Terminal Evaluation Report of Accelerating Clean Energy Access to Reduce Inequality in Indonesia and Timor-Leste ACCESS Project

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LIST OF ACRONYMS

ACCESS	Accelerating Clean Energy Access to Reduce Inequality
ADB	Asian Development Bank
B2TKE	*Balai Besar Teknologi Konversi Energi/*National Laboratory for Energy Conversion Technology
BAKTI-MOIC	*Badan Aksesibilitas Komunikasi dan Teknologi Informasi/*Telecommunication and Information Accessibility Agency – Ministry of Communication and Informatics
Bappenas	National Development Planning Agency
BNPB	*Badan Nasional Penanggulangan Bencana/*National Disaster Agency
BRIN	*Badan Riset dan Inovasi Nasional*/ National Research and Innovation Agency
BTL, E.P.	*Bee Timor-Leste, Empressa Pública*/State-Owned Water Company in Timor-Leste
BUMDES	*Badan Usaha Milik Desa/*Village-Owned Enterprise
CO_2	Carbon Dioxide
CPD	Country Programme Document
DFS	Detailed Feasibility Study
DG REE	Directorate General of Renewable Energy and Energy Conservation
EDTL, E.P	*Eletricidade de Timor-Leste, Empressa Pública*/State Owned Electricity Company in Timor-Leste
EoI	Expression of Interest
EPC	Engineering, Procurement, and Construction
GEF	Global Environment Facility
GESI	Gender Equality and Social Inclusion
GMF	Facility Management Group/*Grupo Maneja Fasilidade (GMF)*
GoI	Government of Indonesia
GoTL	Government of Timor-Leste
GPU	Global Procurement Unit
IDN	Indonesia
KDS	Korea Institute for Development Strategy
KOICA	Korea International Cooperation Agency
KW	Kilo Watt
LO	Local Operator
LTSHE	*Lampu Tenaga Surya Hemat Energy / Highly-Efficient Solar Lamp*
MEMR	Ministry of Energy and Mineral Resources
MoCI	Ministry of Communication and Informatics
MoFA	Ministry of Foreign Affair
MoHA	Ministry of Home Affair
MoV	Ministry of Villages and Disadvantaged Regions
MPW	Ministry of Public Works
MSA	Ministry of State Administration
MTR	Mid-Term Reviw
MTRE3	Market Transformation Project
NDC	National Determined Contribution
NGO	Non-Governmental Organization

PB	Project Board
PEAP	Patriot Energy ACCESS Program
PLN	*PT. Perusahaan Listrik Negara (Persero)*/State Electricity Company
PLTS	*Pembangkit Listrik Tenaga Surya/* Solar Power Plant
PMU	Project Management Unit
PPSDM-KEBTKE	*Pusat Diklat Ketenagalistrikan, Enegy Baru, Terbarukan, dan Konversi Energi/*Centre for Human Resources Development in New, and Renewable, and Energy Conservation
PV	Photovoltaic
RESCO	Renewable Energy Service Company/Cooperative
SDG	Sustainable Development Goal
SDP	Strategic Development Plan
SMASA	*Serviço Municipal Agua, Saneamento, e Ambiente* / Municipality Service for Water, Sanitation, and Environment
SOP	Standard Operation Procedure
SSTC	South-South Triangular Cooperation
SWP	Solar Water Pump
TL	Timor-Leste
TOR	Term of Reference
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNSDFC	United Nations Sustainable Development Cooperation Framework
UPLD	*Unit Pengelola Listrik Desa/*Electricity Service Unit

EXECUTIVE SUMMARY

Table: Project Summary Information

Project Title: Accelerating Clean Energy Access to Reduce Inequality in Indonesia and Timor-Leste (ACCESS Project)				
Countries Participating:				
Country	**Implementing Partner**	**Government Counterpart**	**Outputs to be delivered by country**	
1. Indonesia	UNDP Indonesia	Ministry of Energy & Mineral Resources (MEMR) Indonesia.	Output 1: Renewable-based power plants built providing sustainable access to electricity for remote villagers in Indonesia with institutional and local capacity in place.	
2. Timor-Leste	UNDP Timor-Leste	Ministry of State Administration (MSA) Timor-Leste	Output 2: Under SSTC between Indonesia and Timor-Leste: solar PV water pumps and Highly Efficient Solar Lamp System (LTSHE) are installed in remote villages in Timor-Leste providing sustainable access to clean water and lighting.	
Project Number:			00126434 (ACCESS IDN)	00126532 (ACCESS TL)
Planned start date: 01 May 2020			Planned end date: 31 December 2023 Extended/Actual end date: 31 December 2024	
Total Allocated Resources (KOICA)			**USD 18,028,509**	

a) Project Description

In Indonesia, the ACCESS project aimed to address the main challenges in provision of electricity access to some of the very remote and isolated target communities, which were out of the reach of national grid through establishment of small solar power plants. Similarly, in Timor-Leste, the project aimed to address the challenges in the access of electricity for lighting and clean water to some of the very remote target communities through provision of LTSHE and establishment of solar water pumping systems. The overall objective of ACCESS project was to support the poor and most vulnerable communities to have equitable and sustainable access to basic services required for improving livelihoods. The project intended to contribute to the systemic change in reducing inequality in electricity and clean water access by mobilizing international funding and enhance sustainability measures. The project outcomes included: 1) Localized implementation of SDGs No.7 Affordable & Clean Energy through the provision of access to renewable-based electricity and 2) Strengthened South-South and Triangular Cooperation (SSTC) between Indonesia and Timor-Leste in promoting the use of clean energy in rural areas.

The project was originally designed for a 3.5-year term from May 2020 to Dec 2023. However, project implementation was delayed due to COVID pandemic, recruitment of staff and setting of PMUs and lengthy EPC tendering, construction and installation processes etc. In view of these delays the project was granted a 12-month extension and the end date was extended to 31 Dec 2024. The total original project budget was USD 18.028 Million provided by KOICA as a grant. As of October 2024, the project has utilized $ 17.53 Million (Actual expenses + Commitments), with a total delivery rate of 96%. The project was implemented using Direct Implementation Modality of UNDP with UNDP as Implementing partner and MEMR Indonesia

and MSA Timor-Leste as main governmental counterparts. During its implementation, the project has involved and collaborated with a wide range of governmental institutions at the national, provincial, district/municipal and village level, local communities, academia and private sector etc., in both countries.

b) Evaluation objectives and methodology

The overall objectives of the evaluation were to assess progress towards the achievement of the project objectives and outcomes keeping in view the evaluation criteria of Relevance, Effectiveness, Coherence, Efficiency, Impact and Sustainability and Gender Equality and Social Inclusion. Mixed method approach was adopted using range of qualitative and quantitative data collection and analysis methods. Data collection methods included review of documents, key informant's interviews, focus group discussions and field observations. In total 182 key persons (including 44% women) were consulted/ interviewed individually or in groups in Indonesia and Timor-Leste during the evaluation exercise, including UNDP CO and project team, Governmental Institutions (national, provincial, district and village levels), donors, private sector and beneficiary communities etc. Acquired data was analyzed both qualitatively and quantitatively. Qualitative was processed using analysis techniques like validations, triangulations, interpretations and abstractions. Quantitative data was analyzed using simple statistical methods to determine progress and trends.

Table: Evaluation Rating[1]

1. Monitoring & Evaluation (M&E)	Rating
M&E design at entry	S
M&E Plan Implementation	S
Overall Quality of M&E	S
2. Implementing Agency (IA) Implementation & Executing Agency (EA) Execution	Rating
Quality of UNDP Implementation/Oversight	S
Quality of Implementing Partner Execution	S
Overall quality of Implementation/Execution	S
3. Assessment of Outcomes	Rating
Relevance	S
Effectiveness	S
Efficiency	S
Overall Project Outcome Rating	S
4. Sustainability	Rating
Financial sustainability	ML
Socio-political sustainability	L
Institutional framework and governance sustainability	ML
Environmental sustainability	L
Overall Likelihood of Sustainability	ML

c) Summary conclusions

- Overall project objectives and interventions were found very relevant, aligned and consistent with the national priorities, policies and plans and needs of the target communities, including vulnerable groups, in Indonesia and Timor-Leste. Similarly, the

[1] S: Satisfactory, MS: Moderately Satisfactory, L: Likely, ML: Moderately Likely

project mandate is also well aligned and consistent with priorities of UNDP and KOICA in both countries.

- The project has supported the establishment and operationalization of solar power plants in 22 remote target villages in Indonesia. The project has also helped considerably in building local capacities and institutional mechanisms for operation and maintenance. Presently all 22 power plants are reported to be fully operational and are managed by the respective BUMDESA.
- Overall around 3,449 households (14,514 people, including 52% women) are benefiting from the sustained supply of clean and affordable electricity and life has changed for better in many ways including generation of economic opportunities, especially for the women and vulnerable segments.
- The project has supported, under SSTC, the construction of solar water pumps and provision of LTSHE in target villages in Timor-Leste. The project has trained a cadre of local operators for operation and maintenance. However, so far the community based institutional management mechanisms (GMFs) are not finalized, which is a matter of concern for operational sustainability.
- Overall 773 households (4321 people, including 50% women) are benefiting from the water supply schemes. Similarly, 1000 households are also benefiting from the provision of LTSHE. Life has changed for better with easy access to water and lighting, especially for the women vulnerable segments.
- The total original project budget was USD 18.028 Million, as of October 2024, the project has utilized $ 17.53 Million (Actual expenses + Commitments), with a total delivery rate of 96%. The project has no cost over runs, however, cost of implementation was on the higher side due to the remoteness of project sites, engagement of international companies and use of high standard equipment etc.
- The project has experienced implementation delays due COVID pandemic and lengthy EPC tendering, procurement, construction and installation processes. Keeping in view the delays, a 12-month extension was granted and the project end date was extended to 31 Dec 2024.
- The project was implemented using Direct Implementation Modality of UNDP with UNDP as Implementing agency and MEMR Indonesia and MSA Timor-Leste as main governmental counterparts. The project has also collaborated with a wide range of governmental institutions at the national, provincial, district/municipal and village level, local communities, academia and private sector.
- Collaboration among various stakeholders remained satisfactory. However, there were coordination and communication related challenges as there were no formal agreements signed with the involved institutions except the two main counter parts. Which has made the collaboration a bit informal and need based.
- Overall the longer term sustainability of solar power plants and water supply schemes presents a mix picture. A number of the villages have reasonable capacities and ownership levels and are expected to sustain the facilities, especially in Indonesia, while others, mostly in Timor-Leste will face challenges to sustain in the absence of dedicated community based institutional mechanisms and further capacity building.
- The main sustainability concern is the operational safety and security and repair/replacement of various equipment in the incident of a major breakdown. Currently there is a 2-year warranty for the installed equipment, therefore it is expected that in the near future the major repairs and replacements will be somehow ensured.

- However, after the warranty period, the responsibility of operation, management and repair will rest with the respective communities and village governments. It is expected that by that time the villages would have accumulated sufficient funds from the electricity tariffs, which can be used for major repairs and replacements.
- In case of Timor-Leste there is no such tariff determined nor collection mechanism put in place so far for the water supply schemes and neither has the establishment of community based institutional arrangement (GMFs) for operation and maintenance finalized, which is a matter of concern for longer term sustainability.
- Nevertheless, lack of financial resources with the governmental institutions in Indonesia and Timor-Leste are also posing impediments in the wider replication of the project model in the left behind remote villages.
- The project recognized the crucial role of women in the energy management, setting gender quotas to pipeline women's voices in decision making for clean energy and water supply initiatives. The project has ensured maximum participation of women in project implementation and project beneficiaries include 50% women both in Indonesia and Timor-Leste.
- The project has supported women in capacity building and income-generating activities, enabling them to operate and maintain renewable energy systems, thereby fostering economic empowerment. Through access to clean energy and water supply, women experienced reduced labor burdens and greater participation in economic activities etc.
- Overall livelihoods improvements are long term and complex endeavors and pertains to, among other, the continuity of benefits for longer duration. Therefore, at this stage, when the project is just nearing its end, it is a bit too early to assess the longer term goal or impacts.
- However, life has changed a lot for better for the local people, now they can utilize and enjoy uninterrupted electricity and clean water. It is expected that sustained benefits from project interventions will greatly help in improving quality of life and livelihoods through income generation, improvement in educational, health and hygiene conditions, especially for the poor and vulnerable in the longer run.

d) Recommendations

No	Recommendation	Timeframe	Entitiy Responsible
1	To ensure sustainability of project interventions, the project should develop a pragmatic exit strategy, outlining various measures to effectively hand over project assets and knowledge products to responsible parties in Indonesia and Timor-Leste to smoothly phase out ensuring sustainability. The project should, towards its end, organize a grand conference involving all stakeholders to highlight the achievements and to discuss and determine the future course of actions to ensure sustainability.	By End Dec 2024	Project Team, UNDP MEMR Id MFA TL
2	To ensure sustainability of project interventions, the handing over of project assets/facilities needs to be carefully planned and executed under formal agreements with all relevant stakeholders including national, provincial, district and village level institutions and local communities. The roles need to be clearly defined in maintaining and managing the established	By End Dec 2024	Project Team, UNDP MEMR Id MSA TL etc.

	facilities. The handing over process should be officially documented for record.		
3	Some stakeholders, also suggested to hand over the power plants in Indonesia to PT PLN, due to their expertise. The project may explore if this suggestion can be materialized in the current scheme of things. In case, if it is not possible due technical difficulties then some kind of arrangement should be explored to involve PLN in oversight or advisory role.	By End Dec 2024	Project Team, UNDP MEMR Id
4	In Timor-Leste the envisaged community based Facility Management Groups (GMFs) are not established yet. In the absence of GMFs the handing over of water supply schemes in Timor-Leste will be quite challenging. Therefore, it is recommended that the establishment of GMFs should be finalized as soon possible before the end of the project.	By End Dec 2024	Project Team, UNDP MSA TL etc.
5	Local Operators have been trained to operate the project facilities, however their remunerations or either low or they work on voluntary basis. For longer term retention of Local Operators in Indonesia and Timor-Leste, it is recommended that adequate honorarium/salaries should be provided and some kind of bonds should be signed up for at least 3-5 years of compulsory service to ensure sustainability.	In near future after the project is ended.	MEMR Id Village Govt. BUMDES
6	The installed equipment at the facilities are under a 2 year warranty from the vendor. To facilitate and ensure these warranties, a mechanism should be established both involving UNDP CO and MEMR, with designated staff and communication lines, which should duly monitor and provide timely support to the villages in times of breakdowns, repairs and replacements.	For the warrenty period.	UNDP MEMR Id Village Govt. Id BUMDES
7	To ensure operational sustainability, the respective BUMDESA should regularly collect electricity bills and keep a separate bank account and should use this money only for the salary of LOs and maintenance of the power plants. In case of fund deficiencies provisions should be made to utilize village funds for major repairs etc.	After the project end till the life of the PLTS	Village Govt. Id BUMDES
8	Since BUMDESA are still young are there is need for further capacity building, therefore the Ministry of Villages should further invest in the capacity building of the BUMDESA in project villages to enable them to generate needed funds to operate and sustain the power plants.	After the project end.	MOV Id BUMDES
9	The PPSDM, with project support, have developed and organized training programs for LOs, therefore it should make some budgetary provisions for refresher trainings for existing LOs and new LOs in case of vacancies or future such programs.	After the project end.	PPSDM MEMR Id
10	The project has generated several valuable knowledge products, therefore it is recommended that these should be properly handed over and published online including; technical documents/manuals related to design, construction and operation of power plants and SWPs and training material etc., to the respective institutions for future use and replication.	By End Dec 2024	Project Team UNDP MEMR Id MSA TL
11	To ensure sustainability, the project should map project beneficiary villages into three categories in terms of longer term sustainability 1) fully sustainable, 2) partially sustainable and 3) major threats to sustainability. For category 2 and 3 suitable	By End Dec 2024	Project Team UNDP

	remedial action needs to be identified and implemented by the respective partner institutions.		
12	Since the project has face some coordination issues. Therefore, future such project should carefully carry out stakeholder mapping at the time of project design and identify all governmental and non-governmental stakeholders and clearly define their roles and proper MOUs/LOAs should be signed with all partners to formalize and ensure their participation and support. Furthermore, effective communication and coordination mechanisms should be established to facilitate collaboration among stakeholders.	At the time of design of future projects	UNDP MEMR MSA TL
13	To reduce dependency on external funds, future such projects should focus on modular solutions that can be scaled based on community demand and funding availability. Similarly, potential for pilot innovative financing models, such as community-based microfinancing etc. need to be explored.	At the time of design of future projects	UNDP MEMR MSA TL
14	To move towards a 'Gender Transformative' approach, future projects should make efforts to tackle the root causes of gender inequalities, including cultural norms, power dynamics, and barriers to women's participation and decision making. Furthermore, detailed assessment of the needs of the vulnerable should be conducted at the time of project design and project should include specific and targeted intervention for women and vulnerable groups.	At the time of design of future projects	UNDP MEMR Id MSA TL
15	The project has targeted a limited number of villages in Indonesia and Timor-Leste and there are many more remote villages still left behind. Keeping in view the limited governmental resources, the much needed external technical and financial support should continue in the short run to consolidate the sustainability of existing facilities and replicate the good practices and learnings from the project to benefit other such marginalized communities. UNDP may prepare future proposals in consultation with stakeholders to reach out to potential donors.	At the time of design of future projects	UNDP

1. INTRODUCTION AND PROJECT DESCRIPTION

1.1 Development context

In the National Energy Plan, the Government of Indonesia (GoI) targeted to have a 100% national electrification ratio by 2020. Like other archipelagic countries, this has been a challenging target to meet, considering country's geographical situation and limited government budget to connect all 82,000 villages on a grid. In 2019, about 2,200 villages were without or minimal access to electricity. Furthermore, Indonesia has also set targets for

having 23% renewable energy portion in the primary energy mix by 2025, as stated in the National Energy Policy (Government Regulation No. 79/2014). Increasing the contribution of renewable energy is also in line with the Paris Commitments of Indonesia. The energy sector is expected to reduce 314 million tons of CO2 from the country's greenhouse gas business as usual emission by 2030.

