – February 2017.

3. Project objective and structure

The main objective of the proposed project is the promotion of clean energy technology innovations and innovative clean energy technology entrepreneurship in Malaysia through a Clean Energy Technology Innovation Competition and Entrepreneurship Accelerator Programme.

The following **3 project components** have been developed, in addition to monitoring and evaluation, to achieve the project objectives:

Component 1: Policy and regulatory framework
Component 2: Institutional capacity building
Component 3: Organization of Cleantech competition and acceleration programme

4. Project implementation and execution arrangements

UNIDO: is the GEF implementing agency for the project and responsible for overall and timely project implementation and monitoring.

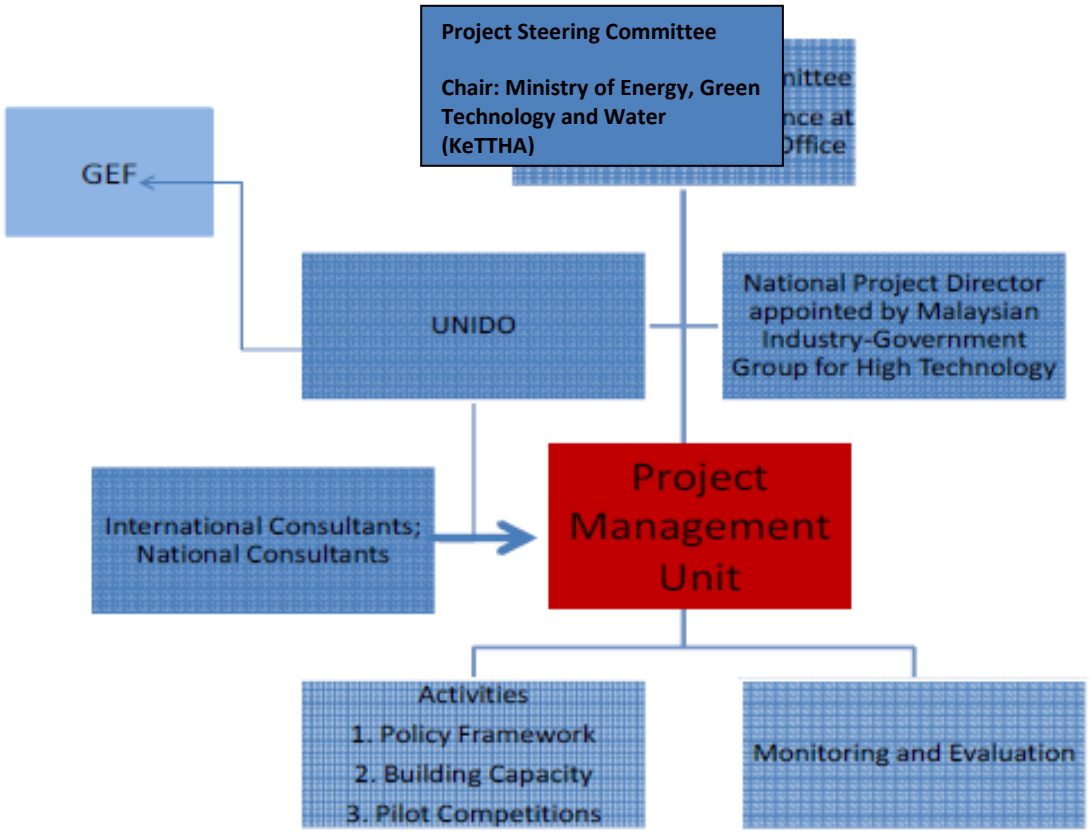
Project Steering Committee (PSC): consisting of representatives of institutions involved in the different project components.

PMU: to act as the Secretariat of the PSC, and responsible for the day-to-day management of project activities.

National Project Manager (NPM): to be part of the PMU services by MiGHT

Project Administrative Assistant (PAA): Expert under ISA contract with UNIDO

The management of the project implementation is illustrated below:



5. Budget information

The project is funded through a GEF grant, amounting to USD 990,000; a UNIDO contribution of USD 100,000 (50,000 cash + 50,000 in-kind); and the counterparts' co-financing of USD 2,900,000 (cash and in kind), which amount to total project budget of USD 3,990,000.

Some financial details are shown below based on the GEF project document:

Project outcomes	GEF (USD)	Co-Financing (USD)	Total (USD)
1. Strengthening of policy and regulatory framework for the organization of the competition and acceleration programme	75,000	150,000	**225,000**
2. Institutional capacity building for the organizationn of the competition and acceleration programme	125,000	350,000	**475,000**
3. Organization of the annual clean energy technology innovation competition and entrepreneurship acceleration programmes	680,000	1,950,000	**2,630,000**
Project Management	90,000	500,000	**590,000**
Monitoring and Evaluation	20,000	50,000	**70,000**
Total	**990,000**	**3,000,000**	**3,990,000**

(Source: CEO endorsement document)

Expected co-financing source breakdown is as follows:

Name of Co-financier (source)	Classification	Type	Project
UNIDO	GEF Agency	Cash	50,000
		In-kind	50,000
MIGHT	National Government	In-kind	2,700,000
MIGHT/MOSTI	National Government	Cash	200,000
Total Co-Financing			**3,000,000**

(Source: CEO endorsement document)

UNIDO GEF-grant disbursement breakdown:

		2013	2014	2015	2016	Total Expenditure (as of end November 2016)	Committed Budget (until 28 February 2017)
		Expenditure	Expenditure	Expenditure	Expenditure		
Budget Line per Output		USD	USD	USD	USD		
120096-1-01-01	**Policy Framework**						
1100	Staff & Intern Consultants		6,171.70	2,384.92		8,556.6	
1500	Local travel			5,324.87	-1,611.76	3,713.1	
1700	Nat.Consult./Staff		16,067.69	16,382.32	14,242.92	46,692.9	
2100	Contractual Services	35,217.54	0.00	42,000.00	0.00	77,217.5	
3000	Train/Fellowship/Study		0.00			0.0	
3500	International Meetings					0.0	10,000
5100	Other Direct Costs	33.24	-267.02	2,751.67	-0.69	2,517.2	
Result		35,250.78	21,972.37	68,843.78	12,630.47	138,697.4	10,000
120096-1-01-02	**Capacity Building**						
1100	Staff & Intern Consultants					0.0	
1500	Local travel	1,974.78	-20.52		2,426.99	4,381.3	
1700	Nat.Consult./Staff					0.0	
2100	Contractual Services		19,252.71	13,031.69	70,433.86	102,718.3	30,000
3000	Train/Fellowship/Study				7,323.71	7,323.7	
3500	International Meetings				9,722.19	9,722.2	
4500	Equipment	3,328.50				3,328.5	
5100	Other Direct Costs	663.18	1,674.45	447.84	-55.29	2,730.2	
Result		5,966.46	20,906.64	13,479.53	89,851.46	130,204.1	30,000
120096-1-01-06	**Cleantech Competition**						
1100	Staff & Intern Consultants				796.18	796.2	
1500	Local travel	4,619.79	16,270.55	26,791.70	1,390.76	49,072.8	
1700	Nat.Consult./Staff					0.0	
2100	Contractual Services	97,538.20	206,908.06	83,581.33	104,342.33	492,369.9	50,000
3000	Train/Fellowship/Study		3,298.49	102.38		3,400.9	
3500	International Meetings					0.0	5,000
4500	Equipment	7,650.90				7,650.9	
5100	Other Direct Costs	6,046.49	-846.00	11,186.99	9,408.56	25,796.0	
Result		115,855.38	225,631.10	121,662.40	115,937.83	579,086.7	55,000
120096-1-05-01	**Project Management**						
1100	Staff & Intern Consultants				6,955.56	6,955.6	
1500	Local travel					0.0	
1700	Nat.Consult./Staff					0.0	15,000
2100	Contractual Services			3,500.00	0.00	3,500.0	
5100	Other Direct Costs	1,285.56				1,285.6	
Result		1,285.56	0.00	3,500.00	6,955.56	11,741.1	15,000
120096-1-04-01	**Monitoring & Evaluation**						
1100	Staff & Intern Consultants						5,000.00
1500	Local travel						1,500.00
1700	Nat.Consult./Staff						5,000.00
5100	Other Direct Costs						8,500.00
Result		0.00	0.00	0.00	0.00	0.0	20,000
	Total	158,358.18	268,510.11	207,485.71	225,375.32	859,729.3	130,000

