

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

## **TERMS OF REFERENCE**

# Independent terminal evaluation of project

# GHG Emissions Reductions in Targeted Industrial Sub-Sectors through EE and Application of Solar Thermal Systems in Malaysia

UNIDO ID: 120264 GEF Project ID: 4878

March 2022

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## I. PROJECT BACKGROUND AND CONTEXT

## 1. Project factsheet<sup>12</sup>

Project title	GHG Emissions Reductions in Targeted Industrial Sub-Sectors
	through EE and Application of Solar Thermal Systems in
	Malaysia
UNIDO ID	120264
GEF Project ID	4878
Country	Malaysia
Project donor	GEF
Project approval date/GEF CEO	20 December 2013
endorsement date	
Planned project start date (as	1 June 2014
indicated in project document/or	
GEF CEO endorsement document)	
Actual project start date (First PAD	1 June 2014
issuance date)	
Planned project completion date	June 2019
(as indicated in project	
document/or GEF CEO	
endorsement document)	
Actual project completion date (as	30 June 2022
indicated in UNIDO ERP system)	
Project duration (year):	
Planned:	5
Actual:	8
<b>GEF Focal Areas and Operational</b>	CCM - Climate Change
Programme	
Implementing agency	UNIDO
Executing Partners	KeTTHA, MoSTI, MIGHT, UKM, FMM, SIRIM
Donor funding	USD 4,000,000
UNIDO input (in kind, USD)	140,000
Co-financing at CEO Endorsement,	USD 20,000,000
as applicable	
Total project cost (USD), excluding	USD 24,000,000
support costs	
Planned terminal evaluation date	Apr – Jun 2022

(Source: Project document, UNIDO ERP system)

<sup>&</sup>lt;sup>1</sup> Data to be validated by the Consultant

## 2. Project context

Malaysia is a coastal equatorial economy spread across two main landmasses and endowed with abundant agricultural and energy resources. It has a small but relatively urbanized and middle-income population, with the economy supported by growing services and industrial sectors, including energy production and significant manufacturing. Malaysia's rate of industrialization has been on a steady growth since the late 1980s and the GDP reflected this growth<sup>3</sup>. As a direct effect, both the manufacturing sector and the energy consumption levels increased significantly.

Malaysia's industrial sector accounted for 32% of total GDP in 2010 and its industrial output was ranked 32nd in the world by the time the project was designed. The main industries are rubber and palm oil processing and manufacturing, light manufacturing, pharmaceuticals, medical technology, electronics, tin mining and smelting, wood and timber processing (Peninsular Malaysia), wood industries (Sarawak), oil production (Sabah) and agricultural processing, petroleum production and refining. The major energy-intensive segments of the manufacturing sector are iron and steel, cement, wood, food, glass, pulp and paper, and the ceramics, rubber, chemical, plastics and textiles industries. The industrial sector is dominated by small and medium sized industries (SMIs), accounting for more than 96% of the total manufacturing establishments in the whole country.

The main sources of energy are diesel, fuel oil, LPG and electricity with energy conservation measures aimed at conserving thermal and electric energy. The combustion of these fossil fuels results in the production of gases CO2 and NOx, major sources of Green House Gas (GHG) emissions throughout the world.

Malaysia is characterized with a high potential for solar energy application due to its high level of solar radiation throughout the year, especially in the northern region and in some areas of East Malaysia. The annual average daily solar irradiation for Malaysia ranged from 4.21 to 5.56 kWh/m2 /day by the time the project was conceived.

Solar thermal energy is a convenient source of heating and a technology that does not rely on scarce, finite energy resources. Around 45,000 m2 of collector area were installed in Malaysia in 2009, mainly SWHs for buildings, an increase of almost 40% compared to the previous year.

A number of baseline projects related to thermal EE and solar thermal energy utilization in industry have been undertaken in Malaysia by the Government, industries and research institutions in the years 2009-2011, such as the Green Technology Financing Scheme (GTFS) - a soft loan scheme worth US\$450 millionthe Malaysian Industrial Energy Efficiency Improvement Project (MIEEIP) and in particular the GEF/UNIDO project, Industrial Energy Efficiency for Malaysian Manufacturing Sector (IEEMMS), aiming at further improving the policy and regulatory framework, and incentives schemes for energy efficiency in industry.

The project under evaluation *GHG Emissions Reductions in Targeted Industrial Sub-Sectors through EE and Application of Solar Thermal Systems in Malaysia* aims to support the reduction of fossil CO2 emissions in Malaysia's industry in general, and in particular, in selected industrial sub-sectors, by improving energy efficiency in industrial heating processes and process optimization, and the utilization of solar thermal energy whenever applicable and feasible.

<sup>&</sup>lt;sup>3</sup> https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=MY

## 3. Project objective and expected outcomes

The main objective of the proposed project is to support the reduction of fossil CO2 emissions in Malaysia's industry, in selected industrial sub-sectors such as pharmaceutical, textile, pulp and paper, food and beverage and metal surface treatment, rubber and petrochemical, by improving energy efficiency in industrial heating processes.

