2017

Project Implementation Review (PIR)

Empowered lives.
Resilient nations.

# Mae Hong Son - RE

# A. Basic Data

| Project Information | |
|---|---|
| UNDP PIMS ID | 3908 |
| GEF ID | 3359 |
| Title | Promoting Renewable Energy in Mae Hong Son Province (extended to end 2017) |
| Country(ies) | Thailand, Thailand |
| UNDP-GEF Technical Team | Energy, Infrastructure, Transport and Technology |
| Project Implementing Partner | THA10 |
| Joint Agencies | |
| Project Type | Full Size |

| Project Description |
|---|
| Despite the government's commitment to Renewable Energy, there have been constraints to the wider and more sustained application of Renewable Energy Technologies in Thailand. This project will overcome barriers that currently prevent widespread and sustainable utilization of Renewable Energy Technologies for the provision of energy services in rural areas of Thailand. The project will work initially in Mae Hong Son province, which the Ministry of Energy has identified as its target to be the first energy self-sufficient province in Thailand, in conformity with the king's sufficiency economy concept. Furthermore, the project will also work in the neighboring provinces Chiang Mai, Chiang Rai and Tak. These provinces have comparable geographic and economic situations and RE potential. By including these provinces a critical mass is created to leverage change in national policies and governmental planning processes regarding RE development and utilization in Thailand's rural areas. The project will facilitate an integrated RE planning process at provincial and local level, in order to translate targets set at national level to local level and into real action. Various new approaches, concept and policies will be developed and applied, e.g. new ownership models for RE systems, improvements to tariff system and loan management to be endorsed by the government and applied elsewhere in Thailand. Furthermore information on existing incentives/policies for RE promotion which are available but sometimes seldom used will be disseminated and promoted. The project will also contribute to the broader Goal of reducing GHG emissions in Thailand. The 4 components deal with (a) institutional capacity development for planning and implementing RE programmes; (b) access to financing; (c) technical training and education and (d) policies for up-scaling and replication. |

| Project Contacts | |
|---|---|
| UNDP-GEF Regional Technical Adviser | Ms. Milou Beerepoot (milou.beerepoot@undp.org) |
| Programme Associate | Ms. Karakate (Mod) Bhamornbutr (karakate.bhamornbutr@undp.org) |
| Project Manager | Sorat Phutthaphithak (sorat.phutthaphithak@undp.org) |
| CO Focal Point | Ms. Sutharin Koonphol (sutharin.koonphol@undp.org) |
| GEF Operational Focal Point | Mr. Wicharn Simachaya, Ph D |
| Project Implementing Partner | |

| | |
|---|---|
| Other Partners | |

## B. Overall Ratings

| | |
|---|---|
| Overall DO Rating | Moderately Satisfactory |
| Overall IP Rating | Highly Satisfactory |
| Overall Risk Rating | Substantial |

# C. Development Progress

| Objective or Outcome | Description | | | | |
|---|---|---|---|---|---|
| **Objective:** | **Project Objective: To overcome barriers to the provision of Renewable Energy (RE) services in integrated provincial renewable energy programmes in Thailand** | | | | |
| | **Description of Indicator** | **Baseline Level** | **Target level at end of project** | **Level at 30 June 2016** | **Cumulative progress since project start** |
| | Increase of power generation capacity and usage from RE systems in MHS | RE power generation capacity in MHS amounts to 17 MW (on grid) and 2.4 MW (off-grid) | By the end of the project RE power generation capacity in MHS amounts to 27.06 MW (on grid) and more than 2.4 MW (off-grid). This is equivalent to an increase of at least 55,000 MWh/year) | RE power generation capacity in MHS amounts to:<br>- 29,220 MW (on grid) and<br>- 1,270 kW (off-grid) consisting of:<br>a) existing baseline capacity of 255 kW;<br>b) 10 off-grid solar farms of army of 100 kW each, total 1,000 kW;<br>c) 15.21 kW incremental capacity as realized under the project. Project's additional RE power generation capacity consists of:<br>- 2.5 kW (1 on-grid solar rooftop),<br>- 12.36 kWp (103 SHSs rehab*120 Wp)<br>- 0.35 kWp (207 solar lanterns) | Project's additional RE power generation capacity:<br>- 18.28 kW (on-grid solar PV rooftop),<br>- 5 kW (off-grid PV systems)<br>- 8.16 kW (68 SHSs*120 Wp)<br>- 0.10 kW (278 pico lanterns*0.35 W)<br><br>Note: SHSs that were rehabilitated were those not previously functioning.<br><br>Total for PIR 2017<br>18.28 kW (on-grid) and 13.26 kW (off-grid)<br><br>Cumulative additional RE power generation capacity<br>- 20.78 kW (on-grid solar PV |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | rooftop),<br>- 5 kW(off-grid PV systems)<br>- 20.52 kW (171 SHSs*120 Wp)<br>- 0.31kW (95 solar lanterns*3.3 W)<br>- 0.14kW (390 solar lanterns*0.35W)<br><br>Cumulative results<br>20.78 kW (on-grid) and 25.97 kW (off-grid) |
| | Percentage of power generation capacity nationally from RE systems | 1.45% grid power generation and 5.37% grid + off-grid power generation is by RE | By the end of the project the proportion of power generation from installed or planned RE systems nationally is 6% (grid) and 8% (grid + off-grid) | | N/A<br>This objective level target was removed from the logframe after the strategic review followed the MTR recommendation. |
| | Models for RE generation & application which can be replicated in other areas demonstrated | No new models for RE generation & application. | At least 3 new models for RE generation & application developed and operational. Models ready to be replicated in other areas (hydro, solar | 4 new RE models developed & tried out, replicable:<br>- Solar rooftop public-private-NGO partnership,<br>- ICSs: realization & adoption,<br>- Biodigesters co-financing | 3 new RE models<br>- Bridging the Haves and Have-Nots for Rural Energy Access: Crowd funding on Solar Lanterns to Support Education to Hill-tribe Students, Mae Hong Son Province, Thailand<br>- Lighting the Lives in the |

| | | | | | |
|---|---|---|---|---|---|
| | | | and biodigesters) | model with individual farms,<br>- SHSs rehabilitation and solar lanterns business model.<br>3 new models are on-going:<br>- Promotion of ICS & women entrepreneurs,<br>- SHSs rehabilitation and sale of solar lantern in extreme poverty areas,<br>- RE financial support model in extreme poverty areas (endorsement of operational model). | Frontier: The Last Mile Solution for Electrical Energy Access in Mae Hong Son Province, Thailand<br>- Towards Clean Cooking Solutions and Low Carbon Community in the Highlands: Integrated Renewable Energy into Highland Development, Mae Hong Son Province, Thailand<br>(Awareness building and realization of improved cookstove (ICS) that consumes 40-50% less of firewood to be cut from forest).<br>Cumulative results: total 7 models |
| **The progress of the objective can be described as:** | | **Off track** | | | |
| **Outcome 1:** | **Outcome 1: Strengthened institutional, organizational and social capacity results in planning, management and implementation of integrated RE programmes in MHS, Chiang Rai, Chiang Mai and Tak** | | | | |
| | **Description of Indicator** | **Baseline Level** | **Target level at end of project** | **Level at 30 June 2016** | **Cumulative progress since project start** |
| | No. of working RE management models established | None | At least 3 management models established (off-grid hydro, biodigesters, solar) | 3 management models established:<br>- school biodigesters operation & maintenance,<br>- management of solar rooftop & EE measures in gov't building,<br>- management of a | 4 new RE models developed & tried out, replicable:<br>- Bridging the Haves and Have-Nots for Rural Energy Access: Crowd sourcing on Solar Lanterns to Support Education to Hill-tribe Students, Mae Hong Son Province, Thailand<br>- Lighting the Lives in the |