Source: SAP database, 30 November 2016

II. Scope and purpose of the evaluation

The terminal evaluation (TE) will cover the whole duration of the project from its starting date in April 2013 to the estimated completion date in February 2017. It will assess project performance against the evaluation criteria: relevance, effectiveness, efficiency, sustainability and impact.

The TE has an additional purpose of drawing lessons and developing recommendations for UNIDO and the GEF that may help improving the selection, enhancing the design and implementation of similar future projects and activities in the country and on a global scale upon project completion. The terminal evaluation report should include examples of good practices for other projects in the focal area, country, or region.

The terminal evaluation should provide an analysis of the attainment of the project objective(s) and the corresponding technical components or outputs. Through its assessments, the terminal evaluation should enable the Government, the national GEF Operational Focal Point (OFP), counterparts, the GEF, UNIDO and other stakeholders and donors to verify prospects for development impact and promoting sustainability, providing an analysis of the attainment of global environmental objectives, project objectives, delivery and completion of project outputs/activities, and outcomes/impacts based on indicators, and management of risks. The assessment includes re-examination of the relevance of the objectives and other elements of project design according to the project evaluation parameters defined in chapter VI.

The key question of the terminal evaluation is whether the project has achieved or is likely to achieve its main objective of promoting clean energy technology innovations and innovative clean energy technology entrepreneurship in Malaysia through a Clean Energy Technology Innovation Competition and Entrepreneurship Accelerator Programme.

III. Evaluation approach and methodology

The terminal evaluation will be conducted in accordance with the UNIDO Evaluation Policy[5], the UNIDO Guidelines for the Technical Cooperation Programme and Project Cycle[6], the GEF Guidelines for GEF Agencies in Conducting Terminal Evaluations[7], the GEF Monitoring and Evaluation Policy[8] and the GEF Minimum Fiduciary Standards for GEF Implementing and Executing Agencies[9].

It will be carried out by an independent evaluation team, as an independent in-depth evaluation using a participatory approach whereby all key parties associated with the project are kept informed and regularly consulted throughout the evaluation. The evaluation team will liaise with the UNIDO Independent Evaluation Division (ODG/EVQ/IEV) on the conduct of the evaluation and methodological issues.

The evaluation team will be required to use different methods to ensure that data gathering and analysis deliver evidence-based qualitative and quantitative information, based on diverse sources, as necessary: desk studies and literature review, statistical analysis, individual interviews, focus group meetings, surveys and direct observation. This approach will not only enable the evaluation to assess causality through quantitative means but also to provide reasons for why certain results were achieved or not and to triangulate information for higher reliability of findings. The specific mixed methodological approach will be described in the inception report.

[5] UNIDO. (2015). Director General's Bulletin: Evaluation Policy (UNIDO/DGB/(M).98/Rev.1)

[6] 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)

[7] GEF. (2008). Guidelines for GEF Agencies in Conducting Terminal Evaluations (Evaluation Office, Evaluation Document No. 3, 2008)

[8] GEF. (2010) The GEF Monitoring and Evaluation Policy (Evaluation Office, November 2010)

[9] 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)

The evaluation team will develop interview guidelines. Field interviews can take place either in the form of focus-group discussions or one-to-one consultations.

The methodology will be 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 UNIDO-GEF annual Project Implementation Reports (PIRs)), mid-term review (MTR) report, output reports (case studies, action plans, sub-regional strategies, etc.), back-to-office mission report(s), end-of-contract report(s) and relevant correspondence.

   (b) If applicable, notes from the meetings of committees involved in the project (e.g. approval and steering committees).

   (c) Other project-related material produced by the project.

2. The evaluation team will use available models of (or reconstruct if necessary) theory of change for the different types of intervention (enabling, capacity, investment, demonstration). The validity of the theory of change will be examined through specific questions in interviews and possibly through a survey of stakeholders.

3. Counterfactual information: In those cases where baseline information for relevant indicators is not available, the evaluation team will aim at establishing a proxy-baseline through recall and secondary information.

4. Interviews with project management and technical support including staff and management at UNIDO HQ and in the field and – if necessary - staff associated with the project's financial administration and procurement.

5. Interviews with project partners and stakeholders, including, among others, government counterparts, GEF OFP, project stakeholders, and co-financing partners as shown in the corresponding sections of the project documents.

6. On-site observation of results achieved by demonstration projects, including interviews of actual and potential beneficiaries of improved technologies.

7. Interviews and telephone interviews with intended users for the project outputs and other stakeholders involved in the project. The evaluation team shall determine whether to seek additional information and opinions from representatives of any donor agency(ies) or other organizations.

8. Interviews with the relevant UNIDO Field Office in Thailand (which also covers Malaysia), to the extent that it was involved in the project, and members of the project management team and the various national and sub-regional authorities dealing with project activities as necessary. If deemed necessary, the evaluation team shall also gain broader perspectives from discussions with relevant GEF Secretariat staff.

9. Other interviews, surveys or document reviews as deemed necessary by the evaluation team and/or UNIDO, ODG/EVQ/IEV for triangulation purposes.

10. The inception report will provide details on the methodology used by the evaluation team and include an evaluation matrix.

IV. Evaluation team composition

The evaluation team will be composed of one international evaluation consultant acting as the team leader and one national consultant(s). The consultants will be contracted by UNIDO. The tasks of each team member are specified in the job descriptions annexed to these terms of reference.

The evaluation team might be required to provide information relevant for follow-up studies, including

terminal evaluation verification on request to the GEF partnership up to three years after completion of the terminal evaluation.

Members of the evaluation team must not have been directly involved in the design and/or implementation of the projects/programme under evaluation.

The UNIDO project manager and the project teams in the participating countries will support the evaluation team. The UNIDO GEF Coordinator and the GEF OFP will be briefed on the evaluation and provide support to its conduct. GEF OFP will, where applicable and feasible, also be briefed and debriefed at the start and end of the evaluation mission.

V. Time schedule and deliverables

The evaluation is scheduled to take place from January to February 2017. The evaluation mission is planned for February 2017. At the end of the field mission, there will be a presentation of the preliminary findings for all stakeholders involved in this project/programme in the participating country.

At the end of the evaluation field mission, a debriefing should also be conducted inviting local stakeholders (incl. government and parties involved in the evaluation). After the evaluation mission, the international evaluation consultant will come to UNIDO HQ for debriefing and presentation of the preliminary findings of the terminal evaluation.

The draft TE report will be submitted 4 to 6 weeks after the end of the mission. The draft TE report is to be shared with the UNIDO PM, ODG/EVQ/IEV, the UNIDO GEF Coordinator and the GEF OFP and other relevant stakeholders for receipt of comments. The ET is expected to revise the draft TE report based on the comments received, edit the language and form and submit the final version of the TE report in accordance with UNIDO ODG/EVQ/IEV standards.