The project focuses on solar thermal applications that use conventional, non-concentrating, collectors in the low-temperature range (up to 100-150°C). Focusing on the above mentioned sub-sectors, the project builds on experiences with the GEF funded and UNIDO implemented MIEEIP and IEEMMS projects and develops knowledge and new approaches to the optimization of the production process heating and cooling. These are based on best available practices, boiler optimization, optimization of cooling devices and heat recovery, heat exchanging devices, heat integration and pinch analysis for the design of heat exchanger networks, detailed calculation of heat exchangers, storage management, solar process heat, process integration, identification of suitable solutions, and system integration, etc. Specific awareness raising campaigns are needed to target decision makers i.e. the industries most suitable for solar thermal process heat in the selected subsectors together as several market demonstration projects.

The ultimate goal of the project is to accompany the country toward improved regulations, financial incentive mechanisms (grant and non-grant instruments) and strengthened technical and institutional capabilities for the development, financing and implementation of solar thermal energy applications and energy efficiency improvements in industry on a sustainable basis.

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

**Component 1:** Development of a regulatory framework and financial incentive schemes to facilitate solar thermal energy utilization and thermal energy efficiency.

<u>Outcome -</u> Policy papers and financial incentive schemes established and endorsed by stakeholders.

<u>Output 1.1</u> - National counterparts supported to develop three policy papers on solar thermal energy.

<u>Output 1.2</u> - Two financial incentive schemes focusing on solar thermal applications developed.

**Component 2** Awareness raising and capacity building programme relating to process heating and cooling optimization and solar thermal energy utilization.

<u>Outcome</u> - Awareness and capacity of equipment vendors, service providers, industry management, plant engineers, and financial institutions in 5 targeted industrial sub-sectors strengthened and utilized.

<u>Output 2.1</u> - Training programme on energy savings based on process heating and cooling conducted for service providers, consultants and industry in selected sub-sectors; 50 equipment vendors, 100 users, and 50 experts trained.

<u>Output 2.2</u> - Training programme on solar thermal technology conducted for equipment/ component suppliers, service providers, consultants and industry in selected sub-sectors; 30 equipment vendors, 80 users, and 40 experts trained.

<u>Output 2.3</u> - Awareness raising events organized for industry management and financial institutions on investment in energy savings and solar thermal application.

**Component 3:** Demonstration and scaling up of sector-specific EE and solar thermal energy utilization in targeted industrial subsectors

<u>Outcome</u> - Thermal energy efficiency and solar thermal technology demonstrated and deployed in 5 targeted industrial subsectors.

Output 3.1 - Energy saving measures and investment projects implemented in about 40 factories.

<u>Output 3.2</u> - Of these 40 factories, around 10 implement solar thermal demonstration projects, with a total installed solar collecting area of 10,000 m2, and a lifetime energy generation of 360,000 GJ.

<u>Output 3.3</u> - Case studies prepared and presented under output 2.3 to raise more investment in EE and solar thermal integration using the trained capacity and various financial incentive schemes created.

## 4. Project implementation arrangements

A Project Steering Committee (PSC) was established to provide strategic guidance, and coordination between various ministries and other stakeholders. Many key partners of this new project are also those of the on-going IEEMMS project which ensured the effective coordination of the two projects via the various project management levels, the PSC, project management and technical working groups. The PSC will meet at least once every six months with ad-hoc meetings organized when necessary. While there are several PSC members, experience gathered from similar projects has shown that effective coordination and active participation by the key project stakeholders can be maintained as long as all members are relevant to the project.

The local project executing agency was SIRIM Bhd. that also hosted the Project Management Unit (PMU). SIRIM appointed one of its senior managers to be the National Project Director (NPD) who also acted as the Government representative to work closely with the PMU to ensure that the daily management of project execution is fully in line with Government priorities, rules and regulations, and that all local inputs and participation in the project implementation are on time and adequate.

The NPD shall have adequate authority and knowledge within the Government to get the necessary support from all local project partners to perform their duties under this Project, in particular to ensure that the Project is supporting Malaysian efforts.

The Project Management Unit (PMU) is responsible for the daily management of project activities/execution, and also acted as the Project Steering Committee Secretariat. It provided guidance/advice in the execution of each project component, in accordance with the project document. The PMU comprises of: • National Project Manager (NPM; fulltime, paid from the GEF budget); • Administrative Assistant (fulltime, paid from the GEF budget); • Technical Advisors (part-time, paid from GEF budget and co-financing)



## 5. Budget information

#### Table 1. Financing plan summary - Outcome breakdown

Project outcomes/components	Donor (GEF) (\$)	Co-Financing (\$)	Total (\$)
Outcome 1	1,775,000	7,970,000	9,745,000
Outcome 2	125,000	530,000	655,000
Outcome 3	2,100,000	11,500,000	13,600,000
Total (\$)	4,000,000	20,000,000	24,000,000

Source: Project document

#### Table 2. Co-Financing source breakdown

Name of Co-financier (source)	In-kind	Cash	Total Amount (\$)	
UNIDO	140.000	60.000	200.000	
GEF Agency	140,000	00,000	200,000	
SIRIM	900 000		900 000	
National Government	900,000		900,000	
SERI-UKM	800.000		800.000	
National Government	800,000		800,000	
MoSTI MIGHT	250.000		250.000	
National Government	230,000		230,000	
Industry	7 150 000	2 000 000	0 150 000	
Private sector	7,150,000	2,000,000	9,100,000	
Industry		8 450 000 (loop)	8 450 000	
Private sector		0,450,000 (10d11)	0,430,000	
FMM	250,000		250,000	