| | | | | | |
|---|---|---|---|---|---|
| | | | | community RE learning center. | Frontier: The Last Mile Solution for Electrical Energy Access in Mae Hong Son Province, Thailand<br>- Towards Clean Cooking Solutions and Low Carbon Community in the Highlands: Integrated Renewable Energy into Highland Development, Mae Hong Son Province, Thailand<br>- Army RE Learning Centre<br><br>Cumulative results: total of 7 models established. |
| | No. of RE projects proposed by government agencies in line with provincial plan | None | At least 2 RE projects proposed by government agencies in line with provincial plan | 15 RE projects (1 SHS + 14 biodigesters) were developed & proposed to the project by local agencies, in line with local and provincial dev't strategies and co-financing by submitters.<br>(Completed) | 4 additional RE project proposal submitted in following RE technologies:<br>- 2 proposals on ICS-Reforestation;<br>- 1 proposal on SHS rehabilitation by Army;<br>- 1 proposal on revitalization of Army RE learning center<br><br>Cumulative results: Total 22 RE project proposal submitted throughout the project |

| The progress of the objective can be described as: | | Achieved | | | |
|---|---|---|---|---|---|
| **Outcome 2:** | **Outcome 2: Financially sustainable RE systems operational in MHS, Chiang Mai, Chiang Rai and Tak** | | | | |
| | **Description of Indicator** | **Baseline Level** | **Target level at end of project** | **Level at 30 June 2016** | **Cumulative progress since project start** |
| | Increase in invested amount for RE in MHS (all sectors) | Investment in 2007 = 486 million baht (figure for MHS province) | By the end of the project at least an additional 800 million baht[2] is invested in RE systems in MHS compared to the baseline | | N/A<br>This objective level target was removed from the logframe after the strategic review followed the MTR recommendation to focus on off-grid technologies, rather than on-grid.. |
| | Amounts available in the form of micro-credit for communities wishing to establish RE systems | No micro-credit available | By the end of 2015 at least 10 million baht is available in the form of micro-credit to individual villages for installation of RE systems | | N/A<br>This objective level target was removed from the logframe after the strategic review followed the MTR recommendation to focus on off-grid technologies, rather than on-grid. |
| | Village revenues from grid-connected RE systems | No income | By the end of the project village-level revenues from sale of electricity in grid-connected systems amounts to at least 15 million baht per year[3] | | N/A<br>This objective level target was removed from the logframe after the strategic review followed the MTR recommendatio to focus on off-grid technologies, rather than on-grid. |
| | No. of on-grid solar farm projects approved, installed and operational in MHS by end of 2016<br>No. of SHS rehabilitated in MHS by end of | 3 (total 2,880 kW-June 2014) | 1 additional on-grid solar farm project approved, installed and operational in MHS by end of 2016 | None (Permit not obtained)<br>=> proposed to modify output to installation of solar systems for 2 | The on-grid solar farm indicator is no longer applicable due to permission not obtained, as recorded in the past year PIR and in the project board |

| | | | | | |
|---|---|---|---|---|---|
| | 2016<br><br>No. of solar lanterns sold in MHS by end of 2016<br><br>No. of biodigesters installed at schools, SMEs and farms in MHS by end of 2016 with support from project<br><br>No. of off-grid micro-hydropower projects approved, installed and operational in MHS by end of 2016<br><br>No. of solar rooftop installations approved, installed and operational in MHS by end of 2016<br><br>No. of EE projects in gov. buildings approved, implemented and operational in MHS by end of 2016<br><br>No. of villages in which ICS have been tried out and are being used in MHS by end of 2016 | 0<br><br>0<br><br>33 (at SMEs/hh – June 2014)<br><br>9 (255 kW – June 2014)<br><br>0<br><br>0<br><br>0 | (capacity 500 kW).<br><br>100 SHS rehabilitated in MHS by end of 2016 (100*120 Wp)<br><br>200 solar lanterns sold in MHS by end of 2016 (200*2.5W)<br><br>20 additional biodigesters at schools, SMEs and farms installed and operational in MHS by end of 2016 with support from project (average size 8 m3)<br><br>2 off-grid hydropower plants approved, installed and operational in MHS by end of 2016 (2 * 30 kW).<br><br>10 solar rooftop systems approved, installed and operational in MHS by end of 2016 (with support from the project) (10 * 200 W)<br><br>1 EE project in gov. building approved, implemented and | off-grid schools (proposed by Project Board on 24 May 16 and pending UNDP-GEF approval)<br><br>(A solar farm development plan (with short feasibility study, financial plan, co-investment model btw Agri. Coop and ThaiOil Group, a large energy investment firm, developed & submitted to Energy Regulatory Commission (ERC) for permit to install and operate. But permit not obtained by lucky lots draw on 21 Apr 2016)<br><br>103 SHSs rehabilitated<br><br>(103*120 Wp = 12.36 kWp)<br><br>(Completed)<br><br>Additional 31 biodigesters size 8 m3 installed (11 in schools + 20 at farms)<br><br>(Completed)<br><br>None (Permit not obtained)<br><br>=> proposed to modify activity to | meeting on 25 May 2016<br><br>SHS rehabilitation indicator:<br><br>Additional 68 SHS rehabilitated<br><br>68 SHS*120 Wp = 8.16 kWp<br><br>Cumulative results, Altogether 171 SHS rehabilitated or<br><br>171*120 Wp = 20.52 kWp) for the whole period of the project.<br><br>solar lantern:<br><br>Additional 278 pico solar lanterns realized (278*0.35 W = 97.3 W<br><br>Cumulative results: Throughout the project, 485 solar lanterns realized (sold/ bartered/ crowd funded)<br><br>Altogether 313.5 + 39.2 + 97.3 = 450 W<br><br>Biodigesters:<br><br>Already accomplished in 2016<br><br>Cumulative results:, 31 biodigesters |

| | | | | | |
|---|---|---|---|---|---|
| | | | operational in MHS by end of 2016 (RE capacity 600 W savings)<br><br>10 villages in which ICS have been tried out and being used in MHS by end of 2016 (50 systems) | SHSs rehabilitation: 91 units by 2017 additional RETs & others will be installed, if project period extended to end of 2017 (proposal by Project Board on 24 May 16, pending UNDP-GEF approval)<br><br>(Additional documents i.e. detailed construction blueprints and EIA developed & submitted to DNP. Permit request to install & operate 5.58 kW MHP system rejected by DNP on 1 Feb 2016; the second for 10.29 kW rejected on 2 May 2016)<br><br>One 2.5 kW solar rooftop system approved, installed & operational at gov't building (prov. hospital); power generation capacity = 3,580 kWh/year, savings THB 17,900 of electricity fee<br><br>None installed at individual building (Change of gov't policy, no longer incentives for this kind of systems => change from HHs to hotels/ SMEs)<br><br>Only 4 potential SME clients interested but not yet decided | size 8 m3 installed (10 in schools + 21 at households)<br><br>The indicator on the off-grid micro-hydro projects are<br><br>no longer applicable due to the permission was not obtained, as recorded in last year PIR and in the project board meeting on 25 May 2016<br><br>Solar Rooftop:<br><br>18.28 kWp installed at gov't & private buildings for 2017; power generation capacity = 26,177 kWh/year, savings THB 130,885 of electricity fee<br><br>Cumulative results 20.78 kWp installed at gov't & private buildings ; power generation capacity = 29,757 kWh/year, savings THB 148,785 of electricity fee<br><br>Note that within Dec 2017:<br><br>65.78 kWp installed at gov't & private buildings ; power generation capacity = 94,197 kWh/year, savings THB 470,985 of electricity fee |

| | | | | | |
|---|---|---|---|---|---|
| | | | | Not implemented yet. EE savings potential in hospital currently being analyzed.<br><br>14 villages of 3 ethnic groups (Tai Yai, Karen, Lanna), located in peri-urban and rural areas, with 130 ICS tried out & being used. (30 ICSs were 80% co-funding by villagers)<br><br>(Completed) | 2 EE proj. for two private buildings (Hern Tai resort and Suchawaree's house) operational<br><br>Cumulative results: 3 EE projects implemented and operational in MHS throughout the project<br><br>ICS:<br><br>9 villages of 2 ethnic groups with 260 ICS realized, being used<br><br>Cumulative results:; altogether 42 villages of 3 ethnic groups with 415 units of ICS realized, being used |
| **The progress of the objective can be described as:** | | **Achieved** | | | |
| **Outcome 3:** | **Outcome 3: Technical support is available locally for the development, management and maintenance of RE applications in MHS, Chiang Rai, Chiang Mai and Tak** | | | | |
| | **Description of Indicator** | **Baseline Level** | **Target level at end of project** | **Level at 30 June 2016** | **Cumulative progress since project start** |
| | No. of village technicians trained to operate and maintain off-grid hydropower plants | No knowledge or expertise centre easily available; | 4 village technicians trained to operate and maintain off-grid hydropower plant by | None<br><br>Proposed modification of output from MHP to SHSs trainings (proposed by Project Board on | N/A<br><br>The two micro-hydro projects were not relaised as explained above. |