VI. Project evaluation parameters

The evaluation team will assess the project performance guided by the parameters and evaluations questions provided in this section. In addition to the qualitative assessment based on the evidence gathered in the evaluation, the evaluation team will rate the project on the basis of the rating criteria for the parameters described in the following sub-chapters, A to I.

Ratings will be presented in the form of tables with each of the criteria / aspects rated separately and with brief justifications for the rating based on the findings and the main analyses (see Table 1 to Table 3) in **Error! Reference source not found.**. **Error! Reference source not found.** in **Error! Reference source not found.** presents the template for summarizing the overall ratings.

For GEF projects: As per the GEF's requirements, the evaluation report should also provide information on project identification, time frame, actual expenditures, and co-financing in the format in **Error! Reference source not found.**, which is modeled after the GEF's project identification form (PIF).

A. Project identification and design

Project identification assessment criteria derived from the logical framework approach (LFA) methodology, establishing the process and set up of steps and analyses required to design a project in a systematic and structured way, e.g. situation, stakeholder, problem and objective analyses.
The aspects to be addressed by the evaluation include inter alia the extent to which:

a) The situation, problem, need / gap was clearly identified, analysed and documented (evidence, references). The project design was based on a needs assessment

b) Stakeholder analysis was adequate (e.g. clear identification of end-users, beneficiaries, sponsors, partners, and clearly defined roles and responsibilities in the project(s)).
c) The project took into account and reflects national and local priorities and strategies
d) ISID-related issues and priorities were considered when designing the project
e) Relevant country representatives (from government, industries, gender groups, custom officers and civil society - including the GEF OFP for GEF projects), were appropriately involved and participated in the identification of critical problem areas and the development of technical cooperation strategies.

Project design quality assessment criteria derive from the logical framework approach (LFA) methodology, leading to the establishment of LogFrame Matrix (LFM) and the main elements of the project, i.e. overall objective, outcomes, outputs, to defining their causal relationship, as well as indicators, their means of verification and the assumptions. The evaluation will examine the extent to which:

f) The project's design were adequate to address the problems at hand;
g) The project had a clear thematically focused development objective;
h) The project outcome was clear, realistic, relevant, addressed the problem identified and provided a clear description of the benefit or improvement that will be achieved after project completion;
i) Outputs were clear, realistic, adequately leading to the achievement of the outcome;
j) The attainment of overall development objective, outcome and outputs can be determined by a set of SMART verifiable indicators;
k) The results hierarchy in the LFM, from activities to outputs, outcome and overall objective, is logical and consistent.
l) Verification and Assumptions were adequate, identifying important external factors and risks;
m) 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).

B. Implementation Performance

Implementation assessment criteria to be applied are shown below and correspond to DAC criteria, as well as to good programme/project management practices.

a) Relevance and ownership

The evaluation will examine the extent to which the project is relevant to the:

i. National development and environmental priorities and strategies of the Government and the population, and regional and international agreements. See possible evaluation questions under "Country ownership/drivenness" below.
ii. Target groups: relevance of the project's objectives, outcomes and outputs to the different target groups of the interventions (e.g. companies, civil society, beneficiaries of capacity building and training, etc.).
iii. GEF's focal areas/operational programme strategies: In retrospect, were the project's outcomes consistent with the GEF focal area(s)/operational program strategies? Ascertain the likely nature and significance of the contribution of the project outcomes to the wider portfolio of POPs.
iv. Does the project remain relevant taking into account the changing environment?

b) Effectiveness

i. Achievement of expected outcomes:
    - What outputs and outcomes has the project achieved so far (both qualitative and quantitative results)?

- To what extent have the expected outcomes, outputs and long-term objectives been achieved or are likely to be achieved?
- Has the project generated any results that could lead to changes of the assisted institutions?
- Have there been any unplanned effects?
- Are the project outcomes commensurate with the original or modified project objectives?
- If the original or modified expected results were described as merely outputs/inputs, were there any real outcomes of the project and, if so, were these commensurate with realistic expectations from the project?
- If there was a need to reformulate the project design and the project results framework given changes in the country and operational context, were such modifications properly documented?

ii. How do the stakeholders perceive the quality of outputs? Were the targeted beneficiary groups actually reached?

iii. Longer-term impact: Identify actual and/or potential longer-term impacts or at least indicate the steps taken to assess these (see also below "monitoring of long term changes"). Wherever possible, evaluators should indicate how findings on impacts will be reported in future.

iv. Catalytic or replication effects: Describe any catalytic or replication effects: the evaluation will describe any catalytic or replication effect both within and outside the project. If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out. No ratings are requested for the project's catalytic role.

c) Efficiency

The extent to which:

i. The project cost was effective? Was the project using the most cost-efficient options?

ii. Has the project produced results (outputs and outcomes) within the expected time frame? Was project implementation delayed, and, if it was, did that affect cost effectiveness or results? Wherever possible, the evaluator should also compare the costs incurred and the time taken to achieve outcomes with that for similar projects. Are the project's activities in line with the schedule of activities as defined by the project team and annual work plans? Are the disbursements and project expenditures in line with budgets?

iii. Have the inputs from the donor, UNIDO and Government/counterpart been provided as planned, and were they adequate to meet the requirements? Was the quality of UNIDO inputs and services as planned and timely?

iv. Was there coordination with other UNIDO and other donors' projects, and did possible synergy effects happen?

v. Were there delays in project implementation and if so, what were their causes?

d) Assessment of risks to sustainability of project outcomes

Sustainability is understood as the likelihood of continued benefits after the GEF project ends. Assessment of sustainability of outcomes will be given special attention but also technical, financial and organization sustainability will be reviewed. This assessment should explain how the risks to project outcomes will affect continuation of benefits after the GEF project ends. It will include both exogenous and endogenous risks. The following four dimensions or aspects of risks to sustainability will be addressed:

i. **Financial risks**. Are there any financial risks that may jeopardize sustainability of project outcomes? What is the likelihood of financial and economic resources not being available once GEF assistance ends? (Such resources can be from multiple sources, such as the public and private sectors or income-generating activities; these can also include trends that indicate the likelihood that, in future, there will be adequate financial resources for sustaining project outcomes.) Was the project successful in identifying and leveraging co-financing?

ii. **Sociopolitical risks**. Are there any social or political risks that may jeopardize 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?

iii. **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 sustainability of project benefits? Are requisite systems for accountability and transparency and required technical know-how in place?

iv. **Environmental risks.** Are there any environmental risks that may jeopardize sustainability of project outcomes? Are there any environmental factors, positive or negative, that can influence the future flow of project benefits? Are there any project outputs or higher level results that are likely to have adverse environmental impacts, which, in turn, might affect sustainability of project benefits? The evaluation should assess whether certain activities will pose a threat to the sustainability of the project outcomes.

e) Assessment of monitoring and evaluation (M&E) systems

i. **M&E design.** Did the project have an M&E plan to monitor results and track progress towards achieving project objectives? The evaluation will assess whether the project met the minimum requirements for the application of the Project M&E plan (see annex 3).

ii. **M&E plan implementation.** The evaluation should verify that an M&E system was in place and facilitated timely tracking of progress toward project objectives by collecting information on chosen indicators continually throughout the project implementation period; annual project reports were complete and accurate, with well-justified ratings; the information provided by the M&E system was used during the project to improve performance and to adapt to changing needs; and the project had an M&E system in place with proper training for parties responsible for M&E activities to ensure that data will continue to be collected and used after project closure. Was monitoring and self-evaluation carried out effectively, based on indicators for outputs, outcomes and impacts? Are there any annual work plans? Was any steering or advisory mechanism put in place? Did reporting and performance reviews take place regularly?