(source)	In-kind	Cash	Total Amount (\$)
Private sector			
Total Co-financing (\$)	9,490,000	10,510,000	20,000,000

Source : Project document

## Table 3. UNIDO budget allocation and expenditure by budget line – grant n. 2000002774

Budget											Total expenditur completi	re (at on)
line	Items by budget line	2014	2015	2016	2017	2018	2019	2020	2021	2022	(USD)	%
2100	Contractual Services	38,616	113,112	260,943	100,207	199,090	131,481	335,085	388,675	35,806	1,603,015	47
4500	Equipment	891	7,029	0	1,471	16,113	33,565	14,435	7,408	1,868	82,780	2.4
3500	International meetings	0	0	0	0	537	4,596	0	0	0	5,133	0.1
1500	Local travel	1,236	9,051	9,809	66,948	73,231	69,571	8,279	12,915	3,570	254,610	7.4
1700	Nat. Consult./Staff	0	49,342	77,412	93,198	142,968	172,518	172,948	172,405	83,233	964,024	28. 3
5100	Other Direct Costs	-1,025	6,621	7,916	40,408	12,838	33,708	51,755	20,440	6,850	179,511	5.2
4300	Premises	0	206	1,268	59,461	12,530	14,717	948	0	0	89,130	2.7
1100	Staff & Intern Consultants	0	6,215	7,050	14,538	43,125	27,592	28,381	62,880	0	189,781	5.7
1600	Staff travel	0	0	0	0	0	0	63	0	0	63	0.1
3000	Train/Fellowship/Study	0	32,875	0	2,655	3,144	0	0	0	0	38,674	1.1
	Total	41,732	226,466	366,414	380,903	505,594	489,767	613,914	666,744	133,349	3,406,721	100

Source: Project document and UNIDO Project Management ERP database as of 16/02/2022

## Table 4. UNIDO budget allocation and expenditure by component

		Total allocatio	n (at		
		approval)		Total expenditure	e (at completion)
#	Project components	USD/Euro	%	USD/Euro	%
1	Development of a regulatory framework	645,000	2.7		
	and financial incentive schemes to				
	facilitate solar thermal energy				
	utilization and thermal energy efficiency				
2	Awareness raising and capacity building	3,061,000	12.7		
	programme relating to process heating				
	and cooling optimization and solar				
	thermal energy utilization.				
3	Demonstration and scaling up of	18,940,000	78.9		
	sectorspecific energy efficiency and				

		Total allocation (at			
		approval)		Total expenditure	(at completion)
#	Project components	USD/Euro	%	USD/Euro	%
	solar thermal energy utilization in				
	targeted industrial subsectors.				
4	M&E	164,000	0.8		
5	Project management	1,190,000	4.9		
	Total	24,000,000	100%		

Source: Project document

## II. SCOPE AND PURPOSE OF THE EVALUATION

The purpose of the evaluation is to independently assess the project to help UNIDO improve performance and results of ongoing and future programmes and projects. The terminal evaluation (TE) will cover the whole duration of the project from its starting date in June 2014 to the estimated completion date in June 2022.

The evaluation has two specific objectives:

- (i) Assess the project performance in terms of relevance, effectiveness, efficiency, sustainability, coherence, and progress to impact; and
- (ii) Develop a series of findings, lessons and recommendations for enhancing the design of new and implementation of ongoing projects by UNIDO.

## III. EVALUATION APPROACH AND METHODOLOGY

The TE will be conducted in accordance with the UNIDO Evaluation Policy<sup>4</sup>, the UNIDO Guidelines for the Technical Cooperation Project and Project Cycle<sup>5</sup>, and UNIDO <u>Evaluation Manual</u>. In addition, 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 will be applied.

The evaluation will be carried out as an independent in-depth exercise using a participatory approach whereby all key parties associated with the project will be informed and consulted throughout the process. The evaluation team leader will liaise with the UNIDO Independent Evaluation Division (ODG/EIO/IED) on the conduct of the evaluation and methodological issues.

The evaluation will use a theory of change approach<sup>6</sup> and mixed methods to collect data and information from a range of sources and informants. It will pay attention to triangulating the data and information collected before forming its assessment. This is essential to ensure an evidence-based and credible evaluation, with robust analytical underpinning.

<sup>&</sup>lt;sup>4</sup> UNIDO. (2018). Director General's Bulletin: Evaluation Policy (UNIDO/DGB/2018/08)

<sup>&</sup>lt;sup>5</sup> 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)

<sup>&</sup>lt;sup>6</sup> For more information on Theory of Change, please see chapter 3.4 of UNIDO Evaluation Manual

The theory of change will depict the causal and transformational pathways from project outputs to outcomes and longer-term impacts. It also identifies the drivers and barriers to achieving results. The learning from this analysis will be useful for the design of the future projects so that the management team can effectively use the theory of change to manage the project based on results.