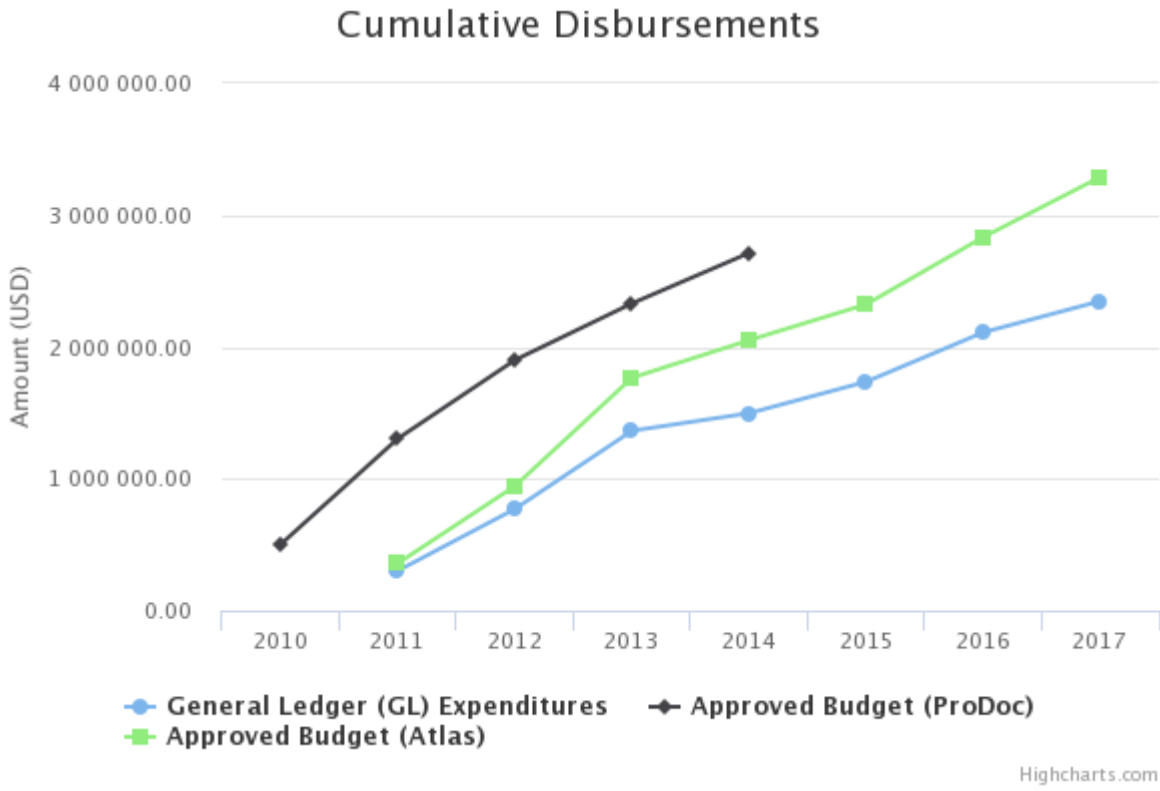
| | | | | | |
|---|---|---|---|---|---|
| | | | end of 2016 | 24 May 2016, awaiting UNDP-GEF's approval)<br><br>Proposed activity: trainings to 100 local technicians & vocational/college students and 200 villagers on solar systems, SHSs rehabilitation & maintenance | |
| | No. of village technicians trained to maintain rehabilitated SHS | No knowledge (centre) or experts easily available | 10 village technicians trained to maintain rehabilitated SHS by end of 2016 | - 10 village/TAO technician trained on SHSs rehabilitation<br>- 1,215 villagers in 27 villages (7 sub-districts of 5 districts), trained on solar systems & maintain rehabilitated SHS<br>(Completed) | - 83 TAO, teachers, Army technicians trained on SHSs rehabilitation (Altogether 93 technicians)<br>- 143 villagers/ youths in 5 villages trained on solar systems & basic maintenance of SHS<br><br>Cumulative result:<br>- 10 village/TAO technicians trained<br>- Total of 1,353 persons trained |
| | No. of technicians trained on EE measures and solar rooftop installation | No knowledge (centre) or experts easily available | 2 government technicians trained on EE measures and solar rooftop installation | 7 government technicians/ personnel trained on EE measures and solar rooftop installation in Feb 2016<br>(Completed) | 4 gov't & private technicians trained<br><br>Cumulative result:<br>11 government & private technicians trained |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| | No. of users trained in the operation and maintenance of biodigesters | No knowledge (centre) or experts easily available | 20 users of biodigesters trained to operate and maintain the systems | 155 users of biodigesters (schools & farms) trained to operate and maintain the systems<br><br>(Completed) | 10 farm users trained and maintain the system<br><br>Cumulative results: 165 users trained and maintain the system |
| | An improved design of an ICS suitable for situation in MHS | No knowledge (centre) or experts easily available | Improved design for ICS suitable for MHS finalized | Completed since 2015 | Already accomplished in 2015<br><br>Cumulative results: Improved design for ICS suitable for MHS finalized and being used among 55 project volunteers. |
| **The progress of the objective can be described as:** | | **Achieved** | | | |
| **Outcome 4:** | **Outcome 4: Policies facilitate up-scaling and replication of RE systems in Thailand** | | | | |
| | **Description of Indicator** | **Baseline Level** | **Target level at end of project** | **Level at 30 June 2016** | **Cumulative progress since project start** |
| | Documented and published experiences/lessons learned from all technologies implemented by end of 2016<br><br>Centre of learning approved and operational in MHS by end of 2016<br><br>Guidelines published | None<br><br>None<br><br>None | By end of 2016 all lessons learned documented and published<br><br>Centre of learning approved and operational by end of 2016 | - 2 lessons learned on MHP & ICS completed & presented;<br>- 1 ICS article published on UNDP website;<br>- 1 video (Thai) on ICS operational mechanism completed | Documentation:<br>- 7 lessons learned<br>- RE curriculum for school tried-out<br><br>Cumulative results:<br>- 2 lessons learned on MHP & |

| | | | | | |
|---|---|---|---|---|---|
| | No. of lessons learned included in policy making at central level | None | At least 2 guidelines for replication published e.g. a) on management models for off-grid applications b) incentive schemes/financial model for RE<br><br>At least 2 important lessons learned included in policy making at central level | Center of learning approved (concept, management plan & planned activities, learning activities both classroom/ outdoor & learning products)<br><br>3 guidelines published & disseminated to concerned agencies & users<br>- Guideline on management and maintenance of solar home systems<br>- Guideline and management, operation & maintenance of biodigesters system<br>- Guideline on O&M of solar rooftop<br>(Completed)<br><br>2 lessons learned on MHP policy & regulations in protected area, and key success factors for the adoption of ICS presented at sub-national level and reported to national level.<br><br>During the remaining time of the project, the lessons learned will be translated into concrete policy | ICS completed & presented;<br>- 1 ICS article published on UNDP website;<br>- 1 video (Thai) on ICS operational mechanism completed<br>- 7 lessons learned<br>RE curriculum for school tried-out<br><br>Learning Centres:<br>Additional 1 center of learning approved & operational<br><br>Cumulative results:<br>2 RE learning centers at (1) Ban Pang Tong School and (2) the 17th Infantry Regiment Task Force<br><br>Guidelines:<br>Already accomplished in 2016<br><br>Cumulative results: 3 guidelines published & disseminated to concerned agencies & users<br>- Guideline on maintenance of solar home systems<br>- Guideline and management, operation & maintenance of |