iii. **Budgeting and Funding for M&E activities.** In addition to incorporating information on funding for M&E while assessing M&E design, the evaluators will determine whether M&E was sufficiently budgeted for at the project planning stage and whether M&E was adequately funded and in a timely manner during implementation.

f) Monitoring of long-term changes

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:

i. 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?

ii. What were the accomplishments and shortcomings in establishment of this system?

iii. 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?

iv. Is the information generated by this system being used as originally intended?

g) Assessment of processes affecting achievement of project results

Among other factors, when relevant, the evaluation will consider a number of issues affecting project implementation and attainment of project results. The assessment of these issues can be integrated into the analyses of project design, relevance, effectiveness, efficiency, sustainability and management as the evaluators deem them appropriate (it is not necessary, however it is possible to have a separate chapter on these aspects in the evaluation report). The evaluation will consider, but need not be limited to, the following issues that may have affected project implementation and achievement of project results:

i. **Preparation and readiness / Quality at entry.** Were the project's objectives and components clear, practicable, and feasible within its time frame? Were counterpart resources (funding, staff, and facilities), and adequate project management arrangements in place at project entry? Were the capacities of executing institution and counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in the project design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project approval?

ii. **Country ownership/drivenness.** Was the project concept in line with the sectoral and development priorities and plans of the country—or of participating countries, in the case of multi-country projects? Are project outcomes contributing to national development priorities and plans? Were relevant country representatives from government and civil society involved in the project? Was the GEF OFP involved in the project design and implementation? Did the recipient government maintain its financial commitment to the project? Has the government—or governments in the case of multi-country projects—approved policies or regulatory frameworks in line with the project's objectives?

iii. **Stakeholder involvement and consultation.** Did the project involve the relevant stakeholders through continuous information sharing and consultation? Did the project implement appropriate outreach and public awareness campaigns? Were the relevant vulnerable groups and powerful supporters and opponents of the processes involved in a participatory and consultative manner? Which stakeholders were involved in the project (e.g., NGOs, private sector, other UN Agencies) and what were their immediate tasks? Did the project consult with and make use of the skills, experience, and knowledge of the appropriate government entities, nongovernmental organizations, community groups, private sector entities, local governments, and academic institutions in the design, implementation, and evaluation of project activities? Were perspectives of those who would be affected by project decisions, those who could affect the outcomes, and those who could contribute information or other resources to the process taken into account while taking decisions?

iv. **Financial planning.** Did the project have appropriate financial controls, including reporting and planning, that allowed management to make informed decisions regarding the budget and allowed for timely flow of funds? Was there due diligence in the management of funds and financial audits? Did promised co-financing materialize? Specifically, the evaluation should also include a breakdown of final actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co-financing.

v. **UNIDO's supervision and backstopping.** Did UNIDO staff identify problems in a timely fashion and accurately estimate their seriousness? Did UNIDO staff provide quality support and advice to the project, approve modifications in time, and restructure the project when needed? Did UNIDO provide the right staffing levels, continuity, skill mix, and frequency of field visits for the project?

vi. **Co-financing and project outcomes and sustainability.** Did the project manage to mobilize the co-financing amount expected at the time of CEO Endorsement? If there was a difference in the level of expected co-financing and the co-financing actually mobilized, what were the reasons for the variance? Did the extent of materialization of co-financing affect project outcomes and/or sustainability, and, if so, in what ways and through what causal linkages?

vii. **Delays and project outcomes and sustainability.** If there were delays in project implementation and completion, what were the reasons? Did the delays affect project outcomes and/or sustainability, and, if so, in what ways and through what causal linkages?

viii. **Implementation and execution approach.** Is the implementation and execution approach chosen different from other implementation approaches applied by UNIDO and other agencies? Does the approach comply with the principles of the Paris Declaration? Is the implementation and execution approach in line with the GEF Minimum Fiduciary Standards: Separation of Implementation and Execution Functions in GEF Partner Agencies (GEF/C.41/06/Rev.01) and the relevant UNIDO regulations (DGAI.20 and Procurement Manual)? Does the approach promote local ownership and capacity building? Does the approach involve significant risks? In cases where Execution was done by third parties, i.e. Executing Partners, based on a contractual arrangement with UNIDO was this done in accordance with the contractual arrangement concluded with UNIDO in an effective and efficient manner?

ix. **Environmental and Social Safeguards.** If a GEF-5 project, has the project incorporated relevant environmental and social risk considerations into the project design? What impact did these risks have on the achievement of project results?

h) Project coordination and management

The extent to which:

i. 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)?

ii. 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)?

i) Assessment of gender mainstreaming

Gender mainstreaming assessment criteria are provided in the table below. Guidance on integrating gender is included in Annex 4.

The evaluation will consider, but need not be limited to, the following issues that may have affected gender mainstreaming in the project:

• Did the project/programme design adequately consider the gender dimensions in its interventions? If so, how (at the level of project outcome, output or activity)?
• Was a gender analysis included in a baseline study or needs assessment (if any)?
• How gender-balanced was the composition of the project management team, the Steering Committee, experts and consultants and the beneficiaries?
• Have women and men benefited equally from the project's interventions? 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)?
• Are women/gender-focused groups, associations or gender units in partner organizations consulted/included in the project?
• To what extent were socioeconomic benefits delivered by the project at the national and local levels, including consideration of gender dimensions?

VII. Deliverables and Reporting

Inception report

These terms of reference (TOR) provide some information on the evaluation methodology, but this should not be regarded as exhaustive. After reviewing the project documentation and initial interviews with the project manager, the evaluation team will prepare a short inception report that will operationalize the TOR relating to the evaluation questions and provide information on what type of and how the evidence will be collected (methodology). It will be discussed with and approved by the responsible in the UNIDO Independent Evaluation Division.

The inception report will focus on the following elements: preliminary project theory model(s); elaboration of evaluation methodology including quantitative and qualitative approaches through an evaluation framework ("evaluation matrix"); division of work between the international evaluation consultants; mission plan, including places to be visited, people to be interviewed and possible surveys to be conducted and a debriefing and reporting timetable[10].

Evaluation report format and review procedures

The draft report will be delivered to UNIDO Independent Evaluation Division (the suggested report outline is in annex 1) and circulated to UNIDO staff, the GEF OFP, and national stakeholders associated with the project for factual validation and comments. Any comments or responses, or feedback on any errors of fact to the draft report provided by the stakeholders will be sent to UNIDO ODG/EVQ/IEV for collation and onward transmission to the project evaluation team who will be advised of any necessary revisions. On the basis of this feedback, and taking into consideration the comments received, the evaluation team will prepare the final version of the terminal evaluation report.

The evaluation team will present its preliminary findings to the national stakeholders at the end of the field visit and take into account their feed-back in preparing the evaluation report. A presentation of preliminary findings will take place at UNIDO HQ after the field mission.

The terminal evaluation report should be brief, to the point and easy to understand. It must explain the purpose of the evaluation, exactly what was evaluated, and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should provide information on when the evaluation took place, the places visited, who was involved and be presented in a way that makes the information accessible and comprehensible. The report should include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

Findings, conclusions and recommendations should be presented in a complete, logical and balanced manner. The evaluation report shall be written in English and follow the outline given in annex 1.

Evaluation work plan and deliverables

The "Evaluation Work Plan" includes the following main products/deliverables:

INCEPTION PHASE:

1. Desk review, briefing by project manager and development of methodology: Following the receipt of all relevant documents, and consultation with the Project Manager about the documentation, including reaching an agreement on the methodology, the desk review could be completed.
2. Inception report: At the time of departure to the field mission, all the received material has been reviewed and consolidated into the Inception report.