## 1. Data collection methods

Following are the main instruments for data collection:

- (a) **Desk and literature review** of documents related to the project, including but not limited to:
  - The original project document, monitoring reports (such as progress and financial reports, midterm review report, technical reports, back-to-office mission report(s), end-of-contract report(s) and relevant correspondence.
  - Notes from the meetings of committees involved in the project.
- (b) **Stakeholder consultations** will be conducted through structured and semi-structured interviews and focus group discussion. Key stakeholders to be interviewed include:
  - UNIDO Management and staff involved in the project; and
  - Representatives of donors, counterparts and stakeholders.
- (c) **Field visit** to project sites in Malaysia:
  - On-site observation of results achieved by the project, including interviews of actual and potential project beneficiaries.
  - Interviews with the relevant UNIDO Country Office(s) representative to the extent that he/she was involved in the project, and the project's management members and the various national [and sub-regional] authorities dealing with project activities as necessary.
  - It shall be noted that due to the persisting global emergency caused by the Covid-19 pandemic and the persisting limitations on international travels, the in-field data collection phase will be Carried out by the national consultant only in coordination with the evaluation team leader.
- (d) **Online data collection** methods: will be used to the extent possible.

## 2. Evaluation key questions and criteria

The key evaluation questions are the following:

- 1) How well has the project performed? Has the project done the right things? Has the project done things right, with good value for money? How well has the project fit?
- 2) What are the project's key results (outputs, outcome and impact)? To what extent have the expected results been achieved or are likely to be achieved? To what extent are the achieved results to be sustained after the completion of the project?
- 3) What are the key drivers and barriers to achieve the long term objectives? To what extent has the project helped put in place the conditions likely to address the drivers, overcome barriers and contribute to the long term objectives?
- 4) What are the key risks (e.g. in terms of financial, socio-political, institutional and environmental risks) and how these risks may affect the continuation of results after the project ends?

5) What lessons can be drawn from the successful and unsuccessful practices in designing, implementing and managing the project?

The table below provides the key evaluation criteria to be assessed by the evaluation. The details questions to assess each evaluation criterion are in annex 2 of UNIDO <u>Evaluation Manual</u>.

<u>#</u>	Evaluation criteria	Mandatory rating		
Α	Progress to impact	Yes		
В	Project design	Yes		
1	Overall design	Yes		
2	Logframe	Yes		
С	Project performance			
1	Relevance	Yes		
2	Effectiveness	Yes		
3	Coherence	Yes		
4	Efficiency Yes			
5	Sustainability of benefits Yes			
D	Cross-cutting performance criteria			
1	Gender mainstreaming Yes			
2	• M&E:			
	✓ M&E design	Yes		
	✓ M&E implementation	Yes		
3	<ul> <li>Results-based Management (RBM)</li> </ul>	Yes		
E	Performance of partners			
1	• UNIDO	Yes		
2	National counterparts	Yes		
3	• Donor	Yes		
F	Overall assessment	Yes		

## Table 5. Project evaluation criteria

#### Performance of partners

The assessment of performance of partners will *include* the quality of implementation and execution of the GEF Agencies and project executing entities in discharging their expected roles and responsibilities. The assessment will take into account the following:

- Quality of Implementation, e.g. the extent to which the agency delivered effectively, with focus on elements that were controllable from the given implementing agency's perspective and how well risks were identified and managed.
- Quality of Execution, e.g. the appropriate use of funds, procurement and contracting of goods and services.

Other assessments required by the GEF for GEF-funded projects, for non GEF projects these topics should be covered as applicable:

The terminal evaluation will assess the following topics, for which *ratings are not required*:

- a. **Need for follow-up**: e.g. in instances financial mismanagement, unintended negative impacts or risks.
- b. Materialization of co-financing: e.g. the extent to which the expected co-financing materialized, whether co-financing was administered by the project management or by some other organization; whether and how shortfall or excess in co-financing affected project results. <u>At the terminal evaluation point, the Project Manager will update table 2 on co-financing and add two more columns to submit to the evaluation team: 1)</u> <u>Amount of co-financing materialized at midterm review (MTR); and 2)</u> <u>Amount of co-financing materialized at terminal evaluation (TE). The evaluation team has the responsibility to validate and verify the co-financing amount materialized during the evaluation process. This table MUST BE included in the terminal evaluation report, as per requirement by the GEF.</u>
- c. **Environmental and Social Safeguards**<sup>7</sup>: appropriate environmental and social safeguards were addressed in the project's design and implementation, e.g. preventive or mitigation measures for any foreseeable adverse effects and/or harm to environment or to any stakeholder.
- d. Updated Monitoring and Assessment tool of core-indicators: The project management team will submit to the evaluation team the up-to-date core-indicators or tracking tool (for older projects) whereby all the information on the project results and benefits promised at approval and actually achieved at completion point must be presented. The evaluation team has the responsibility to validate and verify updated core-indicators during the evaluation process. This table MUST BE included in the terminal evaluation report, as per requirement by the GEF.
- e. **Knowledge Management Approach**: Information on the project's completed Knowledge Management Approach that was approved at CEO Endorsement/Approval.

## 3. Rating system

In line with the practice adopted by many development agencies, the UNIDO Independent Evaluation Division uses a six-point rating system, where 6 is the highest score (highly satisfactory) and 1 is the lowest (highly unsatisfactory) as per table below.