| | | | | | |
|---|---|---|---|---|---|
| | | | | recommendations. For this a consultant will be hired with good connections at the policy level. | biodigesters system<br>- Guideline on O&M of solar rooftop<br>- These guidelines will be completely handed over to Mae Hong Son Provincial Energy Office. Yet some contexts in the guidelines as RE curriculum have been adopted by them since Q4/2016 and Q2/2017, respectively<br>No. of lesson learned:<br>Study on “Towards MHS a RE Special Development Zone” completed & presented to MHS province with positive feedbacks and acceptance<br>Cumulative results: 2 lessons learn and study on towards MHS RE special development zone |
| **The progress of the objective can be described as:** | | **Achieved** | | | |

## D. Implementation Progress




| | |
|---|---|
| Cumulative GL delivery against total approved amount (in prodoc): | 86.55% |
| Cumulative GL delivery against expected delivery as of this year: | 86.55% |
| Cumulative disbursement as of 30 June (note: amount to be updated in late August): | 2,347,946.63 |

| **Key Financing Amounts** | |
|---|---|
| PPG Amount | 90,000 |
| GEF Grant Amount | 2712700 |
| Co-financing | 3,420,000 |

| **Key Project Dates** | |
|---|---|
| PIF Approval Date | Nov 14, 2007 |
| CEO Endorsement Date | Feb 17, 2010 |
| Project Document Signature Date (project start date): | Dec 23, 2010 |
| Date of Inception Workshop | (not set or not applicable) |
| Expected Date of Mid-term Review | Oct 31, 2012 |

| | |
|---|---|
| Actual Date of Mid-term Review | Aug 15, 2013 |
| Expected Date of Terminal Evaluation | Jun 30, 2015 |
| Original Planned Closing Date | Feb 28, 2015 |
| Revised Planned Closing Date | Dec 31, 2017 |

| **Dates of Project Steering Committee/Board Meetings during reporting period (30 June 2016 to 1 July 2017)** |
|---|
| 2016-11-22 |
| 2017-06-15 |

# E. Critical Risk Management

| Current Types of Critical Risks | Critical risk management measures undertaken this reporting period |
|---|---|
| Environmental | During the raining season in Q3 of 2016 and also in Q 2 of 2017 (current), the heavy rainfall had caused flash flooding and landslide in target areas and therefore; accessibility to all project sites were limited. As a result; numbers of activities in the project sites could not be completed in accordance to the work plan.<br><br>Risk Management<br><br>• Adjusting the implementation plan in order to complete other types of works being not required to take place in the affected project sites, for example, trainings, consultation meetings, planning for an implementation with project partners.<br><br>• Coordinating with community members/TAO/local partners of affected project sites to ensure on-going activities through management of community members<br><br>• Focusing more on other non-affected project sites such as provincial hospital, accessible school and TAO partners in order to give sufficient time for affected project sites after the raining season. |
| Other | The project encountered on-going limitations regarding capacity of provincial project partners and community. For instance, the project's provincial key partners have limited number and capacity (skill and knowledge) to fully support the project on the applications of RE technologies. Not only capacity in human, but also financial capacity for supporting the project's activities. For example, PEO has a small budget for RE related promotion and realization at ground level.<br><br>In relation to the community, they have their own language which caused difficulties in understanding clearly about the RE technology in just one time. Their abilities in using and maintaining RE technology such as ICS or SHS were likely low.<br><br>Risk Management<br><br>• To increase capacity of project partners and target community, the project conducted several training and also RE curriculum focusing on using and maintaining RE items.<br><br>• The project also built up technical capacities to Army personnel stationed in MHS province to support the PEO and local governments on SHS rehabilitation. |

# F. Adjustments

## Comments on delays in key project milestones

| |
|---|
| **Project Manager: please provide comments on delays this reporting period in achieving any of the following key project milestones: inception workshop, mid-term review, terminal evaluation and/or project closure.** |
| |
| **Country Office: please provide comments on delays this reporting period in achieving any of the following key project milestones: inception workshop, mid-term review, terminal evaluation and/or project closure.** |
| |
| **UNDP-GEF Technical Adviser: please provide comments on delays this reporting period in achieving any of the following key project milestones: inception workshop, mid-term review, terminal evaluation and/or project closure.** |
| The project will be closed by the end of 2017: the project has already started the process of coming to a terminal evaluation. |

# G. Ratings and Overall Assessments

| Role | 2017 Development Objective Progress Rating | 2017 Implementation Progress Rating |
|---|---|---|
| **Project Manager/Coordinator** | Satisfactory | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -* |
| Overall Assessment | Throughout the project, the development objective progress is ranked at Satisfactory Level as shown from the cumulative achievements as explained briefly against its objectives and outcomes indicators.<br><br>Project Objective<br><br>"Overcome barriers to the provision of renewable energy (RE) services in integrated provincial RE programmes in Thailand, in particular in Mae Hong Son (MHS) Province."<br><br>Project objective Indicator 1 (POI 1):<br><br>Increase of power generation capacity and usage from RE systems in MHS both on-grid and off-grid<br><br>Target result:<br><br>By the end of the project: RE power generation capacity in MHS amounts to 29,720 MW (on grid) and more than 315 kW (off- grid); Additional RE power generation capacity of 500 kW (on-grid) and 60 kW (off grid).<br><br>Cumulative results as of June 2017:<br><br>18.5 kW (on-grid) and 25.97 kW (off-grid)<br><br>Project objective Indicator 2 (POI 2):<br><br>Models for RE generation & application which can be replicated in other areas demonstrated<br><br>Target result:<br><br>At least 3 new models for RE generation & application developed and operational.<br><br>Cumulative result as of June 2017:<br><br>7 new RE models developed & tried out, replicable:<br><br>Considering the above details, the project could not fully achieve the target indicator for PO #I, since a solar PV farm (500 kW) and 2 micro-hydro power | |

| | |
|---|---|
| | (MHP) plants (60 kW) were not successfully initiated as planned due to failure in getting approval from National Energy Policy Council (more details in PIR 2016) and National Park, Wildlife and Plant Conservation Department. (Please refer to the above logical framework regarding 2 key incorrect information in baseline data)<br><br>The micro-hydropower and solar farm were then modified to the current 4 key RE technology that are most responsive to inhabitants living in target areas. Mae Hong Son is viewed as 'the last mile-province' with challenges relating to technology and development.<br><br>The expected additional RE generation capacity (on-grid for 500 kW) will not be accomplished by the end of the project, because only 10 kW solar system at maximum capacity can be installed per house, differently to solar farm that can be up to 500 kW per farm. Then on-grid contribution from the project is minimal as expected. Also the project has contributed substantively on off-grid, which is more applicable to MHS. For example, up to date, solar lantern has generated on-grid capacity of 450 W.<br><br>For the POI #2, it is clearly witnessed the exceeding achievement. Since at the current 7 new RE models have been developed, tried-out and used by the target communities. These models have been documented and are ready to showcase to others in aiming for replication purpose.<br><br>For the outcome indicators, it can be briefly explained in the below summary<br><br>Outcome #1<br><br>Strengthened institutional, organizational and social capacity results in planning, management and implementation of integrated RE programmes in MHS<br><br>Full achievement for this Outcome #1 as both indicators under this outcome have been achieved with exceeded results.<br><br>Outcome #2<br><br>Financially sustainable RE systems operational in MHS<br><br>Partial achievement for this Outcome #2 as out of 8 indicators under this outcome, 3 indicators could not be achieved on On-grid solar farm, On-grid micro-hydropower and 10 solar rooftops. Yet, those indicators being achieved have shown exceeding results.<br><br>Note that<br><br>1.the solar farm and micro-hydropower is no longer applicable indicator<br><br>2.Up-to-date only 5 solar PV systems have been established |