[10] The evaluator will be provided with a Guide on how to prepare an evaluation inception report prepared by the UNIDO Independent Evaluation Division.

FIELD MISSION:

3. Field mission: The principal responsibility for managing this evaluation lies with UNIDO. It will be responsible for liaising with the project team to set up the stakeholder interviews, arrange the field missions, coordinate with the Government. At the end of the field mission, there will be a presentation of preliminary findings to the key stakeholders in the country where the project was implemented.
4. Preliminary findings from the field mission: Following the field mission, the main findings, conclusions and recommendations would be prepared and presented in the field and at UNIDO Headquarters.

REPORTING:

5. Data analysis/collation of the data/information collected
6. A draft terminal evaluation report will be forwarded electronically to the UNIDO Independent Evaluation Division and circulated to main stakeholders.
7. Final terminal evaluation report will incorporate comments received.

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VIII. Quality assurance

All UNIDO terminal evaluations are subject to quality assessments by the UNIDO Independent Evaluation Division. Quality assurance and control is exercised in different ways throughout the evaluation process (briefing of consultants on methodology and process by the UNIDO, ODG/EVQ/IEV, providing inputs regarding findings, lessons learned and recommendations from other UNIDO evaluations, review of inception report and evaluation report by UNIDO, ODG/EVQ/IEV). The quality of the evaluation report will be assessed and rated against the criteria set forth in the Checklist on evaluation report quality, attached as Annex 4. The applied evaluation quality assessment criteria are used as a tool to provide structured feedback. UNIDO, ODG/EVQ/IEV should ensure that the evaluation report is useful for UNIDO in terms of organizational learning (recommendations and lessons learned) and is compliant with UNIDO's evaluation policy and these terms of reference. The draft and final terminal evaluation report are reviewed by the UNIDO Independent Evaluation Division, which will submit the final report to the GEF Evaluation Office and circulate it within UNIDO together with a management response sheet.

Annex 1 - Outline of an in-depth project evaluation report

Executive summary

- Must provide a synopsis of the storyline which includes the main evaluation findings and recommendations
- Must present strengths and weaknesses of the project
- Must be self-explanatory and should be maximum 3-4 pages in length

I. Evaluation objectives, methodology and process

- Information on the evaluation: why, when, by whom, etc.
- Scope and objectives of the evaluation, main questions to be addressed
- Information sources and availability of information
- Methodological remarks, limitations encountered and validity of the findings

II. Country and project background

- Brief country context: an overview of the economy, the environment, institutional development, demographic and other data of relevance to the project
- Sector-specific issues of concern to the project[11] and important developments during the project implementation period
- Project summary:
  - Fact sheet of the project: including project objectives and structure, donors and counterparts, project timing and duration, project costs and co-financing
  - Brief description including history and previous cooperation
  - Project implementation arrangements and implementation modalities, institutions involved, major changes to project implementation
  - Positioning of the UNIDO project (other initiatives of Government, other donors, private sector, etc.)
  - Counterpart organization(s)

III. Project assessment

This is the key chapter of the report and should address all evaluation criteria and questions outlined in the TOR (see section VI - Project evaluation parameters). Assessment must be based on factual evidence collected and analyzed from different sources. The evaluators' assessment can be broken into the following sections:

A. Project identification and formulation
B. Project design
C. Implementation performance
   a) Relevance and ownership (report on the relevance of project towards countries and beneficiaries, country ownership, stakeholder involvement)
   b) Effectiveness (the extent to which the development intervention's objectives and deliverables were achieved, or are expected to be achieved, taking into account their relative importance)
   c) Efficiency (report on the overall cost-benefit of the project and partner countries' contribution to the achievement of project objectives)
   d) Likelihood of sustainability of project outcomes (report on the risks and vulnerability of the project, considering the likely effects of sociopolitical and institutional changes in partner countries, and its impact on continuation of benefits after the GEF project ends, specifically the financial, sociopolitical, institutional framework and governance, and environmental risks)
   e) Project coordination and management (Report on the project management conditions and achievements, and partner countries' commitment)
   f) Assessment of monitoring and evaluation systems (report on M&E design, M&E plan implementation, and budgeting and funding for M&E activities)
   g) Monitoring of long-term changes

[11] Explicit and implicit assumptions in the logical framework of the project can provide insights into key-issues of concern (e.g., relevant legislation, enforcement capacities, government initiatives)

h) Assessment of processes affecting achievement of project results (report on preparation and readiness / quality at entry, country ownership, stakeholder involvement, financial planning, UNIDO support, co-financing and project outcomes and sustainability, delays of project outcomes and sustainability, and implementation approach)

D. Gender mainstreaming

At the end of this chapter, an overall project achievement rating should be developed as required in Annex 2. The overall rating table required by the GEF should be presented here.

IV. Conclusions, recommendations and lessons learned

This chapter can be divided into three sections:

A. Conclusions

This section should include a storyline of the main evaluation conclusions related to the project's achievements and shortfalls. It is important to avoid providing a summary based on each and every evaluation criterion. The main conclusions should be cross-referenced to relevant sections of the evaluation report.

B. Recommendations

This section should be succinct and contain few key recommendations. They should be:

- Based on evaluation findings
- Realistic and feasible within a project context
- Indicating institution(s) responsible for implementation (addressed to a specific officer, group or entity who can act on it) and have a proposed timeline for implementation if possible
- Commensurate with the available capacities of project team and partners
- Taking resource requirements into account.

Recommendations should be structured by addressees:

- UNIDO
- Government and/or counterpart organizations
- Donor

C. Lessons learned

- Lessons learned must be of wider applicability beyond the evaluated project but must be based on findings and conclusions of the evaluation
- For each lesson, the context from which they are derived should be briefly stated

Annexes should include the evaluation TOR, list of interviewees, documents reviewed, a summary of project identification and financial data, including an updated table of expenditures to date, and other detailed quantitative information. Dissident views or management responses to the evaluation findings may later be appended in an annex.

Annex 2 - Rating tables

Ratings will be presented in the form of tables with each of the criteria / aspects rated separately and with **brief justifications for the rating** based on the findings and the main analyses (see Table 1 to Table 3) below. **Error! Reference source not found.** presents the template for summarizing the overall ratings.

Table 1. Rating criteria for Quality of project identification and formulation process (LFA Process)

Evaluation issue	Evaluator's comments	Ratings
1. Extent to which the situation, problem, need / gap is clearly identified, analysed and documented (evidence, references).		
2. Adequacy and clarity of the stakeholder analysis (clear identification of end-users, beneficiaries, sponsors, partners, and clearly defined roles and responsibilities in the project(s)).		
3. Adequacy of project monitoring and evaluation (M&E) design.		
4. Overall LFA design process.		

Table 2. Quality of project design (LFM)

Evaluation issue	Evaluator's comments	Rating
1. Clarity and adequacy of **outcome** (clear, realistic, relevant, addressing the problem identified). Does it provide a clear description of the benefit or improvement that will be achieved after project completion?		
2. Clarity and adequacy of **outputs** (realistic, measurable, adequate for leading to the achievement of the **outcome**).		
3. Clarity, consistency and logic of the **objective tree**, and its reflexion in the LFM results hierarchy from **activities** to **outputs**, to **outcome** and to **overall objective**.		
4. **Indicators** are SMART for Outcome and Output levels.		
5. Adequacy of **Means of Verification and Assumptions** (including important external factors and risks).		
6. Overall LFM design quality.		