To speed up rural electrification as well as increasing the share of renewable energy, GoI has been allocating Special Budget Allocation for Small Scale Energy infrastructures from 2011 to 2019. This fund was used to build small scale renewable energy power plants at the village level and repair the broken ones. The average fund allocation was about USD 35 million annually. Unfortunately, not all proposals can be funded by the GoI due to limited fiscal capacity. For example, in 2018, the eligible funding proposals were USD 60.5 million. Still, the Ministry of Finance's approved budget was only USD 34 million (57%). The unfunded locations waited for the coming year with uncertainties due to funding availability and competition with new proposals. During 2017-2019, the Presidential Regulation No. 47/2017 was issued to regulate procurement and full deployment of Highly-Efficient Solar-PV Lamps (LTSHE). This program intended to reach households in Indonesia's remote and outer regions; those are not yet receiving support from special allocation or PLN service. In this regard the MEMR has distributed free of charge 360,000 LTSHE by the end of 2019.

In Timor-Leste the National Strategic Development Plan 2011-2030 targets that everyone in Timor-Leste will have access to reliable electricity 24 hours a day by 2030. In 2018, over 25% Villages) & sub-villages in Timor-Leste still didn't had access to the electricity grid. The municipal authorities have the plan to build more communal solar-PV power plants. However, there were still, around 37,000 families living in isolated areas of the mountains, small islands, who do not had access to electricity. At the time of project design 28% of population in Manatuto, 42% of Bobonaro, and 60% in Atauro (Dili) had no access to electricity for lighting.

On the other hand, water supply infrastructure for domestic and sanitation remained underdeveloped and required substantial investment, particularly to provide water during the dry season. In 2016, Timor-Leste launched the "Water and Sanitation Master Plan (2016-2030) with the aim to reach 75% of the population having access to clean water and sanitation by 2030. In 2018, it was reported that access to improved water supply in the rural area is only 60%. Potential for the development of the water resources exists in Timor-Leste. However, it is constrained by limited resources as well as by the institutional capacity to implement Integrated Water Resources Management (IWRM) solutions. For clean water access, the Ministry of Public Works had installed 320 solar PV water pumps in the past. But, they are no longer in operation due to lack of technical and maintenance capacity.

1.2 Problems that the project sought to address

Given the above country contexts, the project document intended to address the main challenges in provision of electricity access which included: limited funding capacity of government and utility company, which hindered reaching out to the communities in the very remote villages and small islands which are not having access to electricity services and are using kerosene oil or diesel-fueled generators, which is very costly. Thus, the hardest impacted ones due to lack of electricity access are the poor and women-headed households. Similarly, there were sustainability issue due to lack local personnel and institutional capacity to operate and maintain the government-built energy infrastructure and to manage the electricity business professionally to trigger rural economic development. Nevertheless, there

was also low utilization of renewable resources in rural power generation compared to diesel-fueled generators due to technical familiarity and high initial investment cost of the renewable energy technology.

In Timor-Leste the main challenges the project intended to address in the provision of electricity and clean water access to all populations, included: lack of proven approach and sustainable technology for providing access to clean water and lighting for households as they scattered and lie far away from the center of the village or national electricity grid; lack of personnel and institutional capacity at the local level to operate and maintain the built solar-PV water pump infrastructure; and difficulties in finding appropriate technology and approaches that reflect the local context particularly considering the direct impact on communities.

1.3 Project objectives and results

The overall objective of ACCESS project was to support the poor and most vulnerable communities to have equitable and sustainable access to basic services required for improving livelihoods. The project intended to contribute to the systemic change in reducing inequality in electricity and clean water access by mobilizing international funding and enhance sustainability measures. The ACCESS project translated the strategy to achieve the objective through achieving the following outcomes and respective outputs:

Outcomes:

- Localized implementation of SDGs No.7 Affordable & Clean Energy through the provision of access to renewable-based electricity.
- Strengthened South-South and Triangular Cooperation (SSTC) between Indonesia and Timor-Leste in promoting the use of clean energy in rural areas.

Outputs:

- Renewable-based power plants built providing sustainable access to electricity for remote villagers in Indonesia with institutional and local capacity in place.
- Under SSTC between Indonesia and Timor-Leste, solar PV water pumps and Highly Efficient Solar Lamp System (LTSHE) are installed in remote villages in Timor-Leste providing sustainable access to clean water and lighting.

1.4 Main stakeholders

The project was implemented through the Direct Implementation Modality, with UNDP Indonesia and Timor-Leste as the implementing agencies in respective countries. In Indonesia, at the governmental level the Ministry of Energy and Mineral Resources (MEMR) Indonesia, is the main partner for the project. In Timor-Leste, at the governmental level the Ministry of State Administration (MSA) Timor-Leste, is the main partner for the project. These two governmental partners are also signatories to the project document and are member of the project board.

In addition to the main partners, the project has also collaborated with a wide range of governmental institutions (at national, provincial, district/municipal and village level), community organizations, beneficiaries and private sector entities during project implementation from time to time. More details on stakeholder's roles and participation is provided in the following sections. Following is a list of main involved institutions/stakeholders:

1. Directorate General of Energy and Mineral Resources (MEMR) Indonesia
2. Ministry of Village and Underserved Areas Indonesia.
3. Respective District Governments in Indonesia
4. Village Owned Enterprise Development (BUMDESA)
5. EMR Unit of Provincial government Indonesia
6. Village Empowerment Unit of District and Provincial Government Indonesia
7. Village Government of local people of the target location in Indonesia
8. Ministry of State Administration in Timor-Leste
9. Ministry of Public Works in Timor-Leste
10. Respective Municipal Governments in Timor-Leste
11. Project beneficiary communities of target locations in Indonesia and Timor-Leste
12. Donor (KOICA in Indonesia and Timor-Leste)
13. MEL Advisor (KDS)
14. Private Sector (Vendors) in Indonesia and Timor-Leste

1.5 Theory of change

As outlined in the project document the Theory of Change underpinning the project interventions in access to essential services is that people who live in remote locations regardless of gender are at risk of being left behind because of limited financial support, low education, and lack of technology options. If these people are provided with equitable and sustainable (available, accessible, and affordable) essential services of electricity and clean water, they can manage the facilities, and appropriate clean energy technology is introduced in neighboring countries; then their livelihoods will be improved and reduced inequality in the long term. Detailed discussion on TOC is provided in the following relevant sections.

1.6 Project resources and Timelines

The total original project financial resources were USD 18.028 million provided as a grant by the Korea International Cooperation Agency (KOICA) out of which USD 15.028 million were allocated for Indonesia and USD 3 million for Timor-Leste. The project was originally designed for a 3.5-year term from May 2020 to Dec 2023. However, project inception was slightly delayed due to COVID pandemic, recruitment key staff and setting of PMUs etc., and project was officially launched on 10 September 2020. Down the road, due to delays in the EPC tendering process and implementation of interventions in the field a 12-month extension was approved by the PB and project end date was extended to 31 Dec 2024. More details are provided in the efficiency section.

2. EVALUATION OBJECTIVES AND SCOPE

2.1 Evaluation Objectives

As outlined in the ToR, the overall objectives of the Terminal Evaluation (TE) was 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 TE also mandated to identify factors that have facilitated or impeded the achievement of the objectives as well as review the project's strategy and its risks to sustainability. The evaluation will also enable UNDP's Commissioning Unit to assess the relevance, efficiency, effectiveness, impact, and sustainability of the ACCESS Project.

2.2 Evaluation Scope

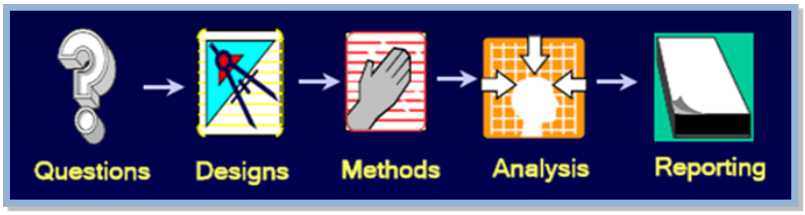
The Terminal Evaluation analyzes and reports on the project's outcomes and outputs from inception to completion i.e. from May 2020 to Dec 2024, comparing them with the anticipated achievements. It aims to extract valuable lessons that can contribute to enhancing the sustainability of project benefits and overall program improvement. The TE report promotes accountability and transparency and assesses the extent of project accomplishments. The specific objectives of the evaluation are to:

- Provide an independent assessment of the progress and performance of the project towards the expected outputs and outcomes set forth in the results framework of the project, incorporating findings from reviews and assessments carried out prior to the TE;
- Draw key lessons from past and current cooperation and provide a set of clear and forward-looking options leading to strategic and actionable recommendations for the next programming;
- Assess how the project has positioned itself within the development community and national partners with a view to adding value to the country's development results; and
- To draw key lessons from past and current cooperation and provide a set of clear and forward-looking options leading to strategic and actionable recommendations.

2.3 Evaluation Approach & Methodology

a) Evaluation Approach

Overall the Terminal Evaluation exercise was conducted in accordance UNDP Evaluation Guidelines (revised edition 2021) and OECD/DAC standard evaluation criteria and principles. The evaluation adopted mixed method approach, employing range of qualitative and quantitative data collection and analysis methods and tools to collect and analyze project related primary and secondary data. In summary the overall evaluation process consisted of five standard evaluation steps i.e. 1) Evaluation Questions, 2) Evaluation Design, 3) Data Collection Methods, 4) Data Analysis, and 5) Presentation and Reporting.



b) Evaluation Criteria

In line with UNDP Evaluation Guidelines, the evaluation thoroughly adhered to standard evaluation criteria of *Relevance, Efficiency, Effectiveness, Coherence, Sustainability and Impact* to assess the overall project performance. Following is a summary description of the main criteria:

- RELEVANCE: Is the Intervention doing the right things? The extent to which the intervention objectives and design respond to global and national needs, policies and priorities and those of beneficiaries and partner institutions.
- COHERENCE: How well does the intervention fit? The compatibility of the intervention with other interventions in a country, sector or institution.
- EFFECTIVENESS: Is the intervention achieving its objectives? The extent to which the intervention achieved, or is expected to achieve, its objectives, and its results, including any differential results across groups.

- EFFICIENCY: How well are resources being used? The extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way.
- SUSTAINABILITY: Will the benefits last? The extent to which the net benefits of the intervention continue or are likely to continue.
- IMPACT: What will be the longer-term changes, positive or negative, expected as a result of project interventions.

In addition to the assessment of above criteria, the evaluation also thoroughly assessed project design, results frameworks, theory of change and management and implementation monitoring and evaluation and collaboration among stakeholders etc. Similarly, the evaluation also assessed various cross cutting issues including Human Rights, Gender Equality etc.

c) Evaluation Rating

An assessment of project performance was carried out, based against expectations set out in the Project Logical Framework/Results Framework, which provides performance and impact indicators for project implementation along with their corresponding means of verification. Ratings was provided in line with rating scales guidelines. Please see Annex-5 for Evaluation Rating Table and Scales.

d) Evaluation questions

A number of evaluation questions were identified/developed in the TOR to assess the overall relevance, coherence, efficiency, effectiveness, sustainability, impact and cross cutting issues. These questions were further refined and adjusted in consultation with UNDP and project team and were used to assess overall project progress and performance. A detailed evaluation matrix has been prepared at the time of inception, outlining the evaluation criteria, main evaluations questions, data sources/methods, indicators and methodology etc. **Please see Evaluation Matrix in Annex-3**. In addition, specific questions were also identified/developed for various project stakeholders including UNDP/project team, governmental institutions (national, provincial and district levels), donors, and beneficiary communities etc. These questions were used during the key person interviews and focus group discussions and field visits by the national consultants. **Please see Annex-4 for list of evaluation questions for stakeholders.**

e) Sampling strategy

The evaluation adopted a mix of purposive and convenience sampling strategies. Academically it is a form of non-probability sampling in which researchers (evaluators and project team) rely on their own judgment when choosing members of the population (stakeholders) to participate in the study. Similarly, in convenience sampling researchers leverage individuals that can be identified and approached with as little effort as possible. Efforts were also made to consult key persons among women and vulnerable groups during the evaluation process as relevant.

In view of the wider scope of project interventions and remote locations and tight timeline of the evaluation exercise it was not possible to reach all stakeholder's. A list of key informants among stakeholders in Indonesia and Timor-Leste was drawn with the help of UNDP and project team, considering their level of involvement/participation in project design, implementation and benefits received, nevertheless also depending on their availability. Interviews and group discussions with most informed key persons, generated credible primary data related to the various aspects of project performance in line with the mentioned

evaluation criteria. Main stakeholders included officials of UNDP CO and project team, Project Board members, officials Governmental Institutions (national, provincial, district and village levels), donors, private sector (vendors) and beneficiary communities etc.

Field missions/visits were conducted in 4 villages in Indonesia 2 each in Southeast Sulawesi and Central Kalimantan provinces. In Timor-Leste field visits were conducted in 8 sub villages of Bobonaro, Atauro, and Manatuto. All villages were chosen as a sample based on their relative accessibility. Villages in East Nusa Tenggara and West Sulawesi provinces of Indonesia couldn't be visited, due accessibility and geographical issues. The number of persons contacted, among all stakeholders, and field visits conducted, provided adequate sample size for the purpose of this evaluation.

f) Data collection methods

The evaluation followed a participatory and consultative approach that ensures close engagement with all stakeholders including UNDP, governmental institutions, donors, private sector and beneficiary communities, as applicable. As mentioned, mixed method approach was adopted using both qualitative and quantitative data collection methods and tools. It important to highlight that most of the data was collected in qualitative form through key informant interviews, focus group discussions and field observations as these were considered the most appropriate methods for collection of the desired data. While quantitative data related to project progress and outcome and output targets was extracted from project related documents, reports, publications and secondary sources. Following are the main data collection methods employed during the evaluation:

- ***Desk Review of documents***

A good deal of relevance, efficiency, effectiveness, sustainability, impact and project management and GESI related data was obtained from the review of relevant documents. Qualitative and quantitative data was extracted from various project documents and secondary sources and was used to assess project progress and performance based on mentioned evaluation criteria and specified indicators and targets outlined in the Project Results Framework. Similarly, data related financial aspects was obtained from project financial statements and records. These documents will include but not limited to;

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

Key informant's interviews and focus group discussions remained the main instrument for collection of primary data related to outlined evaluation questions. Key persons were identified in consultation with the project team and interviews and group discussions were conducted with wide range of stakeholders including officials of UNDP CO and project team, Project Board members, representatives of Governmental Institutions (national, provincial, district and village levels), donors, private sector (vendors) and beneficiary communities both in Indonesia and Timor-Leste etc.

In total 182 key persons (including 44% women), out of which 63 were consulted through KII and 119 were consulted through FGDs, in Indonesia and Timor-Leste during the evaluation exercise. Please see summary details in tables below separately for Indonesia and Timor-Leste. For more details, please see Annex-1: List of persons consulted during the evaluation exercise.

