GEF Operational Focal Area: Climate Change Mitigation

# Mid-term Review Report of Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector (MTRE3)

*(PIMS # 4673, GEF # 5339)*


Prepared By

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Sincerely
Nisar Ahmad Khan
Asep Swarna

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## ACRONYMS

| | |
|---|---|
| APPLE GATRIK | Aplikasi Perhitungan dan Pelaporan Emisi Ketenagalistrikan (Application for Electricity Emission Calculation and Reporting) |
| APR | Annual Project Reports |
| AWP | Annual Work Plans |
| BAPPEDA | Regional body for planning and development |
| BAPPENAS | Ministry of National Development Planning |
| BAU | Business-as-Usual |
| BAZNAS | Indonesian Zakat Authority |
| BOOT | build-own-operate-transfer |
| BPLHD | Badan Pengelolaan Lingkungan Hidup Daerah (Regional Environmental Office) |
| BPPT | Agency for the Assessment and Application of Technology |
| CMEA | Coordinating Ministry of Economic Affairs |
| CO2 | Carbon dioxide |
| CSOs | Civil Society Organizations |
| CSR | Corporate Social Responsibility |
| CTA | Chief Technical Advisor |
| DGNREEC/ | Directorate General of New-Renewable Energy and Energy Conservation |
| DPMPTSP | Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu /Investment and One Stop Service Office |
| DPRD | Dewan Perwakilan Rakyat Daerah (Local Parliament) |
| EE | Energy efficiency |
| ESCO | Energy Service Company |
| GEF | Global Environmental Facility |
| GHG | Greenhouse gas |
| GoI | Government of Indonesia |
| IDR | Indonesian Rupiah |
| IGA | Investment Grade Audit |
| IKE | Energy Consumption Intensity |
| INDC | Intended Nationally Determined Contributions |
| IPP | Independent Power Producer |
| KEN | National Energy Policy |
| kt | kilo tons |
| kW | Kilo Watt |
| LFA | Logical Framework Analysis |
| M&E | Monitoring and evaluation |
| MACC | Marginal GHG Abatement Cost Curve |
| MEMR/ESDM | Ministry of Energy and Mineral Resources |
| MoEF | Ministry of Environment and Forestry |
| MoF | Ministry of Finance |
| MoPWH | Ministry of Public Works and Housing |
| MOV | Means of Verification |
| MRV | Measurement, Reporting, Verification |
| MTR | Mid-term Review |
| MTRE3 | Market Transformation for Renewable Energy and Energy Efficiency |
| MW | Mega Watt |
| NAMA | Nationally Appropriate Mitigation Action |
| NIM | Nationally Implementation Modality (UNDP) |
| NPD | National Project Director |

| | |
|---|---|
| NPM | National Project Manager |
| NTT | East Nusa Tenggara |
| OJK | Otoritas Jasa Keuangan (Financial Services Authority) |
| OSS | Online Single Submission System |
| PB | Project Board |
| PIF | Project Identification Form |
| PIR | Project Implementation Review reports |
| PLN | National Electricity Company |
| PMU | Project Management Unit |
| PPA | Power Purchase Agreement |
| PSC | Project Steering Committee |
| PT SMI | PT Sarana Multi Infrastruktur / infrastructure financing State-Owned Enterprise |
| PV (solar) | Photovoltaic |
| QPR | Quarterly Progress Reports |
| R&D | Research and development |
| RAD-GRK | Regional Action Plan to Reduce Green House Gases |
| RAN-GRK | National Action Plan to Reduce Green House Gases |
| RE | Renewable Energy |
| RF | Results Framework |
| RIKEN | National Master Plan of Energy Conservation |
| RPJMN | Regional National Mid-Term Development Plan |
| RTA | Regional Technical Advisor |
| RUED | Local Energy Plan |
| RUEN | National Energy Plan |
| SDGs | Suitable Development Goals |
| SEC | Specific Energy Consumption |
| SEF | Sustainable Energy Fund |
| SIO | SDG Indonesia One |
| SRN | National Registry System |
| tCO2eq | tonnes of carbon dioxide equivalent |
| TWG | Technical Working Group |
| UNDP | United Nations Development Programme |
| UNDP CO | United Nations Development Programme Headquarters |
| UNDP HQ | United Nations Development Programme Headquarters |
| UNFCCC | United Nations Framework Convention for Climate Change |
| USD | United States Dollar |

## EXECUTIVE SUMMARY

### a) Project Information Table

| **Project Title** | Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector (MTRE3) | | |
|---|---|---|---|
| UNDP Project ID (PIMS #): | 4673 | PIF Approval Date: | 12 September 2013 |
| GEF Project ID (PMIS #): | 5339 | CEO Endorsement Date: | 12 July 2016 |
| ATLAS Business Unit, Award # Proj. ID: | 86173 | Project Document (ProDoc) Signature Date (date project began): | 13 March 2017 |
| Country(ies): | Indonesia | Date project manager hired: | 1 February 2017 |
| Region: | South East Asia | Inception Workshop date: | 13 December 2017 |
| Focal Area: | Climate Change Mitigation | Midterm Review completion date: | 31 July 2019 |
| GEF Focal Area Strategic Objective: | Climate Change Mitigation Objective 2 and 3 | Planned closing date: | 31 March 2021 |
| Trust Fund [indicate GEF TF, LDCF, SCCF, NPIF]: | GEF TF | If revised, proposed op. closing date: | |
| Executing Agency/ Implementing Partner: | Ministry of Energy and Mineral Resources | | |
| Other execution partners: | | | |
| **Project Financing** | *at CEO endorsement (US$)* | *at Midterm Review (US$)* | |
| [1] GEF financing: | 8,025,000 | 2,279,517 | |
| [2] UNDP contribution: | 100,000 | 119,025 (in-kind) | |
| [3] Government: | 8,000,000 | 1,335,972 (in-kind) | |
| [4] Other partners: | 52,000,000 | 2,265,074 | |
| [5] Total co-financing [2 + 3+ 4]: | 60,100,000 | 3,720,071 | |
| PROJECT TOTAL COSTS [1 + 5] | 68,125,000 | 5,999,588 | |

### b) Project Description

Market Transformation Through Design and Implementation of Appropriate Mitigation Actions in the Energy Sector (MTRE3 is a five-year project (2016 - 2021), funded by GEF and co-financed by the Government of Indonesia (GoI) and UNDP. The project was designed to address policy, institutional, financial and technical barriers that hinder the realization of the potential of renewable energy and energy efficiency technologies in Indonesia. The objective of the project is to support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors in Indonesia. The results framework has outlined three interrelated outcomes and sets of outputs to achieve the overall objectives. Project outcomes include;

***Outcome 1:*** Prioritized appropriate mitigation actions in the RE-based energy generation and energy efficiency.

***Outcome 2:*** Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies.

***Outcome 3:*** Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency.

The project is implemented using UNDP National Implementation Modality (NIM), with Ministry of Energy and Mineral Resources (MEMR) as the main implementing partner. Other stakeholders include governmental institutions at the national and provincial level (from four pilot provinces. Jambi, Riau, West Sulawesi, East Nusa Tenggara), financial institutions, public sector organizations, academia, civil society and local communities. Project's GEF budgetary resources consist of USD 8.025 Million, as grant. The project document has also outlined that the project will receive co-financing in the form of parallel activities and in-kind contribution of USD 8.0 Million from MEMR and USD 0.1 Million from UNDP-TRAC and around 52 Million as private sector investments. The project commenced its implementation in March 2017 and is presently in mid-course though its life.

### c) Project Progress Summary

Analysis of progress at mid-term suggests that the project has facilitated and implemented a wide range of interventions at the national and provincial level, to achieve its stipulated outcomes and objectives. Main accomplished interventions to achieve outcome-1 include: facilitation of RE potential studies in four provinces, development of GHG inventories, drafting of Provincial Energy Plans in four provinces and Energy Consumption Surveys in government. Buildings.

Completed interventions to achieve outcome-2 include: support to Online Single Submission (OSS) System, capacity building of and knowledge sharing among stakeholders, Study on Certification, Accreditation and Standardization of RE projects and Investment Grade Audits (IGAs) of potential energy efficiency improvements in commercial buildings. The project supported, in collaboration with Bank Jambi and BAZNAS, the revitalization of three micro hydro projects (40kW each) and has facilitated the design and implementation one new micro hydro project (60kW) in remote off-grid villages of Jambi province, currently these micro hydro are providing electricity to 806 households in four villages.

The project has also provided technical assistance to conduct an environmental and social study for a 3 MW Biomass project in Riau province. The project design also envisaged establishment of a USD 2.6 Million, Sustainable Energy Fund (SEF), to facilitate financing for small-medium RE and EE projects. Part of the SEF mechanism is already operating, however, the finalization of delivery and administrative mechanism for SEF is still underway.

Accomplished interventions to achieve Outcome-3 include: support to the strengthening of National Registry System (SRN), through building capacities of stakeholders to submit mitigation actions to SRN. The Project also facilitated an input of 1,052 mitigation actions in energy sector in to SRN. Similarly, the Project is also engaged in developing MRV methodologies and guidelines for RE/EE projects in energy sector.

## d) MTR Ratings Table

| Measure | MTR Rating | Achievement Description |
|---|---|---|
| **Progress Towards Results** | **Project Objective:** Achievement Rating: Moderately Satisfactory **(MS)** | Analysis of progress at mid-term suggest that a number of objective level targets are lagging behind. Implementation need to considerably accelerate to achieve end of project targets. |
| | **Outcome 1:** Achievement Rating: Satisfactory **(S)** | Analysis of progress at mid-term suggest that outcome targets will be achieved by the end of project. However, several more activities need to be implemented in the remaining period. |
| | **Outcome 2:** Achievement Rating: Moderately Satisfactory **(MS)** | Analysis of progress at mid-term suggest that a number of outcome level targets are lagging behind. Implementation need to considerably accelerate to achieve end of project targets. |
| | **Outcome 3:** Achievement Rating: Satisfactory **(S)** | Analysis of progress at mid-term suggest that outcome targets will be achieved by the end of project. However, several more activities need to be implemented in the remaining period. |
| **Project Implementation & Adaptive Management** | Achievement Rating: Satisfactory **(S)** | Overall Project Implementation & Adaptive Management arrangements were found appropriate and conducive. The cooperation among various stakeholders also remained swift and optimal. |
| **Sustainability** | Achievement Rating: Moderately Likely **(ML)** | There is no institutional, socio-economic and environmental risk to sustainability. However, availability of and access to desired financial resources for RE and EE projects is challenging and needs to be facilitated and streamlined. In addition, there is also limited technical capacity to develop bankable projects |

## e) Summary Conclusions

Based on the analysis of the evaluation exercise following are the summary conclusions;

***Project strategy:***

- Overall project design was well conceived and relevant to address the prevailing barriers and to achieve overall objectives. Project objectives and approach were also found inline and very relevant to GOI policies and priorities, needs of the local communities and UNDP and GEF national and global priorities.

- Project Results Framework was well formulated and exhibited clear linkages among outcomes and objectives. However, outputs level indicators, targets and Means of Verification were not identified in the design, posing challenges in measuring the progress of outputs. Some of the objective level targets are also found a bit challenging to achieve. In addition, absence of Gender analysis/Action plan during project design and lack of gender-disaggregated indicators, also hampers the capturing of gender dimensions.

***Progress Towards Results***

- *Overall Objective:* Analysis suggest that many of the objective level targets are presently lagging behind. Project is already half way through its life therefore rationally by now half or at least one third of the targets should have been achieved.

- *Outcome 1:* Project supported RE potential studies/maps, GHG inventories and provincial energy plans are found very comprehensive, evidence based, data driven and technically sound. The provincial government officials vowed to use these studies and implement the energy plans for development and promotion of RE and EE projects in their respective provinces. Several other interventions to follow to fully achieve the outcome.

- *Outcome 2:* Project interventions helped in facilitating the permitting process for RE projects, building capacities of stakeholders and standardization of RE interventions. Investment Grade Audits have been carried out in six buildings and some of the buildings like Transmart, Ravindo and Pullman Hotels have already started implementation of IGAs to enhance energy efficiency. The project has also provided technical assistance to enhance the bankability of a 3 MW Biomass power plant, which is now in the process of being financially closed, with support from PT SMI.

- *Outcome 2:* Project envisaged the establishment of a USD 2.6 Million, Sustainable Energy Fund, to facilitate financing for small-medium RE and EE projects. Presently part of the delivery mechanisms is still under finalization and remained awaiting the approval from UNDP and IP. On 19 June 2019 project has formally received an approval from GEF-UNDP that the procurement mechanism of SEF can be utilized. Overall there is a greater need for timely and effective utilization of SEF allocations in the remaining project period.

- *Outcome 2:* Project supported the revitalization of three micro hydro projects (40kW each) and has facilitated the design and implementation one new micro hydro project (60kW) in remote off-grid villages of Jambi province, currently these micro hydro projects are providing electricity to 806 households in four villages. Respective communities are greatly benefiting from power supply, which has considerably transformed and improved their life and livelihoods. Overall analysis of progress at mid-term suggest that some of the Outcome-2 targets are presently lagging behind.

- *Outcome 3:* Project facilitated capacity building of stakeholders to submit mitigation actions to SRN. Project has also facilitated input of 1,052 mitigation actions in energy sector in to SRN. This input has enriched the SRN database and will significantly contribute towards the MRV in energy sector. Project is also engaged in developing MRV methodologies and guideline for RE/EE projects in energy sector. Several interventions will follow in the remaining life of the project to fully achieve this outcome.

***Project Management***

- Overall project management arrangements were found appropriate and UNDP and MEMR and other stakeholders provided the needed management support during project implementation. The cooperation among various stakeholders in management and

implementation of the project also remained swift and optimal and presently there are no major collaboration issues among stakeholders.

- As of April 2019, around 28% of the total "GEF" budgetary resources have been utilized. The lower rate of spending is mostly due to the non-utilization of USD 2.6 Million SEF allocations. If SEF allocations of 2.6 Mill, are excluded, then the utilization rate of available GEF funds is around 42%. Regarding co-financing from the GoI, IDR 18.89 Billion (around USD 1.335 Million) has been utilized by the MoEMR on 14 parallel projects. Project has also mobilized co-financing of USD 2.26 from various partners for implementation of RE and EE projects.

- Project has been monitored and evaluated through progress review meetings, quarterly and annual progress reporting, field visits and now this is the Mid-term Review of the project. Similarly, a Terminal Evaluation will be commissioned toward the end of the project. However, the absence of a dedicated M&E expert within the PMU has somehow hindered the development and implementation of rigorous project M&E mechanisms.

***Sustainability***

- Availability of and access to adequate finances remains one of the main barriers and risk in implementation, sustainability and scaling up of small to medium RE and EE projects. Once SEF is fully mobilized and implemented it is expected that it will help improve the financial sustainability of RE and EE projects. Similarly, public sector financial institutions are also working on sustainable finance mechanisms. Once fully developed and implemented they will greatly enhance the overall sustainability of RE and EE interventions in future.

- In view of the availability of relevant and conducive GoI policies, legal and institutional frameworks and high level of acceptance and ownership at the governmental level, it can be concluded that there is better likelihood that RE/EE interventions will be duly sustained institutionally in times to come.

## f) Recommendations

Based on the overall analysis and conclusions following are the recommendations;

| No | Recommendations | Entity Responsible |
|---|---|---|
| A | **Outcome 1:** Prioritized appropriate mitigation actions in the RE based energy generation and energy efficiency. | |
| A.1 | To continue supporting provincial governments in review and timely approval of the draft Provincial Energy Plans. There is also a greater need to develop tentative financial plans/budgetary outlays for the Provincial Energy Plans. Project should provide technical assistance to develop respective | Project Team<br>MEMR |

| No | Recommendations | Entity Responsible |
|---|---|---|
| | financial plans in pilot provinces, this will greatly help in capturing the total scope of investments required. | |
| A.2 | To further support and collaborate with public and private sector stakeholders in the implementation of the recommendations of the completed Specific Energy Consumption Survey in government buildings and Investment Grade Audits in the remaining private buildings. | **Project Team**<br>**MEMR** |
| A.3 | To enhance close collaboration with and build capacities of ESCOs to enable them to effectively and professionally provide required technical and human resources/services for energy efficiency in public and private sector projects. | **Project Team** |
| A.4 | To continue capacity building programs for the stakeholders in RE sector including government agencies especially at the provincial level, financing institutions, project developers, consulting companies, and policy makers. | **Project Team** |
| B | **Outcome 2:** Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies. | |
| B.1 | To finalize Sustainable Energy Fund delivery mechanisms, as soon possible, to start efficient and effective utilization of the allocated USD 2.6 Million. It is suggested that the developed SEF delivery mechanisms should be finalized and approved in a special Project Board meeting, to be called at an early convenience, preferably not later than Sep 2019. Similarly, UNDP HQ should provide desired technical and administrative support to timely finalize and approve the institutional and administrative mechanisms for utilization of SEF. | **Project Team**<br>**UNDP CO and HQ**<br>**MEMR**<br>**Project Board** |
| B.2 | To identify and collaborate with willing partners in public and private sector in the design and implementation of the RE projects in the pilot provinces to achieve the target of 15 MW RE based power generation (7 MW mini-hydro, 6 MW biomass and 2 MW solar PV projects) by the end of project. Overall this target can be achieved in the remaining period as a 3 MW project is already about to close financially with PT SMI.<br><br>The remaining target can be achieved by identifying potential partners and provide desired technical support in the development and enhancing the bankability of the proposals. In this regard the project should connect/consult with organizations, who have already secured RE PPAs with PLN and are looking for external technical and financial support. If needed the project should also issue a call for expression interest to identify and select potential partners for establishment of RE projects. | **Project Team**<br>**MEMR** |
| B.3 | To further support communities and build their capacities in effectively managing and operating the micro hydro projects, as well as further explore business models based on fee collection and introduction of Renewable Energy Service Providers (RESCOs) for operation and maintenance of micro-grids. | **Project Team**<br>**MEMR** |