Table 3. Quality of project implementation performance

Evaluation criteria	Rating	
7. **Ownership and relevance**		
8. **Effectiveness**		
9. **Efficiency**		
10. **Impact**		
11. **Likelihood of/ risks to sustainability**		
12. **Project management**		
13. **M&E**		

Table 4. Template for summarizing overall ratings

Criterion	Evaluator's summary comments	Evaluator's rating
Attainment of project objectives and results (overall rating), sub criteria (below)		
Project implementation		
Effectiveness		
Relevance		
Efficiency		
Sustainability of project outcomes (overall rating), sub criteria (below)		
Financial risks		
Sociopolitical risks		
Institutional framework and governance risks		
Environmental risks		
Monitoring and evaluation (overall rating), sub criteria (below)		
M&E Design		
M&E Plan implementation (use for adaptive management)		
Budgeting and Funding for M&E activities		
Project management - UNIDO specific ratings		
Quality at entry / Preparation and readiness		
Implementation approach		
UNIDO Supervision and backstopping		
Gender Mainstreaming		
Overall rating		

RATING OF PROJECT OBJECTIVES AND RESULTS

- Highly satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Moderately satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Moderately unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Highly unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Please note: Relevance and effectiveness will be considered as critical criteria. The overall rating of the project for achievement of objectives and results **may not be higher** than the lowest rating on either of these two criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

RATINGS ON SUSTAINABILITY

Sustainability will be understood as the probability of continued long-term outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits beyond project completion. Some of these factors might be outcomes of the project, i.e. stronger institutional capacities, legal frameworks, socio-economic incentives /or public awareness. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes.

Rating system for sustainability sub-criteria
On each of the dimensions of sustainability of the project outcomes will be rated as follows.

- Likely (L): There are no risks affecting this dimension of sustainability.
- Moderately likely (ML). There are moderate risks that affect this dimension of sustainability.
- Moderately unlikely (MU): There are significant risks that affect this dimension of sustainability.
- Unlikely (U): There are severe risks that affect this dimension of sustainability.

All the risk dimensions of sustainability are critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an Unlikely rating in either of the dimensions then its overall rating cannot be higher than Unlikely, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

RATINGS OF PROJECT M&E

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. Evaluation is the systematic and objective assessment of an on-going or completed project, its design, implementation and results. Project evaluation may involve the definition of appropriate standards, the examination of performance against those standards, and an assessment of actual and expected results.

The Project M&E system will be rated on M&E design, M&E plan implementation and budgeting and funding for M&E activities as follows:

- Highly satisfactory (HS): There were no shortcomings in the project M&E system.
- Satisfactory(S): There were minor shortcomings in the project M&E system.
- Moderately satisfactory (MS): There were moderate shortcomings in the project M&E system.
- Moderately unsatisfactory (MU): There were significant shortcomings in the project M&E system.
- Unsatisfactory (U): There were major shortcomings in the project M&E system.
- Highly unsatisfactory (HU): The Project had no M&E system.

M&E plan implementation will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will not be higher than the rating on M&E plan implementation.

All other ratings will be on the GEF six-point scale:

HS	= Highly satisfactory	Excellent
S	= Satisfactory	Well above average
MS	= Moderately satisfactory	Average
MU	= Moderately unsatisfactory	Below average
U	= Unsatisfactory	Poor
HU	= Highly unsatisfactory	Very poor (appalling)

Annex 3 - GEF Minimum requirements for M&E[12]

Minimum requirement 1: Project design of M&E

All projects will include a concrete and fully budgeted M&E plan by the time of work program entry for full-sized projects (FSP) and CEO approval for medium-sized projects (MSP). This M&E plan will contain as a minimum:

- SMART indicators for project implementation, or, if no indicators are identified, an alternative plan for monitoring that will deliver reliable and valid information to management;
- SMART indicators for results (outcomes and, if applicable, impacts), and, where appropriate, indicators identified at the corporate level;
- Baseline for the project, with a description of the problem to be addressed, with indicator data, or, if major baseline indicators are not identified, an alternative plan for addressing this within one year of implementation;
- Identification of reviews and evaluations that will be undertaken, such as mid-term reviews or evaluations of activities; and
- Organizational set-up and budgets for monitoring and evaluation.

Minimum requirement 2: Application of project M&E

Project monitoring and supervision will include implementation of the M&E plan, comprising:

- SMART indicators for implementation are actively used, or if not, a reasonable explanation is provided;
- SMART indicators for results are actively used, or if not, a reasonable explanation is provided;
- The baseline for the project is fully established and data compiled to review progress reviews, and evaluations are undertaken as planned; and
- The organizational set-up for M&E is operational and budgets are spent as planned.

[12] http://www.thegef.org/gef/sites/thegef.org/files/documents/ME_Policy_2010.pdf

Annex 4 - Guidance on integrating gender in evaluations of UNIDO projects and programmes

A. Introduction

Gender equality is internationally recognized as a goal of development and is fundamental to sustainable growth and poverty reduction. The UNIDO Policy on gender equality and the empowerment of women and its addendum, issued respectively in April 2009 and May 2010 (UNIDO/DGB(M).110 and UNIDO/DGB(M).110/Add.1), provides the overall guidelines for establishing a gender mainstreaming strategy and action plans to guide the process of addressing gender issues in the Organization's industrial development interventions.

According to the UNIDO Policy on gender equality and the empowerment of women:

Gender equality refers to the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not suggest that women and men become 'the same' but that women's and men's rights, responsibilities and opportunities do not depend on whether they are born male or female. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration, recognizing the diversity of different groups of women and men. It is therefore not a 'women's issues'. On the contrary, it concerns and should fully engage both men and women and is a precondition for, and an indicator of sustainable people-centered development.

Empowerment of women signifies women gaining power and control over their own lives. It involves awareness-raising, building of self-confidence, expansion of choices, increased access to and control over resources and actions to transform the structures and institutions which reinforce and perpetuate gender discriminations and inequality.

Gender parity signifies equal numbers of men and women at all levels of an institution or organization, particularly at senior and decision-making levels.

The UNIDO projects/programmes can be divided into two categories: 1) those where promotion of gender equality is one of the key aspects of the project/programme; and 2) those where there is limited or no attempted integration of gender. Evaluation managers/evaluators should select relevant questions depending on the type of interventions.

B. Gender responsive evaluation questions

The questions below will help evaluation managers/evaluators to mainstream gender issues in their evaluations.

B.1 Design

- Is the project/programme in line with the UNIDO and national policies on gender equality and the empowerment of women?
- Were gender issues identified at the design stage?
- Did the project/programme design adequately consider the gender dimensions in its interventions? If so, how?
- Were adequate resources (e.g., funds, staff time, methodology, experts) allocated to address gender concerns?
- To what extent were the needs and priorities of women, girls, boys and men reflected in the design?
- Was a gender analysis included in a baseline study or needs assessment (if any)?
- If the project/programme is people-centered, were target beneficiaries clearly identified and disaggregated by sex, age, race, ethnicity and socio-economic group?
- If the project/programme promotes gender equality and/or women's empowerment, was gender equality reflected in its objective/s? To what extent are output/outcome indicators gender disaggregated?

B.2 Implementation management

- Did project monitoring and self-evaluation collect and analyse gender disaggregated data?
- Were decisions and recommendations based on the analyses? If so, how?
- Were gender concerns reflected in the criteria to select beneficiaries? If so, how?
- How gender-balanced was the composition of the project management team, the Steering Committee, experts and consultants and the beneficiaries?
- If the project/programme promotes gender equality and/or women's empowerment, did the project/programme monitor, assess and report on its gender related objective/s?