No.	Stakeholders In Indonesia	Total	M	F	KII	FGD

1	Government Counterparts National to District Level	33	18	15	3	30
2	KOICA and KDS – Donor	7	2	5	1	6
3	UNDP & PMU ACCESS	7	4	3	4	3
4	Vendor	9	9	0	1	8
5	PEAP, Village Facilitator	3	2	1	3	0
	Village level stakeholders in 4 sites/villages: Lengora Pantai, Muara Ripung, Danau Masura and Wangkolabu villages					
6	Village Government	11	6	5	4	7
7	BUMDEsa and UPLD	18	8	10	1	17
8	Main Local Operators	8	4	4	8	0
9	Beneficiaries (Residents, School workers, health workers, small business)	9	4	5	4	5
	TOTAL	105		48	29	76

No.	Stakeholders in Timor-Leste	Total	M	F	KII	FGD
1.	Government (National and Municipalities)	9	9	0	5	4
2.	KOICA TL	1	1	0	1	0
3.	UNDP and PMU	2	1	1	1	1
4.	Vendor	1	1	0	1	0
5.	Village Government	8	8	0	8	0
6.	Local Operators	6	5	1	6	0
7.	Beneficiaries (Arlo, Douro, Illiana, Hatuermera, Hatuanahun, and Faloai)	50	19	31	12	38
	Total	77	44	33	34	43

- **Field visits to project locations**

To consult local officials and communities/beneficiaries and to observe project installations/facilities, field visits were conducted in 4 villages in Indonesia including Lengora Pantai and Wangkalabo villages in Southeast Sulawesi and Muara Ripung and Danau Masura Villages in Central Kalimantan provinces of Indonesia. Villages in East Nusa Tenggara and West Sulawesi could not be visited, due to accessibility factors. In Timor-Leste field visits were conducted in 6 sub-villages including Arlo, Douro, and Iliana for Atauro, Hatuermera and Hatuanahun for Manatuto, and Faloai for Bobonaro.

g) Data analysis and reporting

In view of the mix-method approach for data collection, the acquired data was analyzed both qualitatively and quantitatively. Since most of the primary data was acquired in qualitative form therefore it was processed using qualitative data analysis techniques like triangulations, validations, interpretations and abstractions. Data collected from review of documents, key informant interviews and group discussions was validated and triangulated through comparing data from different sources to identify similarities, contradictions and patterns. Similarly, where applicable, available data was analyzed using disaggregation of data from a gender and human rights lens.

Similarly, where applicable, available data was analyzed using simple statistical methods to determine progress and trends including gender disaggregation. Project Results Framework

indicators and targets were used as the main reference during analysis to assess the achievability status of the Project outcomes and outputs. Quantitative data related to project outputs indicators was analyzed to assess progress towards specified targets. The same was validated and triangulated against data obtained from interviews/discussions with key stakeholders, as a way to cross-check information collected from the different sources. The financial data was analyzed through excel to produce graphs and determine trends. Efforts were made to analyze disaggregated data by sex, while assessing project outcome and outputs indicators. Key financial aspects of the project were assessed by analyzing project budgets and expenditures and variances between planned and actual expenditures were assessed.

Beside processing of gender disaggregated data, to evaluate gender impacts across various dimensions, Gender Analysis Matrix were employed. For labour, it can assess how the project shifts men's roles in energy-related tasks and whether women's participation increases their workload or fosters shared responsibilities. Regarding resources, it explores how men and women gain access and control over project benefits, such as funding or energy infrastructure. Time allocation dimension looks at whether the project reduces women's unpaid domestic work or if men contribute more to household chores. In terms of socio-cultural factors, GAM assesses whether the project challenges traditional gender roles, especially in leadership and decision making aspects, promoting equal involvement for both genders.

2.4 Ethical considerations

The evaluation has been conducted keeping in view the values and obligations outlined in the UNEG 'Ethical Guidelines for Evaluators. According to the guidelines the evaluators duly respects people's right to provide information in confidence and have made participants aware of the scope and limits of confidentiality, while ensuring that sensitive information cannot be traced to its source. The TE team had clarified to all stakeholders interviewed that their feedback and input will be confidential. The final TE report didn't indicate any specific source of quotations or qualitative data in order to uphold this confidentiality. Furthermore, the evaluation was conducted by an independent evaluation team, consisting of an international and 3 national consultants, with highest degree of personal and professional integrity, who had no prior involvement in project design and implementation. A signed Code of Conduct form is attached as Annex-7.

2.5 Limitations of the evaluation

Like every evaluation this evaluation exercise also had its own limitations. Due to limited duration of the evaluation exercise the overall schedule was quite tight keeping in view the wider scope and vast geographical spread of project target locations across Indonesia and Timor-Leste. Field missions consumed considerable time as target locations were quite remote and far flung. Similarly, project locations in East Nusa Tenggara and West Sulawesi provinces couldn't be visited due to accessibility issues. In this regard it is important to highlight that originally it was envisioned to visit one sample village in each of the four target provinces in Indonesia, however, due to above reasons only two provinces could be visited. This limitation was up to some extent mitigated by visiting two villages in the two accessible provinces to get more in-depth understanding of project interventions.

2.6 Structure of the TE report

The detailed findings of the evaluation are described in this TE Evaluation Report, using standard format for UNDP TE Reports, provided in the TE evaluation guidelines 2021. In addition to the detailed findings the report also provides overall conclusions, lessons learnt and specific recommendations. A debriefing/presentation of the findings was held online on 13 November 2014, in which several representatives of stakeholder participated and provided feedback. The main contents of the TE Report include; 1. Executive Summary, 2. Project Description, 3. Evaluation Objectives and Methodology 4. Findings (Project Design/Formulation, Project Implementation, Project Results and Impacts) 5. Conclusions and Lessons and 6. Recommendations.

2.7 Implementation arrangements

The principal responsibility for managing the TE resided with the Commissioning Unit. The Commissioning Unit for this project's TE is the UNDP Indonesia. The Project Team liaised with the TE consultant and provided all relevant documents, set up stakeholder interviews, facilitated the field visits and provided all necessary support during stakeholder's consultations. The evaluation team consisted of four members including an International Consultant (Team Lead), two National Consultants one each for Indonesia and Timor-Leste and one GESI Consultant. The Korea Institute for Development Strategy (KDS), a MEL consultancy hired by the KOICA also participated in the field visits and will be reviewing and providing necessary comments and feedback on the draft TE Report.

3. FINDINGS OF THE EVALUATION EXERCISE

3.1 Project Design/Formulation

3.1.1 Analysis of results framework

A detailed project Results Framework was formulated at the time of project design consisting of project outcomes and outputs. The Results Framework provided stipulated outcomes, outputs and respective indicators, baselines, targets, data sources and data collection methods. The project design intended to achieve the overall project objectives of supporting the poor and most vulnerable communities to have equitable and sustainable access to basic services like electricity and clean water for improving livelihoods. The ACCESS project translated the strategy to achieve the objective through achieving the overall outcomes of; 1) localized implementation of SDGs No.7 Affordable & Clean Energy through the provision of access to renewable-based electricity; and 2) Strengthened South-South and Triangular Cooperation (SSTC) between Indonesia and Timor-Leste in promoting the use of clean energy in rural areas.

Similarly, two outputs have been outlined to achieve the project outcomes including; 1) Renewable-based power plants built providing sustainable access to electricity for remote villagers in Indonesia with institutional and local capacity in place; and 2) Under SSTC between Indonesia and Timor-Leste, solar PV water pumps and Highly Efficient Solar Lamp System (LTSHE) are installed in remote villages in Timor-Leste providing sustainable access to clean water and lighting. The project theory of change assumed that if the people are provided with

equitable and sustainable essential services of electricity and clean water, then their livelihoods will be improved and inequalities will be reduced in the long term.

The original RF provided a set of 20 indicators to measure the progress of the two outputs. Initially no indicators were provided in the RF for project outcomes. However, based on series of discussions and workshops between KDS as MEL Advisor and ACCESS PMU regarding the revision of results framework during 2021 to 2022, RF was revised and the number of output indicators were revised to 10, while 4 extra outcome level indicators were added to the RF, in addition some targets were also revised. The revisions were duly approved by the project board in its meeting in April 2022. Another revision approved by project board in its meeting in August 2023 was to terminate the PLTS construction in Mila Ate and shift the allocated components to other target villages, Dangga Mangu and Mata Wee Lima. Although the total numbers of PLTS were reduced from 23 to 22 locations, but the total number beneficiaries should meet the initial target.

Overall, analysis and discussions suggest that the project's Results Framework was well formulated and exhibited clear linkages among outputs, outcomes and objectives. The project TOC was also found appropriate, however improving livelihoods and reducing inequalities doesn't depend only on provision of electricity and clean water but also involves several other factors.

The revised outcome and output indicators are mostly quantitative in nature and are found SMART and have been regularly measured and reported through the Annual Reports. Similarly, the output indicators also take into consideration gender aspects and calls for availability of gender-disaggregated data.

3.1.2 Assumptions and risks

The project document outlined a number of external and internal assumption and potential risks that the project may face during its implementation. Following is a summary list of these risks and mitigation measures. Risk management is also discussed in another section in the following chapters.

External risks:

a) Political instability between Indonesia and Timor-Leste will risk the implementation of SSTC component activities. Risk mitigation: close coordination with the Ministry of Foreign Affairs in both the countries since initiation of the project to ensure correct SSTC protocol.

b) Natural disasters in targeted locations. Risk mitigation: early coordination with the National Disaster Agency (BNPB) to get information on all target locations' potential risks. During construction, ensuring compliance of environmental safeguard standards for construction.

c) Built facilities are stolen/destroyed. Risk mitigation: consult and engage communities since the project's planning process, establish village rules to anticipate unwanted actions.

d) Socio-cultural risk in the targeted locations, in which women are uncommon to take part in public activities such as to be local operators. Risk mitigation: consultative meeting will be conducted with elderly, women-respected representative and head of village to explain about the role of local operators and seeking support.

e) Social and environmental risks:
• Land ownership status in which the land-owner cannot reclaim the land right after end of operation.
• The potential result of the project be vulnerable to potential impact of climate change, such as temperature, landslide.
• Safety risk due to mobilization of heavy construction equipment
• Community health risk due to unmanaged hazardous battery-waste
• Generation of hazardous waste from used batteries

Internal risks:
a) Failure in procuring qualified Engineering, Procurement and Construction (EPC) company. Risk mitigation: conduct market sounding in the early stage to get feedback on suppliers' interest and contract terms and conditions.

b) No local people are passing the certification test as solar PV operators. Risk mitigation: engage potential operator candidates during construction and plan for longer training duration before entering the certification process.

c) Cost overruns during construction. Risk mitigation: ensure the quality of engineering design, add insurance clause in the EPC contract, and allocate contingency budget to cover a reasonable level of cost adjustment.

3.1.3 Planned stakeholder participation

The project document outlined that the ACCESS project will build partnership with following stakeholders. It is important to note that further details of the stakeholder participation in the section on Actual Stakeholders Participation in the following chapters.

a) Partners in Timor-Leste
The partners in Timor-Leste included UNDP Timor-Leste (UNDP TL). UNDP TL was one of the implementing partner to deliver Output-2 under South-South Triangular Cooperation (SSTC). The government partners in Timor-Leste involve the Ministry of State Administration (MSA) and the Ministry of Public Works. The Ministries are responsible for municipalities' development and infrastructures, respectively. The MSA was one of the main project counterpart institution for TL. Similarly, KOICA Timor-Leste was also an important partner and has been providing the financial resources for development interventions in TL.

b) Government Partners in Indonesia
The Ministry of Energy and Mineral Resources (MEMR) was the main government counterpart institution for the ACCESS project in Indonesia. The MEMR's mandate in national electrification and promoting renewable energy is in line with the project's objective. MEMR also has vocational training centered on renewable energy and long experience in rural electrification needed as input resources for the ACCESS project. Other main government partners in Indonesia included the Ministry of Villages and Disadvantaged Regions that have a role in building village enterprises for economic development. The Ministry of Communication and Informatics with a role to provide telecommunication and internet access to regions in Indonesia, which was essential for the operationalization of remote monitoring system of the built power plants. KOICA Indonesia was the donor of the ACCESS project.

The project document also outlined GEF-UNDP Market Transformation (MTRE3) Project as a partner. The MTRE3 project focused on facilitating regional energy planning, market development for renewable energy and energy efficiency. It was envisaged that the MTRE3 project will play a role in assisting the ACCESS project in the engagement of government and stakeholders in West Sulawesi and NTT provinces and in supporting the development of a viable business model for off-grid power plants.

c) Civil Societies / Non-Governmental Organization

The local NGOs working in rural electrification and water access are essential stakeholder's in the project implementation in Indonesia and Timor-Leste. Hivos South East Asia in Indonesia is one of NGOs that acquires experience in rural electrification and RESCO. Taking lessons and building mutual collaboration with these NGOs will benefit project implementation at the community level. The local NGOs working in targeted locations will be involved in coordination meeting, facilitating community engagement, and implementing activities, such as providing expertise as village or district facilitators.

3.1.4 Gender responsiveness of project design

The ACCESS project strived to recognize the importance of the role of women in the energy sector, tailoring its programs and activities to meet their specific needs. This approach ensured equitable rights and equal opportunities for women, fostering meaningful participation in energy initiatives and promoting balanced representation in decision-making processes. This commitment is reflected in project document that demonstrated a strong commitment to recognize and facilitate gender needs of women through various strategies.

The Project document clearly targeted poor and vulnerable communities, particularly in rural areas. By prioritizing support for these marginalized groups, the project aligned with a Gender Equality and Social Inclusion (GESI) approach, acknowledging the unique challenges faced by these communities especially women and vulnerable groups in accessing basic provisions. This is translated into an affirmative commitment to ensuring that at least 30% of direct beneficiaries were women. In addition to this, the project implemented a strategy to ensure that women's voices significantly influence decision-making within both the project management team and its implementation.

The Theory of Change (ToC) of the project focused on improving livelihoods by promoting access to renewable energy. While the ToC broadly addressed inequality, it didn't specifically emphasize women's needs. However, the project strategies filled this gap by focusing on women, especially those women as the head households in rural and low-income areas. These strategies recognized that women often face greater challenges in accessing energy services, as they typically bear the responsibility for gathering fuel for cooking and other domestic provisions. The project's commitment to ensuring at least 30% of beneficiaries were women was a significant step toward global gender equality goals.

The project's outputs, such as building renewable energy-based power plants and providing clean water, were designed to benefit entire communities including 50% women. Recognizing that women, particularly in rural areas, faced distinct challenges in accessing and benefiting from these services, the project focused on addressing these issues. Many women had previously relied on traditional, time-consuming methods for cooking and lighting, which posed health risks and limited their opportunities for capacity building or earning an income.

By improving energy access, the project effectively alleviated these burdens, offering women more time for self-care and other productive activities.

3.1.5 Social and environmental safeguards at design

The ACCESS Project acknowledged the importance of environmental sustainability by utilizing solar PV technology to generate clean, affordable electricity for beneficiaries, reducing greenhouse gas emissions by replacing diesel generators and kerosene lamps. The project assessed social and environmental risks before, during, and after constructing solar PV power plants in Indonesia, as well as solar PV water pumps and home systems in Timor-Leste. In compliance with national standards, precautionary principles and risk mitigation measures were applied, and hazardous waste from used batteries was managed through partnerships with local waste management companies (B3 company).

In alignment with this, the Social and Environmental Safeguards (SESP) were prepared at the project design stage, following UNDP requirements. The SESP Review Form identified no potential risks to gender equity and women's empowerment (Principle 2: Gender Equality and Women's Empowerment). Environmental risks included hazardous waste from used batteries and the vulnerability of solar PV infrastructure to natural disasters and climate change impacts, such as rising temperatures and sea levels. To mitigate these, the project incorporated technical design measures and environmental compliance standards into bidding documents and contracts with the EPC company. The Project Management Unit (PMU) monitored the implementation of these risk management strategies.

In terms of GESI aspects, the SESP concluded that the project was unlikely to have a negative impact on gender equality or the situation of women and girls. It determined there was no potential for perpetuating discrimination, as women's groups did not raise concerns during stakeholder engagement. Furthermore, the project ensured that women's access to and control over natural resources were not restricted, recognizing the importance of the role of women. Overall, the identified risks posed no adverse gender-related impacts throughout the project's development.

3.2 Project Implementation

3.2.1 Adaptive management

Analysis and discussions with project team suggest that in view of the project implementation needs required adjustments have been made in some of the indicators of the results framework in consultation from KDS as MEL Advisor. As mentioned in the previous sections, the original RF provided a set of 20 indicators to measure the progress of the two outputs. Initially no indicators were provided in the RF for project outcomes. However, later on in 2022 the RF was revised and the number of output indicators and target were revised, while 4 extra outcome level indicators were added to the RF. The outcome indicators are found helpful in measuring the achievability status of the outcomes.