| No | Recommendations | Entity Responsible |
|---|---|---|
| | The managers and operators needs to be further trained through refresher courses especially in technical and operational matters. It is also important to devise standard SOPs with service providers for timely maintenance in cases of major breakdowns. It is also suggested to establish a village committee to monitor the operations and related financial affairs of the micro hydro. | |
| C | **Outcome 3:** Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency | |
| C.1 | To foster efforts, involving relevant stakeholders, to further strengthen the National Registry System (SRN). Project should engage with and build capacities of relevant energy sector institutions to duly submit mitigation actions implemented by various stakeholder to SRN. | **Project Team**<br>**MoEF** |
| C.2 | The MoEF officials also highlighted that there is a greater need for physical/on ground verification of the mitigation actions, as presently, due to limited resources, the MoEF is carrying out MRVs only through desk reviews of data uploaded in the SRN. If resources allow, project should provide necessary facilitation support to enable MoEF to physically verify some selected mitigation actions. | **Project Team**<br>**MoEF** |
| D | **Project Implementation & Adaptive Management** | |
| D.1 | A number of targets for objective level and Outcome-2 indicators are lagging behind. Therefore, there is a greater need to further accelerate the implementation of remaining project interventions. Having said this if the project management understand that there is a need for revision of targets then it should take the matter to the PB. However downward revision of targets will have its own implications, as project financial resources have been estimated keeping in view the prevailing targets in the results framework. If the project targets can't be achieved by the end of project then the most desirable option is, if resources allows, to request for no-cost extension of the project timeframe (up to 6-12 moths) to complete the targets, instead of revising the targets. | **Project Team**<br>**UNDP CO and HQ**<br>**MEMR**<br>**Project Board** |
| D.2 | Project document envisaged the position of a Chief Technical Advisor, however the position remains vacant. Though the absence of CTA has been mitigated by advisory support from CO. However, it is recommended, if resources allow, project should bring on board a suitably qualified CTA, as soon. This will greatly help in further streamlining and acceleration of project implementation. | **Project Team**<br>**UNDP CO**<br>**MEMR** |
| D.3 | To employ a dedicated M&E expert/officer for the remaining period of project, who should develop and implement a rigorous M&E mechanisms and provide continuous feedback to the management during implementation and especially keep track of project outcomes and objective level indicators. | **Project Team**<br>**UNDP CO** |

| No | Recommendations | Entity Responsible |
|---|---|---|
| | Furthermore, all stakeholders also need to be regularly involved in the M&E through six-monthly and annual review meetings/workshops. It is also suggested that project should conduct a comprehensive study, towards the end of project, to estimate the exact status of GHG reductions from project interventions. | |
| D.4 | To sort out and assemble all project knowledge products including studies, reports, publications etc., and disseminate in soft and hard to all stakeholders and to upload them to MEMR website for easy accessibility and future reference. | Project Team |
| D.5 | There is a greater need to further emphasize on the gender mainstreaming during implementation of project interventions. It is recommended that project should engage a gender specialist who should develop and implement a gender mainstreaming strategy. Furthermore, mechanisms should be developed to collect and analyse gender-disaggregated data related to project output and outcome indicators. | Project Team |
| E | **Sustainability** | |
| E.1 | To further explore co-financing arrangements with existing partners like Bank Jambi and BAZNAS and other potential financial institutions to establish and scale up RE and EE projects in times to come. The project also needs to work closely with financial institutions like PT SMI, OJK and especially with private sector banks, to develop a priority regime to ease financing of future sustainable energy projects. | Project Team<br>UNDP CO<br>MEMR |
| E.2 | To formulate a timely and pragmatic exit strategy, towards the last year of the project, outlining issues, ways and means to smoothly phase out and handover interventions to partners, to ensure sustainability and continuity. The exit strategy shall also highlight possible future options for replicability and scaling up of RE and EE interventions in future. | Project Team<br>MEMR |

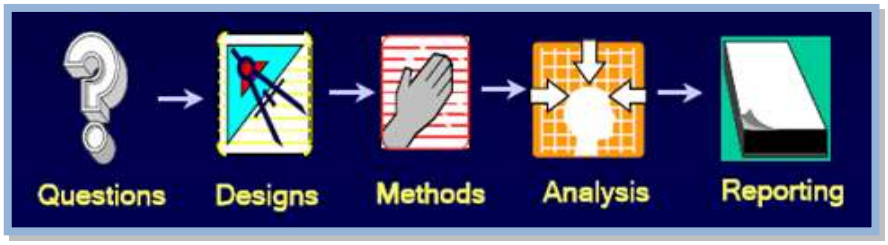
# 1. INTRODUCTION

## 1.1 Purpose of the Mid-term Review

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP supported and GEF financed projects are required to undergo a Mid-term Review (MTR). The objective of this MTR is to assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document, and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results. The MTR also reviews the project's strategy and its risks to sustainability of interventions and benefits. Accordingly, the MTR provides specific recommendations to streamline project interventions to achieve end of project targets.

## 1.2 Scope & Methodology

In view of the objectives, scope and duration of the MTR, a semi structured mixed method approach has been adopted using both qualitative and quantitative data collection and analysis methods and tools. The MTR was conducted in line with the guidance and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for MTRs of GEF Financed Projects. In summary the overall review process consisted of five standard steps i.e. 1) Review Questions, 2) Review Design, 3) Data Collection Methods, 4) Data Analysis and 5) Presentation and Reporting.




### a) Review Categories and Questions

In line with ToRs and Guidelines for Conducting Midterm Reviews of GEF-Financed Projects, the MTR thoroughly assessed and rated the following four categories of project progress;

- ***Project strategy***

Overall project design was reviewed through assessment of problems addressed, underlying assumptions, relevance of the project strategy, country priorities and ownership, decision-making processes and gender mainstreaming etc. Project results framework/log-frame indicators and targets were also assessed in terms of their suitability and measurability.

- ***Project progress towards results***

Project performance and progress towards results was measured by assessing the Log-frame indicators against progress made towards the end-of-project targets. The MTR assigned a rating on progress for the project objective and each outcome. The MTR identifies remaining barriers to achieving the project objective and challenges faced by the project.

- ***Project implementation and adaptive management***

Project implementation and management were reviewed through assessment of overall management arrangements, work planning, monitoring, evaluation and reporting, finance and co-finance, stakeholder's engagement and communication etc.

- ***Sustainability***

Sustainability assessment determines the extent of financial, institutional, governance, socio-economic, and environmental likelihood and risks to sustaining project interventions and continuity of project benefits.

A list of main review questions related to each of the mentioned categories is provided in Annex-2. These questions were used for data collection during key informant interviews and group discussions with stakeholders.

### c) Data collection methods/tools

As mentioned, mixed data collection approach has been adopted using both qualitative and quantitative data collection methods and tools. Most of the data was collected in qualitative form through key informant interviews, focus group discussions and field observations. While quantitative data related to project progress and output and outcome targets etc. was extracted from project related documents, reports, publications and secondary sources.

Efforts were made to ensure maximum participation of relevant stakeholders during the data collection process. However, due to the limited timeframe of the field mission it was not possible to reach out to every single stakeholder or to visit all four provinces. Selection of key respondents was mainly based on their role and level of engagement during project implementation. Following are the main data collection tools to be used during the evaluation;

- ***Desk Review of official records and documents***

Data related to project progress and performance was obtained from review of project documents, official records and secondary sources. These documents included Project Document, UNDP Initiation Plan, Project Inception Report, Project Progress Reports including Annual Project Review/PIRs, Work Plans, Financial and Audit Reports, minutes of meetings, internal reviews reports, project technical reports and publications, national strategic and legal documents, and other secondary sources etc.

- ***Key Informants Interviews and Focus Group Discussions***

Key informant's interviews and focus group discussions remained the main tools for collection of primary data. Key persons among all stakeholders were identified in consultation with UNDP and Project team and semi structured interactive interviews and group discussions were conducted using list of evaluation questions related to project relevance, progress and sustainability.

In total around 49 key persons were met and interactive interviews and group discussions were conducted in Jakarta, Kupang, Jambi and Lubuk Bangkar village in Sarolangun District, Jambi province.

Main respondents included key persons/officials from UNDP CO, Project Management Unit, Ministry of Energy and Mineral Resources (MEMR), GEF Focal Point, Ministry of Environment and Forestry, OJK, Regional Office of Energy and Mineral Resources in Jambi province, Bank Jambi, Regional Office of Energy and Mineral Resources in in East Nusa Tenggara Province, Academia, PT. SMI and project beneficiaries from Lubuk Bangkar village. For the detailed list of persons met, please see Annex 1.

| Stakeholders | No of persons met |
|---|---|
| UNDP and Project team | 11 |
| MEMR | 6 |
| OJK | 1 |
| MoEF | 2 |
| KUPANG (academia and local Govt. officials) | 4 |
| Jambi (Bank of Jambi and local Govt. officials) | 7 |
| PT SMI | 2 |
| RAVINDO & PASADENA | 4 |
| Local community in Lubuk Bangkar | 12 |
| TOTAL | 49 |

- ***Field Visits to project sites***

The MTR team also visited project's Micro-hydro in Lubuk Bangkar village of Jambi province and physically observed project interventions to assess their progress and performance. Accordingly, on spot discussion were also conducted with implementation teams, partners, target groups/beneficiaries.

### e) Data Analysis, Presentation and Reporting

In view of the use of mix-method approach, the acquired data was analyzed both qualitatively and quantitatively. Most of the primary data was acquired in qualitative form therefore it was processed manually using qualitative data analysis techniques like validations, triangulations, interpretations and abstractions. Data collected from review of documents, key informant interviews, group discussions and field observations were validated and triangulated through comparing different data sources to identify similarities and patterns.

On the other hand, quantitative data was analyzed using simple statistical methods to determine progress and trends. Quantitative data related to project interventions and Log-frame output/outcome indicators and target was mostly obtained from project documents and analyzed to assess the progress for various project targets. The same was also validated through discussions with stakeholders and direct field observations.

A debriefing/presentation was held on the preliminary findings of the evaluation exercise on 28th May 2019 in Jakarta, soon after the completion of the field mission. After detailed analysis a draft evaluation report has been prepared, on prescribed MTR Report format, provided in the ToRs. The Draft MTR Report is submitted to UNDP and stakeholders for their comments and suggestions. Received feedback and suggestions will be duly addressed and incorporated in the final MTR Report.

### f) Timeline

Overall the proposed evaluation assignment consists of 30 working days spread from May to August 2019. The field mission was conducted from 12 to 29 May 2019 in Indonesia.

## 1.3 Structure of the MTR Report

The MTR Report is structured on the UNDP-GEF standard report outlines as prescribed in the ToRs. Following are the main sections of the MTR Report.

Acknowledgements
1. Executive Summary
2. Introduction
3. Project Description and Background Context
4. Findings
4.1 Project Strategy
4.2 Progress Towards Results
4.3 Project Implementation and Adaptive Management
4.4 Sustainability
5. Conclusions and Recommendations

## 2. PROJECT DESCRIPTION AND BACKGROUND CONTEXT

### 2.1 Development context

Indonesia's primary energy supply mix is dominated by fossil fuels, particularly crude oil (47%), followed by coal (27%), natural gas (21%) and less than 5% from renewable resources such as hydropower (2.5%) and geothermal (1%) and biofuel (0.19%). The country has abundant renewable energy resources potential i.e. 29 GW geothermal, 75 GW hydropower, 50 GW bioenergy, 49 GW ocean power, solar insolation of 4.8 kWh/m2/day and wind speed 3-6 m/s.[1]

Indonesia is facing long-term challenges to its energy security system. Diversification of primary energy sources is therefore important. The Government of Indonesia (GoI) has enacted number of sustainable energy policies and regulations in response to the Energy Law. Government Regulation No.79/2014 on National Energy Policy, which sets a target by 2025 of 23% contribution from renewable energy (RE) in the national primary energy mix and average of 1% annual reduction in final energy intensity through various energy efficiency and energy conservation measures. Presidential Regulation Number 22 of 2017 on the General Planning for National Energy (RUEN) states that RUEN is a policy of the Central Government to manage the national energy. The RUEN emphasizes a target of 23 percent of Indonesia's final energy use to come from new and renewable energy resources by 2025.

Based on the final draft (2015) of Indonesia's First Biennial Update Report (BUR) to UNFCCC, energy sector emits about 512 million tCO2eq or 32.2% of Indonesia's total GHGs emission. There is urgency in reducing level of emission in energy sector by involving all stakeholders. The Government of Indonesia responds to the issue by enacting notable regulations including Presidential Regulation No. 02/2015 on the Medium-term National Development Plan (RPJMN) 2015-2019 that targets to have 10% to 16% RE contribution in primary energy mix by 2019; 7.5 GW installed capacity of RE; energy saving of 12.7% from BAU 2014.

Indonesia's intended Nationally Determined Contribution (INDC) outlined its transition to a low-carbon future, committing to an unconditional emissions reduction of 29 percent by 2030 compared to the business-as-usual (BAU) scenario, and up to a 41 percent reduction with international assistance. Presidential Regulation of the Republic of Indonesia No. 61 Year 2011 calling for a National Action Plan for Greenhouse Gas Emissions Reduction (RAN-GRK) established the country's voluntary target of reducing its emissions by 26 percent against the baseline scenario in 2020.

The GoI acknowledges the importance of private sector investments in achieving the abovementioned emission reduction targets. Some regulations on purchasing of RE-based generated electricity up to 10 MW have been issued to update the old ones. Regulation of Minister of Energy and Mineral Resource (MEMR) No.49 of 2017 covers standard terms and conditions in Power Purchase Agreements (PPAs) between PLN and IPPs, including both renewable and non-renewable energy sources, under the scheme of build-own-operate-

[1] Project document

transfer (BOOT). Regulation of MEMR No. 50 of 2017 on purchasing of renewable energy from independent power producers using auction system based on Capacity Quota (for solar PV and wind) and using a reference price based on PLN's average electricity generation cost or direct appointment mechanism for other resources.

The project document also noted that efforts have been taken by GoI to foster and accelerate the development of renewable energy utilization and energy efficiency technology applications, through the issuance of various enabling policies and regulations. However, the achievements so far are still far from satisfactory. Renewable energy and energy efficiency initiatives still heavily depend on government budget, and are not driven by the market. The National and Local Action Plans (RAN-GRK and RAD-GRK) for the energy sector have not been able to attract private investments. In general, the private sector interest is low to invest in the provinces, particularly in those where the economic growth is low. As government funding is limited, the sustainability of renewable energy and energy efficiency projects in these areas is a cause of concern with the private sector. It is also important to note that the issue of sustainability is a sectoral issue rather than project-specific. Limited government funding implies that it cannot subsidize projects in areas of need where the cost of electricity generation is too low for renewable energy projects to be financially viable.

## 2.2 Project Description and Strategy

The MTRE3 project is a five-year program (2016-2021) funded by Global Environment Facility (GEF), UNDP, and co-financed by the Government of Indonesia. The main objective of the MTRE3 project is *"to support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors"*. The project is designed to incrementally support Government of Indonesia to achieve the voluntary GHGs emission target by supporting effective implementation of renewable energy and energy efficiency initiatives and projects. It is intended that the project will put in place enabling environment and help remove barriers to sustainable market of renewable energy and energy efficiency. MTRE3 project is also expected to support technological and human capacity advancements.

Project's Results Framework consists of project objective and three outcomes, supported by respective indicators, baselines, targets, sources of verification and assumptions. Overall the project logical framework intends to achieve the overall objective through achievement of three interrelated outcomes these include:

**Outcome 1:** Prioritized appropriate mitigation actions in the RE-based energy generation and energy efficiency.
**Outcome 2:** Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies.
**Outcome 3:** Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency.

The project is implemented under UNDP National Implementation Modality (NIM) and Ministry of Energy and Mineral Resources is the Implementing Partner. Other main stakeholders include Ministry of Environment and Forestry, Ministry of National

Development Planning, Ministry of Finance and Ministry of Public Works and Housing, Local governments, financial institutions, private sector, academia, local communities etc. (please see the Summary List of stakeholders in section 2.6). Project geographical coverage included 4 pilot provinces i.e. Jambi, Riau, West Sulawesi, East Nusa Tenggara provinces. The provincial electrification ratio (% of households with access to electricity) is 61% (511,233 households) in Jambi; 60.8% (900,679 households) in Riau; 47% (132,556 households) in West Sulawesi; and 48% (522,221 households) in East Nusa Tenggara.

### 2.3 Problems that the Project Sought to Address

Project documents emphasized that there are significant barriers that hinders the widespread application of RE and EE technologies in the energy generation and energy end use sectors of the country. The energy market in Indonesia shows limited transformation towards the use of more sustainable renewable energy resources for power generation, and towards more energy efficient appliances, equipment and systems. At the project design stage, a number of barriers were identified by stakeholders, these included;

- ***Policy, Institutional and Capacity barriers in the planning, prioritization and implementation of appropriate climate change mitigation actions.***
  Project document noted that there is low capacity in planning and prioritization of appropriate and cost-effective mitigation actions at the national and sub-national levels in the energy generation and energy end-use sectors. The selection of mitigation actions is not undertaken in an integrated and systematic manner, resulting in fragmented and uncoordinated approaches that struggle to attract private-sector investment.

- ***Awareness and Market barriers***
  It was noted that there are a number of awareness and market barriers including; insufficient guidelines on RE project development procedure, limited availability and accessibility of reliable data on RE resource potentials and geo-reference for off-grid and on-grid and inefficient permitting system for RE/EE investment etc.

- ***Technical barriers to sustainable RE/EE project implementation***
  Various technical barriers identified at the time of project design were related to limited infrastructure, low level of technical capacity and poor quality of services from local energy service providers, poor quality of feasibility studies, low quality of technical documents/reports, limited number of experts in energy efficiency solutions and limited guidance on energy efficiency performance standards, regulations and certification etc.

- ***Financial barriers***
  Significant financial barriers were identified, these included; limited sources of funds for RE/EE project financing, lack of confidence of banks and financial institutions in supporting RE/EE projects, poor quality of feasibility studies, cost overrun and low revenue in some RE projects, little support for the banking/financial institutions in terms of policies that can motivate them to provide more financing to RE projects.

- ***Measurement, Reporting and Verification barriers***
  The limited understanding of MRV systems and the low level of capacity to implement them are major barriers to the effective implementation of the RAN-GRK and RAD-GRKs.

## 2.4 Project Implementation Arrangements

The project is implemented under UNDP National Implementation Modality (NIM) and Ministry of Energy and Mineral Resources (MEMR) through Directorate General of New Renewable Energy and Energy Conservation (DGNREEC) is the main implementing partner. Other stakeholders include; Ministry of Environment and Forestry (MOEF), Ministry of National Development Planning (BAPPENAS), Ministry of Finance (MOF) and Ministry of Public Works and Housing (MPWH), Local governments, financial institutions, private sector, academia, local communities etc. Project is implemented in 4 pilot provinces i.e. Jambi, Riau, West Sulawesi andEast Nusa Tenggara provinces.

Project is overseen and guided by a Project Board (Steering Committee), composed of the project key stakeholders such as the MEMR/DGNREEC, MOEF, MOF, BAPPENAS, UNDP and local government representative from pilot provinces. The designated National Project Director (NPD) is the Director General of DGNREEC, while Deputy NPD is the Secretary to DGNREEC. A Project Management Unit (PMU) has been established and is responsible for the day-to-day management of all the project activities. The PMU has been managed by a National Project Manager (NPM), who is presently supported by the component coordinators and administrative staff. However, there is no designated project Chief Technical Advisor (CTA) as originally planned in the project document. The project document also envisaged establishment of three thematic working groups (TWGs) for each of the outcome.