B.3 Results

- Have women and men benefited equally from the project's interventions? 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)?
- In the case of a project/programme with gender related objective/s, to what extent has the project/programme achieved the objective/s? To what extent has the project/programme reduced gender disparities and enhanced women's empowerment?

Annex 5. Checklist on terminal evaluation report quality

Independent terminal evaluation of UNIDO-GEF project:
Project Title:
UNIDO Project NO:
UNIDO SAP ID:
GEF ID:

Evaluation team leader:
Quality review done by:
Date:

Checklist on evaluation report quality

Report quality criteria	UNIDO ODG/EVQ/IEV assessment notes	Rating
A. Was the report well-structured and properly written? (Clear language, correct grammar, clear and logical structure)		
B. Was the evaluation objective clearly stated and the methodology appropriately defined?		
C. Did the report present an assessment of relevant outcomes and achievement of project objectives?		
D. Was the report consistent with the ToR and was the evidence complete and convincing?		
E. Did the report present a sound assessment of sustainability of outcomes or did it explain why this is not (yet) possible? (Including assessment of assumptions, risks and impact drivers)		
F. Did the evidence presented support the lessons and recommendations? Are these directly based on findings?		
G. Did the report include the actual project costs (total, per activity, per source)?		
H. Did the report include an assessment of the quality of both the M&E plan at entry and the system used during the implementation? Was the M&E sufficiently budgeted for during preparation and properly funded during implementation?		
I. Quality of the lessons: were lessons readily applicable in other contexts? Did they suggest prescriptive action?		
J. Quality of the recommendations: did recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?'). Can these be immediately implemented with current resources?		
K. Are the main cross-cutting issues, such as gender, human rights and environment, appropriately covered?		
L. Was the report delivered in a timely manner? (Observance of deadlines)		

Rating system for quality of evaluation reports

A number rating 1-6 is used for each criterion: Highly satisfactory = 6, Satisfactory = 5, Moderately satisfactory = 4, Moderately unsatisfactory = 3, Unsatisfactory = 2, Highly unsatisfactory = 1, and unable to assess = 0.

Annex 6 – Required project identification and financial data

The evaluation report should provide information on project identification, time frame, actual expenditures, and co-financing in the following format, which is modeled after the project identification form (PIF).

I. Dates

Milestone	Expected date	Actual date
Project CEO endorsement/approval date		
Project implementation start date (PAD issuance date)		
Original expected implementation end date (indicated in CEO endorsement/approval document)		
Revised expected implementation end date (if any)		
Terminal evaluation completion		
Planned tracking tool date		

II. Project framework

Project component	**Activity type**	**GEF financing** (in USD)		**Co-financing** (in USD)	
		Approved	**Actual**	**Promised**	**Actual**
1.					
2.					
3.					
4.					
5.					
6. Project management					
Total (in USD)					

Activity types are:

i) Experts, researches hired
j) technical assistance, Workshop, Meetings or experts consultation scientific and technical analysis, experts researches hired
k) Promised co-financing refers to the amount indicated on endorsement/approval.

III. Co-financing

Source of co-financing (name of specific co-financiers)	**Type of co-financier** (e.g. government, GEF ageny(ies), Bilateral and aid agency (ies), multilateral agency(ies), private sector, NGO/CSOs, other)	**Type of co-financing**	**Project preparation – CEO endorsement/ approval stage** (in USD)		**Project implementation stage** (in USD)		**Total** (in USD)	
			Expected	Actual	Expected	Actual	Expected	Actual
	…							
Total co-financing (in USD)								

Expected amounts are those submitted by the GEF agencies in the original project appraisal document. Co-financing types are grant, soft loan, hard loan, guarantee, in kind, or cash.

Annex 7 – Job descriptions

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):	January 2017
End of Contract (COB):	February 2017
Number of Working Days:	25 working days spread over 2 months

1. ORGANIZATIONAL CONTEXT

The UNIDO Independent Evaluation Division (ODG/EVQ/IEV) 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/EVQ/IEV is guided by the UNIDO Evaluation Policy, which is aligned to the norms and standards for evaluation in the UN system.

2. PROJECT CONTEXT

In 2011, the Government of South Africa, with the support of the Global Environmental Facility (GEF) and the United Nations Industrial Development Organization (UNIDO), successfully implemented the 'Greening the COP17' project. One of the four components of the project focused on the design and implementation of the first South Africa Clean Technology Competition (2011 SA Cleantech) for green entrepreneurs and small and mediumsize enterprises (SMEs) with innovative ideas and concepts in the areas of energy efficiency, renewable energy and green building practices; the competition was a great success.

Building on this success and the lessons learned, the GEF and UNIDO have agreed to develop a global flagship programme to promote Cleantech innovations and Cleantech entrepreneurs around the world. This is in line with the GEF Council's Revised Strategy for Enhancing Engagement with the Private Sector, Modality 3, namely "SME Competition Pilot: Encouraging Entrepreneurs and Innovators," which provides support to entrepreneurs and innovators seeking to establish commercial ventures in the field of clean technologies.

The main objective of the proposed project is the promotion of clean energy technology innovations and innovative clean energy technology entrepreneurship in Malaysia through a Clean Energy Technology Innovation Competition and Entrepreneurship Accelerator Programme.

Detailed background information of the project can be found the Terms of Reference (TORs) for the terminal evaluation.

3. DUTIES AND RESPONSIBILITIES

MAIN DUTIES	Concrete/ Measurable Outputs to be achieved	Working Days	Location
1. Review project documentation 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 instrument of 3A accordingly (if needed); Assess the adequacy of legislative and regulatory framework relevant to the project's activities and analyze other background info.	• Adjust table of evaluation questions, depending on country specific context; • Draft list of stakeholders to interview during the field missions; • Brief assessment of the adequacy of the country's legislative and regulatory framework.	6 days	Home-based
2. Briefing with the UNIDO Independent Evaluation Division, project managers and other key stakeholders at UNIDO HQ. Preparation of the Inception Report	• Detailed evaluation schedule with tentative mission agenda (incl. list of stakeholders to interview and site visits); mission planning; • Division of evaluation tasks with the National Consultant. • Inception Report	2 days	Vienna, Austria
3. Conduct field mission to Malaysia in **February 2017**[13]**.**	• Conduct meetings with relevant project stakeholders, beneficiaries, the GEF Operational Focal Point (OFP), etc. for the collection of data and clarifications; • Agreement with the National Consultant on the structure and content of the evaluation report and the distribution of writing tasks; • Evaluation presentation of the evaluation's initial findings prepared, draft conclusions and recommendations to stakeholders in the country, including the GEF OFP, at the end of the mission.	6 days	Malaysia
4. Present overall findings and recommendations to the stakeholders at UNIDO HQ	• After field mission(s): Presentation slides, feedback from stakeholders obtained and discussed	2 days	Vienna, Austria
5. Prepare the evaluation report, with inputs from the National Consultant, according to the TOR;	• Draft evaluation report.	6 days	Home-based

[13] 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
Coordinate the inputs from the National Consultant and combine with her/his own inputs into the draft evaluation report. Share the evaluation report with UNIDO HQ and national stakeholders for feedback and comments.			
6. Revise the draft project evaluation report based on comments from UNIDO Independent Evaluation Division and stakeholders and edit the language and form of the final version according to UNIDO standards.	• Final evaluation report.	3 days	Home-based
	TAL	**25 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)
- Strong experience on environmental/energy and 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.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

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

Title:	National evaluation consultant
Main Duty Station and Location:	Home-based
Mission/s to:	Travel to potential sites within Malaysia
Start of Contract:	January 2017
End of Contract:	February 2017
Number of Working Days:	25 days spread over 2 months

ORGANIZATIONAL CONTEXT

The UNIDO Independent Evaluation Division 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. The UNIDO Independent Evaluation Division is guided by the UNIDO Evaluation Policy, which is aligned to the norms and standards for evaluation in the UN system.