The project was originally designed for a 3.5-year term from May 2020 to Dec 2023. However, due COVID pandemic, recruitment key staff, EPC tendering process and construction of infrastructure consumed considerable time and the project implementation was considerably delayed. Keeping in view the delays, a 12-month extension was approved by the PB and project end date was extended to 31 Dec 2024. The extension of project timeframe was found quite instrumental in completing the implementation of all project interventions in the best

possible way. **The project has also adopted well to restrictions during COVID times and adjusted its implementation modalities and undertook most of its consultations, meetings and workshops online/remotely. Similarly, the project has also adopted to the changing situation regarding its target villages and one such example when one of the target village was about to receive the electricity from the national grid, it has selected another substitute village.**

3.2.2 Actual stakeholder participation and partnership arrangements

The project has involved a diverse range of stakeholders during the project implementation including relevant governmental institutions at the national, provincial, district/Municipal and village levels and private sector organizations, academia, CSOs and local communities etc. The following table summarizes the actual roles and participation of various stakeholders:

Table: Actual Stakeholder participation and partnerships

Stakeholders	Role and participation in project implementation
	Indonesia
Ministry of Energy and Mineral Resources (MEMR) Indonesia.	MEMR is the main government ministry in Indonesia, responsible for national electrification and promoting renewable energy in Indonesia. MEMR ID was one of main counterpart of the project and was a signatory to the project document and is represented as a member of the Project Board. MEMR has been responsible for the overall coordination, administrative and harmonization of the activities as well as providing strategic advice and approval during the implementation of the project. Its representatives actively participated in the project conceptualization, planning, infrastructure construction, capacity development, workshops and trainings, and monitoring evaluation of the project implementation. MEMR also provided technical knowledge exchange especially in the context of SSTC. The role of the Center for Human Resource Development of Electricity, New Energy, Renewable Energy, and Energy Conservation (PPSDM KEBTKE) of MEMR, was actively involved in training of local operators (LO) to equip them with knowledge and skills to operate and maintain the project solar power plants. The role of Center for Research and Development of Electricity, New, Renewable Energy, and Energy Conservation Technology (P3TKEBTKE) of MEMR, was contracted by the project for the construction of a solar power plants in 12 target villages (4 locations in West Sulawesi and 7 locations in East Nusa Tenggara). Furthermore, Directorate General of Electricity (*DJK*) of MEMR was involved in the issuance of certificates of suitability for operation (*SLO*) of the Solar Power Plants (*PLTS*).
National Laboratory for Energy Conversion Technology (B2TKE-BPPT)	National Laboratory for Energy Conversion Technology (B2TKE-BPPT) (that later on was a unit under National Research and Innovation Agency Indonesia) was actively involved and produced Detailed Feasibility Study Report and Terms of Reference (TOR) for tendering an Engineering, Procurement and Construction company (EPC) covering the 23 locations.

Ministry of Villages and Disadvantaged Regions (MoV) Indonesia.	MoV provided advice on the process of establishment and assistance of Village Owned Enterprise (BUMDES) development, as well as provided resource persons for workshops, knowledge and monitor BUMDES. However, during legality processing for BUMDES in villages of ACCESS, the MoV claimed it was not involved. However, no specific MOU or LOA was signed with the MOV by the project and neither its representatives were part of the project board.
The Ministry of Communication and Informatics (MCI) Indonesia.	MCI through the Telecommunication and Information Accessibility Agency (BAKTi) provided internet access in ACCESS locations to support power plant remote monitoring systems. The collaboration with BAKTI emerged later during the implementation due to the possibility of internet provision by the MCI. the request was made and submitted formally by MEMR to the MCI However, no specific MOU or LOA was signed with the MCI by the project.
National Development Planning Agency (Bappenas) Indonesia.	The Ministry of National Development Planning/Bappenas together with the United Nations launched the United *Nations Sustainable Development Cooperation Framework* (UNSDCF) 2021-2025. Its representatives participated in project meetings and workshops, but it has not played any formal role in project implementation.
Ministry of Law and Human Rights (MOLHR) Indonesia	MOLHR was involved in the issuance of Certificate of Registration of Legal Entities of Village-Owned Enterprises (BUMDES) according to Regulation of the Minister of Law and Human Rights Number 40 of 2021.
Ministry of Home Affairs (MoHA) Indonesia	MoHA governs the village governments and provided advice related to the village government who will ultimately take over the project established solar power plants and will be responsible for the sustainability. However, no specific MOU or LOA was signed with the MOHA by the project and neither its representatives were part of the project board.
Energy and Mineral Resources Units of Provincial governments Indonesia (ESDM)	Provided advice on the implementation of the project and be involved in the sustainability plan implementation in its respective areas. Coordinating, supporting and facilitating project implementation. The respective ESDM offices facilitated several project meetings and provided input on issues or challenges encountered during project implementation. The ESDM Office was also involved in capacity-building of local operators.
Village Empowerment Unit of District and Provincial Government Indonesia (MoV)	Provided advice on the implementation of the project and to be involved in the sustainability plan implementation in its respective areas. Focused on mentoring and provision of guidance and capacity building of respective BUMDES, which are responsible for the operation and maintenance of solar power plants in respective villages. However, no specific MOU or LOA was signed with these units by the project.
Regional/District Secretariat (ID)	Provided advice on the implementation of the project and be involved in the sustainability plan implementation in its respective areas. Reviewed and approved formal regulations (*PerDes* and *PerKaDes*) proposed and submitted by the Village Government related to BUMDESA. However, no specific MOU or LOA was signed with them by the project.
Village Governments of target villages	Involved in the project implementation and are the main beneficiary of the project interventions. Provided land for the power plants in respective village and supported the recruitment and selection of Local Operators, RESCO (*UPLD*) & *BUMDESA* Management team, issued formal regulations, conducted deliberations and are expected to allocate resources when needed using Village Fund (*Dana Desa*).
Private sector companies.	Private sector companies/vendors international and national were contracted through EPC contracts for the establishment and construction of power plants in the target villages of Indonesia. They will also be involved in the sustainability through warranty agreements.

Local communities in target villages	Were actively involved in consultations and project implementation and are the main beneficiary of the project interventions.
	Timor-Leste
Ministry of State Administration (MSA) Timor-Leste	MSA was one of main counterpart of the project in Timor-Leste and was a signatory to the project document and is represented as a member of the Project Board. MSA provided strategic advice in the planning and implementation of the project in Timor-Leste and was actively involved in coordination, consultations, and project meeting and workshops. MSA will continue to support operation and maintenance of the installed facility through its municipal government, chief of villages, SMASA –the water supply and sanitation agency, to ensure sustainability.
Ministry of Public Work (MPW) Timor-Leste	MPW is the umbrella organization for the state-owned electrical company in Timor-Leste (EDTL, E.P) and the state-owned Water Company (BTL, E.P). However, the BTL, E.P is only responsible for the Urban clean water system, hence it is not very relevant to the ACCESS project. MPW was part of the Project Board Member as an observer, however, ever since the new government structure, MPW has not participated in any Project Board Meeting.
Secretary of State for Electricity, Water, and Sanitation, Timor-Leste	This Secretary of State is a new government body that was established under the 9th government and under MPW to assist MPW in regulating and implementing electrification, water and sanitation activities in Timor-Leste for both Urban and Rural Areas. This will also play a significant role in SSTC's future in terms of Renewable Energy.
Municipal Authorities in respective municipalities in Timor-Leste	The Municipal Authorities were involved in project implementation and has the responsibility to assist local communities in operating and maintaining the installed clean water system directly and through establishment of FMGs. The Municipal Authority will be involved in the sustainability plan implementation and also has the responsibility to include financial requirements for operation and maintenance of the installed facilities in their annual budget proposals etc.
University of Timor-Lorosa'e (UNTL)	The students from this National University joined forces with BRIN in collecting data for ACCESS Timor-Leste's feasibility studies.
Local communities in target villages	Were actively involved in consultations and project implementation and are the main beneficiary of the project interventions.
Private sector companies.	Private sector companies/vendors international and national were contracted through EPC contracts for the establishment and construction of clean water supply schemes and supply of LTSHE in Timor-Leste. They will also be involved in the sustainability through warranty agreements.

3.2.3 Project Finance and Co-Finance

The total available project financial resources were USD 18.028 million provided as a grant by the Korea International Cooperation Agency (KOICA) out of which USD 15.028 million were allocated for Indonesia and USD 3.0 million for Timor-Leste. The original project document also envisaged in-kind contribution USD 9.7 million from parallel funding of the Ministry of Energy and Mineral Resources for the special fund allocation for small-scale energy rural electrification infrastructure in the project's provinces during the fiscal year 2018 and 2019; and USD 0.2 million were supposed to comes from the UNDP/GEF Market Transformation

MTRE3 Project activities in West Sulawesi and NTT provinces 2018-2021. However, the project started in 2020, therefore the special fund allocation for fiscal year 2018-2019 has been already utilized before the start of the project. Regarding the status of co-financing from MTRE3 project is also not clear as it was a separately implemented project. More details on financial matters are provided in the efficiency section.

3.2.4 Monitoring and evaluation

The project document has provided a detailed monitoring and evaluation plan and the project has regularly implemented various M&E activities during the lifespan of the project. At the highest level, the project board, consisting representatives from implementing partners including; UNDP Indonesia and Timor-Leste, MEMR Indonesia and MSA Timor-Leste and KOICA Indonesia and Timor-Leste, was the main body responsible for the overall oversight and guidance of the project. The Project Board has met on regular basis, once or twice per year, and has reviewed project progress, performance and challenges and provided feedback on corrective actions and also reviewed and approved the project annual progress reports.

The project has also reviewed its progress through regular progress review meetings. These included quality assurance meetings, which were conducted at both country offices, at least once a month, with focus on quality assurance, to track progress of project implementation and operations, and to provide timely support/advice to the PMU team for improvement. Similarly, both PMU teams met together on monthly basis to review project progress, address challenges, and ensure collaboration between the two PMUs. Furthermore, project technical meetings were held on quarterly basis, which included PMUs, KOICA and Government partners in each country, to discuss technical aspects of project implementation and to review project quarterly progress and provide feedback for project implementation. In addition to review meeting project interventions in the field were also regularly monitored through field visits by project team and M&E Officer and reported their impressions in the back to office reports.

Project progress was reported regularly on quarterly, six monthly and annual bases. The quarterly progress reports were submitted to KOICA, the six-monthly assurance reports were submitted to UNDP and the annual progress reports were submitted to the project board. KDS provided quality assurance and technical advisory services in the reporting process. These progress reports discussed in detail the implementation process and progress of project activities, challenges faced and review of project risks and financial progress. Overall the indicators and targets provided in the results framework were used to measure the project progress towards results and data related to these indicators was compiled and reported in the progress reports. The project has also conducted a mid-term review during 2023, which has reviewed the project progress in detail and provided recommendations. The main recommendations, among others, were related to expediting the project implementation related to construction of power plants and water supply schemes.

The project has employed a full time M&E Officer/Analyst, who remained the main focal person for all project related M&E activities and progress reporting. UNDP Country Office provided necessary quality assurance support. The project M&E plan also envisaged an independent Terminal Evaluation of the project towards the end of the project. The TE was commissioned by the UNDP Indonesia from Sep-Nov 2024. The TE used standard evaluation criteria of Relevance, Effectiveness, Efficiency, Impact and Sustainability to assess the overall progress and performance of the project. The TE also draws conclusions and provides

recommendations to improve the sustainability of benefits and to improve performance of future such initiatives. **Overall it can be concluded that the project strived to effectively monitor and evaluate its progress and performance and the quality of its progress reporting was satisfactory.** Please see the following table for overall rating as per TE rating scales.

1. Monitoring & Evaluation	Rating	Remarks
M&E design at entry	Satisfactory	The project document has outlined suitable M&E measures
M&E Plan Implementation	Satisfactory	Project employed suitable mechanisms to implement M&E Plan
Overall Quality of M&E	Satisfactory	Project Board, Project team, UNDP CO and partners were rigorously involved in project M&E.

3.2.5 Risk Management

As mentioned in the above sections the project document had identified a number of risks and relevant measures. Following is a summary assessment of these risks and its effects on project implementation and performance.

External risks:

a) Political instability between Indonesia and Timor-Leste: The project document envisaged that political instability between Indonesia and Timor-Leste may hamper the implementation of SSTC component activities. However, down the road, there was no significant tension between the two countries and the stipulated SSTC activities were implemented smoothly and effectively.

b) Natural disasters in targeted locations: The project document envisaged that natural disaster may disrupt the implementation of project interventions in the target villages. However, during the lifespan of the project no such significant disasters was reported and all project interventions in the target areas were implemented successfully. Having said this, natural disasters will continue to pose greater challenges after the project period for sustainability of the power plants and water supply schemes established by the project.

c) Built facilities are stolen/destroyed: The project has rigorously involved local communities in the operation and maintenance of the established facilities and the ownership level of the communities is very high. Therefore, so far these facilities are quite safe and are fully operational with some minor damages like one of the Solar Water Pump sites in TL had a damaged PV panel etc. Having said this, after the project end, this risk will remain but keeping in view the high level of ownership it is expected that these will remain safe as long as the communities are vigilant.

d) Socio-cultural risk in the targeted locations: The project has addressed some of the very basic and pressing needs of local communities both in Indonesia and Timor-Leste. The project has involved both men and women in project implementation and all segments of the society are benefiting, including 50% women. Therefore, the project interventions were found highly socially and culturally acceptable and appreciated by the local communities and has also substantially helped in improving their lives, livelihoods and socio-economic conditions. However, according to MOV it was found that some of the village communities were reluctant

to pay dues, which indicates that the community does not yet fully have a "sense of ownership" of the facilities that have been built, which poses a sustainability risk.

e) Social and environmental risks:

• Land ownership status: Most of the lands were provided for the project installation were dispute free and mostly belonged to the village government.

• The potential result of the project be vulnerable to potential impact of climate change: During the project implementation no such incident has happened. However, after the project is over this risk will still pose challenges for the sustainability of the project interventions and continuity of benefits.

• Safety risk due to mobilization of heavy construction equipment: No such incident has happened or reported during project implementation.

• Community health risk due to unmanaged hazardous battery-waste: During project implementation no such risk has been reported. However, after the project is over this risk will still pose challenges and there is a greater need to educate communities in the safe disposal of hazardous waste.

Internal risks:

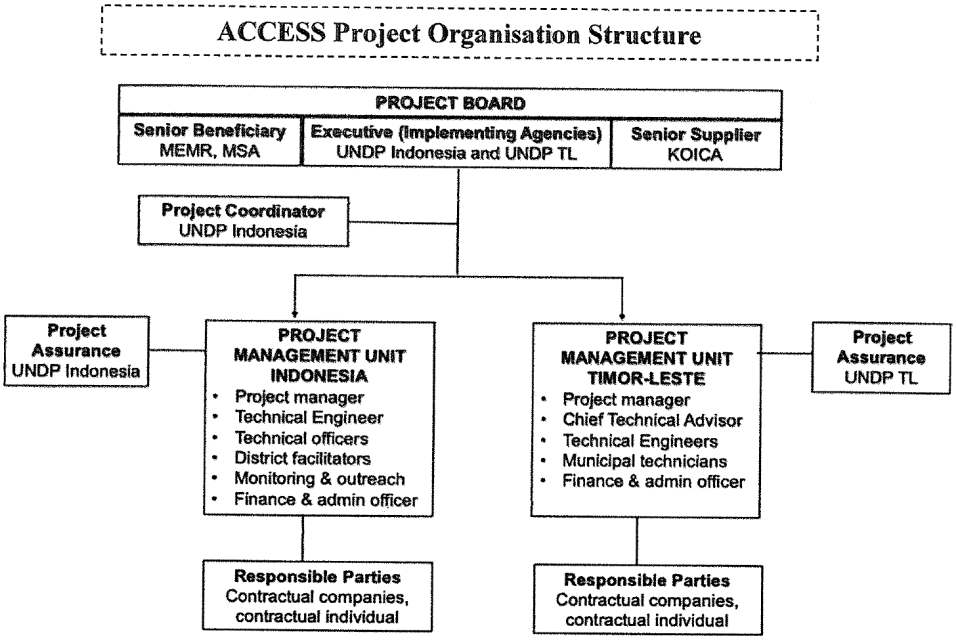
a) Failure in procuring qualified Engineering, Procurement and Construction (EPC) company: The procurement of qualified companies was found quite cumbersome and the EPC tendering process consumed considerable time. However, finally the project was able to award contract and the construction and installation work was successfully completed.

b) No local people are passing the certification test as solar PV operators: All operators have passed the tests due to rigorous training organized by the project.

c) Cost overruns during construction: There were no cost overruns and all activities were successfully completed in the stipulated project budget.

3.2.6 UNDP implementation/oversight and Implementing Partner execution, overall project implementation/execution and operational issues

The project was implemented through the UNDP's Direct Implementation Modality. UNDP Indonesia and Timor-Leste played the role of executive (implementing agencies). While MEMR Indonesia and MSA Timor-Leste were the senior beneficiaries and KOICA was the senior Supplier. Please see the project organization structure in the figure below.