UNDP's Country Office in Indonesia is responsible for ensuring transparency, appropriate conduct and financial responsibility. UNDP oversees annual financial audits, as well as the execution of independent project mid-term review and terminal evaluation. All financial transactions and agreements, including contracts with staff and consultants provided by UNDP, follows the rules and regulations of the United Nations. The UNDP Bangkok Regional Hub provides programmatic and administrative oversight.

## 2.5 Project Timing and Resources

The project was originally designed for five years from 1st June 2016 to 31 March 2021. However, the project started late on 13 March 2017. Project's GEF budgetary resources consist of USD 8.025 Million, as grant. The project document has also outlined that in parallel to GEF funding, the project will receive co-financing in the form of parallel activities and in-kind contribution of USD 8.0 Million from MEMR and USD 0.1 Million from UNDP-TRAC. In addition, an investment of USD 52,000,000 is committed as co-financing from the private sector.

| | |
|---|---|
| PIF Approval Date: | 12 September 2013 |
| CEO Endorsement Date: | 12 July 2016 |
| Project Document (ProDoc) Signature Date (project began): | 13 March 2017 |
| Date project manager hired: | 1 February 2017 |
| Inception Workshop date: | 13 December 2017 |
| Midterm Review completion date: | 31 July 2019 |
| Planned closing date: | 31 March 2021 |

## 2.6 Main Stakeholders (Summary List)

At the design level an in-depth stakeholder analysis took place with the purpose to identify main potential stakeholders and to consider their potential roles and responsibilities in the implementation of the project. Following is the summary list of stakeholders as identified in the project document;

1) Ministry of Energy and Mineral Resources (MEMR)
- Directorate General for New and Renewable Energy and Energy Conservation (DG-NREEC)

2) Ministry of Environment and Forestry (MoEF)
- Directorate General of Climate Change Control, Ministry of Environment and Forestry
- Directorate of Greenhouse Gas Inventory and Monitoring, Reporting and Verification

3) Ministry of National Development Planning/National Development Planning Agency
4) Ministry of Public Works and Housing (MPWH)
5) Ministry of Finance (MoF)
6) Agency for the Assessment and Application of Technology (BPPT)
7) Coordinating Ministry for Economic Affairs (CMEA)
8) Financial Service Authority (OJK)
9) Ministry of State-owned Enterprise (BUMN)
10) PT Sarana Multi Infrastructure (PT SMI)
11) The Agency for National Charity Zakat (BAZNAS)
12) RE Project Developers in RE/EE:
13) Building Managers
14) Energy Service Companies (ESCOs)
15) Local Stakeholders / Users groups
- Provincial Development Planning Agency (BAPPEDA)
- Energy and Mineral Resource Office (DESDM)
- Regional Environment Office (BPLHD)
- Investment and One Stop Service Office (DPMPTSP)
- Local Parliament (DPRD)
- Local Development Bank in Jambi
- Local Universities

16) Development Partners
17) Civil Society Organizations (CSOs)
18) Local communities

## 3. FINDINGS OF THE EVALUATION EXERCISE

### 3.1 Project Strategy

#### 3.1.1 Project Design

The MTRE3 Project was designed to address various Policy, Institutional, Financial, Technical, Capacity and Market related barriers to promote and increase the share of renewable energy (RE), with low GHG emission, in the national primary energy mix and to improve the primary energy consumption index. The project document envisaged that this will be achieved by establishing the necessary enabling conditions that would make possible the mobilization of the required investments in RE based power generation and the application of feasible energy efficiency (EE) technologies in the energy end-use subsectors. The project document also specified that overall approach will be through NAMA implementation and MRV in 4 pilot provinces and the incremental activities would include facilitation or enabling the design, financing, and sustainable implementation of the RE and EE projects at pilot provincial level, and their monitoring, reporting and verification (MRV).

Discussion with stakeholders and analysis suggest that overall project design was well conceived and relevant to address the prevailing barriers and to achieve overall objectives. During the project design, consultations were made with a number of government institutions, financing agencies, energy experts and private sector energy development companies about their engagement in the MTRE3 project. Consultations with these stakeholders provided valuable inputs to the project design, particularly during the Logical Framework Analysis workshop.

The project document gives a general description on how gender equality will be addressed throughout project implementation. It mentions that women groups in targeted areas will be involved during consultation processes and in every stage of demonstration activities, ensuring at least 30% representation of women in technical trainings that will be conducted by the project. No Gender Analysis/Gender Action Plan was made during the project design and there is an absence of gender-disaggregated indicators in the Project's Results framework.

The project overall approach of nationally appropriate mitigation actions (NAMA) implementation in pilot provinces by implementing incremental activities including facilitation or enabling the design, financing, and sustainable implementation of the RE and EE projects was found suitable and relevant. Project objectives and approach were also found inline GOI policies and priorities in energy and environment sector and needs of the local communities. On the other hand, project agenda was also fully consistent with UNDP and GEF national and global priorities like SDGs. The Project is being implemented through UNDP's National Implementation Modality, with MEMR as the main implementing partner. Overall discussions with MEMR officials suggests that there is a high degree of ownership for project interventions and contributions.

The project document also anticipated a number of internal and external risks to project. Most of the risks are of low to moderate intensity and are well managed. However, the

outlined risk of lack of financial institution's sustained commitment for sustainable energy investments is still prevailing with high level. Financial institutions, especially in private sector, don't really have a prioritized system for sustainable energy investments/loans. All requests for loans are subject to bank's conventional commercial lending criteria and processes, without any specific consideration for environmental concerns. Banks consider sustainable energy projects as high risks as historically projects have been plagued by cost overruns and delayed construction and commissioning. Furthermore, OJK has stiff penalties for banks with non-performing loans and therefore banks shy away from sustainable energy projects. Some of the financial institutions in public sector, like OJK and PT SMI, met during the evaluation mission, are making strenuous efforts to promote sustainable finance. OJK has developed and implemented a sustainable finance road map (2014-2023), involving financial institutions and in the 1st phase has conducted a number of capacity building interventions. On the other hand, PT SMI is also making efforts to promote sustainable finance for RE investments. However, these efforts are still in the very initial stages and will require further efforts to streamline and promote sustainable finance in all financial institutions.

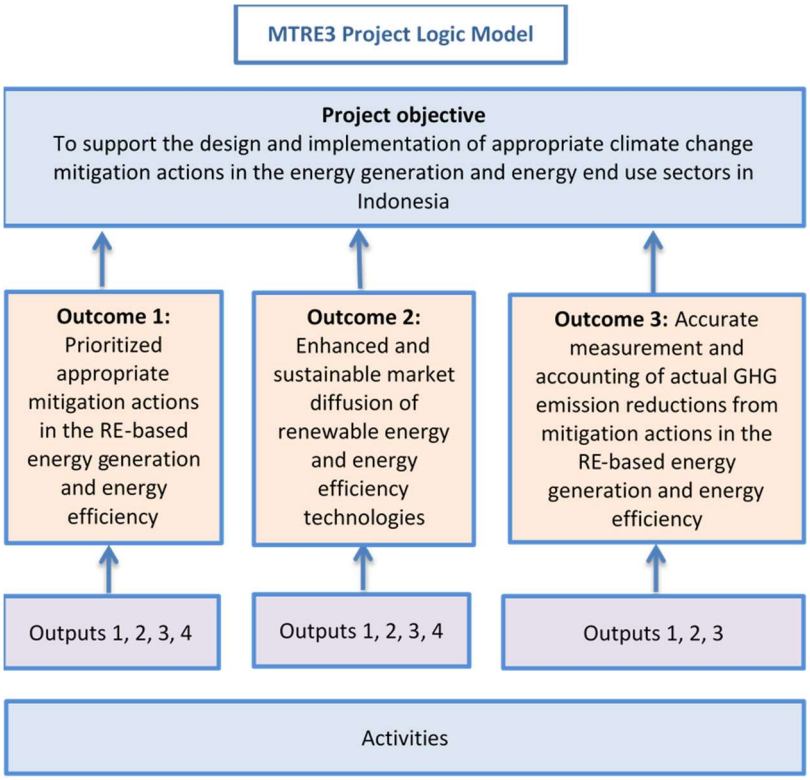
### 3.1.2 Project Results Framework

Project's Results Framework consists of project objective and three outcomes, supported by respective indicators, baselines, targets, sources of verification and critical assumptions at the indicator level. Overall the project logical framework intended to achieve the overall objective of "to support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors in Indonesia' through implementation of three interrelated outcomes i.e. 1) Prioritized appropriate mitigation actions in the RE-based energy generation and energy efficiency, 2) Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies and 3) Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency. (Please see the project logic model figure in below.)

The results framework was also well formulated and exhibited clear linkages among outcomes and objectives. However specific outputs under each outcome were not made integral part of the results framework, but were separately provided, along respective activities, in the narrative section of the project document. Whereas, specific indicators, targets and means of verification were also not determined at the output levels. This absence of indicators and targets poses greater challenges in measuring the achievability status of specific outputs and its contribution to outcomes. Generally, outputs and respective indicators and targets are considered integral part of the results frameworks of such projects. However, these days, UNDP guidance for the Project Results Framework is to develop indicators on outcome level only and to limit the number of indicators to max 15-16 indicators. Discussion and analysis of progress made so far, also suggest that some of the objective level, end of project, targets are also posing challenges in terms of achievability. Having said this, these targets are not considered unattainable, but will require speeding up of the rate of implementation and delivery. Otherwise project will need an extension to fully achieve its outcome targets.

Overall Outcome indicators are considered SMART but indicators in the results framework are not gender-disaggregated where appropriate, which limits the possibility to monitor the

gender aspects of the benefits derived from the project. For instance, the beneficiaries of RE/EE projects are households and no distinction is made between how many women respectively men are benefiting. The project strived to effectively monitor and evaluate its progress and performance, however the absence of dedicated M&E expert within the PMU has somehow hindered the development and implementation of effective project M&E mechanisms, especially collection, analysis and reporting of data related to project progress and outcomes and impact indicators.



## 3.2 Progress Towards Results

The following Progress Towards Results Matrix provides a summary of achievements of project objectives and outcomes at the Mid-term, against specified indicators and targets as outlined in the of Project Results Framework. In line with the Guidance for Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects, the matrix provides color code progress in a "traffic light system". Accordingly, based on the level of progress achieved a rating on progress for each outcome is also assigned.

| Green= Achieved | Yellow= On target to be achieved | Red= Not on target to be achieved |
|---|---|---|

### Progress Towards Results Matrix (Achievement against End-of-project Targets)

| Objective / Outcome | Indicators | Baseline | Mid-term | End Target | Total Achievement at Mid-term | Color code | Rating |
|---|---|---|---|---|---|---|---|
| **Objective:** To support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors in Indonesia | Cumulative CO2 emissions reduction, tons CO2 eq | 0 | NA | 27,019 | 602 tons CO2 per year from 4 micro hydros, plus 182 tons from EE in Transmart building (total end of project will be around 3136 tons) | Not on target to be achieved | MS |
| | Cumulative energy produced from RE systems facilitated by the project, MWh | 0 | NA | 79,190 | 3,628.8 MWh tentatively by end of the project from 4 micro hydro completed so far. | Not on target to be achieved | MS |
| | Cumulative energy saved from EE in commercial buildings facilitated by the project, MWh | 0 | NA | 8,550 | Project has conducted IGAs in 6 buildings with total potential of energy saved of 10,186 MWh. One building already started energy savings of 254.8 MWh. | On target to be achieved | S |
| | Cumulative volume of public and private investment mobilized for SEF, US$ million | 0 | NA | 25 Mill | A total of USD 2.26 has been mobilized by the project so far RE and EE Projects (USD 0.631 Mill from BAZNAS and Bank Jambi, USD 1.55 Mill from Pasadena and USD 0.082 Mill from EE partners). | Not on target to be achieved | MS |
| | Cumulative number of additional households (from baseline) having access to electricity in pilot provinces | 0 | NA | 80,000 | 806 households in four villages with micro hydro installed. | Not on target to be achieved | MS |
| **OUTCOME 1:** Prioritized appropriate mitigation actions in the RE based energy | Number of provinces with updated sub-national GHG Inventory and GHG Marginal Abatement Cost Curve (MACC) for energy sector | 0 | NA | 4 | RE potential mapping and formulation of draft Local Energy Plans in the 4 pilot provinces completed. Capacity building workshops in 4 provinces conducted. Reference baseline study and | On target to be achieved | S |

| Objective / Outcome | Indicators | Baseline | Mid-term | End Target | Total Achievement at Mid-term | Color code | Rating |
|---|---|---|---|---|---|---|---|
| generation and energy efficiency. | | | | | GHG inventory completed in 2 provinces<br><br>Output 1.2, 1.3, and 1.4 are not initiated so far and will be implemented in the near future | | |
| **OUTCOME 2:** Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies. | Total number of provinces with operational "Integrated Market Service Center" (IMSC) to support sustainable RE & EE investments. | 0 | NA | 4 | Capacity building on RE is being provided to DPMPTSP agencies from the four pilot provinces (Integrated Capital Investment and Service Centers) to become fully operational as IMSCs that support RE and EE investments | On target to be achieved | S |
| | RE/EE projects that were financially supported by the Sustainable Energy Fund | 0 | NA | 10 | Project has so far supported development of 4 (four) small micro hydro-projects, one prospective 3MW biogas project and IGAs for EE in 6 buildings. | Not on target to be achieved | MS |
| | Cumulative amount of funds from the SEF used in financially supporting small-to-medium scale RE/EE projects, US$ million | 0 | NA | 25 Mill | Mechanisms for SEF are in the final stages of finalization. So far, the project has utilized around USD 155,618, as preparation for SEF implementation. In addition, a total of USD 2,265,074 has been mobilized so far to support RE and EE projects. | Not on target to be achieved | MS |
| | Cumulative number of NAMAs proposals developed for RE and EE projects in pilot provinces, based on the identified and prioritized RE/EE projects. | 1 | NA | 4 | RE potential mapping in the 4 pilot provinces completed. NAMAs proposals have to follow | On target to be achieved | S |
| | Cumulative capacity of RE investment projects implemented, MW | 0 | NA | 15 | 4 micro hydro with capacity of 180 kW completed so far | Not on target to be achieved | MS |
| | Cumulative floor area of buildings that were made energy efficient, m2. | 0 | NA | 50,000 | IGAs in 6 buildings with a total floor area of 147,367 $m^2$. Transmart building already implemented EE with a floor area of 29,218 $m^2$. | On target to be achieved | S |

| Objective / Outcome | Indicators | Baseline | Mid-term | End Target | Total Achievement at Mid-term | Color code | Rating |
|---|---|---|---|---|---|---|---|
| **OUTCOME 3** Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency | No. of registered mitigation actions in energy sector that are endorsed by the MEMR and MoEF. | 0 | NA | 14 | Facilitated input of 1,052 mitigation actions in energy sector in to National Registry System (SRN) | On target to be achieved | S |
| | Total number of MRV reports submitted to MoEF following nationally agreed standard method and guideline | 0 | NA | 4 | Identification of 15 methodologies and development of 4 draft methodologies for GHGs emissions RE and EE projects. Review the existing Monitoring, Reporting and Verification (MRV) system has been completed. MRV Reports to follow in times to come | On target to be achieved | S |

Overall analysis of the achievement status of objective level indicators and respective targets, in the above progress towards results matrix, suggests that most of the objective level targets are presently lagging behind. It is important to note that project is already half way through its life therefore tentatively by now half or at least one third of the targets should have been achieved. However, discussions with project team and stakeholders suggest that implementation will considerably accelerate in the coming years to achieve stipulated end of project targets. Following is the detailed analysis of the progress made and level of achievement of outcomes and outputs targets;

### 3.2.1 Progress of Outcome 1: *(Prioritized appropriate mitigation actions in the RE-based energy generation and energy efficiency)*

According to project document under this component project intended to address various barriers in the planning, prioritization and implementation of appropriate climate change mitigation actions. The project document outlined four interrelated outputs and set of activities for each output to realize this outcome. The outputs include;

1.1. Defined and established sectoral and sub-national reference baselines for the Rebased energy generation and energy efficiency in commercial building sectors in pilot provinces.
1.2. Developed and published detailed marginal GHG abatement cost curves for renewable energy and energy efficiency options in the selected provinces.
1.3. Selected appropriate and prioritized mitigation options that are integrated into national and provincial development plan
1.4. At least two projects designed, each for the implementation of selected prioritized mitigation actions in RE-based energy generation and energy efficiency in commercial building sectors.

Discussion with stakeholders and analysis of progress reports suggest that project has made strenuous efforts and have implemented a number of activities to achieve above outputs and outcome. Following is the summary analysis of progress made;

- ***RE potential studies/mapping:*** Project has conducted RE potential studies/mapping in the 4 pilot provinces i.e. Jambi, Riau, NTT and West Sulawesi, with the support of from the research and development agency in RE, Energy Conservation and Electricity (P3TEK). The activity involved the mapping of potential of solar, hydro, geothermal, bioenergy, wind and ocean energy in the respective provinces. It is intended that this RE potential map will provide detailed information on the RE sources to ease the investor or project developer in developing RE project in the provinces.

  Overall these studies and maps are found comprehensive and data driven, providing technically sound and detailed information on various dimensions and potential for RE in respective provinces for relevant public and private sector stakeholders in general, and for the interested RE investors in particular. The provincial government officials met in NTT and Jambi, during the mission, also vowed to use the studies for development of RE in their respective provinces.

- ***Reference baseline and GHG inventory:*** Project has been supporting the development of reference baseline and GHG inventory in four pilot provinces, with the support of PT Cagar Bentara Sakti (CBS) as Consultant. Activities in two provinces i.e. East Nusa Tenggara and Riau has already been completed and work on the baseline and GHG inventory in the provinces of West Sulawesi and Riau is in progress and will be completed in the near future.

  Overall these studies were found very encompassing and detailed. The completed GHG inventory reports for NTT and Riau discuss in details various elements like provincial circumstances, institutional arrangement, inventory preparation, key categories, QA/QC plan, uncertainty, and completeness, trends in GHG emissions in the energy sector and reference scenarios of energy sector in the provinces. The implementation of these inventories is carried out in order to improve the quality of inventory through data collection and compilation and the application of a more structured and transparent methodology so that renewal/updating of GHG inventories in the coming years can be better and meet the basic principles of GHG inventory.

- ***Province/Regional Energy Plans:*** Project has facilitated the formulation of four Province/Regional Energy Planning Documents (RUED) in the pilot provinces of Jambi, Riau, NTT and West Sulawesi. These long-term plans are developed for 30 years and encompass all energy sources including RE. The formulation involved a wide range of stakeholders at the national and provincial level and the planning process consisted of data acquisition, modelling, analysis and reporting. The draft plans have been accepted by the National Energy Council and are currently awaiting approval from the respective provincial parliaments. Project incremental facilitation activities included provision of technical assistance/experts, coordination among stakeholders and logistical support etc.