## Table 6. Project rating criteria

Score		Definition	Category
6	Highly satisfactory	Level of achievement presents no shortcomings (90% - 100% achievement rate of planned expectations and targets).	SATISEACTORY
5	Satisfactory	Level of achievement presents minor shortcomings (70% - 89% achievement rate of planned expectations and targets).	

<sup>&</sup>lt;sup>7</sup> Refer to GEF/C.41/10/Rev.1 available at: http://www.thegef.org/sites/default/files/council-meetingdocuments/ C.41.10.Rev\_1.Policy\_on\_Environmental\_and\_Social\_Safeguards.Final%20of%20Nov%2018.pdf

	Score	Definition	Category
4	Moderately satisfactory	Level of achievement presents moderate shortcomings (50% - 69% achievement rate of planned expectations and targets).	
3	Moderately unsatisfactory	Level of achievement presents some significant shortcomings (30% - 49% achievement rate of planned expectations and targets).	
2	Unsatisfactory	Level of achievement presents major shortcomings (10% - 29% achievement rate of planned expectations and targets).	UNSATISFACTORY
1	Highly unsatisfactory	Level of achievement presents severe shortcomings (0% - 9% achievement rate of planned expectations and targets).	

## IV. EVALUATION PROCESS

The evaluation will be conducted from April 2022 toto June 2022. The evaluation will be implemented in five phases which are not strictly sequential, but in many cases iterative, conducted in parallel and partly overlapping:

- Inception phase: The evaluation team will prepare the inception report providing details on the evaluation methodology and include an evaluation matrix with specific issues for the evaluation to address; the specific site visits will be determined during the inception phase, taking into consideration the findings and recommendations of the mid-term review.
- 2) Desk review and data analysis;
- 3) Interviews, survey and literature review;
- 4) Country visits (whenever possible) and debriefing to key relevant stakeholders in the field;
- 5) Data analysis, report writing and debriefing to UNIDO staff at the Headquarters; and
- 6) Final report issuance and distribution with management response sheet, and publication of the final evaluation report in UNIDO website.

## V. TIME SCHEDULE AND DELIVERABLES

The evaluation is scheduled to take place from April 2022 to June 2022. The data collection from the field and the interviews with relevant stakeholders at country level are tentatively planned for May 2022. At the end of this phase, the evaluation team will present the preliminary findings for key relevant stakeholders involved in this project in the country. The tentative timelines are provided in the table below.

The evaluation team leader will visit debrief remotely UNIDO Headquarters by delivering a 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 Project Manager (PM), UNIDO Independent Evaluation Division, the UNIDO GEF Coordinator and GEF OFP and other stakeholders

for comments. The ET leader is expected to revise the draft TE report based on the comments received, edit the language and submit the final version of the TE report in accordance with UNIDO ODG/EIO/EID standards.

Timelines	Tasks
April 2022	Desk review and writing of inception report
April 2022	Online briefing with UNIDO project manager and the project team based in
	Vienna.
April/May 2022	Data collection phase from Malaysia
May 2022	Preparation of first draft evaluation report
	Debriefing in Vienna
May 2022	Internal peer review of the report by UNIDO's Independent Evaluation
	Division and other stakeholder comments to draft evaluation report
June 2022	Final evaluation report

## Table 7. Tentative timelines

## VI. EVALUATION TEAM COMPOSITION

The evaluation team will be composed of one international evaluation consultant acting as the team leader and one national evaluation consultant. The evaluation team members will possess a mixed skill set and experience including evaluation, relevant technical expertise, social and environmental safeguards and gender. Both 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 is 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.

According to UNIDO Evaluation Policy, members of the evaluation team must not have been directly involved in the design and/or implementation of the project under evaluation.

The UNIDO Project Manager and the project management team in Malaysia will support the evaluation team. The UNIDO GEF Coordinator and GEF Operational Focal Point (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.

An evaluation manager from UNIDO Independent Evaluation Division will provide technical backstopping to the evaluation team and ensure the quality of the evaluation. The UNIDO Project Manager and national project teams will act as resourced persons and provide support to the evaluation team and the evaluation manager.

VII. REPORTING

This Terms of Reference (ToR) provides 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 Team Leader will prepare, in collaboration with the team member, a short inception report that will operationalize the ToR relating to the evaluation questions and provide information on what type and how the evidence will be collected (methodology). It will be discussed with and approved by the responsible UNIDO Evaluation Manager.

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 evaluation team members; field mission plan, including places to be visited, people to be interviewed and possible surveys to be conducted and a debriefing and reporting timetable<sup>8</sup>.

## Evaluation report format and review procedures

The draft report will be delivered to UNIDO Independent Evaluation Division (with a suggested report outline) and circulated to UNIDO staff and key 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 will be sent to UNIDO's Independent Evaluation Division for collation and onward transmission to the 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 local 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 afterwards.

The evaluation report should be brief, to the point and easy to understand. It must explain the purpose of the evaluation, 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 by UNIDO Independent Evaluation Division.