At the highest level the project was governed, overseen and guided by the project board, which consisted of the high-level officials from the MEMR Indonesia, KOICA Indonesia, UNDP Indonesia, MSA Timor-Leste, KOICA Timor-Leste, and UNDP Timor-Leste. Other relevant government partners were invited as observers on need basis. The project board was responsible for approval of the project's annual work plans, review of project progress and approval of progress reports, provision of strategic guidance, and facilitating synergy with other partners. The Project Board meetings were conducted once or twice a year. The project board was found very instrumental in the smooth implementation of the project and made needed decisions, among other, like changes in the project results framework and grant of project no-cost extension etc.

UNDP COs in Indonesia and Timor-Leste were involved in all stages of the project design, implementation and quality assurance. UNDP provided technical, financial management, recruitment and procurement support during project implementation, using UNDP standard financial management, recruitment and procurement systems and procedures. UNDP HQ was involved in the international EPC tendering process and provided much needed support for the award of EPC contracts. UNDP COs hired National Project Managers, technical specialists and support staff and has established Project Management Units, both in Indonesia and Timor-Leste, which remained responsible for the day to day management and implementation of the project. Similarly, technical consultants from time to time.

The project has collaborated with a wide range of stakeholders including governmental institutions at the national, provincial, district/municipal and village level, local communities, CSOs and private companies etc., in both countries. The details of roles and responsibilities of various stakeholders are provided in the section on the Actual Stakeholder Participation in above. **Overall the collaboration with various stakeholders remained satisfactory and forthcoming. However, there were coordination challenges as, on one hand, there were multiple layers of governmental institutions involved and various levels, and on the other hand, there were no formal agreements signed with these stakeholders, except the two main governmental counterparts. Which has made the collaboration a bit informal and need based.** In addition to coordination issues the project implementation faced delays due

to COVID restrictions, recruitment of project staff, lengthy EPC tendering process and time consumed by the construction and installation work due to remoteness of project locations. Which resulted in a 12-month extension in the project period.

Having said this, discussions with suggest that **stakeholders are very appreciative of the UNDP role and technical support and similarly of the KOICA for provision of the much needed financial support during the implementation of the project.** Please see the following table for overall rating as per TE rating scales.

2. Implementing Agency (IA) Implementation & Executing Agency (EA) Execution Rating	Rating	Remarks
Quality of UNDP Implementation/Oversight	Satisfactory	UNDP COs in Indonesia and Timor-Leste were rigorously involved in all stages of the project design, implementation and monitoring and evaluation.
Quality of Implementing Partner Execution	Satisfactory	The project was directly implemented, with UNDP as the implementing agency, using UNDP standard financial management, recruitment and procurement systems and procedures.
Overall quality of Implementation/Execution	Satisfactory	Overall the project was implemented by UNDP in collaboration with MEMR and MSA and other stakeholders. The collaboration was found satisfactory and forth coming.

3.3 Project Results and Impacts

3.3.1 Progress towards expected outcomes

The following table provides a summary of achievements of project outcomes and output indicators against specified targets as outlined in the of Project Results Framework. It is important to note that the Results Framework was revised in November 2022, adding outcome level indicators and changing some output level indicators and targets. Detailed analysis of project progress towards results is provided in the following sections on Relevance, Efficiency, Effectiveness, Sustainability, Gender Equality and Impact etc.

ACCESS Results Framework Table: Summary of Targets and Achievements

Outcomes and Outputs	Verifiable Indicator (Revised 29Nov2022)	Baseline 2019	Target 2024	Achievement of target (Oct 2024)
OUTCOMES				
1. Localized implementation of SDGs No.7 Affordable & Clean Energy through provision of access to renewable-based electricity.	1.1. % Electrification in the target villages by end of the project (IND)	0	22 Villages 100%	22 Villages[2] 100%. Target Archived
	1.2. % houses with clean water access in the target villages by end of the project (TL)	0	100%	100% Target Archived

[2] Project Progress Reports and Data supplied by project team

	1.3. Annual GHG emissions reduction amount in the target villages (CO2 tons-eq/year) from electricity generation (IND)	0	553.2 ton CO2eq/year	201.8 ton CO2 eq[3]. (Data from East Nusa Tanagra and Central Kalimantan is not available) Target partially Archived
2. Strengthened South-South and Triangular Cooperation (SSTC) between Indonesia and Timor-Leste in promoting use of clean energy in rural areas.	2.1. Satisfaction level of stakeholders and willingness to promote the cooperation between Indonesia and Timor-Leste (IND) (TL)	0	4	4.8 (on 1-5 scale)[4] The survey on satisfaction level assessment was conducted by the project.
OUTPUTS				
1. Renewable-based power plants built providing sustainable access to electricity for remote villagers in Indonesia with institutional and local capacity in place	1.1.1. Number of households in targeted villages getting electricity supply generated from solar PV (disaggregated by gender, women-headed household), cumulative.	0	3,025	3,449[5] (14,514 peoples (52% Women) Target Archived
	1.1.2. Amount of generated electricity per month (kWh/month), annually.	0	123	42.041[6] (Data from East Nusa Tanagra and Central Kalimantan is not available) Overall the total installed capacity of all 22 villages is 1098.47 KW.
	1.2.1. Number of qualified local people certified as solar PV operators (disaggregated by gender), cumulative.	0	50 (30%) female)	70[7] (44% female) Target Archived
	1.3.1. Establishment of village electricity enterprise, cumulative	0	21	21[8] Target Archived

[3] KDS estimates from 11 villages in Southeast Sulawesi and West Sulawesi. Remote monitoring data from East Nusa Tanagra and Central Kalimantan is not available.
[4] Data supplied by project team
[5] Project Progress Reports and Data supplied by project team
[6] KDS estimates from 11 villages in Southeast Sulawesi and West Sulawesi. Remote monitoring data from East Nusa Tanagra and Central Kalimantan is not available.
[7] Project Progress Reports and Data supplied by project team
[8] Project Progress Reports and Data supplied by project team

	1.4.1. Number of participants from stakeholder's institutions (government, private, donors, NGOs, regional development banks) receiving dissemination products, cumulative	-	600 participants	1,607[9] participants Target Achieved
2. Under SSTC between Indonesia and Timor-Leste: Solar PV water pumps and Highly Efficient Solar Lamp System (LTSHE) are installed in remote villages in Timor-Leste providing sustainable access to clean water and highly efficient lighting	2.1.1. Number of households in targeted Sucos/villages getting clean water from solar PV water pumps (disaggregated by gender, women headed household)	0	684	773[10] households (4,321 people, 50% female) Target Achieved
	2.1.2. Number of Solar PV water pumps installed in target locations that meet quality standards.	0	10	7[11] (Covering 12 sub-villages) Target Achieved
	2.1.3. Number of households in targeted Sucos/villages getting lighting from solar lamp system (LTSHE) (disaggregated by gender, women headed household)	0	1,000	1,000[12] (5041 people, 50%) female) Target Achieved
	2.2.1. Numbers of local people trained and certified on operation & maintenance of solar water pump (disaggregated by gender), cumulative.	0	30 (30% female)	30[13] (26% female) Target Archived
	2.3.1. Establishment of sustainable operating mechanism for solar water pumps.	0	YES	Not yet. Discussions are still underway to establish GMFs

3.3.2 Relevance and Coherence

Over the years, the Government of Indonesia has made substantial efforts by putting in place relevant policies, plans and institutional frameworks for energy sector in general and RE in particular. To address the rural electrification issues, the GoI has formulated a number of sustainable energy policies, plans and legal frameworks which include, among other: the

[9] Data supplied by project team
[10] The data is collected from the Field mission which include information obtained from the Information boards on the site, recent data collected by sub-contractor, Chief of Villages, with complementary data from PMU TL. This data has been confirmed by PMU TL.
[11] Project Progress Reports and Data supplied by project team
[12] Project Progress Reports and Data supplied by project team
[13] Project Progress Reports and Data supplied by project team

National Energy Plan of Government of Indonesia, which targeted to have a 100% national electrification ratio by 2020; National Energy Policy, which sets a target, of a 23% contribution from renewable energy (RE) in the national primary energy mix by 2025; and VISI Indonesia 2045 (Indonesia Vision 2045), which focuses on measures to reduce greenhouse gas emissions through adopting new and renewable energy sources and to enhance the target for RE to 30% by 2045. Similarly, other priorities and plans of GOI also calls for electricity programs for poverty alleviation, equitable development of the under developed regions to support socio-economic development.

In 2019, about 2,200 villages were without or minimal access to electricity, most of these villages were remotely located and were out of the reach of the national grid. In this regard, to speed up rural electrification as well as increasing the share of renewable energy, the GoI has allocated Special Budget Allocations for small scale energy infrastructures from 2011 to 2019. This fund was used to build small scale renewable energy power plants at the village level and to repair the broken ones. However, not all proposals could be funded by the GoI due to limited fiscal capacity and many remote villages were left out and were on the waiting list for being electrified.

The ACCESS project was initiated to complement the GOI's efforts to achieve its 100% electrification and renewable energy mix targets, and the **overall project outcome of affordable and clean energy through the provision of access to renewable energy-based electricity through the establishment of localized solar power plants in targeted villages, and the interventions related to the establishment of village-level solar power plants were found highly consistent and aligned with the GOI's priorities, policies, and plans.** Discussions with governmental stakeholders suggest that project interventions were found very relevant in taking the government agenda of rural electrification and renewable energy a step forward to achieve its overall goals.

Similarly, the Government of Timor-Leste (GoTL) has also made substantial efforts by putting in place relevant policies, plans and institutional frameworks for energy and water supply and sanitation sectors. To address the rural electrification and water supply issues, the GoTL has formulated a number of sustainable energy and water supply and sanitation policies, plans and legal frameworks, which include, among other: the National Strategic Development Plan 2011-2030, which targets that everyone in Timor-Leste will have access to reliable electricity 24 hours a day by 2030; Water and Sanitation Master Plan, which aimed to reach 75% of the population having access to clean water and sanitation by 2030.

According to estimates, in 2018, over 25% Villages and sub-villages in Timor-Leste still didn’t had access to the electricity grid. At the time of project design 28% of population in Manatuto, 42% of Bobonaro, and 60% in Atauro (Dili) had no access to electricity for lighting. On the other hand, water supply infrastructure for domestic and sanitation remained underdeveloped and required substantial investment. For clean water access, the Ministry of Public Works had installed 320 solar PV water pumps in the past. But, they are no longer in operation due to lack of technical and maintenance capacity. Similarly, due to the limited financial resources and institutional capacities it was a uphill task to for GoTL to reach out to remote communities regarding access to electricity and clean water.

To supplement GoTL efforts in achieving its stipulated electrification and access to clean water supply targets, the ACCESS project was launched to reach out to some of the left behind

remote villages through provision of much needed financial and technical resources to establish solar powered clean water supply schemes and provide LTSHE for household's lighting in the target villages. Needless to emphasize that the capacities of GoTL are quite limited and there was a greater need to learn from the experiences of Indonesia regarding solar powered water supply and LTSHE, under South-South and Triangular Cooperation arrangements.

In this context, **the overall project outcome of strengthened SSTC between Indonesia and Timor-Leste in promoting the use of clean energy and clean water in rural areas and related interventions of establishment of solar water pumps and provision of LTSHE were found highly consistent and aligned with priorities, policies and plans of GOTL.** Discussions with governmental stakeholders suggest that project interventions were found very relevant in taking the government agenda of access to clean water and lighting for rural communities a step forward to achieve its overall goals. However, the extent of alignment with local governance structures, especially in Timor-Leste, could have been further deepened to ensure sustainability.

Needless to emphasize that **overall the project interventions were found highly consistent and aligned with the pressing needs of target communities in terms of access to electricity and clean water in Indonesia and Timor-Leste**. Discussions with stakeholders and field observations from selected site visits, suggest that most of the target villages were very remote and outside of the reach of the national grid. Before the project the local population didn't have access to sustained supply of electricity and water supply and they kept aspiring for quite long for sustained supply of electricity and clean water to fulfil their basic needs. Life has changed a lot for better for the local people after the establishment and operationalization of project supported power plants and water supply schemes in the target villages of Indonesia and Timor-Leste. The project had a specific emphasis on gender equality and reaching out to the most vulnerable and disadvantaged. Overall all segments of the villages are equally benefiting from project interventions including men, women, children and the vulnerable groups etc. Nevertheless, the sustained supply of electricity and clean water is greatly helping in improving the overall socio economic, health and hygienic conditions of the target population.

Accordingly, project objectives and interventions are also highly relevant to the aspiration and goals of international development agenda including SDGs Goal 1; No Poverty, Goal 6; Clean Water and Sanitation, Goal 7; Affordable and Clean Energy, Goal 10; Reduced Inequalities, and Goal 13; Climate Action. Similarly, it is also well aligned with the targets and aspirations of the international obligations including UNFCCC and Paris Agreement etc., to which both countries are signatories. The project agenda is in line with and contributed to the South South Triangular Cooperation agenda and most recently the Governments Timor-Leste and Indonesia have also signed a Memorandum of Understanding to strengthen their bilateral relations regarding development cooperation.

Furthermore, **project objectives and interventions are also found fully aligned and consistent with the priorities and development agenda of the United Nations in Indonesia and Timor-Leste, outlined in the United Nations Sustainable Development Cooperation Framework (UNSDCF) 2021-2025 for Indonesia and United Nations Sustainable Development Cooperation Framework for Timor-Leste (UNSDCF) 2021-2025. The project outcomes are also fully consistent with the priorities and outcomes of the UNDP Strategic**

Plan 2022-2025, UNDP Indonesia Country Program Document (CPD) 2021-2025 and UNDP Timor-Leste Country Program Document (CPD) 2021-2025, which require a strategic plan for scaling up.

Accordingly**, project agenda is also in line with KOICA's Mid-term Strategy for Energy 2021-2025, which envisions promoting sustainable development through righteous energy production and consumption with the strategic objectives of providing better access to modern energy for the energy-underprivileged and responding to climate change by increasing renewable energy output.**

In terms of coherence the **project objectives and interventions are found fully coherent with the relevant policies and ongoing programs of GoI and GoTL related to access to clean energy and clean water**, as mentioned in the above paras in detail. The project has collaborated with wide range on stakeholders and conducted regular stakeholder meetings and workshops across the target provinces, facilitating dialogues with representatives from provincial and district governments, which has helped in promoting overall coherence, capacity building and coordination. Similarly, **the project agenda was also found highly coherent with the relevant priorities of United Nations and similar UNDP projects and programmes in Indonesia and Timor-Leste.**

Since its inception the project has made considerable efforts for dissemination of learnings and good practices through series of webinars, seminars and talks these included subjects like; Women in the Renewable Energy Sector and SSTC and Renewable Energy Sustainability. These events were attended by diverse range of participants among all stakeholders. The project also participated in three international-level meetings/events including; International Youth Summit on Renewable Energy, Youth Contribution to Climate Action, and co-hosted an International Student Global Impact Conference Competition. Nevertheless, as part of outreach and communication, the project has reached out to diverse range of stakeholders through its website and social media platform, to promote common understanding and coherence.

3.3.3 Effectiveness

As mentioned earlier, according to the project document, the overall objective of the ACCESS project was to support the poor and most vulnerable communities to have equitable and sustainable access to basic services required for improving livelihoods. Similarly, the project also intended to contribute to the systemic change in reducing inequality in electricity and clean water access in Indonesia and Timor-Leste. The overall outcomes of the project included:

1. Localized implementation of SDGs No.7 Affordable & Clean Energy through the provision of access to renewable-based electricity.
2. Strengthened South-South and Triangular Cooperation (SSTC) between Indonesia and Timor-Leste in promoting the use of clean energy in rural areas.

To achieve the overall project objectives and outcomes the project has envisaged two separate outputs one each for Indonesia and Timor-Leste. A summary of achievements of project outcomes and outputs against specified indicators and targets, as outlined in the of Project Results Framework, has already been provided in tabular format in the previous

section. In this section a detailed analysis has been conducted to determine the overall achievability status and effectiveness of the project stipulated outputs.

Output 1: Renewable-based power plants built providing sustainable access to electricity for remote villagers in Indonesia with institutional and local capacity in place.

The project document envisaged that the ACCESS project in Indonesia will address Indonesia's rural electrification challenges of the limited government budget and high initial investment cost of renewable energy by building communal solar-PV power plants (PLTS) in the locations that are unfunded by the government's special fund allocation for Small Scale Energy 2017-2019. Among all the unfunded proposals, the target provinces are those with relatively low electrification ratios, and villages are very remote.