  The Provincial Energy Plans in the pilot provinces were also found very comprehensive, evidence based –developed through scientific modelling techniques- and relevant and once approved will provide basis for longer term sustainable development of energy

sector in general and RE in particular. However, discussions with relevant officials also suggest that some of the targets of these plans are a bit optimistic for example; RUED-NTT aims to improve the RE share in energy mix in the province from 2.4% in 2015 to 33.2% in 2050. This is a very substantial rise and attaining such uphill targets, among others, will require significant amount of financial resources, technical expertise and infrastructure. Discussions with officials also suggest that the current draft RUEDs are not supported by any budgetary (cost) estimates or financial plans to assess the overall quantum of the required financial resources. There is also a greater need to develop financing plans providing broader estimations of resources and means required to implement these plans.

- ***Energy Consumption (SEC) Survey:*** Project provided support to the Directorate of Energy Conservation, MEMR, Specific Energy Consumption (SEC) survey in 267 government buildings in DKI Jakarta, Medan, Surabaya and Bandung. Generally, the information analysed through the survey included the amount of Energy Consumption Intensity (IKE), trend of energy use, the use of electrical equipment's, energy users, energy management and walkthrough measurements that include temperature, humidity and lighting. The study also recommended various solutions to conserve energy and improve energy efficiency in the respective buildings.

  Project has also supported the Directorate General of Renewable Energy and Energy Conservation of the MEMR to build the Ministry's EDM dashboard application. This dashboard will help in monitoring various indicators of EBT utilization and will be used for decision making. The dashboard has already been approved by the Deputy Minister of ESDM in November 2018 and is publicly available at http: //www.redi.esdm.go.id.

Overall analysis of the project progress towards outcome 1 suggests that the project has completed a number of activities, however all of these fall under output 1.1, while activities under output 1.2, 1.3, and 1.4 are not initiated so far, and are planned to be implemented in the remaining period. Some of these activities were deferred as they depended on completion of preceding activities.

### 3.2.2 Progress of Outcome 2: *(Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies)*

According to the project document, under this component, the project intendeds to address various barriers in the sustainable market-based investment of RE and EE projects, particularly barriers related to permit issuance, policy, technical, access to information and financing. The project document has outlined four interrelated outputs and set of activities for each output to realize this outcome. The outputs include;

2.1 Established Integrated Market Service Centers in the pilot provinces
2.2 Established technical support system to provide training for operation and maintenance of RE & EE technologies including MRV aspects of projects to local service companies.
2.3 Implemented improved financing mechanism for investment in climate change mitigation activities

2.4 Implemented and operational two RE and two EE demonstration NAMAs projects (Output 1.3) through public-private partnership nature and supported by conducive environment for sustainable investment.

Discussion with stakeholders and analysis of progress reports suggest that this remained the flagship outcome of the project and a number of activities have been implemented to achieve above outputs and outcome. Following is the analysis of progress made;

- ***Integrated Market Service Centres (IMSCs):*** Project document initially envisaged establishment of IMSCs in the pilot Provinces to facilitate stakeholders, particularly investors in RE projects. GOI has recently established/launched an Online Single Submission (OSS) System to facilitate permits for energy projects including RE. The permitting process has been integrated through the BKPM (at the central level) and DPMPTPS (at the regional level). Each of the MTRE3's pilot provinces already have established the DPMPTSP (Investment and Integrated One-Stop Service). The concept of IMSC is now being implemented as DPMPTSP (Integrated Capital Investment and Service Centre). In order to fully function as IMSC and be able to support investments in renewable energy projects, DPMPTSP units in the provinces have to receive capacity building on RE. The project contributes to capacity building by providing training to these units. Capacity building on RE is being provided to DPMPTSP agencies from the four pilot provinces (Integrated Capital Investment and Service Centers) to become fully operational as IMSCs that support RE and EE investments. Discussions with stakeholders suggest that the OSS will greatly facilitate investors to obtain permits through the single window systems with greater ease and in a timely manner.

- ***Capacity building and knowledge sharing:*** Project has conducted a number of workshops to build capacities and to improve effective coordination, networking and knowledge sharing in RE and EE among key stakeholders at the national and provincial levels. These workshops included; 1) Coordination workshops for key-partners at the national and provincial level including BAPPEDA, ESDM and DPMPTSP, 2) Workshop on monitoring the EE pilot project implementation, 3) Workshop on Introduction to EE projects for local governments 4) Training on the micro hydro operation and maintenance for the operators in the 4 micro hydro projects in Jambi, 5) Training for energy management and MRV on GHG emissions, 6) Workshop on RE/EE financing involving key stakeholders, 7) Workshop on SDGs Indonesia One for RE/EE projects.

- ***Certification, Accreditation and Standardization Study:*** Project has conducted, through BPPT, a study on the best practices of certification, accreditation and standardization programs for RE/EE to analyse the current situation. This report discusses existing SAS national conditions related to renewable energy technology and energy efficiency. From the mapping of existing SAS conditions, its position is analysed against the principles of best practices and also identifies the readiness of the regions in certification, accreditation and standardization for RE projects. The study also furnishes specific recommendations to strengthen SAS for transformation of markets.

- ***Investment Grade Audits (IGAs):*** Project has conducted, through BPPT, Investment Grade Audits (IGAs) for energy in six buildings including 1) RSUP Dr. Kariadi -public hospital, 2) EBTKE Building –office complex, 3) Mall Ratu Indah -shopping mall, 4) Menara Ravindo – office complex, 5) Transmart -shopping mall and 6) Pullman Hotel Bali. These IGAs analysed energy utilization and efficiency of related technologies in the mentioned buildings and recommended various solutions and investments to improve energy efficiency and to create environmental benefits. After the energy audit was conducted, Transmart building has implemented the recommendation of IGA and has improved its operational equipment which resulted in total energy savings of 254.8 MWh (31.85 MWh/month) since November 2018. Similarly, Pullman Hotel Bali is also now in the process of implementing energy efficiency measures in the light of conducted IGA.

  Menara Ravindo was visited during the evaluation mission and discussions were held with the building management. Ravindo is located in Jakarta and consists of 16 floors with a total area of 17,699 m2. The electricity used in the building is supplied by PLN through a power contract. Among others, the IGA found out that the current chiller is 23 years old and is consuming most of the energy with only 56% of original efficiency. It was recommended by the IGA that the building can save 40% of energy if the old chiller is replaced. The potential savings obtained by replacing the chiller would be around Rp. 1 Billion per year, with the total investment of Rp. 4.8 Billion and payback period is 6.4 years. Discussions with building management suggest that they found the IGA very relevant and useful to induce energy efficiency in the building to reduce operational costs and to create environmental benefits. They also showed their profound commitment to implement the IGA, especially replacing the chiller as soon possible.

  However, Ravindo is faced with issues of financing to bear the capital cost. In this regard the project introduced them to an ESCO – PT Sucofindo- and initially the ESCO agreed to finance the plan with around 11.3% mark-up. However, after detailed negotiations ESCO asked Ravindo for an insurance to secure the investment. Ravindo approached mainstream insurance companies, but they found out that these insurance companies don't offer any specific mechanism or package to ensure such investments. Finally, Ravindo approached a commercial bank to secure a standard business loan to sponsor the operation. Presently the deal is under finalization. Discussions with Ravindo management also suggest that they have their own resources available and if the external finance didn't work then they will use them to change the chiller, however their first preference is on external finance. According to the latest information provided Ravindo has invested so far around USD 70,463 in the implementation of IGA.

  Overall analysis also suggests that due to these delays in implementation the cost of replacing the chiller has gone up from initial IDR 4.3 to 4.8 Bill. This is a significant increase and further delays will result is further increasing of the costs. On the other hand, the case of Ravindo also highlight the prevailing issues in availability and securing of external finances for EE projects. This is one of the main barriers in promotion and implementation of RE and EE projects. The project has been actively engaged with financial institutions and has organized a number of workshops on financing of EE projects, involving financial institutions like government agencies, private banks and ESCOs etc. Project is also close

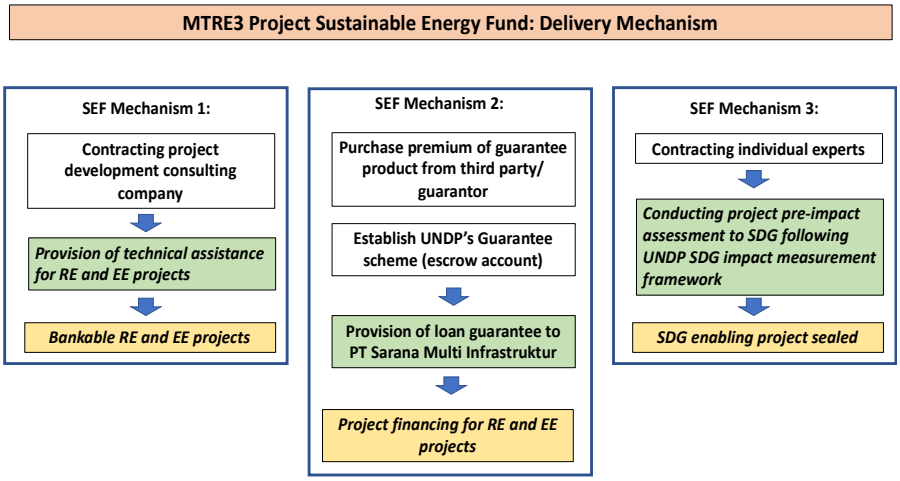
working with PT SMI and OJK to streamline financial resources and mechanisms for RE and EE projects and some progress has been made, however it is in the very initial stages of development and there is still a long road ahead to further develop, strengthen and implement financial support mechanisms for RE and EE. The issue is further highlighted in the following paragraphs.

- ***Sustainable Energy Fund (SEF):*** As mentioned, financing remained one of the main issues in implementation of RE and EE projects, as part of the barrier removal activities, the project document has envisaged to facilitate the establishment and operation of a financing scheme called the Sustainable Energy Fund (SEF). This fund is to be established using USD 2.6 Million out of total project funds and was foreseen to be administered by a local financial institution i.e. PT. Sarana Multi Infrastruktur (PT.SMI). Originally it was intended that the SEF will support the funding of small-to-medium size RE-based energy generation projects, particularly in off-grid areas; as well as EE technology application projects in buildings. The financing support was meant to provide; 1) Loan Guarantees, 2) Project development fund, for early stage costs and, (3) Viability gap fund.

  Discussions and analysis suggest that down the road, in October 2018, the Government. of Indonesia launched SDG Indonesia One (SIO) as a blended financing facility and an integrated financing platform for achieving SDGs. PT.SMI has been assigned to manage the SIO platform. UNDP and PT. SMI have agreed for a collaboration to kick-start the SIO platform, particularly to enhance rate of commercial financing for small-medium size renewable energy projects. Small-medium size of renewable energy projects (below 10 MW) are considered high risks by financiers due to lack of technical, legal and financial bankability. Analysis suggest that in 2017 a record 70 PPAs were signed in RE, however a year later in 2018, 45 of them were facing acute financing issues, while only 4 reached COD.

  It was envisaged that UNDP will work closely with PT. SMI under SIO Platform by de-risking the investment in small-medium renewable energy sector by improving project's bankability, providing credit enhancement and assess impact of financed-projects to the achievement of SDGs. UNDP through MTRE3 project has committed USD 1 million grant for SIO to serve as credit enhancement in form of cost-overrun and partial loan guarantee to de-risk the investment in small-medium renewable energy projects. Originally the funds were to be managed by PT SMI, however discussions suggest that PT SMI is of the view that this amount is relatively small and can be managed directly by UNDP for easy access and use.

  Given the developments of SDG Indonesia One, UNDP has drafted a workable proposal for delivery mechanisms for project's USD 2.6 Million, Sustainable Energy Fund. These mechanisms include 1) Provision of technical assistance for RE and EE project pipeline development or improvement, 2) Provision of guarantee for RE/EE projects to de-risking project investment, and 3) Conducting project impact assessment on the Sustainable Development Goals (SDGs) indicators (Please figure in below).




Discussions suggest that these mechanisms are still partially under finalization and approval is requested from UNDP HQ to effectively utilize of the funds. As of August 2019, the bulk of SEF, USD 2.6 Million, resources are still awaiting effective utilization. It is important to highlight that the DOA document (Jan 2017) mentions that it does not extend to the use of budget line 72630 in Outcome 2 (covering the seed funding for the Sustainable Energy Fund, intended to take place in year 3 of project implementation) of the project for the full two years of project implementation. It is recommended that the project should, upon inception, commission the detailed design of the proposed Sustainable Energy Fund (SEF), with full operating and governance rules and guidelines, with the aim to officially launch it latest by the end of the second year/beginning of third year of implementation. The use of the budgeted $ 2,680,000, representing the seed funding for the Fund, is put on hold until the fully designed SEF has been submitted for review to UNDP-GEF and approved, and is further conditioned by the formal adoption of modified Financial Rules and Regulations authorizing and prescribing the proposed uses of the fund.

Recently on 19 June 2019 an approval has been granted by GEF-UNDP that the procurement mechanism of SEF can be utilized. So far, the project has utilized around USD 155,618 to provide technical assistance to RE and EE projects, which is part of preparation for SEF implementation. So far a total of USD 2.26 has been mobilized by the project for implementation RE and EE projects (USD 0.631 Mill from BAZNAS and Bank Jambi, USD 1.55 Mill from Pasadena and USD 0.082 Mill from partners).

While the Mechanisms 1 and 3 (contracting consultants for technical assistance) are ready to run, the project is now actively searching for potential RE projects to support by engaging with project developers and other development partners in the country. For the Mechanism 2 (Loan Guarantees), UNDP still has to identify a suitable third party that would be able to provide loan guarantees for the projects. UNDP is also still waiting approval from HQ on the realization of loan guarantees through SEF. In view of the project timeline, as project is already in its third year of implementation, there is a greater need for early finalization of SEF delivery mechanisms, to give way to efficient and effective

utilization of funds in providing desired financing support/facilities to the needy projects in RE and EE.

Discussions also suggest that a small amount from SEF has been utilized for increasing the bankability of PT Pasadena Biofuels Mandiri's loan proposal for 3 MW biogas RE project. PT Pasadena –a private sector company, specializing in biogas- has developed and is presently negotiating a USD 5 Million loan proposal with PT SMI for its 3 MW biogas power project. Project supported PT Pasadena in enhancing the bankability of their proposal by providing technical assistance in undertaking a socio-environmental analysis for the proposed 3 MW biogas project, which was one of the requirements from PT SMI. It is important to highlight that Pasadena has already invested a total of 20 billion rupiah (USD 1,551,231) in the project. Discussion with PT Pasadena representatives suggest that the negotiations with PT SMI are in the final stages and they are optimistic about obtaining the required funds as soon and are looking forward to completing the project. It is important to highlight once completed this project will have a significant effect on the realization status of project objective level indicators of reducing GHGs, amount of RE generated and volume of investments etc.

- ***Design and Implementation of RE projects:*** The project document has envisaged that the project will facilitate RAN-GRK achievement through supporting the design and implementation of a total of 15 MW RE-based power generation capacity as provincial NAMA projects (7 MW mini-hydro, 6 MW biomass and 2 MW solar PV projects) during 5-years project implementation, and an additional 85 MW (39 MW mini-hydro, 40 biomass and 6 MW solar PV) as direct post-project impact.

  In this regard project has initially facilitated the revitalization of three micro hydro projects, 40 kW each, in the remote and off-grid villages of Ngaol, Air Liki and Air Liki Baru in Merangin District of Jambi and has constructed and operationalized a 60 kW new micro hydro in Lubuk Bangkar village in Sarolangun District of Jambi. Presently another new micro hydro is in the development process in Kerinci in Jambi province. The four completed micro hydro projects are currently providing electricity access to 806 households (approximately over 4,000 people), 8 Schools, 23 Mosques, 4

*Micro hydro station Lubuk Bangkar*

*Head of Micro Hydro*

Village Halls, 5 Security Posts, 1 Nursing Home and 2 Balai Adat Buildings in the four villages.

*Micro hydro Pipe line*


It is important to highlight that these micro hydro projects were implemented through co-financing grants of USD 350,000 from BAZNAS (Zakat funds) and USD 281,394 from Bank Jambi (under corporate social responsibility). This blended financing arrangement was found very useful in exploring, developing and utilizing resources from potential financial institutions/partners in promoting and implementing RE projects, especially in remote and neglected areas. Discussions with Bank Jambi representatives suggest that this was the 1st time for the Bank to participate, along with other stakeholders, in financing and implementation of a RE project. They highly appreciate the collaboration with UNDP and other stakeholders in effective completion and operation of the micro-hydro projects. Since the Bank also have a role as development agent therefore they also expressed their full cooperation and support for future such projects in Jambi. Though the current Bank's CSR funds are limited and are thinly spread, however the project/UNDP and the Bank can further explore possibilities of financing facilities/loans for medium scale RE projects implementation in the province.

The evaluation team also visited Lubuk Bangkar village in Sarolungun district and observed the micro hydro station and held discussions with local community. This remotely situated off-grid village had no electricity source before the completion of the micro hydro. The village was prioritized by the local government and project collaborated with the local government, co-financiers (BAZNAS and Bank Jambi) and local community for the implementation of the 60 kW project. The overall aim was to provide a sustainable source of electricity for the local population to improve livelihoods and economic conditions. The micro hydro was completed and commissioned in Sep 2018, with a total cost of USD 274,892 (Bank Jambi: 148,597, Baznas: 86,708 and MTRE3: 39,586). Project contribution was mainly for the technical assistance, contracting processes and trainings of operators.

Discussions with community suggest that the micro hydro is presently providing electricity for 286 households and is managed and operated by the local community through a full-time manager and two operators, under the direct supervision of the Village Chief. The

operational staff has been duly trained by the project to operate and look after the micro hydro. Local household tariff is 1500 IDR/kWh and the total accumulated revenue from billing per month is from 4 to 5 Mill IDR. Some of the very poor inhabitants are exempted from paying the bills.

The village chief maintains a bank account, where revenues are deposited and expenses are drawn. Presently there are around 800,000 IDR as savings in the village account, which suggest that the operations are mostly running on breakeven. The micro hydro has performed well, however it has also encountered three main electro-mechanical defects, mostly in the generator and associated control panels. Due to the very remote nature of the village, repairs and replacement of parts is found cumbersome, time consuming and expensive. The latest break down in May 2019, took 3-4 weeks and costed around 25 Million IDR. It was funded by the contracting company (PT. Reka Paras Gemilang) which installed the microhydro at Lubuk Bangkar Village. This was the company's last repair on warranty even though the warranty period has expired. It is possible to receive some funds for future repairs of the micro hydro through the village fund Anggaran Dana Desa, for which the government allocates 1 billion per year. So far, the village has not applied for funds to cover the repair costs. However, for the next year, 2020, the village will seek funds (approximately IDR 15 million) for repair costs from the village fund.