| | |
|---|---|
| | Outcome #3<br><br>Technical support is available locally for the development, management and maintenance of RE applications in MHS<br><br>Partial achievement for Outcome #3 as out of 5 indicators under this outcome, 1 indicator could not be achieved on trained technician for micro-hydropower. Yet, those indicators being achieved have shown exceeding results.<br><br>Note that the solar farm and micro-hydropower is no longer applicable indicator<br><br>Outcome #4<br><br>Policies facilitate up-scaling and replication of RE systems in Thailand<br><br>Full achievement for this Outcome #4 as all of 4 indicators under this outcome have been achieved with exceeding results.<br><br>Per the above details, most of those indicators not being achieved are only indicators relating to solar farm and micro-hydropower. Yet, solar rooftop that should be established for 10 systems was only accomplished for 5 systems. This activity was originally planned to influence entrepreneurs to mobilize their own budget for this establishment. However, its cost is quite high so both project's and entrepreneur's budget were used for the establishment. From July 2017, another 3 systems will be established and this will be then added up to 8 systems by the end of project.<br><br>Oppositely, many indicators have been achieved with beyond results. For instance, 3 RE projects by government agencies in line with provincial plan were proposed, while only 2 RE projects were targeted (Outcome 1). For Outcome # 2, indicator '10 villages in which ICS have been tried out and being used in MHS by end of 2016 (50 systems)' was set but its result is shown at 42 villages of 3 ethnic groups. For the Outcome# 4, one indicator is to have at least 2 guidelines published, but up to date; the project has produced 3 guidelines which will be handed over to Mea Hong Son Provincial Energy Office for further use.<br><br>Besides, the project can be viewed as a good practice on effective adaption when encountering key challenge on solar farm and micro-hydropower and then resulted in 4 RE technology eventually. The 7 models are truly responsive to the needs of target communities/ MHS province and align to Thai context relating to available resources and governmental policy.<br><br>For the annual progress per the workplan between July 2016 and June 2017, the project has been on-track with fully implementing the planned activities. Although a delay implementation was reported, but considerable numbers of |

| | | |
|---|---|---|
| | effective attempts trying to cope this delay were made.<br><br>Next step for further achievements of Project Objective and Outcome - target communities will be ensured to improve their skills relating to RE technology maintenance as well as to disseminate and update their knowledge and skills among each other for sustaining RE technology which can contribute to increase RE generation capacity at the end. | |
| **Role** | **2017 Development Objective Progress Rating** | **2017 Implementation Progress Rating** |
| **UNDP Country Office Programme Officer** | Satisfactory | Highly Satisfactory |
| Overall Assessment | The DO Rating is Satisfactory (S) because the project has importantly accomplished all Project Objective Indicators and Outcome Indicators, except the on-grid solar farm project and two off-grid micro-hydropower project, which are not possible to realized due to the factors beyond the control of the project.<br><br>It has been fully realised since the time that the project requested for a one-year project extension towards the end of 2016 that the objective level target in terms of the GHG emission reduction and the on-grid and off-grid contribution will not reach the level as set in the revised logical framework in accordance to the Midterm Review Recommendations. Although the targets of on-grid and off-grid contributions of the project have been lowered in the strategic review after the MTR, they are still proven to be too high for the context and reality of Mae Hong Son.<br><br>However, the fact that the project managed to have the cumulative results of 20.78 kW (on-grid) and 25.97 kW (off-grid) in its concluding year, through solid models that have been tried and tested that they are applicable to the challenges and constraints on the ground, with meaningful participation of provincial and local authorities, the local army stations, local schools, and various ethnic groups in Mae Hong Son, is essentially an exemplary achievement.<br><br>The project has been successful in advocating the intricate link between RE and improved livelihood as well as income generation, through the technologies installed. This is fundamental to the sustainability of the project results, as when RE is considered more accessible and everyday life issues, local communities are more willing to adopt it; while the government authorities also see the needs and opportunities to promote RE as part of the provincial strategy and as part of its service providers to the people.<br><br>Importantly, the project has shown accomplishment in relation to its sustainability and replication as summarised by outcome below:<br><br>Outcome 1: Strengthened institutional, organizational and social capacity results in planning, management and implementation of integrated RE | |

| | |
|---|---|
| | programmes in MHS - the adoption of several the project's experience into the next 2017-2020 Provincial Energy Development Strategy by the Provincial Energy Office (PEO), endorsed by MHS Provincial Office (PO). Additionally, the project also proved the good level of engagement among relevant stakeholders. The close engagement with stakeholders in the second phase of the project (after the strategic review as recommended by the Midterm Review) has proven to increase the level of ownership of the provincial agencies and communities that the project is working with in the very challenging context of Mae Hong Son.<br><br>Outcome 2: Financially sustainable RE systems operational in MHS - starting from 2017, PEO has replicated the project's operation models on bio digesters and improved cookstoves (ICS). The PEO has now been convinced that the systematic steps of RE service delivery that the project has conducted: sites assessment/survey, local needs consultations and identification, close attention to technical and human factors of RE technology transfer, follow-up with after sales services, are essential to the success of the RE service provision. For solar technology, the PV rooftop proves to be too costly for individual resorts and households in the city areas of Mae Hong Son. It is more viable to collaborate with government buildings and hospitals. The solar lanterns and Solar Home System (SHS) rehabilitation intended to be established with financial sustainability also proves to be too expensive for rural households in this poorest province of Thailand. However, the crowdfunding approach has been introduced and tried out as an innovative financing mechanism to support the provision of solar lanterns to the needed communities. This will be a prototype for further fund-raising for this purpose through UNDP donation platform, as well as, through other mechanisms supported by partners.<br><br>Outcome 3: Technical support is available locally for the development, management and maintenance of RE applications in MHS - training programs on solar system, SHS operation and maintenance were provided to army personnel, local technicians and school teachers/students) to be such resource persons to properly operate and maintain the systems and disseminate knowledge & skill to others in future. This is a pathway for ensuring project's sustainability. Besides, through strong collaboration with local stakeholder, the installation of solar home systems in villages can cost only around THB4,500, which equal as only 10% of the original cost. The local partners also have been exploring on using second-hand motorcycle's batteries as a converter to be replaced when the original converter is out of battery or degenerated.<br><br>Outcome 4: Policies facilitate up-scaling and replication of RE systems in Thailand - RE lessons learned reports were completed; and several increasing RE realization/ replication activities were proposed and being implemented by the provincial and local project partners. The PEO can integrate this curriculum which mainly comprise the use and maintenance of RE technologies established in the project. The curriculum is now being integrated as extra curriculum to the schools where receiving RE items from the project.<br><br>Another key achievement during this reporting period is the project's productive efforts on communication. There are many communication materials produced, as listed in the communication section, for the public, as well as specially targeted as part of the crowdfunding try-out. These materials are designed to present the results, the lessons learned to increase awareness and replication |