To achieve this output, the project has originally targeted 23 remote villages in 10 Districts in the Provinces of East Nusa Tenggara, West Sulawesi, South-East Sulawesi and Central Kalimantan in Indonesia to provide sustained access to electricity. A number of interrelated activities were implemented to establish, manage and maintain the small scale PV power plants at the village level. The main activities included conducting of feasibility studies and developing detailed technical designs/plans and procurement, construction and installation of small scale centralized solar PV power plants (PLTS) in the target villages. Similarly, the project also implemented specific activities to establish local (community based) institutions and build the local capacities for the smooth operation, maintenance and sustainability of these power plants and distribution and monitoring systems. Following is a summary of project main interventions:

a) Establishment of centralized solar PV power plants (PLTS) in target villages

The Government of Indonesia had previously launched a special fund allocation for Small Scale Energy during 2017-2019, for electrification of remote villages. However due to limited government budget and high initial investment costs the funding arrangement was discontinued 2019. This lack of resources on the part of government, provided UNDP and partners, the opportunity to reach out to KOICA for provision of external resources to carry on the unfinished agenda of rural electrification in some of the very remote and isolated villages, which were out of the reach of national grid and PLN electrification plans for at least 5+ years. Based on the results of the pre-feasibility study conducted in 2019 by National Laboratory for Energy Conversion Technology (B2TKE-BPPT) and further technical evaluation from KOICA expert team, 23 priority villages were identified in the provinces of East Nusa Tenggara, West Sulawesi, South-East Sulawesi, and Central Kalimantan, to be targeted by the ACCESS project for establishment of Centralized Solar PV Power Plants for sustained supply of renewable energy.

To establish, manage, and maintain small-scale PV plants at the village level, several interrelated activities have been implemented. As a first step the project completed Detailed Feasibility Study (DFS) for the construction of solar PV Power Plants in these 23 target locations. The study provided the basis for development of Engineering, Procurement and Construction (EPC) tender document. As explained in the one of the above sections the tendering process and selection of suitable contractors was found quite complex and consumed considerable time. The procurement process was started in 2020 and after several efforts and re-tendering, finally in 2022, Purchase Orders (PO) were issued for two out of four provinces i.e. Southeast Sulawesi – awarded to JGH, a Danish Company, and Central Kalimantan – awarded to CAA, a German company.

These international companies further partnered with local companies to support the overall construction and installation process. For rest of the two provinces i.e. West Sulawesi and East Nusa Tenggara the project contracted the Center for the Research and Development on Electricity, New and Renewable Energy, and Energy Conservation Technology (P3TEK KEBTKE) as the implementing partner for implementation using the Letter of Agreement modality. Which in turn engaged two local companies to complete the construction and installation work. It is important to mention that PT. Prima Layanan Nasional Enjiniring (PT PLNE) was engaged as "Owner Engineers" to provide consulting services for the design, construction and supervision of the quality of EPC contractors' work.

After award of EPC tenders the construction and installation process of solar PV power plants and distribution lines in the target villages was started in late 2022, which involved Detail Engineering Design (DED), procurement, and transportation of main and local components, civil construction, installation of electricity networks and components, and finally testing and commissioning. The construction and installation process consumed considerable time due logistical challenges keeping view the remote nature of the project sites and accessibility issues. The commissioning of the most of the power plants were completed around mid-2024. It is important to highlight that these power plants and the distribution systems are built adhering to high quality standards using state of the art equipment and accessories and latest technology to ensure durability and operational efficiency. The project has also established remote monitoring systems to monitor the performance of these power plants through provision of internet access at the village level to facilitate remote monitoring. The systems is fully operational in the target villages of Southeast Sulawesi and West Sulawesi. However, according to KDS observations, in the target villages of Central Kalimantan and East Nusa Tanagra the remote monitoring system is not working efficiently at the moment.

It is important to highlight that on the request of district government the Bintang Ara village in central Kalimantan was replaced with Danau Masura village, as the former was no longer eligible and was on the line to receive electrification from the national grid. Furthermore, the Mila Ate village in East Nusa Tenggara was dropped as it was also in line to receive electricity from the national grid. Therefore, the final count of the total number of project beneficiary villages, where power plants have been established and commissioned, remain at 22. By now all 22 villages have been issued the Operational Eligibility permit (Surat Laik Operasi) for the operation of the power plants. Overall, according to project estimates, the accumulative electricity generation capacity from all power plants in 22 villages in Indonesia is around 1,098 KWp, which serves around 3,449 Households consisting of 14,514 peoples including 6,940 males and 7,574 females. Please see the below table for summary of project villages:

Table: Summary of Project Villages[14]

No	Province	District	Village	Total No of Connections	Total Plant Capacity	No of Beneficiary Population		
					KWp	Male	Female	Total
1	West Sulawesi	Mamasa	Pangandaran	243	69.3	494	440	934

[14] Project Progress Reports and Data supplied by project team

2	West Sulawesi	Mamasa	Saluleang	110	36.3	200	176	376
3	West Sulawesi	Mamuju	Leling Utara (Dusun Buntu Lalong)	113	44	113	870	983
4	West Sulawesi	Mamuju	Kopeang	206	75.9	434	378	812
5	South-East Sulawesi	Bombana	Desa Baliara (Dusun Pulau Baliara)	104	34.88	210	205	415
6	South-East Sulawesi	Bombana	Desa Baliara (Dusun Pulau Bangko)	139	47.96	242	223	465
7	South-East Sulawesi	Bombana	Lengor (Dusun Boepapa)	150	45.78	503	427	930
8	South-East Sulawesi	Muna	Wangkolabu	182	89.38	284	295	579
9	South-East Sulawesi	Muna Barat	Tasipi	190	74.12	401	385	786
10	South-East Sulawesi	Konawe Selatan	Tambolosu	306	71.94	904	774	1678
11	South-East Sulawesi	Konawe Selatan	Malaringgi	177	75.21	210	182	392
12	East Nusa Tenggara	Sumba Barat	Gaura (Dusun 4)	127	33	307	364	671
13	East Nusa Tenggara	Sumba Barat	Watukarere (Dusun 2)	101	28.6	213	364	577
14	East Nusa Tenggara	Sumba Barat Daya	Eka Pata 2 (Dusun 1, 2)	102	26.4	108	138	246
15	East Nusa Tenggara	Sumba Barat Daya	Eka Pata 1 (Dusun 3)	86	25.3	183	256	439
16	East Nusa Tenggara	Sumba Barat Daya	Dangga Mango (Dusun 1)	93	29.4	183	232	415
17	East Nusa Tenggara	Sumba Barat Daya	Dikira (Dusun 4)	89	25.3	191	230	421
18	East Nusa Tenggara	Sumba Barat Daya	Mata Wee Lima (Dusun 2)	132	36.3	331	404	735
19	Central Kalimantan	Barito Selatan	Muara Ripung	120	58.86	260	238	498
20	Central Kalimantan	Barito Selatan	Danau Masura	132	30.52	289	273	562
21	Central Kalimantan	Lamandau	Batu Tunggal	250	85.02	422	382	804
22	Central Kalimantan	Lamandau	Tamiang	127	55	458	338	796
	Total			**3279**	**1098.47**	**6940**	**7574**	**14514**

b) Local capacity building for operation and maintenance of solar power plants

To effectively operate and maintain the established power plants, it was essential to build local (village level) capacities. In this regard the project has recruited, through a competitive process, and formally trained a cadre of local operators, two per village, who are responsible for the day to day operation, oversight and small scale maintenance of the facility. For this purpose, the project has partnered with the Center of Human Resources Development in

Electricity, New Renewable Energy, and Energy Conservation (PPSDM KEBTKE) under the Ministry of Energy and Mineral Resources (MEMR).

PPSDM in consultation with project team and relevant stakeholders designed and implemented tailor made two-weeks training and for local operators to equip them with required knowledge and technical skills for the smooth operation, oversight and maintenance of the off-grid solar PV power plants in their respective villages. The module development process considered the local operators' background and level of understanding of the importance of technical knowledge and skills to be a qualified operator. The certification of the LOs was in line with the agreed national standardized scheme. In total around 70 local operators (44% women) have been duly trained and deployed in respective villages, who are now paid and overseen/supervised by the respective BUMDESA. It is important to note that out of these trained local operators, 16 have already resigned due to various reasons including low salaries and finding other carrier or business opportunities.

c) Establishment local institution to enhance sustainability

In view of the importance of establishment and strengthening of local (village) level institutional in overall sustainability of the established power plants, initially the project has deployed 23 village facilitators (16 men and 7 women) stationed in respective villages. The facilitators were involved in conducting community mapping, communities' mobilization and facilitated community consultations to obtain formal community consent to participate in project implementation and operation and sustainability of the power plants in the longer run. Similarly, community consultations were also facilitated to agree on setting of acceptable electricity tariff, through using a tariff calculator, and to establish various regulations for operation and maintenance of the power plants and equitable use of electricity by the local population. By now all 22 target villages in Indonesia have issued specific village regulations related to operation and management of the power plants and use of electricity, including electricity tariff.

To strengthen village level institutional capacities, the project has established and revitalized 22 village-owned enterprises (BUMDESA) and respective regulations (Government Regulation (PP) Number 11 of 2021 about Village-Owned Enterprises) have been issued for the establishment of these BUMDESA in all locations. The project has helped in building the capacities of respective BUMDESA in development and implementation of village level business development plans in the target villages. Most of the BUMDESA have by now developed business development plans and have received seed funding from the project. This funding serves as a catalyst alongside village funds for business development in the target villages. The respective BUMDES have also constituted Rural Electricity Service Units (UPLD-Unit Pelayanan Listrik Desa), which is being assigned with the responsibilities of operation, management and maintenance of the established power plants and distribution systems including collection of monthly tariffs from users and just distribution of power for all people. The local operators are also employed and overseen by the respective BUMDESA/UPLDs. The overall idea was to manage the electricity generation and distribution facilities as a sustained business enterprise.

d) Results dissemination

Since its inception the project has made considerable efforts for dissemination of project overall agenda, progress and performance to involved stakeholders and general public. The project launching was conducted via virtual webinar and was attended by large number of

stakeholders. The webinar introduced the ACCESS Project, its vision and mission and core activities. Down the road the project has organized a series of seminars and talks these included subjects like; Women in the Renewable Energy Sector and SSTC and Renewable Energy Sustainability. These events were attended by diverse range of participants among all stakeholders. The project also participated in three international-level meetings/events including; International Youth Summit on Renewable Energy, Youth Contribution to Climate Action, and co-hosted an International Student Global Impact Conference Competition.

The project also organized a Business Plan Competition in Renewable Energy (BPCRE) for university students designed to provide ideas for BUMDESA in target locations. The competition was participated by 34 teams from 15 universities. Similarly, to enhance communication and awareness of PLTS sustainability, the project organized a jingle competition, which was open to the general public. The chosen jingle will be utilized by the project to train local communities, serving as a tool in raising awareness about PLTS sustainability.

In addition to these events and seminars, the project conducted regular stakeholder meetings and workshops across its target provinces, facilitating dialogues with representatives from provincial and district governments. Similarly, the project also disseminated it progress and performance through sharing project progress reports and newsletters with partner governmental institutions and donors to appraise them of the project progress. The project also produced 3,500 pieces of calendar as awareness material for national and local government offices, public areas in villages, and community members of the villages at the designated areas.

Nevertheless, as part of outreach and communication, the project has developed a website (www.accesstoenergy.org) and created social media accounts on Facebook: @ACCESS: Energy 2023, Instagram: @accessenergy2023, and LinkedIn: @The ACCESS Project UNDP, to provide regular updates and on project activities and related information to stakeholders and general public.

Overall analysis and discussions with stakeholders and field observations from selected site visits during the terminal evaluation exercise, suggest that **overall the project interventions were found quite instrumental and effective in providing sustainable access to clean/renewable electricity for local population in the target villages.** Most of these villages were very remote and outside of the reach of the national grid. Before the project either the local population didn't had electricity at all or were dependent on diesel/petrol generators to fulfil their demands for electricity in a limited way. Most of these target villages kept aspiring for quite long for a sustained source of electricity to fulfil their domestic and other demands for power for 24 hours.

Discussions with local communities suggest that availability of sustained supply of clean electricity through establishment of solar power plants is not less than a blessing for them. In the past local people, especially the poor and vulnerable lived without electricity, while those who can afford used fuel based generators, which was expensive, of limited duration (only night time) and was also a source of air and noise pollution. The electricity from power plant is now available to all and is much cheaper, cleaner and environmental friendly. **Life has changed a lot for better for the local people after the establishment and operationalization of these power plants. Now they can utilize and enjoy uninterrupted electricity for home**

and street lighting and among other using household electrical instruments/gadgets and appliances etc.

All segments of the village are equally benefiting, fishermen can charge their torches for night fishing and have sufficient supply of ice at their villages to keep their catches fresh, students can study at schools and home more conveniently, and women have been able to save more time and energy through using electric appliances etc. It has been made possible to run drinking water filtration plants, with low costs and longer hours for sustained supply of clean water. Similarly, the use of electric water pumps for household water supply systems has cut down significantly the water fetching time. Public facilities like schools, health facilities, offices and mosques etc. are also now connected to the PLTS, which greatly facilitates the students, patients, officials and worshippers etc. Nevertheless, the sustained supply of electricity is greatly helping in the growth and profitability of small businesses like ice making, backing, tailoring and small shops etc.

The stakeholders especially the beneficiaries also expressed their satisfaction on the high quality of power plant infrastructure and equipment installed, which will ensure safety, durability and the continuity of benefits in the longer run. Some of the PLTS were also visited by relevant officials of GoI DAK National Program and are were satisfied with design and construction of PLTS and have found them quite safe and reliable. Overall LOs were also trained on various safety and security measures and various actions to take in times of any emergency. **However, the main concern in this regard is the safety and security and repair/replacement of various equipment in the incident of a major breakdown as result of manmade or natural calamities like storms, floods, high winds, extreme heat and earthquakes etc. Especially the batteries, inverters and wiring systems are quite sensitive to extreme heat and humidity and need to kept cool, through air conditioning.**

The observations from KDS team's field missions to project sites, highlights that installation of PV and ESS, construction of control room, earthing, fencing, installation of smart meters are largely in line with technical requirements and DED. However, there is need for power balancing between PV Inverter system and battery system. The contractor has manually configured to have imbalance between device due to shutdown of system in case of balanced operation. This can reduce the lifetime of the battery due to resonance problem by PV inverter. The Battery Protection Unit (BPU) is also missing on the visited PLTS, therefore the battery can explode or get damaged due to overcharge or transient operation. Furthermore, in the rainy seasons the ESS PCS operation will go on and off repeatedly which will result in damage of PCS and batteries.

The KDS team also observed the environmental conditions within the control rooms of the visited PLTS, and found that the temperature and humidity control was fan based, at one site the current temperature was measured as high as 34°C. While batteries were supposed to be kept with 23°C ±5°C (depending on manufacture. Having said this, in some villages air conditioners were also installed at the control rooms, like in Wangkalabu village, the air conditioner was operational and room temperature was kept at the desired levels. The observation of KDS team also suggest that there were incidents of specific households purchasing 3 to 4 vouchers per month, this was due to sudden purchase of high electricity consuming appliances (e.g., freezers), which in turn impacts the equal access to energy needs for all people, especially the vulnerable.

Though there is a 2-year warranty period for repair and replacement of the damaged equipment from the parent company. However, beyond the warranty period it is not very clear that how the village will prevent or handle a major breakdown, as some of the equipment are quite expensive to replace. Having said this, it is expected that by that time the village would have accumulated sufficient funds from the collection of electricity tariffs and in case of any deficiency they may use the resources from village government funds for such repairs etc.

Discussions with stakeholders and beneficiaries also suggest the one of the main strength of the ACCESS project was building the local capacities for the operation and maintenance of the power plants. For this purpose, the project has selected and trained a cadre of local operators, two from each village (one male and one female). Discussions with PPSDM officials and local operators suggest that the LOs have been duly trained in theory and practice of operation and maintenance of the power plants through a two weeks' extensive course in Jakarta and have also received on the job training. **Currently the local operators are performing their duties to the best of their abilities and have not faced any major break downs. There were some small issues from time to time, however they were able to sort them accordingly.**

Similarly, the local operators are also well aware of the protocols and have close contacts with relevant governmental institutions and vendors, to be contacted in case of any major break downs. Having said this, they also highlighted that working as LOs is a full time job, with greater responsibility, however their salaries are sometime very low for example; Rp. 500,000/month in Danau Masura and Rp. 700,000/month in Boepapa and Nelayan villages. Due to these low salaries the LOs have to work on something else to sustain their livelihoods. Which poses the risk of quitting this job for better opportunities in or outside the village, therefore **the turnover the LOs poses a significant operational challenge, especially after the project is over. This risk is evident from the fact that out of 70 operators trained around 16 had already resigned and were replaced by new ones.**

Discussions with some of the BUMDESA officials in target villages also suggest that project was very instrumental in establishing and building the capacities of respective BUMDESA to promote enterprise development at the village level and specially to run and manage the PLTS as a sustainable business enterprise to ensure continuity of benefits for the local population. Project has also helped in the development of village level business development plans in the target villages and has provided seed funding to respective BUMDESA and selected deserving individuals for implementation of these business plans. Discussions with governmental stakeholders also suggest that all BUMDES are new and will need further capacity building and empowerment to evolve as a sustainable business development institution at the village level.