Discussion with community suggests that overall they are well satisfied and are greatly benefiting from power supply, which has considerably transformed and improved their life and livelihoods, as they can now use electricity for variety of household purposes and to generate economic activity. The micro hydro has benefited the poorest the most as previously they could only afford to lit their homes only with old kerosene lamps, but now electricity has completely enlightened their houses. In the words of an old lady "everything is so bright now". The women are now using a variety of electrical appliances, making life for them more comfortable and pleasant. Communication and information flow has also significantly eased out as many of the households can now watch TV and use their cell phones and computers. Gradually power-related economic activities are also generating income like use of coffee grinding machines, making of ice and motorized tailoring etc. In that respect, it may be useful to explore more cost reflective fee collection that can provide for the operation and maintenance of the micro hydro system.

Overall it can be concluded from analysis that outcome-2 remains the flag ship outcome of the project consuming most of project resources and subsequently is the main contributor to the objective level indicators and targets. As outlined in the above sections the project has rigorously implemented a wide range of specific interventions to achieve the outcome. However, analysis of outcome indicators in the results framework suggest that there is still long way ahead to fully achieve the targets for this outcome. The main indicators which are lagging behind includes the utilization rate of SEF resources and the number of projects that are to be financially supported by the SEF (target is USD 25 Million). Somehow there is a lack of project pipelines for SEF and the loan guarantee function has yet to be established. Indicators on Cumulative capacity of RE investment projects implemented (target is 15 MW) is also lagging behind. However, as mentioned project is already engaged with PT Pasedena for establishment of 3 MW biogas project. Overall project still has time to engage with and

support relevant organizations for establishment of RE power installations to achieve the target. The target related to cumulative floor area of buildings that were made energy efficient (target is 50,000 m2) has been 60% achieved and in the remaining period more buildings like Ravindo and Pullman Hotels are on the way to implement their IGAs. In case of the lagging behind targets project has to considerably enhance the rate of delivery and speed up the implementation of interventions to achieve the planned targets in the remaining timeframe of the project.

### 3.2.3 Progress of Outcome 3: *(Accurate measurement and accounting of GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency applications)*

According to the project document, under this component the project intends to address various barriers in measurement, accounting and reporting of GHGs reductions from RE and EE interventions. The project document has outlined three interrelated outputs and set of activities for each output to realize this outcome. The outputs include;

3.1. Improved and operational registry mechanism for mitigation actions in energy sector.
3.2. Developed Measurement, Reporting and Verification (MRV) guidelines and standard methodologies for RE-based energy generation and energy efficiency in commercial buildings.
3.3 Implemented MRV system for the selected appropriate mitigation actions in RE-based energy generation and energy efficiency in commercial building sectors.

Discussion with stakeholders and analysis of progress reports suggest that a number of activities have been implemented to achieve above outputs and outcome. Following is the analysis of progress made;

- ***Strengthening National Registry System (SRN):*** Ministry of Environment and Forestry has launched an online national registry system in 2016, to report and register individual mitigation actions by all sectors including energy. However, SRN reporting is on voluntary basis and presently many of the mitigations actions are not duly reported by sectors. Project has supported the strengthening of SRN, through building capacities and actively engaging with stakeholders in the energy sector to submit mitigation actions implemented by various stakeholder to SRN. It is important to highlight that in 2018, MTRE3 facilitated input of 1,052 mitigation actions in energy sector in to SRN, as previously these actions were reported in bulk with insufficient data. Project has also produced training material on the implementation, monitoring and evaluation of GHG registry mechanism and have built the capacities of stakeholders. A number of other activities are planned for future including development of framework and mechanism for energy sector sub-registry system, dashboard of mitigation action on APPLE GATRIK, M&E system on the achievement of GHG sub-registry for energy and guidelines/procedures for GHG Audits etc.

  Discussions with MoEF officials suggest that this input was greatly appreciated and has enriched the SRN database and will significantly contribute towards the monitoring, reporting and verification of mitigation actions in energy sector to reduce GHGs. The MoEF officials also highlighted that there is a greater need for physical/on ground

verification of the mitigation actions, as presently, due to limited resources, the MRV directorate of MoEF is carrying out MRVs only through desk reviews of data uploaded in the SRN.

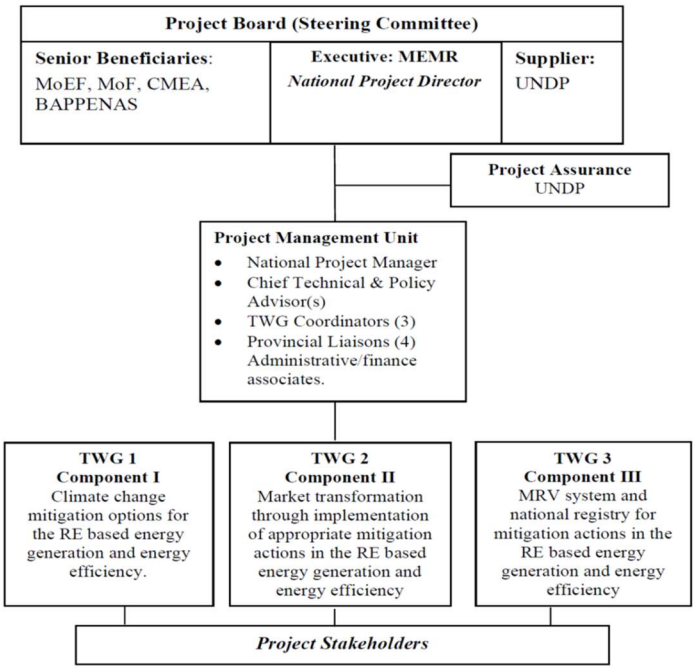
- ***Development of project-level MRV methodology and guidelines:*** Project has supported the MoEMR in the development of MRV methodologies and guideline for the RE/EE projects in energy sector. In total 15 different MRV methodologies have been identified for various kind of RE and EE projects in energy sector. These includes; on and off-grid Hydropower, Biomass, Biogas, Geothermal, Solar, Wind, Waste to energy, green chillers and efficient lamps etc. As of May 2019, 4 draft of methodology have been developed and the development of other methodologies follow in times to come. Discussions with MoEMR and MoEF suggest that once these methodologies and guidelines are finalized and approved it will greatly help in standardization and strengthening of the MRV processes and mechanisms for RE and EE projects.

## 3.3 Project Implementation and Adaptive Management

### 3.3.1 Management arrangements

The project is being managed and implemented using UNDP National Implementation Modality (NIM). The Ministry of Energy and Mineral Resources through Directorate General of New Renewable Energy and Energy Conservation (DGNREEC) is the main national implementing partner and is executing the project on behalf of the Government of Indonesia. According to project organizational structure (see in below), the MoEF, MoF, CMEA and BAPPENAS are the Senior Beneficiaries of the Project, while UNDP takes the role of the Senior Supplier. The three parties i.e. the executive, beneficiaries and supplier make up the core members of the Project Board. Other project stakeholders include national and local governmental institutions (of the four pilot provinces), financial institutions, private sector, academia, civil society and local communities etc.

**Project Organizational Structure**



Project is overseen and strategically guided by the Project Board (Steering Committee), which is chaired by Director General of DGNREEC (NPD) and composed of the project key stakeholders such as the MEMR, MOEF, MOF, BAPPENAS, UNDP and local government representative from pilot provinces. The PB is responsible for reviewing and approving the annual work plans and budgets, reviewing annual progress, providing guidance on the effectiveness of project interventions and results. PB has met on annual basis during Dec 2017 and Dec 2018 and duly reviewed the annual progress and reviewed and approved annual work plans. PB also provided guidance on implementation related issues and bottlenecks.

The Director General of DGNREEC is the designated National Project Director (NPD). The NPD is responsible for the overall achievement of the project objectives through institutional coordination with the key stakeholder members of the PSC and overall alignment of the project with the relevant national RE and EE programs of Indonesia. NPD is also responsible for timely project reporting, including the submission of Annual Work Plans (AWP), Annual Project Reports/Project Implementation Reviews (APRs/PIRs) and financial reports. Overall discussions with officials suggest that DGNREEC takes full ownership and is leading and implementing the project with keen interest and is providing facilitation, management and oversight support during implementation of the project. However, since the NPD is high level official in the MEMR, with a lot of other ministerial responsibilities, therefore he can't spare much time for the project therefore he is supported by his Secretary as Deputy NPD, in project related affairs and is providing needed support to project implementation.

A Project Management Unit (PMU) has been established and is responsible for the day-to-day management and implementation of all the project activities. The main functions of PMU include provision of implementation support, coordination among stakeholders, monitoring and evaluation, progress reporting, and formulation of annual work plans. The PMU is managed by a National Project Manager (NPM), who is presently supported by the component coordinators and administrative staff. The original project structure envisaged the position of a Chief Technical Advisor (CTA) to provide technical and policy related inputs and guidance in the implementation of the project. However, the position of the CTA remains vacant. Which has its own implications for project implementation, presently NPM is looking after both the technical and administrative affairs and on the other hand project looks to the CO for necessary technical advice. The project structure also envisaged establishment of three thematic working groups (TWGs) for each of the outcome. However, during the course of this MTR no information could be ascertained on the establishment, roles and working of the proposed TWGs.

In terms of gender balance, out of 4 project management board members, 1 (25%) is woman; out of 7 members of PMU 3 (42.9%) are women; out of 3 MTRE3 project technical working group members 1 (33.33%) is woman.

UNDP CO is regularly engaged in oversight and quality assurance of project and has closely monitored the project interventions and provided strategic guidance for implementation and achievement of project results. The country office provids technical support to the project management unit with focus on supporting the establishment of SEF. CO through Senior Adviser for Sustainable Energy and the Renewable Energy Expert, also provides strategic

policy and technical advice to the project during its implementation. The CO facilitated communication between the Bangkok regional office and UNDP HQ in order to clarify the legal aspects of UNDP's role in the SEF operationalization. Similarly, UNDP-GEF Regional Technical Advisor (RTA) for Climate Change in the Asia-Pacific Region is also involved in providing guidance, oversight and to ensure that expected project performance standards are met. Furthermore, project core finances are managed and spent using UNDP and GoI standard financial management and procurement systems and procedures, keeping in view the best value for money.

Overall it can be concluded that project management arrangements were found appropriate and UNDP and MEMR and other stakeholders provide the needed management support during project implementation. The cooperation among various stakeholders in management and implementation of the project also remains swift and optimal and discussions suggest that there are no major collaboration issues among stakeholders.

### 3.3.2 Work Planning

Project has carried out detailed annual planning exercises and has developed detailed Annual Work Plans for 2017, 2018 and 2019. The AWPs provided the basis for implementation of activities and utilization of project resources. These AWPs were in tabular format and consisted of outcomes, outputs, activities, quarterly timeframe for implementation, responsible parties, funding sources and activity based budgetary allocation. These AWPs were prepared in line with the targets of the results framework and allocated budgets and timeframe as provided in the project document.

The draft AWPs were presented in the annual Project Board meetings, during the respective years, and were duly reviewed, adjusted and approved by the Project Board. Discussions with project team and IP suggest that the planning exercises were conducted in consultation with stakeholders and were found very instrumental in streamlining and implementation of project activities. Following is an abstract screenshot of the AWP for 2019.

**ANNUAL WORK PLAN 2019**

Award Id : 00086173
Award Title : Market Transformation through Design and Implementation of Appropriate Mitigation Actions in the Energy Sector
Province : National
Project ID : 00093506
Year : 2019
Implementing Partner : Directorate General of Renewable Energy and Energy Conservation, Ministry of Energy and Mineral Resources (MEMR)

| EXPECTED OUTPUTS | | PLANNED ACTIVITIES | TIME FRAME | | | | | | | | | | | | RESPONSIBLE PARTY | SOURCE OF FUND | PLANNED BUDGET | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *List activity results and associated actions* | Q1 | | | Q2 | | | Q3 | | | Q4 | | | | | BUDGET DESCRIPTION | | AMOUNT (USD) |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | |
| | 1.1.Defined and established sectoral and sub-national reference baselines for the RE-based energy generation and energy efficiency in commercial building sectors in pilot provinces. | 1.1.1. Development of data inventory for energy generation, its use, available renewable resource and GIS mapping of potential available resources of RE and its value chain at provincial level | X | X | X | | | | | | | | | | MEMR | GEF | 71300 | Local Consultants | 8,000 |
| | | | X | X | X | | | | | | | | | | MEMR | GEF | 71600 | Travel | 30,000 |
| | | | X | X | X | | | | | | | | | | MEMR | GEF | 71800 | Contractual Individual - IP | 20,000 |
| | | | X | X | X | | | | | | | | | | MEMR | GEF | 74500 | Miscellaneous | 2,000 |
| | | | x | x | x | | | | | | | | | | MEMR | GEF | 75700 | Training - Workshops | 22,000 |
| | | 1.1.2. Development of reference baseline and GHG inventory of energy sector in four pilot provinces (Jambi, West Sulawesi, East Nusa Tenggara, and Riau pilot provinces) | | | | x | x | x | | | | | | | UNDP | GEF | 71300 | Local Consultants | 33,956 |
| | | 1.1.3. Improvement of Local Energy Planning Document (RUED) including RAD-GRK activities in 4 pilot Provinces | x | x | x | x | x | x | x | | | | | | UNDP | GEF | 71400 | Contractual Services Individual | 88,550 |

### 3.3.3 Finance and Co-finance

Project's GEF budgetary resources consist of USD 8.025 Million, as grant. The project document has also outlined that in parallel to GEF funding project will receive co-financing in the form of parallel activities and in-kind contribution of USD 8.0 Million from MEMR and USD 0.1 Million from UNDP-TRAC. In addition, it was also envisaged that private sector will provide co-financing of USD 52 Million. Please co-financing table in below.

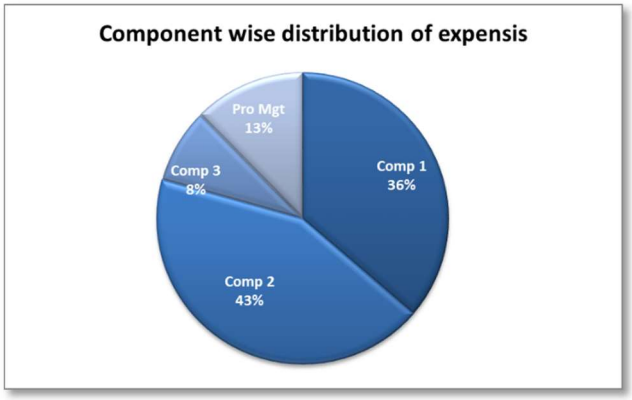
| Sources of Co-financing | Name of Co-financer | Type of Co-financing5 | Amount (US$) | Actual Amount Review (US$) | Actual % of |
|---|---|---|---|---|---|
| **GEF Partner Agency** | UNDP | In kind | 100,000 | 119,025 | 119% |
| **National Government** | Ministry of Energy and Mineral Resources | In-kind | 8,000,000 | 1,335,972 | 17 % |
| **Private sector** | PT. Multi Fabrindo Gemilang | Investment | 2,000,000 | 0 | 0 % |
| **Private Sector** | PT. Pasadena Engineering Indonesia | Investment | 10,000,000 | 1,551,231 | 15 % |
| **Private sector** | PT. Daun Bitu | Investment | 40,000,000 | 0 | 0 % |

According to summary financial statement and CDRs, the project has utilized a total of USD 2,279,517 from GEF funds during March 2017 to April 2019. In addition, USD 631,394 were also utilized as implementation grants from Bank Jambi and BAZNAS for the four micro hydro projects. Similarly, in kind support of USD 119,025 was provided by UNDP. Overall around 28.5% of the total project GEF budgetary resources has been utilized so far. If SEF funds of USD 2.6 Million are excluded, then the utilization rate of the available GEF funds is around 42%. Please see following table for utilization of GEF funds.

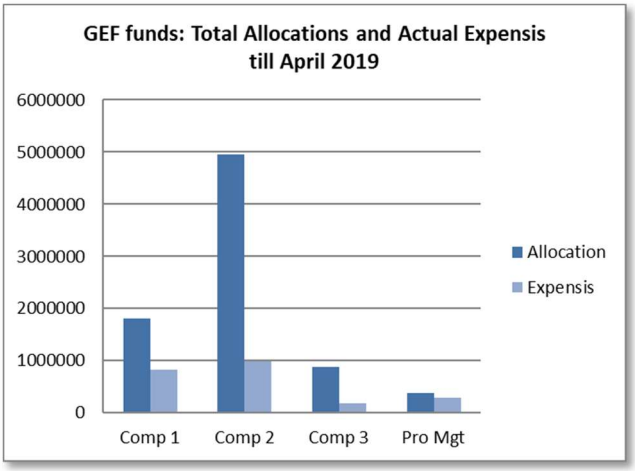
| GEF Project Expenses 2017 - April 2019 | | | | |
|---|---|---|---|---|
| **Outcome** | **2017** | **2018** | **(up to April 2019)** | **Outcome Total** |
| **Outcome 1** | | | | |
| GEF (62000) | 229,807.90 | 470,046.20 | 127,118.47 | 826,972.57 |
| **Outcome 2** | - | - | - | - |
| GEF (62000) | 246,948.14 | 634,572.37 | 100,058.33 | 981,578.84 |
| **Outcome 3** | - | - | - | - |
| GEF (62000) | 51,185.41 | 85,507.51 | 51,902.35 | 188,595.27 |
| **Project Management** | - | - | - | - |
| GEF (62000) | 66,138.95 | 186,034.18 | 30,196.89 | 282,370.02 |
| **TOTAL** | **594,080** | **1,376,160** | **309,276** | **2,279,517** |

Component wise analysis of GEF funds shows that activities under Component-2 consumed 43% of the spent resources, followed by Component-1 at 36%, and Component-3 at 8%. Around 13% of the total spending was incurred on project management and operations. On the other hand, analysis of component wise allocation (per Prodoc) and expenses of GEF funds suggest that component 2 and 3 are considerably under spent. It is important to highlight that

the project is already mid-course but have spent only a fifth of the allocated resources for the component 2 and 3. Once of the main reason for Comp-2 under spending is the lack of utilization of SEF funds. This suggest that project has to considerably accelerate the rate of delivery in the remaining half of the project to fully utilize all project allocated funds.




Detailed Annual Work Plans were prepared, consisting of detailed budgetary allocations at the activity level and was duly approved by the Project Board. The AWPs provided the basis for implementation of activities and utilization of project resources. Overall project core funds were managed and spent using UNDP and GoI standard financial management and procurement systems and procedures, keeping in view the best value for money.