| | | |
|---|---|---|
| | potential; as well as, to pave way for project's sustainability as part of an exit strategy.<br><br>The Implementation Progress is Highly Satisfactory (HS), as the project manager is highly effective and efficient in addressing the risks and initiating adaptive measures. This is particularly important when the project was unable to realize the two key RE technology (Micro hydro and Solar Farm) and needed to adjust its strategy substantively. The project manager and project management unit could take prompt actions while collaborating with project partners to respond to the new target of 2017 in the extension period; and managed to gather quick support from local partners and implement ICS, SHS rehabilitation and solar lantern to become successful models.<br><br>As mentioned in the risk section, there have been significant risks affecting project progress, the project manager and the project management unit together with UNDP country office had collaboratively and closely work together to mitigate the risks, while trying to maintain the project's incremental changes as committed in the project document.<br><br>The key activities had been completely implemented per the work plan with some delays due to 1) lengthy procurement process, 2) raining causing difficulties in accessing to target areas due to floods and landslides and 3) time gap before the new Senior Project Officer and Project Assistant in place.<br><br>The project board meets regularly as planned and well-participated by key agencies in Mae Hong Son. The governor and/or vice governor chaired the project board meetings themselves. The board provides effective guidance and advice to the project implementation. | |
| **Role** | **2017 Development Objective Progress Rating** | **2017 Implementation Progress Rating** |
| **GEF Operational Focal point** | | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -* |
| Overall Assessment | | |
| **Role** | **2017 Development Objective Progress Rating** | **2017 Implementation Progress Rating** |
| **Project Implementing Partner** | | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -* |
| Overall Assessment | | |
| **Role** | **2017 Development Objective Progress Rating** | **2017 Implementation Progress Rating** |
| **Other Partners** | | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country* |

| | | |
|---|---|---|
| | | *Office only -* |
| Overall Assessment | | |
| **Role** | **2017 Development Objective Progress Rating** | **2017 Implementation Progress Rating** |
| **UNDP-GEF Technical Adviser** | Moderately Unsatisfactory | Highly Satisfactory |
| Overall Assessment | Note: The current RTA joined the team in January 2017 and has only started overseeing this project since February 2017. The project overall objective is to overcome barriers to the provision of RE services in integrated provincial renewable energy programmes in Thailand, initially covering Mae Hong Son province (MHS), followed by such neighboring provinces as Chiang Mai, Chiang Rai and Tak. This will also contribute to the broader Goal of reducing GHG emissions in Thailand.<br><br>This project is nearing its completion as project closure is expected by the end of 2017. From the start, the project has been faced with challenges related to infeasible project targets for on-grid RE development as well as political and institutional constraints that hindered implementation such as permits for solar systems being awarded based on a lucky draw system. The project's targets were adjusted after the Mid Term Review as well as the project implementation modality (from NIM to DIM). The PMU that was installed after the Mid Term Review did not cease to try everything they could to get the project implementation back on track but several factors – to a large extent external – still could not manage to make the project achieve the downsized level of RE and GHG emission objectives.<br><br>Compared to the EOP target of achieving 27.06 MW on grid and 2.4 MW off-grid, which translates into at least 55,000 MWh/year of RE power generation capacity, the project cumulative results are 20.78 kW (on-grid) and 25.97 kW (off-grid) of power generation capacity and usage from RE systems in MHS respectively. This is leaving a big discrepancy from the EOP target for the project objective. Even though the MTR already concluded that the on-grid target was not realistic, the reduced MTR targets are still out of reach. Due to the considerable discrepancy between project results and EOP target for the project objective, in combination with concern over solutions with private sector and/or community involvement – guaranteeing longer term sustainability, the DO progress overall rating for this project should be considered MU (Moderately Unsatisfactory).<br><br>The project has achieved to some extent the other EOP target at the objective level which is to achieve at least three (3) new models for RE generation that are ready to be replicated in other areas. The project developed a total of seven (7) models although it should be mentioned that the models still leave a challenge in coming to solutions where RE could be developed by means of private sector or community involvement thus creating a situation that guarantees continued RE development and long term operation and maintenance of installed RE solutions.<br><br>For Outcome 1, on strengthening institutional, organizational and social capacity results in planning, management and implementation of integrated RE | |

| | |
|---|---|
| | programmes, the project has achieved both indicators set for this outcome. The project has achieved its EOP target of establishing four (4) management models (for off-grid hydro, biodigesters and solar) although a challenge in coming to solutions with private sector and/or community involvement – guaranteeing longer term sustainability – still remain. The project has been able to develop a total of 22 RE project proposals submitted to the government.<br><br>For Outcome 2, on financially sustainable RE systems operational in MHS, Chiang Mai, Chiang Rai and Tak, the project has achieved the outcome targets after several indicators were removed after the MTR as well as after accepting that permission for a solar farm and 2 off-grid hydropower plants could not be obtained. The remaining RE technologies installed were mainly financed by the project itself, consisting of rehabilitated units of SHS, solar lanterns and biodigesters. Against the sustainability evaluation criterion, the project has reported that Provincial Energy Office has been able to replicate the project's operation models on biodigesters and improved cookstoves.<br><br>For Outcome 3, on the technical support available locally for development, management and maintenance of RE applications in MHS, Chiang Rai, Chiang Mai and Tak, except for an EOP target related to micro-hydro (whose permission was not granted), all the other EOP targets were achieved with a cumulative total of: 1,353 villagers for SHS rehabilitation; 11 government and private technicians on EE measures; and 165 users of biodigesters.<br><br>For Outcome 4, policies facilitating up-scaling and replication of RE systems in Thailand, the project has produced a series of documentation and publications with lessons learned and experiences coming from all the RE technologies. It has influenced the Provincial Energy Office (PEO) to integrate the training material into the curricula at those schools that are receiving RE technologies.<br><br>Overall, despite the numerous implementation challenges, the PMU continuously remained strongly motivated to try to find solutions in the very remote areas of Mae Hong Son, often dealing with underprivileged indigenous people. The PMU continuously tried to adjust and accommodate changes and challenges, showing high level of adaptive management and demonstrated effective communication with relevant stakeholders as well as high level stakeholders involved in the Project Board. The project board has met regularly and was always attended by key agencies in MHS. The project is supported on a high political level (including the representation of Governor/Vice-Governor level), which marks as an important aspect of the institutional sustainability of the project. Given these circumstances, the IP rating is set at HS (Highly Satisfactory). |

# H. Gender

## Progress in Advancing Gender Equality and Women's Empowerment

This information is used in the UNDP-GEF Annual Performance Report, UNDP-GEF Annual Gender Report, reporting to the UNDP Gender Steering and Implementation Committee and for other internal and external communications and learning.

| **Has a gender analysis been carried out this reporting period? Please note that all projects approved in GEF-6 (1 July 2014 through 30 June 2018) are required to carry out a gender analysis.** |
|---|
| No |
| **If a gender analysis was carried out what were the findings?** |
| Yes, the data on disaggregated gender in target communities relating to the project's activities was recorded and analyzed to inform the project's status and problem's solution if any.<br><br>Example of Key Findings:<br><br>- Through learning about ICS related to high consumption of firewood for cooking, lighting and heating, it was indicated that higher number of women and girls are the key groups collecting firewood at twice a day.<br><br>Use of finding - From this finding, through collaboration with Huai Hom Tambon Administrative Organization (TAO), UNDP handed-over ICS and enhanced ICS realization with an objective to reduce the firewood consumption, save female labor for other productivity and secure them from any risks caused by firewood collection.<br><br>- In relation to biodigesters/ SHS/ solar lantern, men tend to be the ones to understand how to start-up, use, maintain them, while indeed women are main group who spend more time on using it daily.<br><br>Use of finding - Thus, Grade 2-6 students (both male and female) had been trained (RE curriculum) on RE technology's operation and maintenance of solar lanterns and other RE items who are able to use and maintain these devices well, so that not only male, but female can know how to use and maintain technology appropriately.<br><br>The RE curriculum consists of major contents on utilization and maintenance of RE technologies and this has been integrated into schools. Students, therefore; will transfer what they have learned to their household members. Hence, it was agreed that the comprehensive manuals that are women-friendly and training for housewife to maximize the usage of the ICS were no longer needed since its content of ICS is also included in the RE curriculum. Besides, ability in reading by housewife is also limited. |
| **Does this project specifically target woman or girls as direct beneficiaries?** |
| Yes |

**Please specify results achieved this reporting period that focus on increasing gender equality and improving the empowerment of women.**

**Results reported can include site-level results working with local communities as well as work to integrate gender considerations into national policies, strategies and planning. Please explain how the results reported addressed the different needs of men or women, changed norms, values, and power structures, and/or contributed to transforming or challenging gender inequalities and discrimination.**

Project specifically target woman and girls:

Yes, women and girl are viewed as key development partners. As a results, considerable numbers of ways and means to build up their capacities in operation and management of RE systems have been explored. Beyond the two examples of their contribution in the project, women also actively help disseminate knowledge & skills on RE to other in the communities through daily informal conversation and door-to-door informal demonstration such as ICS. One showcase is that female PEO staff who has been trained in the project has become a key resource person who share knowledge and skills on biogas in school and villages. This PEO staff as female is like a symbol for other female to realize that RE technology is not too difficult for them to use and maintain and they can operate these devices by their own without waiting for their husbands.