A number of BUMDESA have already started their businesses. For example: in Wangkalabu it runs a drinking water filtration plant; in Lengora Pantai and Tasipi it runs an ice production business; in Muara Ripung it runs a rice mill, in Dikira it runs a ginseng herbal drink shop using and in Watukarere it runs a printing and photocopy business. It is important to highlight all these businesses are run using electricity from PLTS. In addition, the project also provided small grants/seed funds to deserving individuals, especially women, to establish and run small businesses, including home-made cakes, cookies, food and drinks, fish sales, small kiosks, and weaving. They all use electric appliances to speed up production, reduce costs, and increase efficiency. **In nutshell the project support was found quite instrumental in strengthening**

institutional capacities at the village level and in improving livelihoods of local population through business development interventions using the newfound sustained supply of electricity.

Some reflections from beneficiaries

- "We never imagined that our village would be this bright. Imagine that you are 68 years old, and have never enjoyed electricity, and finally now you can get electricity. So now it is bright. That's why we are very grateful."
- "For our drinking water business we were previously spending Rp. 1,500,000/month generator fuel. After the electricity supply from PLTS, our expenses have significantly reduced to Rp. 250,000 per month. Hence, we have also reduced the prices of drinking water from Rp. 8,000/gallon to Rp. 7,000/gallon"
- "Yes, the local cookie makers and sellers could use an electronic mixer to mix the dough. Women can sell cold drinks and pop ice drinks. Household can work at night and dawn to prepare food and breakfast".
- "Local entrepreneurs are finding new ways to generate an income from their new utility – with cold drinks being sold in local shops and fishes that might otherwise spoil, being preserved with refrigeration or ice blocks which are sold in the village now."
- "Now we can use computers, projectors, printers and photocopiers at our schools that previously could not be used as a learning medium at school because there was no electricity".
- "Availability of electricity at the health centres has made life easy for health workers and patients and now we can also work at night and now we can also use refrigerators to store medicines which require to be kept at low temperatures"

Snapshots from project sites, taken during the field

Output 2: Under SSTC between Indonesia and Timor-Leste, solar PV water pumps and Highly Efficient Solar Lamp System (LTSHE) are installed in remote villages in Timor-Leste providing sustainable access to clean water and lighting.

The project document envisaged that the ACCESS project in Timor-Leste, with strong partnership and close consultation with the Ministry of State Administration and Ministry of Public Works of Timor-Leste, will address the development challenges in rural electrification and clean water access by facilitating the exchange of knowledge and best practices with Indonesia under the South South Triangular Cooperation (SSTC) framework. The overall project strategy was to learn and benefit from experiences and good practices of various institutions in Indonesia in development and implementation of Solar Water Pumping Systems (WPS) and Highly-Efficient Solar PV Lamp Systems (LTSHE- Lampu Tenaga Surya Hemat Energi) in remote villages.

Based on the results of the pre-feasibility study, 25 target villages (Sucos) in three municipalities of Bobonaro, Dili (Atauro) and Manatuto of Timor-Leste were identified and selected for project interventions of construction of Solar Water Pumping Systems and Highly-Efficient Solar PV Lamp Systems (LTSHE). Similarly, the project also envisaged to build local capacities for operation and maintenance of the built water supply systems and establish viable operations and maintenance mechanisms to ensure services sustainability. Overall the project targeted that 684 households will benefit from the clean water from the solar PV water pumps and 1000 households will benefit from the provision of LTSHE in the target remote villages. A number of interrelated activities were implemented to achieve the stipulated output through knowledge exchanges and technical cooperation and support between Indonesia and Timor-Leste. Following is a summary of project main interventions:

a) Construction of solar water pumping systems

In order to provide access to clean water in selected remote villages, the project conducted a detailed feasibility study to assess the solar water pump construction's technical, social, economic, and environmental feasibility. The study was jointly conducted by the National Research and Innovation Agency of Indonesia (BRIN), and the Universidade Nacional Timor Lorosa'e (UNTL), in the selected villages/sub villages in Manatuto, Bobonaro, and Atauro municipalities of Timor-Leste. After the feasibility study, the EPC tendering process was initiated however, the selection of suitable company consumed considerable time and finally in 2023, the procurement and installation contract was awarded to EnviroEarth -an international company based in France- which further engaged/partnered with a local company –Elzalira- for field level implementation of solar water pumps in selected sites.

The contractors conducted the site assessment, detailed engineering design, construction and installation of SWP systems. The construction and installation work included installation of PV systems and pumps, construction of reservoirs, piping systems and water taps etc., in collaboration with local authorities and workers. The construction, installation, testing, commissioning, and user acceptance tests of solar water pumps has been completed at all 7 sites covering 12 sub villages across Manatuto, Bobonaro, and Atauro municipalities, which is providing access to clean water for around 773 households (consisting of 2173 males and 2148 females). Please see the following table for details of locations and beneficiaries.

Table Details of locations and beneficiaries of Solar Water Pumps in Timor-Leste[15]						
Municipality	Village	Sub-Village (Aldeia)	Actual Beneficiaries 2024			
			HH	Population	Male	Female
Atauro	Beloi	Arlo	77	350	168	182
	Biqueli	Iliana	30	194	100	94
		Douro	56	259	133	126
		Fatu'u	64	326	167	159
Manatuto	Hohora'i	Hatuermera	84	537	270	267
		Merihun/Huhun	36	234	118	116
		Hatuanahun/ Hatanaun Miri	50	325	164	161
		Anicolaun	5	33	17	16
	Lacumesac	Tahagamu	80	501	255	246
Bobonaro	Leohito	Faloai	94	390	203	187
	Lour	Helique	43	209	103	106
	Maliubu	Maliubu	154	963	475	488
		Total	**773**	**4321**	**2173**	**2148**

b) Installation of highly-efficient solar PV lamp systems (LTSHE)

In order to improve access to lighting in selected remote villages, the project has procured and installed LTSHE in selected villages in Ataúro, Bobonaro, and Manatuto municipalities of Timor-Leste. The LTSHE installation contract was awarded to a local company in collaboration with a solar lamp manufacturer from Indonesia. In total 1000 LTSHE were installed in 27 sub villages Ataúro, Bobonaro, and Manatuto municipalities, benefiting 1000 households (consisting of 2530 males and 2511 females).

c) Local capacity building for operation and maintenance of the of the energy infrastructures

To effectively operate and maintain the established solar water pumping and distribution systems and LTSHE, the project has recruited and formally trained a cadre of local operators, who are responsible for the day to day operation, oversight and small scale maintenance of the facilities. For this purpose, under the SSTC, the project has partnered with the Center of Human Resources Development in Electricity, New Renewable Energy, and Energy Conservation (PPSDM KEBTKE) of the Ministry of Energy and Mineral Resources Indonesia (MEMR) to duly train the local operators.

PPSDM designed and implemented tailor made two-weeks training and certification programs in Jakarta for selected local operators to equip them with required knowledge and technical skills for the operation, oversight and maintenance of water pumping and distribution systems and LTSHE in their respective villages. In total around 30 local operators (including 8 women) have been duly trained by PPSDM and later on these operators have also received on the job trainings by the EPC contractors for SWP and LTSHE.

d) Establishment of viable operations and maintenance mechanisms to ensure sustainability.

[15] The data is collected from the Field mission which include information obtained from the Information boards on the site, recent data collected by sub-contractor, Chief of Villages, with complementary data from PMU TL. This data has been confirmed by PMU TL.

To ensure the smooth operations and sustainability of solar water pumps and LTSHE, there was a greater need to establish institutional mechanism with a viable business model. In this regard the project has been regularly communicating with the relevant authorities including Ministry of State and Administration (MSA) and Municipal Water, Sanitation and Environment Service (SMASA) in Timor-Leste. The overall idea was to establish and build capacities of local community groups i.e. Grupo Maneja Facilidade – Facility Management Group (GMF) to operate and manage the established public water supply facilities. However, so far the institutional mechanisms are not finalized and efforts are still underway to build capacities of SAMSA and to establish GMFs and build their capacities to take care of the solar water pumping and distribution systems after the completion of the ACCESS project.

Overall analysis and discussions with stakeholders and field observations from selected project site visits during the terminal evaluation exercise in Timor-Leste, suggest that **overall the project interventions were found quite instrumental and effective in providing easy access to clean water and lighting, using solar energy, for local population in the target villages.** These villages were very remote and didn't had any prior clean water infrastructures or sustainable lighting facilities. Before the project most of the target population was fetching water manually from distant water sources (on average 2-3 KM away) and were burning kerosene lamps for lighting in their houses for lighting. Discussions with local communities suggest that availability of clean water through construction of solar water pumping and distribution systems, by the project, has fulfilled one of their most basic needs. Previously they use to walk for hours to fetch water every day, now they can have it on their doorsteps. Similarly, previously they were living in darkness, now with the installation of the LTSHE they can enjoy some basic electricity and sustained lighting in their houses.

Overall, life has changed a lot for better for the local people after easy access to clean water and basic electricity for lighting. All segments of the village have been equally benefiting from the water supply and lighting facilities including women, vulnerable and marginalized people. Most vulnerable like the poor, widows and disable people were given priority in the distributions of LTSHE, as some of them have experienced electric lights for the first time. With the clean water taps installed nearby the houses, women and children spend less time gathering water and have more time for household chores and other activities. Children can have more time for schools and can also study in the night. Cleaning, washing and bathing has become easy with access to abundant supply of water, therefore the hygienic conditions of communities have also greatly improved. Women are spending less time on water fetching and can use the extra times to help the men in the agriculture and farming activities.

Project stakeholders especially the beneficiaries also expressed their full satisfaction on the effectiveness of project interventions, however they also raised some concerns regarding the operation and maintenance of the solar water pumping systems and LTSHE. The project has trained and equipped local operators to operate and look after the water systems. However, discussions with LOs suggest that they are doing this on voluntary basis and receive no honorarium for this job. Therefore, they have to work on something else to sustain their livelihoods. This poses the risk of overburdening and quitting this job for better opportunities in or outside the village, therefore the turnover of the LOs poses a significant operational challenge, especially after the project is over.

There is also a concern about the repair/replacement of various equipment in the incident of a major breakdown as result of manmade or natural calamities. For example, the

communities reported that a few weeks ago, the pipeline from Iliana to Fatuu villages was burned down because someone burnt some weeds and it became a wildfire, which has disrupted the water supply system. Some of the SWPs also have issues and are out of order due to broken or malfunctioning of some components. Similarly, a number of household have also broken or damaged parts of LTSHE and are looking for replacements.

The observation of the KDS team from the field visits suggest that the solar pump system in the Hatuermera village was found to be operational with no significant mechanical failures or electrical issues. The PV panels are generating adequate power, and the DC motor is functioning effectively to achieve the desired water flow rates. While, the solar pump system in Faloai village was found to be in suboptimal condition, with several critical issues impacting its functionality. The system was non-operational due to a suspected malfunction of the submerged pressure sensor, preventing water from being pumped to the reservoir tank and the damaged pipelines.

In addition, there are challenges like significant water wastages at both the intake and reservoir tanks and the use of large sized protective mesh, which allows for the ingress of debris such as leaves, posing a risk of clogging the piping system and potentially damaging the DC motor. Similarly, overgrown vegetation control around the solar panel installations can cast shadows on the panels, reducing their efficiency. At one site a solar panel is damaged presenting a safety hazard and compromise the system's efficiency. Furthermore, it was observed that currently of the solar pump system in Faloai village was being utilized for road construction purposes rather than its intended potable water supply function highlights the need for a comprehensive management framework.

Though there is a warranty period for repair and replacement of the damaged equipment for SWPs from the vendor, however claiming warranty is also found cumbersome due to remoteness of the project sites and lack of contact/communications system to invite timely help from vendors. The warranty for LTSHE has already expired, therefore it is not clear who and how these will be repaired or replaced.

To address the sustainability issues, the project has been trying to establish institutional mechanism with a viable business model through establishing and building capacities of local governmental institutions like SAMSA and community groups i.e. GMF (Facility Management Group) to operate and manage the established water supply facilities. SMASA is the government body under and the municipality and one of its responsibilities is to operate and maintain the clean water system in rural area. Additionally, SMASA also responsible to establish GMF for each clean water system in rural area. SMASA and GMF will be responsible for the sustainability of clean water system with the support of local and central government as well as the community. However, so far the institutional mechanisms for operation and maintenance of project constructed water supply schemes are not finalized and efforts are still underway to build institutional capacities of SAMSA and GMFs. As the project is quite near to its completion time, therefore the lack of effective institutional mechanisms for the operation and management of the water supply is posing greater risks for longer term sustainability and continuity of benefits.

Regarding South South Triangular Cooperation (SSTC), the project has been instrumental in providing the opportunities to stakeholders from Timor-Leste to learn and benefit from the knowledge, experiences and good practices of various institutions in Indonesia in

development and implementation of Solar Water Pumping Systems (WPS) and LTSHE in remote villages. As mentioned, the feasibility study to assess the solar water pump construction's technical, social, economic, and environmental feasibilities was jointly conducted by the National Research and Innovation Agency of Indonesia (BRIN), and the Universidade Nacional Timor Lorosa'e (UNTL).

Furthermore, the project has also partnered with the Center of Human Resources Development in Electricity, New Renewable Energy, and Energy Conservation (PPSDM KEBTKE) of the Ministry of Energy and Mineral Resources Indonesia (MEMR) to duly train and equip the local operators from Timor-Leste for the operation and maintenance of water pumping systems and LTSHE. Similarly, the Ministry of State and Administration (MSA) of Timor-Leste –the main project implementing partner in Timor-Leste- also actively participated in the project board and other meetings. Overall, these SSTC interventions greatly facilitated the exchange knowledge and experiences between the two countries. Having said this, all this was done under the umbrella of the ACCESS project, as there is no such official/formal mechanism or channel exists to promote regular exchange of knowledge and expertise between Indonesia and Timor-Leste in times to come.

Overall, while the project succeeded in achieving a majority of its output-level targets, including the electrification of rural areas and the installation of solar water pumps, some outcomes, such as greenhouse gas (GHG) emissions reduction, fell short. This discrepancy highlights a need for more realistic goal-setting and baseline assessments in the design phase.

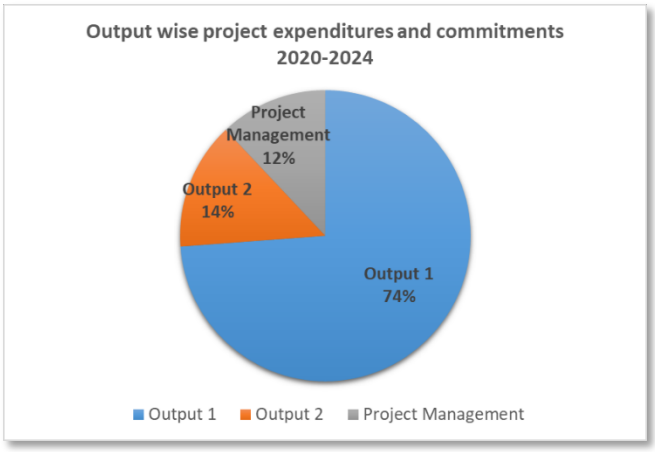
Some reflections from beneficiaries

- "We haven't seen the light or had access to electricity throughout our entire life, since the Portuguese Era until 2021"
- "Previously we had to fetch water from water source (2-3 KM up and down-hill), which usually could take up to 2 hours per day. Sometimes, the women and children had to fetch water more than once per day, which was very time consuming and exhaustive, now we can have it at our door-steps, saving a lot of time and energy especially for women".
- "On the day when we have to do laundry, we spent all day by the water source, now we can do it at our houses with great ease and in less time"
- "Now the community can have party or event at night time, where we gather all our LTSHE units to light the parties or any events in the community.
- "Some fishermen in Douro can now use the charged light bulbs for fishing and some women in Arlo can also waive palm leaves at nights to make baskets, luhu, lafatik, biti, etc".
- "It is very satisfying and happy because it alleviated the burden and now water is only a few step away from our houses"

Snapshots from project sites, taken during the field mission

3.3.4 Efficiency

The total original project budget was USD 18.028 Million, provided by the Korea International Cooperation Agency (KOICA), as a grant. Out of which 15.028 Million were allocated for Indonesia and 3.0 Million for Timor-Leste. According to estimates provided by the project, as of October 2024, the project has utilized USD 17.53 Million, which includs actual expenditures of $ 16.18 Million and commitments of $ 1.35 Million. **Keeping in view the expenditures and commitments so far, the total delivery rate of for the project is 96%. The remaining resources will be consumed towards the project end.**



Analysis of project expenditures and commitments, suggests that a major chunk of the total project resources has been utilized under output-1 (74%), followed by outout-2 (14%) and project management (12%) (output-1 is for Indonesia and output-2 is for Timor-Leste). Accumulatively, out of total resources a major chunk (78%) has been utilized for the construction and establishment of solar power plants in Indonesia and solar water pumps in Timor Leste. The rest of resources are utilized for the local capacity building and project management etc.