## VIII. QUALITY ASSURANCE

All UNIDO evaluations are subject to quality assessments by UNIDO Independent Evaluation Division. Quality assurance and control is exercised in different ways throughout the evaluation process (briefing of

<sup>&</sup>lt;sup>8</sup> The evaluator will be provided with a Guide on how to prepare an evaluation inception report prepared by UNIDO Independent Evaluation Division.

consultants on methodology and process of UNIDO Independent Evaluation Division, providing inputs regarding findings, lessons learned and recommendations from other UNIDO evaluations, review of inception report and evaluation report by UNIDO's Independent Evaluation Division).

The quality of the evaluation report will be assessed and rated against the criteria set forth in the Checklist on evaluation report quality. The applied evaluation quality assessment criteria are used as a tool to provide structured feedback. UNIDO Independent Evaluation Division 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 evaluation report are reviewed by 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: Project Logical Framework

Project Result	Indicator	Baseline	Targets	Source of verification	<b>Risks and Assumptions</b>
Project Objective	I			1	
To reduce GHG emissions by promoting and demonstrating sector-specific thermal EE improvements and solar thermal technology utilization in industry.			<ul> <li>Direct energy savings and substitution:</li> <li>Solar thermal: 360,000 GJ;</li> <li>Thermal energy efficiency: 40,603,583 GJ</li> <li>Lifetime GHG emission reduction:</li> <li>Solar thermal: 24 ktCO<sub>2</sub>;</li> <li>Thermal energy efficiency: 2,735 ktCO<sub>2</sub>.</li> <li>Post-project replication (investment in RE/EE opportunities in industry) will lead to indirect emission reduction of between 5,518 and 17,197 ktCO<sub>2</sub></li> </ul>	Project progress report Demonstration projects validation reports End-of-project impact report Project website	

Component 1: Development of a regulatory framework and financial incentive schemes to facilitate solar thermal energy utilization and thermal energy efficiency

Outcome 1					
Policy papers and financial incentive schemes established and endorsed by stakeholders.	Number of policy papers on solar thermal energy endorsed by stakeholders; Number of financial incentive schemes (e.g. tax breaks, certification schemes) established and endorsed by stakeholders.	No specific policy papers or financial incentive schemes for the promotion of industrial solar thermal energy utilization have been endorsed by the Malaysian institutions.	<ul> <li>3 policy papers on solar thermal energy endorsed by stakeholders (score 4 from the GEF's 0 to 5 score range);</li> <li>2 financial incentive schemes endorsed and established by stakeholders (score 4 from the GEF's 0 to 5 score range).</li> </ul>	Official documents Websites of organizations Publicity given in media	National authorities are willing to adopt specific regulations; Interest by stakeholders to apply EE (especially in the SMEs) exists and can be maintained.
Output 1.1				L	
National counterparts supported to develop three policy papers on solar thermal energy.	Number of policy papers developed; % of counterparts taking part in the development of policy papers report having benefitted from built capacity; Number of workshops and seminars organized.	There are currently no policy papers on solar thermal energy under development.	At least 3 policy papers on solar thermal energy developed; At least 70% of counterparts taking part in the development of policy papers report having benefitted from built capacity; At least 5 workshops and seminars organized.	Technical reportsProject progress reports Workshop proceedings	
Output 1.2					
Two financial incentive schemes focusing on solar thermal applications developed.	Number of financial incentive schemes (e.g. tax breaks, certification schemes) developed; Number of seminars/ events to present and discuss proposals organized.	No financial incentive schemes for the specific purpose of promoting the utilization of solar thermal energy in industry are available.	At least 2 financial incentive schemes developed. At least 5 workshops and seminars/events to present and discuss proposals organized	Technical reports Workshop proceedings Publicity in media Project progress reports	National authorities are willing to adopt specific regulations.

Component 2: Awareness raising and capacity building programme relating to process heating and cooling optimization and solar thermal energy utilization

Outcome 2					
Awareness and capacity of equipment vendors, service providers, industry management, plant engineers, and financial institutions in 5 targeted industrial sub-sectors strengthened and utilized.	% of participants reporting that they feel capable of successfully applying the knowledge/ skills acquired in their workplace;	Currently only one institution and one company offer services, albeit limited, on solar thermal utilization, and there are very few consultants for boiler and furnace efficiency improvements.	90% of participants report that they feel capable of successfully applying the knowledge/ skills acquired in their workplace; (score 5 from the GEF's 0 to 5 score range);	Evaluation reports Website of organizations and companies Project progress reports	Availability and willingness of experts to receive training; Willingness of companies and vendors to receive expert training.
Output 2.1				I	
Training programme on energy savings based on process heating and cooling conducted for service providers, consultants and industry in selected sub- sectors.	Number of trainees at various levels, users, experts, etc. trained in process heating optimization and waste heat recovery.	No comprehensive trainings on process heating and cooling are available in the selected sub-sectors.	50 equipment vendors, 100 users and 50 experts trained.	Training reports Project progress reports Company information	Availability and willingness of experts to receive training. Willingness of companies and vendors to receive expert training.
Output 2.2					
Training programme on solar thermal technology conducted for equipment/ component suppliers, service providers, consultants and industry in selected sub- sectors.	Number of trainees trained at various levels on solar thermal systems and integration in industrial processes.	No comprehensive trainings on solar thermal technology are available in the selected sub-sectors.	30 equipment vendors, 80 users and 40 experts trained	Training reports Company info and plant visits	Interest by stakeholders to apply solar thermal integrated with EE improvements exists and can be maintained.