In addition to that, the gender action plan on mainstreaming ICS women was also exchanged with UNDP in Bhutan.

Results achieved this reporting period:

Through understanding about gender difference in the target communities, the project's work plan and strategies have been more effectively improved and implemented in order to response to different needs of men and women. The two examples of use of key findings on ICS and solar lanterns as earlier explained in this section were good cases on improving the empowerment of women through training on use and maintenance of solar lantern and ICS.

Such empowered women would lead to change in power structure in the target communities in the future.

# I. Communicating Impact

**Tell us the story of the project focusing on how the project has helped to improve people's lives.**

**(This text will be used for UNDP corporate communications, the UNDP-GEF website, and/or other internal and external knowledge and learning efforts.)**

Towards Clean Cooking Solutions and Low Carbon Community in the Highlands

Dulaper is a small Karen village in Huai Hom sub-district, Mae La Noi district of Mae Hong Son. This community is 30 km. from the district and locates on high mountains over 1,000 meters (MSL), a watershed of the Mae La Noi River and Mae Chaem River that flows to the Ping River in Chiang Mai. It takes around 1 hour driving along a high and winding road from Mae La Noi district to Dulaper. Some then name this road a "Sky Road" with thick fog and sea of mist all around in winter. The weather here is cold all year round, women of Dulaper have to go to forest, gather and carry firewood twice a day for heating and cooking. It is a tough and tedious daily job that consumes a lot of time as well as risks exposure to women.

Therefore, the UNDP's Promoting Renewable Energy in Mae Hong Son has worked with the Dulaper community to exchange between provisions of free high efficient cooking stoves (or improved cookstove: ICS - durable, produce less smoke with more heat and can reduce 50% of firewood consumption, produced by Ministry of Energy) to all 30 household with its participatory community forestry activity. Under this condition, the community is expected to prepare wildfire protection trails, re-plant & maintain the watershed, identify prohibited period & locations for hunting and fishing.

The ICS & reforestation campaign was started in cold weather of January 2016 at Huai Hom TAO and the reforestation will be in this coming rainy season. By using this new type of efficient cooking stove, Dulaper community can safe not only firewood and forest, but also have more time for household productivity, reduce dangers in the forest and health risks caused by indoor air pollution as proved by one user who have expressed that "this ICS is helpful equipment that has improved my quality of life. I used to spend all day to collect firewood and did nothing after the end of the day because I was too tired and sometimes I got wound from collecting firewood. Oppositely, I have more time to focus on my children's life such as their homework and also I feel more productive doing other things that are also important to my family life such as weaving"

This ICS not only improve quality of life of one person, but also the entire family. Besides, using ICS is in accordance to the concept of green and inclusive growth.

**What is the most significant change that has resulted from the project this reporting period?**

**(This text will be used for internal knowledge management in the respective technical team and region.)**

'Bridging the haves and have nots for rural energy access'

(Crowd funding of solar lanterns for off-grid students)

"Highly Efficient Innovation but Simple Mechanism"

‘Bridging the haves and have not for rural energy access is one of significant model making change in quality of life of target beneficiaries and also working perspectives among project’s relevant stakeholder including UNDP.

The crowdfunding activity demonstrated a new way of getting RE items with low operational cost. The model is just a simple fund raising mechanism for purchasing solar lanterns to be distributed to those who have limited access to electricity in Mae Hong Son, the poorest province of Northern Thailand. Such fund raising include following key steps:

- Set up crowdfunding strategy, structure, mechanism and roles & responsibility of each participating party.

- Data collection of the students & families and verification of the information.

- Design and development of recipient and donor database, donation information leaflet to be used by all parties.

- Mobilization among UN/UNDP staff and their associates for donation.

- Production of local, handmade souvenirs by recipient families as tokens of appreciation to donors.

- Open donation bank account by the school team.

- Distribution of solar lanterns according to the verified student list. Distribution of recipients’ souvenirs to donor.

- Follow-up and reporting to donors by the PMU.

Although crowdfunding is just simple process, but it is important to have a clear structure on how to collect donation with transparent manner.

From undertaking this crowdfunding, significant changes that have been made include:

- Improved quality of life of target beneficiaries – solar lantern is good RE technology that helps those who do not access electricity to live more happily during the night time. Based on the monitoring visits, solar lantern is used when such as family gathers for their dinner and children do their homework. Without solar lantern, family may have quick meal without relaxing and conversing with other members during dinner time. In addition, students could study at home in longer hours after sunset. While other family members had more time for household productive works such as weaving cloths, making bamboo baskets, etc. In addition, light from the solar lanterns helped reduce household expenditure on candles. It was expected that accidents from burnt by candles/fire and risks from bites by poisonous animals/ insects would also be decreased. Another example is that with this solar lantern, villagers can be safe from snake, scorpion or dangerous animal that they are likely to be bitten by using toilet in dark. One man who is working in the food shop used to lose their income for 7 days due to sickness from being bitten by scorpion.

- Adapted working perspectives – it is typical way for project’s based approach to only utilize money from their budget, yet; this fund raising has changed working perspectives of project staff who have become realized that only word of mouth of UNDP staff can gather great collaboration and donation on this fund raising from both UNDP staff and others from outside.

- Reduced utilization of project's budget – with additional budget from fund-raising, the project can save significant amount of budget to be utilized for other activities.

- Increased social responsibilities on RE among donors – while raising funds, people who have heard about the project and current condition of target beneficiaries have become aware and felt responsibility to their society/community. One donor of solar lantern mentioned that 'I was told that Mae Hong Son is the poorest province, but never thought that people living there are limited to electricity which prevent them from having a quality of life like us"

- Increased realization on RE technology – most of people understand concepts of saving energy by turning off electrical equipment, but they do not realize about RE technology that they can either use for their personal use.

- Wider knowledge of community to call for public support - for target schools, they learned how to call public support for needy items that could increase students' performance like the solar lanterns. By setting up proper donation management & transparency mechanisms, together with proper information and low to no-cost digital media channels, they could run the crowd funding/ sourcing by themselves.

This model is a good lesson learned for MHS-RE project which is not limited to only solar lantern but also other types of RE technology in the future. This crowdfunding learning process also informed and can be replicated in other UNDP's projects and initiatives.