As mentioned, the project document also envisaged co-financing, in the form of parallel activities and in-kind contribution, of USD 8.0 Million from MEMR. A recent letter (dated May 31, 2019) from Directorate of NREEC, MEMR to the UNDP Resident Representative, outlines that GOI is fully committed to provide the desired in-kind co-finance of USD 8.0 Million for the duration of project. The letter mentions that the government co-finance is distributed in several parallel projects of revitalization, retrofits, feasibility studies and engineering designs of RE projects. The letter also provides a list of 14 RE projects/initiatives, where government has spent around IDR 18.89 Billion (around USD 1.33 Million) during 2017 and 2018. Overall the commitment of GOI in supporting the parallel RE projects is very commendable and is in line with the broader aim of promotion of RE. However, it can also be argued that this kind of co-financing arrangements tends to be more of an indirect nature, ideally such project co-financing are expected to be directly linked to the project interventions and objectives.

Project has also mobilized co-financing of USD 2.26 from various partners for implementation of RE and EE projects (USD 0.631 Mill BAZNAS and Bank Jambi, USD 1.55 Mill from Pasadena and USD 0.082 Mill from Ravindo and Pullman hotels).

### 3.3.4 Project-level Monitoring, Evaluation and Reporting

Project document has outlined a detailed monitoring and evaluation plans suggesting a number of monitoring, evaluation and reporting measures and activities to effectively monitor and report the progress of project interventions and results. However, the M&E plan was not properly budgeted nor were sufficient resources allocated to M&E, with exception of

allocations of USD 70,000 for Mid-term and Terminal Evaluation. Overall project was overseen and guided by the Project Board (Steering Committee), which met on annual basis in 2017 and 2018. Project annual progress was presented in the board meetings and was reviewed thoroughly and corrective actions and guidance was provided to the project management to streamline implementation.

Project Management Unit remained responsible for day-to-day implementation and monitoring of project interventions and results and issuing of quarterly and annual progress reports. Project progress has been regularly compiled, analyzed and reported against indicators and targets of Results Framework through several Quarterly Monitoring Reports (QMRs) and one Annual Project Implementation Report (PIR 2018). The QMR and PIR was prepared on the standard UNDP-GEF templates. QMRs were mostly in abstract and tabular format lacking analyses and narrative description of interventions and process, one the other hand PIRs were found sufficiently elaborate and beside providing progress on achievement status of objective and outcome level indicators and activities, it also provides ratings on various review criterial and discusses other aspects like critical risk management, adjustments made, gender, social and environmental standards, communication and partnerships etc.

UNDP CO was regularly engaged in oversight and quality assurance of project and has closely monitored the project interventions on quarterly and annual basis through regular progress review and reporting. In addition, the project also monitored its progress through internal review meetings and project team also regularly visited field interventions to observe their progress and performance. However, these internal reviews were mostly informal and limited to the project team and UNDP and other stakeholders were not actively involved.

Project document had envisaged that the project will undergo an independent Mid-Term Review at the mid-point of project implementation. The objectives of this MTR is to assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document, and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results. This MTR reviews in detail the project's design and strategy, progress towards results, management arrangements and sustainability etc. Accordingly, the MTR provides broader conclusions and specific recommendations to streamline project interventions to achieve end of project targets.

An independent Terminal Evaluation will take place towards the end of project duration. The objectives of the TE will be to assess the relevance, effectiveness, efficiency, sustainability and impact of project interventions, outputs and outcomes. The terminal evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation). The Terminal Evaluation will also provide recommendations for follow-up activities and will require a management response from UNDP and stakeholders.

Overall it can be concluded that the project strived to monitor and evaluate its progress and performance, however discussions with project team suggest that the absence of sufficient resources for M&E and the non-availability of M&E expert within the PMU has somehow hindered the development and implementation of effective project M&E mechanisms,

especially collection, analysis and reporting of data related to project progress and outcomes and impact indicators. Presently the M&E related tasks are undertaken mostly by the Project Manager and members of project implementation team, beside their other regular duties. In addition, there is also lack of gender-disaggregated data which hampers the assessment of the perspectives of women and men affected by the project.

### 3.3.5 Stakeholders Engagement

Project has engaged and collaborated with a wide range of relevant stakeholders. These included governmental institutions at the national and provincial level, financial institutions, private sector organizations, academia, development partners, civil society and local communities (please see the summary list of stakeholders in Section 2.6 in above. Relevant stakeholders were engaged from time to time keeping in view the nature of project interventions.

Collaboration with and engagement of MEMR, as implementing partner, was found very optimal and forthcoming with a very high level of ownership for project interventions and results. The hall mark of stakeholder's engagement was involvement of respective pilot province's governmental institutions in various interventions at the province level. Initially project faced little difficulties in coordinating with the provincial authorities, however gradually the collaboration was streamlined and optimized.

It is important to highlight that project has built strong partnership with financial institutions i.e. BAZNAS and Bank Jambi for implementation of micro hydro projects in Jambi province. Whereas these partners contributed substantial financial resources for the infrastructure works. Similarly, other financial institutions like OJK, PT SMI and private Banks were also engaged from time to time to streamline financing mechanisms for small-medium RE and EE projects. Project also engaged with building managers for selected commercial buildings and energy service companies in the EE related work. Various universities especially in the pilot provinces were also engaged in research and development work in RE and EE sector and especially in the development of Provincial Energy Plans. Last but not the least project has effectively engaged with remote off-grid communities for development and implementation of micro hydro projects in four village of Jambi province. Overall it can be concluded that the collaboration with various stakeholders in management and implementation of the project remains swift and optimal and discussions suggest that there are no major collaboration issues among stakeholders.

### 3.3.6 Communications

The PMU communicates closely and regularly with MEMR through official and unofficial written communication, as well as official meetings with the staff of DGNREEC. Communication with other project stakeholders, i.e. regional government, private sector and academia is carried out through formal and informal channels as necessary. Any progress of the project results is communicated to project stakeholders through various channels such as PB meetings and other national, regional or community meetings, MTRE3's and UNDP's websites, conferences, papers and printed media. The Ground-Breaking ceremony of the micro hydro development in Jambi province that was held in September 2018 was a

particularly prominent event reported by online media and printed media on national and provincial level.

The project has also involved and communicated with wide range of stakeholders through its capacity building and consultation workshops, which helped in enriching the knowledge and understanding of participants and also helped in improving coordination among stakeholders, especially at the provincial levels. Nevertheless, project has also generated a wide range of knowledge products like studies, reports and publications, which have been shared with stakeholders from time to time. However, there is a further need to disseminate these products to all stakeholders and to upload them to MEMR website for easy accessibility and future reference.

## 3.4 Sustainability of Project Interventions and Results

The project document outlines that sustainability of the project impact will be ensured through the leadership of the MEMR and the firm commitments of the provincial governments of pilot provinces. It has also emphasized that serious enforcement of clear policies, regulations, fiscal/financial instruments, through a supportive regulatory and institutional system, for RE/EE investment, and engagement of private sector in RE/EE investment, will ensure the sustainability of the project impacts. Moreover, the availability of local capacity and operational financing mechanism are also considered essential elements for ensuring sustainability of project impact.

Sustainability of project interventions and continuity of benefits, in the post project period normally depends on the availability of desired policies, institutional frameworks, human and technical skills, social acceptance, environmental viability and most importantly availability of desired financial resources. Following is brief description of the main risks to the sustainability;

**a) Financial risks to sustainability**

As mentioned earlier availability of and access to adequate finances remains one of the main barriers and risk in implementation, sustainability and scaling up of small to medium RE and EE projects. Small-medium size of RE projects (below 10 MW) are considered high risks by financiers due to lack of technical, legal and financial bankability. In 2017 a record 70 PPAs were signed in RE, however a year later in 2018, 45 of them were facing acute issues in financial closers, while only 4 reached COD. In addition to financial barriers, there is also limited technical capacity among the project developers to develop bankable RE and EE projects.

To address these financial issues project document has envisaged to facilitate the establishment and operation of a USD 2.6 Million financing scheme called the Sustainable Energy Fund (SEF). The fund was intended to support small-to-medium size RE projects in securing desired finances. Down the road, GoI launched SDG Indonesia One (SIO), as a blended financing facility and an integrated financing platform for achieving SDGs, managed by PT.SMI. UNDP and PT. SMI have agreed to closely collaborate under the SIO platform,

particularly to enhance rate of commercial financing for small-medium size renewable energy projects.

Following the developments of SIO, UNDP has drafted a proposal for delivery mechanisms for proposed SEF. Main delivery mechanisms include provision of technical assistance, guarantees for RE/EE projects and conducting project impact assessment on the SDGs. Presently part of the delivery mechanisms is still under finalization and remained awaiting the approval from UNDP and IP. On 19 June 2019 project has formally received an approval from GEF-UNDP that the procurement mechanism of SEF can be utilized. Presently, the bulk of SEF's $ 2.6 Million, are still awaiting effective utilization. It is expected that once SEF is fully activated and implemented it will considerably improve the sustainability and replicability of future RE and EE projects.

It is important to highlight that project has also mobilized resources from other partners like BAZNAS and Bank Jambi for implementation of micro hydro projects in remote off grid villages. This blended financing arrangement was also found very useful in exploring, developing and utilizing resources from financial institutions in promoting and implementing RE projects. There is also a need to explore further co-financing arrangements with existing and other potential stakeholders. Indeed, this will also greatly enhance the sustainability and replicability of RE and EE projects in times to come. Last but not the least some of the financial institutions in public sector, like OJK and PT SMI are also working on development and implementation of sustainable finance mechanisms. OJK has developed and is implementing a sustainable finance road map (2014-2023) and in the 1st phase has conducted a number of capacity building interventions involving relevant financial institutions. On the other hand, PT SMI is also making efforts to promote sustainable finance for RE investments. Though these efforts are still in the initial stages, however, once fully developed and implemented they will greatly enhance the overall sustainability, replicability and scalability of RE and EE interventions in future.

**b) Institutional Frameworks and governance risks to sustainability**

Over the years GOI has made substantial efforts by putting in place a conducive policy and institutional frameworks for energy sector in general and RE in particular. GoI has formulated a number of sustainable energy policies and regulations including, Regulation No.79/2014 on National Energy Policy, which sets a target, by 2025, of a 23% contribution from renewable energy (RE) in the national primary energy mix. Presidential Regulation No. 02/2015 on the Medium-term National Development Plan (RPJMN) 2015-2019 also sets a target of 10% to 16% for RE contribution in the country's primary energy mix by 2019. Other notable regulations include: (a) Presidential Regulation No. 61/2011 establishing a National Action Plan to reduce greenhouse gas emissions (RAN-GRK); (b) Local Action Plan to reduce GHG emissions (RAD-GRK, 2012); and (c) Presidential Regulation No.71/2011 on establishing a National GHG Inventory. All regulations support the GHGs emission reduction framework of Indonesia, to reduce GHG emissions by 26% by 2020 through national efforts and with international assistance.

As mentioned in earlier sections project has also handsomely contributed in inducing sustainability through providing support for the implementation of above policies and

frameworks at the national and provincial levels. Main contributions include; Development of Draft Province/Regional Energy Plans, streamlining of financing mechanisms, RE potential studies/mapping, Establishment of Reference baseline and GHG inventory, Energy Consumption (SEC) Surveys, Certification, Accreditation and Standardization Studies, Investment Grade Audits (IGAs), Implementation of small RE projects and strengthening of SRN and capacity building etc.

Discussions with MEMR officials suggest that in the presence of strong policy and regulatory frameworks and high level of willingness and ownership of the GOI, it is very likely that RE related interventions will be duly sustained, replicated and scaled up in times to come. They also highlighted that project support was also very instrumental in implementation and sustainability of desired RE policies and frameworks. Discussions with provincial government officials suggest that the recently drafted Provincial Energy Plans were also found very comprehensive and once approved, will provide basis for longer term sustainable development of energy sector in general and RE in particular. Discussions also suggest that, keeping in view the broad scope of RE agenda, they will still require external financial and technical support in times to come.

**c) Socio-economic risks to sustainability**

Overall RE and EE interventions are found socially highly acceptable and beneficial from citizen's point of view. As mentioned in the previous sections, discussion with community in Lubuk Bangkar village suggest that overall, they are well satisfied and are greatly benefiting from power supply, which has considerably transformed and improved their life and livelihoods, as they can now use electricity for variety of household purposes and to generate economic activity. The micro hydro has benefited the poorest and women the most. Communication and information flow has also significantly eased out and gradually power related economic activity generation has also started.

**d) Environmental risks to sustainability**

Needless to emphasize that RE and EE interventions are the most environmentally friendly and greatly help in improving environmental sustainability. The Project was a great advocate of and has promoted environmental sustainability in the energy sector. The objective of the project itself was to support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors in Indonesia. Project's main objective level target was to reduce GHG emissions from energy sector through significantly enhancing the contribution of RE in national and provincial energy mix.

## 4. CONCLUSIONS AND RECOMMENDATIONS

### 4.1 Main Conclusions

Based on the detailed analysis and findings of the evaluation exercise following are the main conclusions;

***a) Project strategy***

- Overall project design was well conceived and relevant to address the prevailing barriers and to achieve overall objectives. The project approach of involving all relevant stakeholders especially in the pilot provinces and implementation of incremental activities, including facilitation the design, financing, and implementation of the RE and EE projects, was found suitable and relevant. Project objectives and approach were also found inline GOI policies and priorities and needs of the local communities. On the other hand, project agenda was also fully consistent with UNDP and GEF national and global priorities like SDGs.

- Project Results Framework was also well formulated and exhibited clear linkages among outcomes and objectives. However, outputs were not made integral part of the results framework, but were separately provided. Whereas, indicators, targets and means of verification were also not identified at the output levels. This absence of indicators and targets poses greater challenges in measuring the achievability status of specific outputs. Discussions also suggest that some of the objective level targets are a bit challenging to achieve. In addition, absence of Gender analysis/Action plan during project design and lack of gender-disaggregated indicators, also hampers the capturing of gender dimensions.

**b) Progress Towards Results**

- ***Overall Objective:*** Analysis of progress made so far suggest that many of the objective level targets are presently lagging behind. Since project is already half way through its life therefore rationally by now half or at least one third of the targets should have been achieved. However, discussions with project team and stakeholders suggest that the implementation has already gathered a good momentum and rate of delivery will considerably accelerate in the coming years to achieve stipulated end of project targets.

- ***Outcome 1:*** Under this outcome project facilitated and implemented a number of interventions at the national level and in the pilot four provinces. Main activities including RE potential studies/mapping, reference baselines and GHG inventory, Provincial Energy Plans and Energy Consumption (SEC) Survey etc. Overall these studies, maps, inventories and plans are found very comprehensive, evidence based, data driven and technically sound. The provincial government officials met in NTT and Jambi also vowed to use these studies and implement the energy plans for development and promotion of RE, EE in their respective provinces. However, all of above activities falls under output 1.1, while activities under output 1.2, 1.3, and 1.4 are planned for the remaining period.

- ***Outcome 2:*** This remained the flag ship outcome of the project and has consumed most of the resources. Interventions under this outcome included supporting Government's

Online Single Submission (OSS) System, capacity building of stakeholders and knowledge sharing, Study on Certification, Accreditation and Standardization of RE projects. These interventions helped in facilitating the permitting process for RE projects, building capacities of stakeholders and standardization of RE interventions. Investment Grade Audits have been carried out in six buildings and some of the buildings like Transmart, Ravindo and Pullman Hotels have already started implementation of IGAs to enhance energy efficiency

Under outcome 2, it was also envisaged to establish a USD 2.6 Million, Sustainable Energy Fund (SEF) to facilitate financing for small-to-medium RE and EE projects through providing loan guarantees, project development support and viability gap financing. Presently part of the delivery mechanisms is still under finalization and remained awaiting the approval from UNDP and IP. On 19 June 2019 project has formally received an approval from GEF-UNDP that the procurement mechanism of SEF can be utilized. Presently, the bulk of SEF's $ 2.6 Million, are still awaiting effective utilization. There is a greater need for efficient and effective utilization of SEF in the remaining project period.

Under outcome 2, project has facilitated the revitalization of three micro hydro projects, 40 kW each, and has constructed a 60 kW new micro hydro in remote off grid villages of Jambi province. These were implemented with the co-financing grants from BAZNAS and Bank Jambi. This blended financing arrangement was found very useful in mobilizing resources from potential partners. These micro hydro projects are currently providing electricity access to 806 households in respective villages. Discussion with community suggest that overall they are well satisfied and are greatly benefiting from power supply, which has considerably transformed and improved their life and livelihoods. However, repairs of major breakdown are found cumbersome, time consuming and expensive.

Overall it can be concluded that the project has rigorously implemented a wide range of interventions to achieve this outcome. However, analysis of progress made so far suggest that many of the outcome level targets are presently lagging behind. Since project is already half way through its life therefore rationally by now half of the targets should have been achieved.

- ***Outcome 3:*** Under this outcome project has supported the strengthening of SRN, through building capacities of stakeholders to submit mitigation actions to SRN. In this regard project has also facilitated input of 1,052 mitigation actions in energy sector in to SRN. This input has enriched the SRN database and will significantly contribute towards the MRV of mitigation actions in energy sector. Similarly, Project has supported in the development of MRV methodologies and guideline for RE/EE projects in energy sector. The same is under finalization and once finalized and approved it will greatly help in standardization and strengthening of the MRV processes. Overall the targets are on track to be achieved.

**c) Project Implementation and Adaptive Management**

- The project is being implemented using UNDP National Implementation Modality (NIM). The MEMR is the main implementing partner. Project is overseen and guided by a project

board consisting of representatives of MEMR, MoEF, MoF, CMEA and BAPPENAS, UNDP and pilot provinces. PMU is responsible for the day-to-day management and implementation of project activities. Overall project management arrangements were found appropriate and UNDP and MEMR and other stakeholders provided the needed management support during project implementation. The cooperation among various stakeholders in management and implementation of the project also remained swift and optimal and presently there are no major collaboration issues among stakeholders.

- As of April 2019, around 28% of the total project GEF budgetary resources has been utilized. The lower rate of spending is mostly due to the non-utilization of 2.6 Million SEF allocations. If SEF allocations of 2.6 Mill, are excluded, then the utilization rate of available GEF funds is around 42%. Regarding co-financing from the GoI, IDR 18.89 Billion (around USD 1.335 Million) has been utilized by the MoEMR on 14 parallel projects. Project has also mobilized co-financing of USD 2.26 from various partners for implementation of RE and EE projects.

- Project has put in place and implemented a number of monitoring and evaluation mechanisms to assess the progress of interventions and results. These include, progress review meetings, quarterly and annual progress reporting, Mid-term Review and Terminal Evaluation. However, the absence of a dedicated M&E expert within the PMU has somehow hindered the development and implementation of rigorous project M&E mechanisms.