Output 2.3					
Awareness raising events organized for industry management and financial institutions on investment in energy savings and solar thermal application.	Number of awareness raising events organised; Number of publications issued; project website developed.	No comprehensive awareness programme on solar thermal energy utilization or on thermal EE in industry exists.	At least 20 awareness raising events for the target group (industry managers, financial institutions) organized, including experience with the demonstration projects; 20 publications, posters etc. issued; project website operational.	Technical reports Company info and plant visits	Willingness of government agencies and commercial banks to support RE (solar thermal) and EE in industry.
Component 3 - Demonstratio	on and scaling up of sector	r-specific EE and solar th	eermal energy utilization in targ	geted industrial sub	sectors
Outcome 3		1		1	
Thermal energy efficiency and solar thermal technology demonstrated and deployed in 5 targeted industrial sub- sectors.	% of plants reporting that they will continue to use and maintain the technology transferred by the project in their plants.	The selected sub- sectors do not currently have ongoing demonstration projects for thermal EE and solar thermal technology.	90% of plants report that they will continue to use and maintain the technology transferred by the project in their plants.	Evaluation reports Website of organizations and companies Project progress and technical reports Monitoring and case study reports	Interest by stakeholders to apply EE (especially in the SMEs) exists and can be maintained.

Output 3.1					
Energy saving measures and investment projects implemented in about 40 factories.	Number of facilities in which EE in thermal processes have been implemented.	No such demonstration projects are currently available in the selected sub-sectors.	40 companies with EE improvements in process heating and cooling;	Project progress and technical reports Monitoring and case study reports; Company information	Interest by companies to apply EE and systems optimization exists and can be maintained.
Output 3.2					
Of the above 40 factories, around 10 implemented solar thermal demonstration projects.	Number of facilities in which solar thermal energy utilized.	No such demonstration projects are currently available in the selected sub-sectors.	10 facilities with integrated solar thermal systems.	Project progress and technical reports Monitoring and case study reports; Company info and plant visits	Companies are willing to implement EE measures in thermal systems and integrate with solar thermal.
Output 3.3		-			
Case studies prepared and presented under output 2.3 to raise more investment in EE and solar thermal integration using the trained capacity and various financial incentive schemes created.	Number of case studies prepared and presented at awareness raising events; Number of future investment opportunities identified.	Due to the lack of demonstration projects and investment in solar thermal technologies in industry, case studies are nonexistent.	10 case studies prepared and presented at seminars/ workshops (total of 20 event days, held at workshops at various places throughout Malaysia);	Progress reports Presentations and training materials	



#### UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

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

Title:	Senior evaluation consultant, team leader
Main Duty Station and Location:	Home-based
Missions:	Not foreseen
Start of Contract (EOD):	28 March 2022
End of Contract (COB):	30 June 2022
Number of Working Days:	35 working days spread over the above mentioned period

#### 1. ORGANIZATIONAL CONTEXT

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

#### 2. PROJECT CONTEXT

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

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

MAIN DUTIES	Concrete/ Measurable Outputs to be achieved	Working Days	Location
<ol> <li>Review project documentation and relevant country background information (national policies and strategies, UN strategies and general economic data).</li> <li>Define technical issues and questions to be addressed by the national technical evaluator prior to the field visit.</li> <li>Determine key data to collect in the field and adjust the key data collection instrument if needed.</li> <li>In coordination with the project manager, the project management team and the national technical evaluator, determine the suitable sites to be visited and stakeholders to be interviewed.</li> </ol>	<ul> <li>Adjusted table of evaluation questions, depending on country specific context;</li> <li>Draft list of stakeholders to interview during the field missions.</li> <li>Identify issues and questions to be addressed by the local technical expert</li> </ul>	4 days	Home- based
<ul> <li>2. Prepare an inception report which streamlines the specific questions to address the key issues in the TOR, specific methods that will be used and data to collect in the field visits, confirm the evaluation methodology, draft theory of change, and tentative agenda for field work.</li> <li>Provide guidance to the national evaluator to prepare initial draft of output analysis and review technical inputs prepared by national evaluator, prior to field mission.</li> </ul>	<ul> <li>Draft theory of change and Evaluation framework to submit to the Evaluation Manager for clearance.</li> <li>Guidance to the national evaluator to prepare output analysis and technical reports</li> </ul>	2 days	Home based
3. Briefing with the UNIDO Independent Evaluation Division, project managers and other key stakeholders at UNIDO HQ (included is preparation of presentation).	<ul> <li>Detailed evaluation schedule with tentative mission agenda (incl. list of stakeholders to interview and site visits); mission planning;</li> </ul>	1 day	Through skype