**Describe how the project supported South-South Cooperation and Triangular Cooperation efforts in the reporting year.**

**(This text will be used for internal knowledge management within the respective technical team and region.)**

N/A

## Project Links and Social Media

**Please include: project's website, project page on the UNDP website, Adaptation Learning Mechanism (UNDP-ALM) platform, Facebook, Twitter, Flickr, YouTube, as well as hyperlinks to any media coverage of the project, for example, stories written by an outside source. Please upload any supporting files, including photos, videos, stories, and other documents using the 'file upload' button in the top right of the PIR.**

Preserve Forest from the Kitchen prior to the World Environment Day

https://www.facebook.com/UNEPROAP/posts/1185802754772108

https://www.facebook.com/undpasiapac/posts/1738804959666782

RE technology for the poor (Applied Solar Home System)

https://www.facebook.com/UNDPThailand/posts/1147213215352340

MHS Governor agreed to support MHS as RE town

https://www.facebook.com/UNDPThailand/photos/a.228668733873464.56725.150365761703762/1272246466182347/?type=3&theater

UNDP Monitoring visit to MHS-RE

https://www.facebook.com/UNDPThailand/photos/pcb.1281863651887295/1281863055220688/?type=3&theater

Friend of UNDP's Campaign:

UNDP Thailand Facebook:

https://www.facebook.com/UNDPThailand/posts/1389705634436429

https://www.facebook.com/UNDPThailand/posts/1383903128350013

Miss Thailand World Facebook:

https://www.facebook.com/MissthailandworldBectero/videos/1389128637798142/

https://www.facebook.com/MissthailandworldBectero/photos/a.322636697780680.77847.318971424813874/1389177184459954/?type=3

https://www.facebook.com/MissthailandworldBectero/posts/1390203551023984

https://www.facebook.com/MissthailandworldBectero/posts/1390960860948253

https://www.facebook.com/MissthailandworldBectero/videos/1391115437599462/

https://www.facebook.com/MissthailandworldBectero/posts/1392060220838317

https://www.facebook.com/MissthailandworldBectero/photos/a.322636697780680.77847.318971424813874/1396994860344853/?type=3

Ban Café (RE learning center at Ban Pang Tong School)

https://m.facebook.com/story.php?story_fbid=1475862809154044&id=150365761703762&_ft_=top_level_post_id.1475862809154044%3Atl_objid.1475862809154044%3Athrowback_story_fbid.1475862809154044&__tn__=%2C%3B

A visit to UNDP on (Solar lantern crowd-sourcing)

https://www.facebook.com/UNDPThailand/posts/1499319520141706

Join BIOFIN Day on 22-24 April 2017 at Siam Paragon, BKK

https://www.facebook.com/UNDPThailand/photos/pcb.1501684749905183/1501684593238532/?type=3&theater

ICS realization & reforestation at Dulaper Village

https://www.facebook.com/media/set/?set=a.1505169239556734.1073741879.150365761703762&type=3

Matichon: First mission of ‘Friend of UNDP’

http://www.matichon.co.th/news/458080

Bangkok Post: Bringing the gift of light (Solar lantern crowd-sourcing)

http://m.bangkokpost.com/lifestyle/social-and-lifestyle/1198865/bringing-the-gift-of-light?refer=https%3A%2F%2Fm.facebook.com%2F

Bangkok Post: Espresso with a dash of sunlight (solar PV system for RE learning center)

http://www.bangkokpost.com/news/general/1220990/espresso-with-a-dash-of-sunlight

# J. Partnerships

Give the name of the partner(s), and describe the partnership, recent notable activities and any innovative aspects of the work. Please do not use any acronyms. (limit = 2000 characters).<br /><br />This information is used to get a better understanding of the work GEF-funded projects are doing with key partners, including the GEF Small Grants Programme, indigenous peoples, the private sector, and other partners. Please list the full names of the partners (no acronyms please) and summarize what they are doing to help the project achieve its objectives. The data may be used for reporting to GEF Secretariat, the UNDP-GEF Annual Performance Report, UNDP Corporate Communications, posted on the UNDP-GEF website, and for other internal and external knowledge and learning efforts. The RTA should view and edit/elaborate on the information entered here. All projects must complete this section. Please enter "N/A" in cells that are not applicable to your project. 

| **Civil Society Organisations/NGOs** |
|---|
| N/A |
| **Indigenous Peoples** |
| 1. Ban Dulapler, Ban Dong and Ban Huai Hom of Huai Hom sub-district - Reforestation and Firebreak<br>2. Ban Mae Aoe and Mae Yuam Noi of Mae Yuam Noi sub-district -Reforestation and Firebreak |
| **Private Sector** |
| 1. Mae Hong Son Chamber of Commerce – help providing guidance to overall project implementation and identifying RE entrepreneur model.<br>2. Hern Tai resort in Mae La Noi district - E for E installed 2 solar rooftops systems, altogether 8 kWp.<br>3. Suchawaree's house in Mae Hong Son district – E for E installed 1 solar rooftop system for 3.72kWp.<br>4. ThaiOil - to invest in a solar farm project with Kun Yuam Agricultural Coop |
| **GEF Small Grants Programme** |
| N/A |
| **Other Partners** |
| The project has been working with several government agencies at central/ regional level of Min. of Energy, Ministry of Natural Resources and Environment, and engaged with many provincial and local agencies including military, community energy volunteers. |

# K. Grievances

## Environmental or Social Grievance

This section must be completed by the UNDP Country Office if a grievance related to the environmental or social impacts of this project was addressed this reporting period. It is very important that the questions are answered fully and in detail. If no environmental or social grievance was addressed this reporting period then please do not answer the following questions. If more than one grievance was addressed, please answer the following questions for the most significant grievance only and explain the other grievance(s) in the comment box below. The RTA should review and edit/elaborate on the information entered here. RTAs are not expected to answer these questions separately.

| **What environmental or social issue was the grievance related to?** |
|---|
| |
| **How would you rate the significance of the grievance?** |
| |
| **Please describe the on-going or resolved grievance noting who was involved, what action was taken to resolve the grievance, how much time it took, and what you learned from managing the grievance process (maximum 500 words). If more than one grievance was addressed this reporting period, please explain the other grievance (s) here.** |
| N/A |

# L. Annex - Ratings Definitions

**Development Objective Progress Ratings Definitions**

(HS) Highly Satisfactory: Project is on track to exceed its end-of-project targets, and is likely to achieve transformational change by project closure. The project can be presented as 'outstanding practice'.

(S) Satisfactory: Project is on track to fully achieve its end-of-project targets by project closure. The project can be presented as 'good practice'.

(MS) Moderately Satisfactory: Project is on track to achieve its end-of-project targets by project closure with minor shortcomings only.

(MU) Moderately Unsatisfactory: Project is off track and is expected to partially achieve its end-of-project targets by project closure with significant shortcomings. Project results might be fully achieved by project closure if adaptive management is undertaken immediately.

(U) Unsatisfactory: Project is off track and is not expected to achieve its end-of-project targets by project closure. Project results might be partially achieved by project closure if major adaptive management is undertaken immediately.

(HU) Highly Unsatisfactory: Project is off track and is not expected to achieve its end-of-project targets without major restructuring.

**Implementation Progress Ratings Definitions**

(HS) Highly Satisfactory: Implementation is exceeding expectations. Cumulative financial delivery, timing of key implementation milestones, and risk management are fully on track. The project is managed extremely efficiently and effectively. The implementation of the project can be presented as 'outstanding practice'.

(S) Satisfactory: Implementation is proceeding as planned. Cumulative financial delivery, timing of key implementation milestones, and risk management are on track. The project is managed efficiently and effectively. The implementation of the project can be presented as 'good practice'.

(MS) Moderately Satisfactory: Implementation is proceeding as planned with minor deviations. Cumulative financial delivery and management of risks are mostly on track, with minor delays. The project is managed well.

(MU) Moderately Unsatisfactory: Implementation is not proceeding as planned and faces significant implementation issues. Implementation progress could be improved if adaptive management is undertaken immediately. Cumulative financial delivery, timing of key implementation milestones, and/or management of critical risks are significantly off track. The project is not fully or well supported.

(U) Unsatisfactory: Implementation is not proceeding as planned and faces major implementation issues and restructuring may be necessary. Cumulative financial delivery, timing of key implementation milestones, and/or management of critical risks are off track with major issues and/or concerns. The project is not fully or well supported.

(HU) Highly Unsatisfactory: Implementation is seriously under performing and major restructuring is required. Cumulative financial delivery, timing of key implementation milestones (e.g. start of activities), and management of critical risks are severely off track with severe issues and/or concerns. The project is not effectively or efficiently supported.