**d) Sustainability**

- Availability of and access to adequate finances remains one of the main barriers and risk in implementation, sustainability and scaling up of small to medium RE and EE projects. Project intends to establish SEF to facilitate RE and EE projects in securing desired finances. Once SEF is fully mobilized and implemented, it is expected that it will help improve the sustainability of future RE and EE projects. Financial institutions like OJK and PT SMI are also working on development and implementation of sustainable finance mechanisms. Once fully developed and implemented they will greatly enhance the overall sustainability, replicability and scalability of RE and EE interventions in future.

- GOI has made substantial efforts by putting in place a conducive policy and institutional frameworks for energy sector in general and RE in particular. In view of the availability of relevant and conducive policies, legal and institutional frameworks and high level of acceptance and ownership at the governmental level, it can be concluded that there is strong likelihood that RE/EE interventions will be duly sustained in times to come.

- Overall RE and EE interventions are also found socially highly acceptable and beneficial from citizen's point of view. On the other hand, RE and EE interventions are found the most environmental friendly and greatly help in improving environmental sustainability.

## 4.2 Main Recommendations

Based on the detailed analysis from the evaluation exercise following are the main recommendations along with entities responsible;

| No | Recommendations | Entity Responsible |
|---|---|---|
| A | **Outcome 1:** Prioritized appropriate mitigation actions in the RE based energy generation and energy efficiency. | |
| A.1 | To continue supporting provincial governments in review and timely approval of the draft Provincial Energy Plans. There is also a greater need to develop tentative financial plans/budgetary outlays for the Provincial Energy Plans. Project should provide technical assistance to develop respective financial plans in pilot provinces, this will greatly help in capturing the total scope of investments required. | **Project Team**<br>**MEMR** |
| A.2 | To further support and collaborate with public and private sector stakeholders in the implementation of the recommendations of the completed Specific Energy Consumption Survey in government buildings and Investment Grade Audits in the remaining private buildings. | **Project Team**<br>**MEMR** |
| A.3 | To enhance close collaboration with and build capacities of ESCOs to enable them to effectively and professionally provide required technical and human resources/services for energy efficiency in public and private sector projects. | **Project Team** |
| A.4 | To continue capacity building programs for the stakeholders in RE sector including government agencies especially at the provincial level, financing institutions, project developers, consulting companies, and policy makers. | **Project Team** |
| B | **Outcome 2:** Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies. | |
| B.1 | To finalize Sustainable Energy Fund delivery mechanisms, as soon possible, to start efficient and effective utilization of the allocated USD 2.6 Million. It is suggested that the developed SEF delivery mechanisms should be finalized and approved in a special Project Board meeting, to be called at an early convenience, preferably not later than Sep 2019. Similarly, UNDP HQ should provide desired technical and administrative support to timely finalize and approve the institutional and administrative mechanisms for utilization of SEF. | **Project Team**<br>**UNDP CO and HQ**<br>**MEMR**<br>**Project Board** |
| B.2 | To identify and collaborate with willing partners in public and private sector in the design and implementation of the RE projects in the pilot provinces to achieve the target of 15 MW RE based power generation (7 MW mini-hydro, 6 MW biomass and 2 MW solar PV projects) by the end of project. Overall this target can be achieved in the remaining period as a 3 MW project is already about to close financially with PT SMI.<br><br>The remaining target can be achieved by identifying potential partners and provide desired technical support in the development and enhancing the | **Project Team**<br>**MEMR** |

| No | Recommendations | Entity Responsible |
|---|---|---|
| | bankability of the proposals. In this regard the project should connect/consult with organizations, who have already secured RE PPAs with PLN and are looking for external technical and financial support. If needed the project should also issue a call for expression interest to identify and select potential partners for establishment of RE projects. | |
| B.3 | To further support communities and build their capacities in effectively managing and operating the micro hydro projects, as well as further explore business models based on fee collection and introduction of Renewable Energy Service Providers (RESCOs) for operation and maintenance of micro-grids.<br><br>The managers and operators needs to be further trained through refresher courses especially in technical and operational matters. It is also important to devise standard SOPs with service providers for timely maintenance in cases of major breakdowns. It is also suggested to establish a village committee to monitor the operations and related financial affairs of the micro hydro. | **Project Team**<br><br>**MEMR** |
| C | **Outcome 3:** Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency | |
| C.1 | To foster efforts, involving relevant stakeholders, to further strengthen the National Registry System (SRN). Project should engage with and build capacities of relevant energy sector institutions to duly submit mitigation actions implemented by various stakeholder to SRN. | **Project Team**<br><br>**MoEF** |
| C.2 | The MoEF officials also highlighted that there is a greater need for physical/on ground verification of the mitigation actions, as presently, due to limited resources, the MoEF is carrying out MRVs only through desk reviews of data uploaded in the SRN. If resources allow, project should provide necessary facilitation support to enable MoEF to physically verify some selected mitigation actions. | **Project Team**<br><br>**MoEF** |
| D | **Project Implementation & Adaptive Management** | |
| D.1 | A number of targets for objective level and Outcome-2 indicators are lagging behind. Therefore, there is a greater need to further accelerate the implementation of remaining project interventions. Having said this if the project management understand that there is a need for revision of targets then it should take the matter to the PB. However downward revision of targets will have its own implications, as project financial resources have been estimated keeping in view the prevailing targets in the results framework. If the project targets can't be achieved by the end of project then the most desirable option is, if resources allows, to request for no-cost extension of the project timeframe (up to 6-12 moths) to complete the targets, instead of revising the targets. | **Project Team**<br><br>**UNDP CO and HQ**<br><br>**MEMR**<br><br>**Project Board** |

| No | Recommendations | Entity Responsible |
|---|---|---|
| D.2 | Project document envisaged the position of a Chief Technical Advisor, however the position remains vacant. Though the absence of CTA has been mitigated by advisory support from CO. However, it is recommended, if resources allow, project should bring on board a suitably qualified CTA, as soon. This will greatly help in further streamlining and acceleration of project implementation. | Project Team<br>UNDP CO<br>MEMR |
| D.3 | To employ a dedicated M&E expert/officer for the remaining period of project, who should develop and implement a rigorous M&E mechanisms and provide continuous feedback to the management during implementation and especially keep track of project outcomes and objective level indicators.<br>Furthermore, all stakeholders also need to be regularly involved in the M&E through six-monthly and annual review meetings/workshops. It is also suggested that project should conduct a comprehensive study, towards the end of project, to estimate the exact status of GHG reductions from project interventions. | Project Team<br>UNDP CO |
| D.4 | To sort out and assemble all project knowledge products including studies, reports, publications etc., and disseminate in soft and hard to all stakeholders and to upload them to MEMR website for easy accessibility and future reference. | Project Team |
| D.5 | There is a greater need to further emphasize on the gender mainstreaming during implementation of project interventions. It is recommended that project should engage a gender specialist who should develop and implement a gender mainstreaming strategy. Furthermore, mechanisms should be developed to collect and analyse gender-disaggregated data related to project output and outcome indicators. | Project Team |
| E | **Sustainability** | |
| E.1 | To further explore co-financing arrangements with existing partners like Bank Jambi and BAZNAS and other potential financial institutions to establish and scale up RE and EE projects in times to come. The project also needs to work closely with financial institutions like PT SMI, OJK and especially with private sector banks, to develop a priority regime to ease financing of future sustainable energy projects. | Project Team<br>UNDP CO<br>MEMR |
| E.2 | To formulate a timely and pragmatic exit strategy, towards the last year of the project, outlining issues, ways and means to smoothly phase out and handover interventions to partners, to ensure sustainability and continuity. The exit strategy shall also highlight possible future options for replicability and scaling up of RE and EE interventions in future. | Project Team<br>MEMR |

## Annex-1: List of Persons Met/Interviewed

| Name | Designation | Organization | Place |
|---|---|---|---|
| Ms. Laksmi Dhewanthi | Senior Advisor to Minister, Industry and International Trade (GEF Focal Person) | Ministry of Environment and Forestry Republic of Indonesia | Jakarta |
| Ms. Sophie Kemkhadze | Deputy Resident Representative | UNDP Indonesia CO | Jakarta |
| Ms. Marina Adel | Programme Manager Climate Change | UNDP Indonesia CO | Jakarta |
| Mr. John Kimani Kirari | Renewable Energy specialist | UNDP Indonesia CO | Jakarta |
| Mr. Hery Desha | Budget Management Associate | UNDP Indonesia CO | Jakarta |
| Ms. Verania Andria | Senior Advisor For Renewable Energy | UNDP Indonesia CO | Jakarta |
| Ms. Yenny Widjaja | Gender and Result officer | UNDP Indonesia CO | Jakarta |
| Mr. Boyke Lakaseru | National Project Manager | MTRE3 PMU | Jakarta |
| Ms. Nila Murti | Technical Working Group Coordinator | MTRE3 PMU | Jakarta |
| Mr. Heri Tabadepu | Technical Working Group Coordinator | MTRE3 PMU | Jakarta |
| Ms. Tjahjaning Aju | Project Associate | MTRE3 PMU | Jakarta |
| Ms. M.M. Deviyani | Project Associate | MTRE3 PMU | Jakarta |
| Mr. M. Halim Sari Wardana | Secretary of Directorate General, DG-NREEC | Ministry of Energy and Mineral Resources | Jakarta |
| Mr. Qatro Romandhi | Head of Planning and Reporting DG-NREEC | Ministry of Energy and Mineral Resources | Jakarta |
| Dr. Hariyanto | Director of Energy Conservation | Ministry of Energy and Mineral Resources | Jakarta |
| Ms. Alfi kurnianingsih | Staff of DG-NREEC | Ministry of Energy and Mineral Resources | Jakarta |
| Dr. Joko Prihatno | Director of GHG Inventory and MRV | Ministry of Environment and Forestry | Jakarta |
| Mr. Hari Wibowo | Head of MRV | Ministry of Environment and Forestry | Jakarta |
| Mr. Edi Setijawan | Senior Executive Analyst | Indonesia Financial Services Authority (OJK) | Jakarta |
| Mr. Adi Pranasatrya | Division Head | PT Sarana Multi Infrasrtruktur (PT SMI) | Jakarta |
| Ir. R. Hikmawan Wargakusumah | President Director | Pasadena Engineering Indonesia | Jakarta |
| Mr. Anggit Saputra Dwipramana | Director | PT Pasadena Bio-fuel Mandiri | Jakarta |

| | | | |
|---|---|---|---|
| Mr. Sueyoshi Matsuda | Director | PT. Fuji Furukawa E&C Indonesia | Jakarta |
| Mr. Jusuf Johannis | Building Manager | RAVINDO Building Jakarta | Jakarta |
| Mr. Adrianus Amheka, Phd | Head of Center for Research and Community Services | State Polytechnic of Kupang | Kupang |
| Mr. Paulas Kedang | Deputy Director | Dinas ESDM NTT | Kupang |
| Ms. Sovia A. Sara | Land and Forestry Rehabilitation Planner | Environmental and Forestry Board of NTT | Kupang |
| Mr. Joko Priyanto | Staff EBT | Dinas ESDM NTT | Kupang |
| Mr. Alarico Tavares | Staff EBT | Dinas ESDM NTT | Kupang |
| Mr. M. Yani | President Director | Bank Jambi | Jambi |
| Dr. H. Pauzi Usman | Director Umum | Bank Jambi | Jambi |
| Dr. H. Yunsak El Halcon | Director of Marketing and Sharia | Bank Jambi | Jambi |
| Mz. Zulfahmi | Deputy Director of RE | Dinas ESDM Jambi | Jambi |
| Mr. Radinal Mochtar | Head of village | Lubuk Bangkar village | Jambi |
| Met and held group discussions with around 12 community members (men and women) including Micro hydro Manager and Operators in Lubuk Bangkar Village | | | |
| Names of 4 persons (2 each) from MoEMR and Bank Jambi, who participated in the meetings, couldn't be ascertained | | | |

## Annex-2 Field Mission Schedule

| Day/Date | Main Agenda | Venue |
|---|---|---|
| Sunday, 12 May 2019 | Arrival of consultant in Jakarta | |
| Monday, 13 May 2019 | Kick-off meeting with UNDP | UNDP Office |
| | Meeting with Ibu Sophie (Deputy Resident Representative) | |
| | Meeting with QARE unit (Quality Assurance and Gender Expert) | |
| | Meeting with PMU | |
| Tuesday, 14 May 2019 | Meeting with Deputy National Project Director and other officials of MEMR | MEMR Office |
| | Meeting with PMU | Project Office Ravindo |
| | Meeting with OJK | OJK Office |
| Wednesday, 15 May 2019 | Meeting with Director of Energy Conservation | MEMR office |
| | Meeting with UNDP's Senior Advisor on Sustainable Energy to discuss Sustainable Energy Fund | Project Office Ravindo |
| Thursday, 16 May 2019 | Meeting with MoEF, Directorate of GHG inventory and MRV | MoEF Office |
| | Meeting with Ibu Laksmi (GEF OFP) | MoEF Office |
| | Flight: Jakarta to Kupang | |
| Friday, 17 May 2019 | Meeting with Academia | Kupang |
| | Meeting with local ESDM and other provincial officials | Kupang |
| Saturday 18 May 2019 | Flight: Kupang to Jakarta | |
| Sunday 19 May 2019 | Flight: Jakarta to Jambi | |
| Monday, 20 May 2019 | Meeting with Bank of Jambi | Jambi Bank Office |
| | Meeting with regional ESDM | Jambi ESDM Office |
| | Travel from Jambi to Saralangun | |
| Tuesday 21 May 2019 | Travel from to Lubur Bangkar village | |
| | Discussion with Village Head and Village Project Committee and Micro-hydro Management Team/Community members | Lubur Bangkar village |
| | Field Visit to Project Powerhouse & Associated Infrastructure | Lubur Bangkar village |
| | Overnight in Lubuk Bangkar village | |
| Wednesday 22 May 2019 | Meetings held with Various Interest Groups (Women Groups, etc. | Lubur Bangkar village |
| | Travel from Lubuk Bangkar to Jambi City | |
| Thursday 23 May 2019 | Flight: Jambi to Jakarta | |
| | Meeting PT *SMI* | PT SMI Jakarta |
| Friday 24 May 2019 | Meeting with Menara Ravindo Management | Ravindo building |
| | Meeting with PT Pasadena | Pasadena Office |
| Monday 27 May 2019 | Report Compilation and Preparation for Presentation | |
| Tuesday 28 May 2019 | Presentation of Initial Findings | UNDP Office |

## Annex-3: Midterm Review Evaluative Matrix

| Evaluative Questions | Indicators | Data Sources/Methods | Methods for Data Analysis |
|---|---|---|---|
| Project Strategy: To what extent is the project strategy relevant to country priorities, country ownership, and the best route towards expected results? | | | |
| • Is the project design and strategy adequate and technically feasible to address the problems and underlying assumptions?<br>• What is the overall relevance of the project strategy and how successful it is in providing the most effective route towards expected/intended results?<br>• How the project addresses country priorities and what is the level of country ownership for the project?<br>• Is the project concept in line with the national sector development priorities and plans of Indonesia?<br>• 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 during project design processes?<br>• To what extent relevant gender issues were raised and incorporated into the project design. | - Alignment with National developmental policies and plans<br>- Alignment with global development and environmental agenda<br>- Alignment with needs of the target communities especially women and vulnerable groups | • Review of documents including secondary sources<br>• Key informant interviews<br>• Focus group discussion<br>• Physical observation of interventions | Qualitative methods<br>- Triangulation<br>- Validations<br>- Interpretations<br>- Abstractions |
| Progress Towards Results: To what extent have the expected outcomes and objectives of the project been achieved thus far? | | | |
| • What are project achievements so far, against the end-of-project targets as outlined in the log-frame?<br>• What is the quality of the results? How do the stakeholders perceive them?<br>• Can the project attain it objectives within the remaining period? Is the project on or off track to achieve its final targets?<br>• What are the remaining barriers and challenges to achieving the project objectives?<br>• How economically the project resources/inputs (in terms of funding, expertise, time) are being used to produce results?<br>• Will the expected results be achieved within the original budget or the budget need to be revised?<br>• How timely is the project in producing outputs and initial outcomes? Are there implementation delays and why? | - Objective, Outcome level indicators from the project results and resources framework | • Review of documents<br>• Key informant interviews<br>• Focus group discussion<br>• Physical observation of interventions in the field | Qualitative methods<br>- Triangulation<br>- Validations<br>- Interpretations<br>- Abstractions<br>Quantitative methods<br>- Progress and trend analysis |

| | | | |
|---|---|---|---|
| **Project Implementation and Adaptive Management: Has the project been implemented efficiently, cost-effectively, and been able to adapt to any changing conditions thus far?** | | | |
| • How is project being organized originally and have changes been made during implementation and are they effective?<br>• What are the overall partnership and coordination mechanisms and have they been efficient and effective? Did each partner fulfil its role and responsibilities?<br>• Were there any delays in project start-up and implementation?<br>• Are work-planning processes results-based?<br>• Is the M&E system is in place and has facilitated timely tracking of progress?<br>• Did promised co-financing materialize, if not why, if yes how much?<br>• Has the project developed and leveraged the necessary and appropriate partnerships with stakeholders?<br>• Is communication with stakeholders regular and effective? | - Changes made in the resource framework or project design, if any<br>- Level of stakeholder involvement and coordination mechanisms<br>- Availability of work plans and M&E system<br>- Amount of co-financing realized<br>- Availability and effectiveness of communication mechanisms<br>- Efficient and timely use of financial resources | • Review of documents including financial statements<br>• Key informant interviews<br>• Focus group discussion<br>• Field observations | Qualitative methods<br>- Triangulation<br>- Validations<br>Quantitative methods<br>- Progress and trend analysis |
| **Sustainability: To what extent are there financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results?** | | | |
| • What is the likelihood of availability of required financial resources once the project ends?<br>• Is the project socially and politically sustainable?<br>• Are the project outcomes environmentally sustainable?<br>• Are the necessary legal frameworks, policies, and governance structures available to sustain project benefits?<br>• What is the level of ownership of the project with partners? | - Financial, Social, Institutional and Environmental risks to sustainability of interventions and benefits | • Review of documents<br>• Key informant interviews<br>• Focus group discussion<br>• Physical observation of interventions in the field | Qualitative methods<br>- Triangulation<br>- Validations<br>- Interpretations<br>- Abstractions |