MAIN DUTIES	Concrete/ Measurable Outputs to be achieved	Working Days	Location
	<ul> <li>Division of evaluation tasks with the National Consultant.</li> </ul>		
4. Coordinate the data collection phase from Malaysia <sup>9</sup> .	<ul> <li>Organise meetings with relevant project stakeholders, beneficiaries, the GEF Operational Focal Point (OFP), etc. for the collection of data and clarifications;</li> <li>Strong coordination and agreement with the National Consultant on the structure and content of the evaluation report and the distribution of writing tasks;</li> <li>Evaluation presentation of the evaluation's preliminary findings, conclusions and recommendations to stakeholders in the country, including the GEF OFP, at the end of the mission.</li> </ul>	10 days	Home- based
5. Present overall findings and recommendations to the stakeholders at UNIDO HQ	<ul> <li>After field mission(s): Presentation slides, feedback from stakeholders obtained and discussed.</li> </ul>	1 day	Through Skype/Zo om

<sup>&</sup>lt;sup>9</sup> 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
6. Prepare the evaluation report, with inputs from the National Consultant, according to the TOR;	• Draft evaluation report.	15 days	Home- based
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.			
7. 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.	2 days	Home- based

## MINIMUM ORGANIZATIONAL REQUIREMENTS

#### Education:

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

#### Technical and functional experience:

- Minimum of 15-20 years' experience in evaluation of development projects and programmes
- Sound knowledge of Industrial Energy Efficiency technologies and solar thermal systems in particular.
- Good working knowledge in Malaysia
- 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
- Familiarity with gender analysis tools and methodologies an asset
- Working experience in developing countries

#### Languages:

Fluency in written and spoken English is required. 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.

#### **REQUIRED COMPETENCIES**

#### Core values:

WE LIVE AND ACT WITH INTEGRITY: work honestly, openly and impartially. WE SHOW PROFESSIONALISM: work hard and competently in a committed and responsible manner. WE RESPECT DIVERSITY: work together effectively, respectfully and inclusively, regardless of our differences in culture and perspective.

#### Core competencies:

WE FOCUS ON PEOPLE: cooperate to fully reach our potential –and this is true for our colleagues as well as our clients. Emotional intelligence and receptiveness are vital parts of our UNIDO identity.

WE FOCUS ON RESULTS AND RESPONSIBILITIES: focus on planning, organizing and managing our work effectively and efficiently. We are responsible and accountable for achieving our results and meeting our performance standards. This accountability does not end with our colleagues and supervisors, but we also owe it to those we serve and who have trusted us to contribute to a better, safer and healthier world.

WE COMMUNICATE AND EARN TRUST: communicate effectively with one another and build an environment of trust where we can all excel in our work.

WE THINK OUTSIDE THE BOX AND INNOVATE: To stay relevant, we continuously improve, support innovation, share our knowledge and skills, and learn from one another.



## 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:	01 April 2022
End of Contract:	30 June 2022
Number of Working Days:	40 days spread over the above mentioned period

#### **ORGANIZATIONAL CONTEXT**

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

#### PROJECT CONTEXT

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

The 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
Desk review Review and analyze project documentation and relevant country background information; in cooperation with the team leader, determine key data to collect in the field and prepare key instruments in English (questionnaires, logic models); If need be, recommend adjustments to the evaluation framework and Theory of Change in order to ensure their understanding in the local context.	Evaluation questions, questionnaires/interview guide, logic models adjusted to ensure understanding in the national context; A stakeholder mapping, in coordination with the project team.	4 days	Home- based
Carry out preliminary analysis of pertaining technical issues determined with the Team Leader. In close coordination with the project staff team verify the extent of achievement of project outputs prior to field visits. Develop a brief analysis of key contextual conditions relevant to the project	<ul> <li>Report addressing technical issues and question previously identified with the Team leader</li> <li>Tables that present extent of achievement of project outputs</li> <li>Brief analysis of conditions relevant to the project</li> </ul>	6 days	Home- based
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 project staff in the field.	<ul> <li>Detailed evaluation schedule.</li> <li>List of stakeholders to interview during the field missions.</li> </ul>	1 day	Home- based
Conduct the field data collection in close cooperation with the Team Leader and 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. Conduct the translation for the Team Leader, when needed.	<ul> <li>Presentations of the evaluation's initial findings, draft conclusions and recommendations to stakeholders in the country at the end of the mission.</li> <li>Agreement with the Team Leader on the structure and content of the evaluation</li> </ul>	21 days (including travel days)	In Malaysia

MAIN DUTIES	Concrete/measurable outputs to be achieved	Expected duration	Location
	report and the distribution of writing tasks.		
Follow up with stakeholders regarding additional information promised during interviews	<ul> <li>Part of draft evaluation report prepared.</li> </ul>	8 days	Home- based
Prepare inputs to help fill in information and analysis gaps (mostly related to technical issues) and to prepare some sections and tables to be included in the evaluation report as agreed with the Team Leader.			
Revise the draft project evaluation report based on comments from UNIDO Independent Evaluation Division and stakeholders and proof read the final version.			

#### 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:

- Excellent knowledge and competency in the field of Energy Efficiency and solar thermal systems.
- Evaluation experience, including evaluation of development cooperation in developing countries is an asset.
- Exposure to the development needs, conditions and challenges in their country and region.
- Familiarity with gender analysis tools and methodologies and asset.
- Familiarity with the institutional context of the project is desirable.

Languages: Fluency in written and spoken English and in Malay is required.

#### 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.

#### **REQUIRED COMPETENCIES**

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