PROJECT CONTEXT

The national evaluation consultant will evaluate the projects according to the terms of reference (TOR) under the leadership of the team leader (international evaluation consultant). S/he will perform the following tasks:

MAIN DUTIES	**Concrete/measurable outputs to be achieved**	**Expected duration**	**Location**
Review and analyze project documentation and relevant country background information (national policies and strategies, UN strategies and general economic data); in cooperation with the Team Leader: determine key data to collect in the field and prepare key instruments in both English and local language (questionnaires, logic models) to collect these data through interviews and/or surveys during and prior to the field missions; Coordinate and lead interviews/ surveys in local language and assist the team leader with translation where necessary; Analyze and assess the adequacy of legislative and regulatory framework, specifically in the context of the project's objectives and targets; provide analysis and advice to the	• List of detailed evaluation questions to be clarified; questionnaires/interview guide; logic models; list of key data to collect, draft list of stakeholders to interview during the field missions • Drafting and presentation of brief assessment of the adequacy of the country's legislative and regulatory framework in the context of the	7 days	Home-based

MAIN DUTIES	Concrete/measurable outputs to be achieved	Expected duration	Location
team leader on existing and appropriate policies for input to the team leader.	project.		
Review all project outputs/ publications/feedback; Briefing with the evaluation team leader, UNIDO project managers and other key stakeholders. Coordinate the evaluation mission agenda, ensuring and setting up the required meetings with project partners and government counterparts, and organize and lead site visits, in close cooperation with the Project Management Unit. Assist and provide detailed analysis and inputs to the team leader in the preparation of the inception report.	• Interview notes, detailed evaluation schedule and list of stakeholders to interview during the field missions. • Division of evaluation tasks with the Team Leader. • Inception Report.	6 days	Home-based (telephone interviews)
Coordinate and conduct the field mission with the team leader in cooperation with the Project Management Unit, where required; Consult with the team leader on the structure and content of the evaluation report and the distribution of writing tasks.	• Presentations of the evaluation's initial findings, draft conclusions and recommendations to stakeholders in the country at the end of the mission. • Agreement with the Team Leader on the structure and content of the evaluation report and the distribution of writing tasks.	6 days (including travel days)	Malaysia
Prepare inputs and analysis to the evaluation report according to TOR and as agreed with the Team Leader.	Draft evaluation report prepared.	4 days	Home-based
Revise the draft project evaluation report based on comments from UNIDO Independent Evaluation Division and stakeholders and edit the language and form of the final version according to UNIDO standards.	Final evaluation report prepared.	2 days	Home-based
TOTAL		25 days	

REQUIRED COMPETENCIES

Core values:
1. Integrity
2. Professionalism
3. Respect for diversity

Core competencies:
1. Results orientation and accountability
2. Planning and organizing
3. Communication and trust
4. Team orientation
5. Client orientation
6. Organizational development and innovation

Managerial competencies (as applicable):
1. Strategy and direction
2. Managing people and performance
3. Judgement and decision making
4. Conflict resolution

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced university degree in environmental science, engineering or other relevant discipline like developmental studies with a specialization in industrial energy efficiency and/or climate change.

Technical and functional experience:

- **Have prior experience in entrepreneurship or innovation ecosystem as an entrepreneur, mentor, investor or involved in related project**
- Exposure to the needs, conditions and problems in developing countries.
- Familiarity with the institutional context of the project is desirable.
- Experience in the field of environment and energy, including evaluation of development cooperation in developing countries is an asset

Languages: Fluency in written and spoken English is required; Knowledge of Malay would be an asset.

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 8 – Project results framework

Results	Indicators	Means of Verification	Assumptions and Risks
Objective			
Promotion of clean technology innovations and innovative clean technology entrepreneurship in Malaysia through Clean Technology Innovation Competition and Entrepreneurship Acceleration Programme.	Tons of GHG emissions avoided; Number of winners, runner ups and finalists selected; Number of new business created.	Project progress reports; mid-term and final project evaluation reports.	Continuous government support and commitment; Lack of commitment from entrepreneurs in the SME sector to participate in the competition
Outcomes			
1. Strengthened policy and regulatory framework will facilitate smooth and successful organization of cleantech competitions and acceleration programmes	Number of new or improved policies and regulations, and guidelines prepared; Number of successful competitions organized	Project progress reports; mid-term and final project evaluation reports.	Continuous support from government and national agencies
2. Adequately strengthened institutional capacity will result in successful organization of cleantech competitions and acceleration programmes during and beyond the project	Number of staff of MIGHT and other counterparts trained; Number of experts participating in the mentoring programme	Project progress reports; mid-term and final project evaluation reports. Feedback from entrepreneurs being mentored	Sufficient commitment and participation by the experts
3. Clean energy technologies innovators identified, and supported, and becoming cleantech entrepreneurs.	Number of winners, runner ups and finalists selected; Number of business created.	Project progress reports; mid-term and final project evaluation reports.	Continuous support and participation by industry, MIGHT and other partners

Results	Indicators	Means of Verification	Assumptions and Risks
Outputs			
1.1. Necessary policies and regulatories required for the cleantech competition identified and developed, such as: eligibility, intellectual property right protection, sponsorship agreement, etc.,	Number of policies, regulations developed, number of officials got on-the job training.	Monitoring and Project progress reports; mid-term and final project evaluation reports.	Continuous support from government and national agencies
1.2. Guidelines developped for the organization of cleantech competitions	Number of guidelines prepared, number of officials got on-the-job training	Monitoring and Project progress reports; mid-term and final project evaluation reports.	Commitment from project partners and committed participation of entrepreneurs.
2.1. Capacity of the host institution, MIGHT strenthened for organization of the competition and acceleration programme;	Number of MIGHT staff trained to be able to organize the competition and the acceleration programme	Project progress reports; mid-term and final project evaluation reports.	Commitment from MIGHT
2.2. A wide platform with all stakeholders of the competition established, methodologies and programmes for competition and acceleration agreed, various panels established and trained, mentors recruited and trained, etc.	Number of local partners trained, numbers of mentors, trainers and judges recruited and trained	Monitoring and Project progress reports; mid-term and final project evaluation reports.	Commitments from other project partners, and interest from potential mentors, trainers and judges.
2.3. Experience shared with other countries	Number of regional workshops organized	Monitoring and Project progress reports; mid-term and final project evaluation reports.	Interest from other countries.
3.1. Two-Three national clean energy technology innovations competitions organized across four cleantech sectors.	Number of entries, number of semi-finalists and finalists, etc.	Project progress reports; mid-term and final project evaluation reports.	Continuous support from government

Results	Indicators	Means of Verification	Assumptions and Risks
3.2. Two to three associated entrepreneurship acceleration programmes implemented, including post competition support.	Number of boot camps, training workshops, mentoring sessions, and networking events, etc. organized	Project progress reports; mid-term and final project evaluation reports.	Continuous support and participation by relevant stakeholders
3.3. Participation in regional and global networking activities and events, advocacy and outreach activities.	Number of participants attended in the relevant events; number of advocacy and outreach activities implemented in the pilot phase	Project progress reports; mid-term and final project evaluation reports.	Continuous support and participation by relevant stakeholders