# Annex-4: Rating Scales

| | | |
|---|---|---|
| **Ratings for Progress Towards Results:** (one rating for each outcome and for the objective) | | |
| 6 | Highly Satisfactory (HS) | The objective/outcome is expected to achieve or exceed all its end-of-project targets, without major shortcomings. The progress towards the objective/outcome can be presented as "good practice". |
| 5 | Satisfactory (S) | The objective/outcome is expected to achieve most of its end-of-project targets, with only minor shortcomings. |
| 4 | Moderately Satisfactory (MS) | The objective/outcome is expected to achieve most of its end-of-project targets but with significant shortcomings. |
| 3 | Moderately Unsatisfactory (HU) | The objective/outcome is expected to achieve its end-of-project targets with major shortcomings. |
| 2 | Unsatisfactory (U) | The objective/outcome is expected not to achieve most of its end-of-project targets. |
| 1 | Highly Unsatisfactory (HU) | The objective/outcome has failed to achieve its midterm targets, and is not expected to achieve any of its end-of-project targets. |
| **Ratings for Project Implementation & Adaptive Management:** (one overall rating) | | |
| 6 | Highly Satisfactory (HS) | Implementation of all seven components – management arrangements, work planning, finance and co-finance, project-level monitoring and evaluation systems, stakeholder engagement, reporting, and communications – is leading to efficient and effective project implementation and adaptive management. The project can be presented as "good practice". |
| 5 | Satisfactory (S) | Implementation of most of the seven components is leading to efficient and effective project implementation and adaptive management except for only few that are subject to remedial action. |
| 4 | Moderately Satisfactory (MS) | Implementation of some of the seven components is leading to efficient and effective project implementation and adaptive management, with some components requiring remedial action. |
| 3 | Moderately Unsatisfactory (MU) | Implementation of some of the seven components is not leading to efficient and effective project implementation and adaptive, with most components requiring remedial action. |
| 2 | Unsatisfactory (U) | Implementation of most of the seven components is not leading to efficient and effective project implementation and adaptive management. |
| 1 | Highly Unsatisfactory (HU) | Implementation of none of the seven components is leading to efficient and effective project implementation and adaptive management. |
| **Ratings for Sustainability:** (one overall rating) | | |
| 4 | Likely (L) | Negligible risks to sustainability, with key outcomes on track to be achieved by the project's closure and expected to continue into the foreseeable future |
| 3 | Moderately Likely (ML) | Moderate risks, but expectations that at least some outcomes will be sustained due to the progress towards results on outcomes at the Midterm Review |
| 2 | Moderately Unlikely (MU) | Significant risk that key outcomes will not carry on after project closure, although some outputs and activities should carry on |
| 1 | Unlikely (U) | Severe risks that project outcomes as well as key outputs will not be sustained |

## Annex-5: UNEG Code of Conduct for Evaluators/Midterm Review Consultants

**Evaluators/Consultants:**

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

**MTR Consultant Agreement Form**

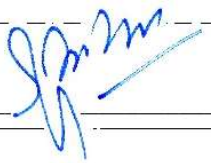
Agreement to abide by the Code of Conduct for Evaluation in the UN System:

Name of Consultant: Nisar Ahmad Khan

Name of Consultancy Organization (where relevant): _____

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

Signed at Islamabad *(Place)* on 30 April 2019 *(Date)*

Signature: 

## Annex-6: MTR Report Clearance Form

**Midterm Review Report Reviewed and Cleared By:**

**Commissioning Unit**

Name: Marina Adel

Signature: _____ Date: 14/08/2019

**UNDP-GEF Regional Technical Advisor**

Name: Milou Beerepoot

Signature: _____ Date: 21/11/2019

## Annex-7: Terms of Reference

# *Terms of reference*

Empowered lives.
Resilient nations.

*GENERAL INFORMATION*

**Title:** Mid-Term Review Team Leader for Climate Change Mitigation – MTRE3 Project (International)

**Project Name:** Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector (MTRE3)

**Reports to:** Programme Manager of Environment Unit

**Duty Station:** Home based & Jakarta

**Expected Places of Travel (if applicable):** Jambi and/or East Nusa Tenggara provinces

**Duration of Assignment:** April 2019 – July 2019 (approximately 30 working days)

**REQUIRED DOCUMENTS FROM HIRING UNIT**

| | |
|---|---|
| 7 - Specialist | **CONFIRMATION OF CATEGORY OF LOCAL CONSULTANT , please select :**<br>(1) Junior Consultant<br>(2) Support Consultant<br>(3) Support Specialist<br>(4) Senior Specialist<br>(5) Expert/ Advisor<br>**CATEGORY OF INTERNATIONAL CONSULTANT , please select :**<br>(6) Junior Specialist<br>(7) Specialist<br>(8) Senior Specialist |
| X | APPROVED e-requisition |

**REQUIRED DOCUMENTATION FROM CONSULTANT**

| | |
|---|---|
| X | CV |
| X | Copy of education certificate |
| X | Completed financial proposal |
| X | Completed technical proposal |

**Need for presence of IC consultant in office:**

X intermittent (deliverables-based)

☐ full time/office based (needs justification from the Requesting Unit)

**Provision of Support Services:**

| | | |
|---|---|---|
| Office space: | Yes | X No |
| Equipment (laptop, etc.): | Yes | X No |
| Secretarial Services | Yes | X No |

If yes has been checked, indicate here who will be responsible for providing the support services:

Signature of the Budget Owner: Boyke Lakaseru <Boyke.lakaseru@undp.org>

## I. BACKGROUND

Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector (MTRE3) is a five-year project (2016-2021) funded by GEF, aimed at supporting the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors in Indonesia, focusing on renewable-based electricity generation and energy efficiency in buildings.

Indonesia faces a significant electricity challenge in the coming years with an electricity demand increase of 6.8 % annually while still having over 30 million people without electricity access. Indonesia's primary energy mix consists mainly of fossil fuels such as crude oil, coal and natural gas while renewable energy generates only about 7% of the total final energy demand. The heavy reliance on fossil fuels leaves Indonesia vulnerable to price fluctuations of imported oil and makes the energy sector one of the largest greenhouse gas (GHG) emitters, accounting for one-third of the country's total GHG emissions. Meanwhile, renewable energy resources have an abundant potential in Indonesia, and, together with energy efficiency technologies, can provide clean solutions necessary to address the country's electricity demand, increase access to modern energy, reduce the over-reliance on fossil fuels and contribute to GHG emission reductions.

Despite the Government of Indonesia's efforts in promoting renewable energy development and utilization and energy efficiency technology applications, the increased share of renewable energy in the national primary energy mix and the improved primary energy consumption index both remain much to be desired. Significant policy, institutional, financial and technical barriers remain that hinder the realization of the energy saving and GHG emission reducing potential of renewable energy and energy efficiency technologies in Indonesia.

The MTRE3 project addresses the barriers to investments in renewable based power generation and the application of energy efficient technologies in the energy end use sectors and is arranged around three components: 1) Climate change mitigation options for the renewable energy based energy generation and energy efficiency; 2) Market transformation through implementation of appropriate mitigation actions; 3) Measurement, Reporting, and Verification (MRV) system and national registry for mitigation actions.

The project is implemented by the Ministry of Energy and Mineral Resources in close coordination with the Ministry of Environment and Forestry, Ministry of National Development Planning, Ministry of Finance and Ministry of Public Works and Housing. Local governments and the private sector are other key partners in implementing the project activities.

The project started on 13 March 2017 and is in its third year of implementation. In line with the UNDP-GEF Guidance on Mid-Term Review (MTR), an MTR team consisting of a MTR Team Leader and an MTR Expert will be recruited to conduct MTR for MTRE3 project. This ToR sets out the expectations for this MTR and refers to the requirements and responsibilities for the MTR Team Leader. The MTR process must follow the

guidance outlined in the document *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* (http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf).

## II. *SCOPE OF WORK, ACTIVITIES, AND DELIVERABLES*

Objectives of the MTR

The MTR will assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document, and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results. The MTR will also review the project's strategy, its risks to sustainability.

Scope of work

The MTR must provide evidence-based information that is credible, reliable and useful. The MTR team will first conduct a document review of project documents (i.e. PIF, UNDP Initiation Plan, Project Document, ESSP, Project Inception Report, PIRs, Project Appraisal Committee meeting minutes, Financial and Administration guidelines used by Project Team, project operational guidelines, manuals and systems, etc.) provided by the Project Team and Commissioning Unit. The MTR team will review the baseline GEF focal area Tracking Tool submitted to the GEF at CEO endorsement, and the midterm GEF focal area Tracking Tool that must be completed before the MTR field mission begins. At the start of the MTR mission, the MTR team will participate in a MTR inception workshop to clarify their understanding of the objectives and methods of the MTR, producing the MTR inception report thereafter. The MTR mission will then consist of interviews and site visits to Lubuk Bangkar village, Merangin Jambi and/or East Nusa Tenggara province.

The MTR team will consist of two independent consultants that will conduct the MTR - one team leader (with experience and exposure to projects and evaluations in other regions globally) and one team expert, usually from the country of the project. The MTR team is expected to follow a collaborative and participatory approach[2] ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), the UNDP Country Office(s), UNDP-GEF Regional Technical Advisers, and other key stakeholders.

The MTR team will assess the following four categories of project progress and produce a draft and final MTR report. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* (hyperlink) for requirements on ratings. No overall rating is required.

**1. Project Strategy**

*Project Design:*

- Review the problem addressed by the project and the underlying assumptions. Review the effect of any incorrect assumptions or changes to the context to achieving the project results as outlined in the Project Document.
- Review the relevance of the project strategy and assess whether it provides the most effective route towards expected/intended results.
- Review how the project addresses country priorities. Review country ownership. Was the project concept in line with the national sector development priorities and plans of the country (or of participating countries in the case of multi-country projects)?

[2] For ideas on innovative and participatory Monitoring and Evaluation strategies and techniques, see UNDP Discussion Paper: Innovations in Monitoring & Evaluating Results, 05 Nov 2013.

- Review decision-making processes: 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 during project design processes?
- Review the extent to which relevant gender issues were raised in the project design. See *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for further guidelines.
- If there are major areas of concern, recommend areas for improvement.

*Results Framework/Logframe:*

- Undertake a critical analysis of the project's logframe indicators and targets, assess how "SMART" the midterm and end-of-project targets are (Specific, Measurable, Attainable, Relevant, Time-bound), and suggest specific amendments/revisions to the targets and indicators as necessary.
- Examine if progress so far has led to, or could in the future catalyse beneficial development effects (i.e. income generation, gender equality and women's empowerment, improved governance etc...) that should be included in the project results framework and monitored on an annual basis.

**2. Progress Towards Results**

- Review the logframe indicators against progress made towards the end-of-project targets; populate the Progress Towards Results Matrix, as described in the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*; colour code progress in a "traffic light system" based on the level of progress achieved; assign a rating on progress for the project objective and each outcome; make recommendations from the areas marked as "not on target to be achieved" (red).
- Compare and analyse the GEF Tracking Tool at the Baseline with the one completed right before the Midterm Review.
- Identify remaining barriers to achieving the project objective.
- Identify challenges faced by the project team in achieving the objectives of the project
- By reviewing the aspects of the project that have already been successful, identify ways in which the project can further expand these benefits.

**3. Project Implementation and Adaptive Management**

Using the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*; assess the following categories of project progress:

- Management Arrangements
- Work Planning
- Finance and co-finance
- Project-level monitoring and evaluation systems
- Stakeholder Engagement
- Reporting
- Communications

**4. Sustainability**

Assess overall risks to sustainability factors of the project in terms of the following four categories:

- Financial risks to sustainability
- Socio-economic risks to sustainability
- Institutional framework and governance risks to sustainability
- Environmental risks to sustainability

The MTR consultant/team will include a section in the MTR report setting out the MTR's evidence-based **conclusions**, in light of the findings.

Additionally, the MTR consultant/team is expected to make **recommendations** to the Project Team. Recommendations should be succinct suggestions for critical intervention that are specific, measurable,

achievable, and relevant. A recommendation table should be put in the report's executive summary. The MTR consultant/team should make no more than 15 recommendations total.

The MTR team will include its ratings of the project's results and brief descriptions of the associated achievements in a *MTR Ratings & Achievement Summary Table* in the Executive Summary of the MTR report.

Specifically, the MTR team leader will perform the following tasks:

- Lead and manage the evaluation mission;
- Design the detailed evaluation scope and methodology (including the methods for data collection and analysis);
- Recommend the division of labor within the evaluation team;
- Conduct an analysis of the outcome, outputs and partnership strategy (as per the scope of the evaluation described above);
- Draft the evaluation report and recommend issues for management response; and
- Finalize the entire evaluation report.

**Expected Outputs and deliverables**

The MTR consultant/team shall prepare and submit:

- MTR Inception Report: MTR team clarifies objectives and methods of the Midterm Review no later than 2 weeks before the MTR mission. To be sent to the Commissioning Unit and project management. Approximate due date: (22 April)
- Presentation: Initial Findings presented to project management and the Commissioning Unit at the end of the MTR mission. Approximate due date: (24 May)
- Draft Final Report: Full report with annexes within 3 weeks of the MTR mission. Approximate due date: (14 June)
- Final Report*: Revised report with annexed audit trail detailing how all received comments have (and have not) been addressed in the final MTR report. To be sent to the Commissioning Unit within 1 week of receiving UNDP comments on draft. Approximate due date: (5 July)

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

| TIMEFRAME | ACTIVITY |
|---|---|
| *18 March* | Application closes |
| *19 March - 5 April* | Select MTR Team |
| *8 April* | Prep the MTR Team (handover of Project Documents) |
| *9 –12 April (2 working days)* | Document review and preparing MTR Inception Report |
| *15– 22 April (2 working days)* | Finalization and Validation of MTR Inception Report |
| *6 – 23 May (14 working days)* | MTR mission: stakeholder meetings, interviews, field visits |
| *24 May (1 working day)* | Mission wrap-up meeting & presentation of initial findings-earliest end of MTR mission |
| *27 May – 14 June (9 working days)* | Preparing draft report, submission of draft final report |

| | |
|---|---|
| *1– 5 July (2 working days)* | Finalization of MTR report/Incorporating audit trail from feedback on draft report |
| *8 – 12 July* | Preparation & Issue of Management Response |
| *31 July* | Expected date of full MTR completion |

| Deliverables/ Outputs | Target Due Dates and Payments | Reviewed and required approval |
|---|---|---|
| **Inception Report**<br>MTR team clarifies objectives and methods of Midterm Review | 22 April 2019<br>4 working days<br>(10%) | UNDP Indonesia country Office, Programme Manager |
| **Draft Final Report**<br>Full MTR report (using guidelines on content outlined in Annex B) with annexes | 14 June 2019<br>24 working days<br>(80%) | UNDP Indonesia country Office, Programme Manager & Regional Technical Advisor |
| **Final Report**<br>Revised report with annexed audit trail detailing how all received comments have (and have not) been addressed in the final MTR report | 5 July 2019<br>2 working days<br>(10%) | UNDP Indonesia country Office, Programme Manager & Regional Technical Advisor |

## III. WORKING ARRANGEMENTS

**Institutional Arrangement**

a. The principal responsibility for managing this MTR resides with the Commissioning Unit. The Commissioning Unit for this project's MTR is UNDP Indonesia Country Office.
b. The commissioning unit will contract the consultants and ensure the timely provision of per diems and travel arrangements within the country for the MTR team.
c. The MTRE3 Project Team will be responsible for liaising with the MTR team to provide all relevant administrative and financial support, provide documents, set up stakeholder interviews, and arrange field visits as required for the completion of the work.
d. The expected frequency of the reporting is as stated in the Expected Deliverables mentioned-above.

**Duration of the Work**

**a)** The duration of work is 30 days from April to July 2019.
**b)** The expected starting date is 08 April 2019 with expectation of completion on 31 July 2019.
**c)** Any unforeseen delay will be further discussed by UNDP as basis for possible extension.
**d)** The feedback from UNDP and government partners to the submitted report can be expected within 10 working days from the date of submission.

**Duty Station**

**a)** The contractor's duty station will be home-based with possibility of travel to Jakarta, Jambi and/or East Nusa Tenggara provinces.

**b)** The contractor is working on the output-based, thus no necessity to report or present regularly.

**Travel Plan**

**a)** The return travel cost from country of origin to Jakarta is to be included in the financial proposal.

**b)** Travel cost to project sites as below detail;

| No | Indicative Location | Frequency | No. of travel days |
|---|---|---|---|
| 1 | Jambi | 1 | 4 |
| 2 | Kupang | 1 | 3 |

## IV. REQUIREMENTS FOR EXPERIENCE AND QUALIFICATIONS

Academic Qualifications:

A Master's degree or higher in a field related to Environment, Energy, Climate Change or other closely related field from an accredited college or university.

Years of experience:

- Work experience for at least 7 years in fields related to Environment, Energy, Climate Change or related fields;
- Experience working with climate change related projects in Indonesia or Southeast Asia;
- Experience with result-based management evaluation methodologies;
- Experience applying SMART indicators and reconstructing or validating baseline scenarios;
- Experience working with the GEF or GEF-evaluations, UNDP evaluations or other UN agencies and/or international organizations and/or major donor agencies is an advantage.

III. Competencies and special skills requirement:

- Competence in adaptive management, as applied to GEF- Climate Change Mitigation focal area;
- Demonstrated understanding of issues related to gender and climate change mitigation and/or promotion of sustainable and modern energy services in communities; experience in gender sensitive evaluation and analysis;
- Competence within the area of climate finance for renewable energy and energy efficiency is an advantage
- Familiarity with the challenges developing countries face in climate change mitigation and promotion of sustainable and modern energy services to communities;
- Excellent communication skills;
- Demonstrate analytical skills;

## V. EVALUATION METHOD AND CRITERIA

Cumulative analysis

Evaluation is based on the weighted scoring method, the award of the contract will be made to the individual consultant whose offer has been evaluated and determined as:

a) responsive/compliant/acceptable, and

b) Having received the highest score out of a pre-determined set of weighted technical and financial criteria specific to the solicitation.

* Technical Criteria weight; 70%

* Financial Criteria weight; 30%

Only candidates obtaining a minimum of **70 point** out of the 100 points listed below with regards to the Technical Criteria would be considered for the Financial Evaluation

| Criteria | Weight | Maximum Point |
|---|---|---|
| Technical Criteria | | 100 |
| • Criteria A: qualification requirements as per TOR:<br>1. A Master's degree or higher in a field related to Environment, Energy, Climate Change or other closely related field from an accredited college or university.<br>2. Work experience for at least 7 years in fields related to Environment, Energy, Climate Change or related fields;<br>3. Experience working with climate change related projects in Indonesia or Southeast Asia;<br>4. Experience with result-based management evaluation methodologies;<br>5. Experience applying SMART indicators and reconstructing or validating baseline scenarios;<br>6. Experience working with the GEF or GEF-evaluations, UNDP evaluations or other UN agencies and/or international organizations and/or major donor agencies | 60% | 10<br>15<br>5<br>10<br>10<br>10 |
| • Criteria B: Brief Description of Approach to Assignment<br>1. Understands the task and applies a methodology appropriate for the task?<br>2. Important aspects of the task addressed clearly and in sufficient detail?<br>3. Is planning logical, realistic for efficient project implementation? | 40% | 15<br>15<br>10 |
| • Criteria C: Further Assessment by Interview (if any) | N/A | |