Furthermore, analysis of year-wise project expenditures suggests that in the initial years project utilization was a bit slower, due to slower start of the project and time consumed by the Engineering and Procumbent Contracts (EPC) tendering process. However, in later years i.e. 2023 and 2024 the utilizations rates soared considerably due to the construction of solar power plants and solar water pumps infrastructure. The following table provides summary of output-wise budgets and expenditures of project funds.

Budget and Expenditures 2020-2024 (as of Oct 2024)[16]				
Components	**Total Budget**	**Expenditure**	**Commitments**	**Total Expenditure & Commitments**
Activity 1.1	9,777,909	10,484,691	1,217,500	11,702,190
Activity 1.2	474,032	424,117	0	424,117
Activity 1.3	693,073	710,021	72,332	782,353
Activity 1.4	105,000	37,025	0	37,025
Total Output-1	**11,050,014**	**11,655,853**	**1,289,831**	**12,945,685**
Activity 2.1	3,685,517	1,915,955	29,061	1,945,016
Activity 2.2	275,840	536,708	0	536,708
Activity 2.3	0	0	0	0
Total Output-2	**3,961,357**	**2,452,664**	**29,061**	**2,481,725**
Project Management	2,760,613	2,077,682	29,061	210,6743
Total Project	**17,771,984**	**16,186,199**	**1347954**	**17,534,152**

Analysis suggest that **project available resources were managed and spent in an efficient and accountable manner, using UNDP standard financial management and procurement systems and procedures.** It is important to note that project interventions related to establishment of solar power plants and solar water pumps involved great deal of construction work and procurement of equipment etc. Due to the bigger size of the EPCs contracts UNDP's HQ procurement team was duly involved and supported the project in the international tendering process.

Regarding project timelines, the project was originally designed for a 3.5-year term from May 2020 to Dec 2023. However, project inception was slightly delayed due movement restrictions resulting from COVID pandemic, recruitment of key project staff and setting of PMUs etc., and the project was officially launched on 10 September 2020. Down the road the EPC tendering process for construction and establishment of power plants and water supply schemes was found quite complex and consumed considerable time. The procurement process was started in Oct 2020 and after several efforts and re-tendering, finally in Oct 2022, Purchase Orders (PO) were issued for two out of four provinces i.e. Southeast Sulawesi – awarded to JGH, a Danish Company, and Central Kalimantan – awarded to CAA, a German company.

For rest of the two provinces i.e. West Sulawesi and East Nusa Tenggara, the project contracted the Center for the Research and Development on Electricity, New and Renewable Energy, and Energy Conservation Technology (P3TEK KEBTKE) as the implementing partner for implementation using the Letter of Agreement modality. Which in turn engaged two local

[16] Data provided by the Project Teams

companies to complete the construction and installation work. After award of EPC tenders the construction and installation process of solar PV power plants and distribution lines in the target villages was started in late 2022, which also consumed considerable time due logistical challenges keeping view the remote nature of the project sites and accessibility issues. The commissioning of the most of the power plants were completed around mid-2024. Keeping in view the implementation delays a 12-month extension was approved by the PB and project end date was extended to 31 Dec 2024.

Overall, delays in implementation due to the COVID-19 pandemic, time consuming international procurement processes, and the remoteness of project sites indicate room for improvement in project management practices. While the no-cost extension addressed some challenges, a more adaptive management approach could have mitigated delays. Furthermore, overall the cost of project interventions especially the establishments of power plants and water supply schemes was slightly on the higher side due to the remoteness of project sites, engagement of international companies, use of very high standard imported equipment and associated capacity building costs. Please see the following table for overall rating as per TE rating scales.

To manage and implement project interventions, respective UNDP COs have established Project Management Units (PMUs), both in Indonesia and Timor-Leste, led by National Project Managers and consisting of technical specialists and support staff. In Indonesia, the main team members included Procurement Specialist, Gender Specialist, Technical Officer (Rural Electrification), Technical Officer (Local Institutional Development), Technical Engineer (Solar PV Technology), Project Technical Officer (Local Capacity Development), Monitoring and Evaluation Analyst and several administrative support staff and interns. In Timor-Leste the main team member included Engineer in Solar-PV Technology, Technicians at the Municipality level and several administrative support staff etc. The project also engaged consultants from time to time. **There were some turn overs of project staff including PM Timor-Leste and Procurement Specialist and M&E Specialists in Indonesia. However, these vacancies were refilled in due course. Overall discussions with project team suggest that the project has managed its human resources well and in an efficient manner to support project implementation.**

and has established, which remained responsible for the day to day management and implementation of the project. Similarly, technical consultants from time to time.

Table: Assessment Criteria Rating

3. Assessment of Outcomes	Rating	Remarks
Relevance	Satisfactory	Project was well aligned with governmental priorities, policies and plans in Indonesia and Timor-Leste and global obligations and needs of the target communities in terms of access to sustained supply of electricity and clean water. Similarly, it was also fully aligned with KOICA and UNDP priorities and plans in Indonesia and Timor-Leste.
Effectiveness	Satisfactory	Project was successful in implementing all of its outlined interventions and was found instrumental in providing access to sustained supply of electricity and clean water to target remote communities through using solar power and building capacities for operation and maintenance of the established facilities.

Efficiency	Satisfactory	Project has successfully utilized most of its allocated financial resources. Project has adjusted well to coup with delays caused by Covid and implementation delays. However, it was granted a 12-month extension to complete all its activities.
Overall Project Outcome Rating	Satisfactory	In nutshell project was found instrumental in providing access to sustained supply of electricity and clean water to target remote communities through using solar power and building capacities for operation and maintenance of the established facilities. However, there are some sustainability issues to fully achieve longer term outcomes.

3.3.5 Sustainability

Overall, the 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. The project document outlined that the built infrastructures resulted from the ACCESS project will be part of the rural electrification programme of the MEMR (in Indonesia) and of the MSA and Ministry of Public Works (in Timor-Leste). The technical standards, safeguard compliance, sustainability measures, and monitoring system will be introduced to the Ministries as best way to address sustainability challenge and improving the minimum service performance standard in the provision of electricity and clean water access for the communities.

Overall the longer term sustainability of solar power plants and solar water supply schemes presents a mix picture. A number of the villages have reasonable capacities and mechanisms established and are expected to sustain the facilities, especially in Indonesia, while others, mostly in Timor-Leste will face challenges to sustain without further capacity building and external financial support. Following is a brief description of the main sustainability criteria.

a) Financial sustainability

The project has provided much needed financial resources and has supported the establishment of solar power plants in Indonesia and solar water supply schemes in Timor-Leste, to provide sustained access to electricity and water supply in the remote target villages. It is expected that the benefits of these interventions will continue to flow in times to come for the benefits of local communities. However, **the main operational sustainability concern is the safety and security of these establishments and most importantly the availability of desired financial resources at the village level for the repair/replacement of various equipment in the incident of a major breakdown as result of manmade or natural calamities like storms, floods, high winds, extreme heat and earthquakes etc.**

Having said this, in case of Indonesia, presently all installed equipment are under a 2-year warranty, therefore it is expected that in the near future the challenges of major repairs and replacements are somehow ensured/covered and will be conducted by the vendors in line with their warranty terms and conditions. Furthermore, the project has established and built the capacities of BUMDESA in the target villages to run and manage the power plants as a sustainable business enterprise to ensure sustainability. For this purpose, at the village level,

the communities have also agreed and has set up specific electricity tariffs for the use of electricity, which is collected on monthly basis and is kept in a separate account.

Therefore, it is expected that by that time the warranty terms expire the target villages, in Indonesia, would have accumulated sufficient funds from the electricity tariffs and other business interventions of the BUMDES, to deal with operational and breakdown expenses. Furthermore, discussion with stakeholders also suggest that in case of any deficiency they may also use the resources from village government funds for such repairs etc. Having said this, it is also important to mention that project has used very high quality and imported equipment, which are quite costly, therefore it will require good deal of finances to replace them in the incident of any breakdown. Since the subsidized electricity tariffs are quite low, so it has to be carefully monitored in the coming times if the villages will be able to accumulate adequate resources from the tariff collections to deal with such expensive repairs and replacements. In case of dire needs the MEMR should come forward to provide needed financial support to these villages.

In case of Timor-Leste, so far there is no community based institutional mechanisms for operation and maintenance of the established water supply schemes put in place and neither has any tariff collection system developed which will hamper the overall operational sustainability. Although discussions are still underway to develop these mechanisms but are not finalized as yet. Which poses greater challenges for the sustainable operation and maintenance of these water supply schemes. Although, presently there is a 2-year warranty period from the vendor for the repair and replacement of the installed equipment, however, time is running fast and it is not clear that who will be bear the cost of repair and replacements in times to come. Furthermore, the warranty period of the LTSHE is already expired and there are no mechanisms or funds available to replace the broken components, which jeopardizes the longer term sustainability. Indeed, there is a greater need generate local funds or to allocate adequate funds by the respective governmental institutions to sustain these interventions in the longer run.

Nevertheless, **the project has targeted a limited number of villages in Indonesia and Timor-Leste and there are many more remote villages still left behind. Keeping in view the limited governmental resources, the much needed external technical and financial support should continue in the short run to consolidate the sustainability of existing facilities and replicate the good practices and learnings from the project to benefit other such marginalized communities.**

b) Institutional frameworks and governance sustainability

Over the years Government of Indonesia 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. Furthermore, VISI Indonesia 2045 (Indonesia Vision 2045) sets out the GOI vision, which focuses on measures to combat climate change and reduce greenhouse gas emissions. It also calls for enhancing energy security by adopting new and renewable energy. It has further enhanced the target for RE to 30 percent by 2045. Similarly, other priorities and plans of GOI calls for electricity programs for poverty alleviation, equitable development of the under

developed regions, revitalization of Village-Owned Enterprises (*BUMDESA*) to increase investment in rural areas to support socio-economic development at the village levels etc.

Similarly, the Government of Timor-Leste's targets to ensure universal access to electricity by 2030. The Timor-Leste's National Climate Change Policy calls for promotion of clean and affordable energy and the Renewable Energy Law establishes the legal framework for the promotion of renewable energy sources. The TL Strategic Development Plan (SDP) 2011-2030 priorities the water and sanitation and access to reliable electricity by 2030. TL Water and Sanitation Master Plan (2016-2030) calls for establishing and improving water supply and sanitation infrastructure and aims that 75% of the population should have access to clean water and sanitation by 2030. **Overall availability of relevant policies and legal frameworks in both the countries provides sound basis for continuity and sustainability of project interventions.**

In additions to conducive national policies and institutional frameworks, the project has also helped in building the local institutional capacities to give way to sustainability of project interventions. In case of Indonesia, the project has established/revitalized and built the capacities of BUMDESA -the Village-Owned Enterprises- in the target villages, who are mandated to play an important role in the operation and maintenance of the power plants and electricity distribution system, including tariff collection etc. **Discussion with BUMDESA officials suggest that presently they are fully functional and looking after the affairs of the electricity generation and distribution. However, they also expressed needs for further capacity development to generate income from village based business development activities.**

In case of Timor-Leste the project envisaged the establishment and capacity building of the community based Facility Management Groups (GMFs) to operate, manage and maintain the water supply schemes. However, the establishment process is still underway and the GMFs are not established or functional at the moment. **The absence of village level institutional mechanisms to operate and manage the water supply schemes in Timor-Leste poses greater institutional challenges for the longer term operational sustainability.** Furthermore, the project and has trained a cadre of local operators to operates and look after the established facilities in both countries. Presently these LOs are fully engaged in the operation of the established facilities. However, **in the longer run the main concern is the turnover of LOs, due to low salaries in case of Indonesia, and in case of TL they are working on voluntary basis. Therefore, there is a greater risk that some of these LOs may leave this job for better opportunities in times to come, which again will be a challenge for the overall operational sustainability.**

c) Technical sustainability

The project has established solar PV plants in Indonesia and solar water pumping systems in Timor-Leste. **Keeping in view the very technical nature of these interventions, the operational sustainability will highly depend upon the technically sound operational mechanisms and capacities.** Overall the project envisaged that the construction infrastructure from the ACCESS project would be part of the rural electrification programs of the MEMR (Indonesia) and the MSA and Ministry of Public Works (Timor-Leste). Technical standards, safeguard compliance, sustainability measures, and monitoring systems will be introduced to the ministries as the best way to address sustainability challenges and improve

minimum service performance standards in providing communities with access to electricity and clean water.

The KDS team from their field observations have suggested a number of measures to enhance technical sustainability of PLTS in Indonesia, these include: 1) Balancing of power between PV Inverter system and battery system; ensuring that the wire lengths are same connecting all PVs and PV Inverters, configuring internal parameters of PV Inverters and ESS PCS optimally based on the measured data, making sure there is no resonance problem between PV inverters and making sure the leakage current between PV Inverter and ESS PCS are within the standard range; 2) Installation of Battery Protection Units BPU to minimize damage to the batteries; 3) Setting of battery recovery level appropriately (e.g., more than 30%) to prevent frequent on and off. LO need to manually turn on and off the AC panel based on the SOC level; 3) Installation of air conditioners, in those villages where they are not installed yet, to keep the required level of temperature in the control rooms and; 4) Setting up of system to capture GHG reduction impact of ACCESS project in consultation with MEMR.

Similarly, the KDS team has also suggested measure to enhance the technical sustainability of the water supply schemes in Timor-Leste, these include: 1) Replacing the existing water source mesh with one of a finer gauge to enhance filtration and prevent debris accumulation; 2) Cleaning the water source and sealing with cement; 3) Burying the pipelines to prevent physical damage and ensure system integrity; 4) Regular removal of weeds and grass and cleaning of PV panel surfaces to improve efficiency and; 5) proper arrangements for immediate after-sales service/warranty support. Nevertheless, the safe disposal of expired equipment especially the batteries is also considered a technical challenge and mechanisms need to developed for safe disposals to minimize the damage to people and environment.

d) Socio-economic sustainability

The project has addressed some of the very basic and pressing needs of local communities both in Indonesia and Timor-Leste. In Indonesia, the sustained supply of electricity from the solar power plants is not less than a blessing for the local communities. The electricity from power plant is now available to all segments of the society and is much cheaper, cleaner and environmental friendly. Life has changed a lot for better for the local people. All segments of the village are equally benefiting, among other fishermen now have sufficient supply of ice at their villages to keep their catches fresh and can earn more profits. Women have been able to save more time and energy through using electric appliances etc. Filtered clean drinking water is abundantly available with low costs and water pumps are being used to provide water for domestic use. The sustained supply of electricity is greatly helping in the growth and profitability of small businesses like ice making, backing, tailoring and small shops etc. Nevertheless, now people can socialize even in the night time due to lighting at homes and in the streets.

Similarly, in case of Timor-Leste, discussions with local communities suggest that availability of clean water through solar water pumping and distribution systems, has fulfilled one of their most basic needs. Previously they use to walk for hours to fetch water every day, now they can have it on their doorsteps. Similarly, previously they were living in darkness, now with the installation of the LTSHE they can enjoy some basic electricity and sustained lighting in their houses. Overall life has changed a lot for better for the local people after easy access to clean water and basic electricity for lighting. **Overall it can be concluded that project interventions**

were highly socially acceptable and appreciated by the local communities and has also substantially helped in improving their lives, livelihoods and socio-economic conditions.

e) Environmental sustainability

Needless to emphasize that renewable energy solutions 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. Previously the communities were using diesel generators, which was a source of GHGs. Now with solar power plants they can get clean energy and have reduced the GHGs emission, which will help in climate change mitigation. **The only environmental challenge is the safe disposal of installed equipment once they complete their life span, especially the disposal of used batteries is most concerning challenge from the environmental point of view**. There is regulation on battery shipping and disposal at the ministry/national level, however, at the provincial level, as they do not have the facility, private companies are hired to transport and dispose used batteries.

4. Sustainability	Rating	Remarks
Financial sustainability	Moderately Likely	The financial sustainability presents mix picture. On one hand the project has built the capacities of local communities to generate funds for operation and maintenance of established facilities. On the other hand, if there is a major break down the community will not be able to fund it and will require external resources, may from governmental.
Socio-political sustainability	Likely	Project interventions are highly acceptable to the local communities in the context of their socio-economic conditions and uplift.
Institutional framework and governance sustainability	Moderately Likely	The availability of relevant national institutional and policy frameworks provides adequate basis for continuity and sustainability. However, the capacities of local communities still need to be further strengthened for long term sustainability.
Environmental sustainability	Likely	The project itself was a great advocate for addressing environment and climate issues and all of its interventions were environmental viable.
Overall Likelihood of Sustainability	Moderately Likely	Availability of required financial resources and desired capacities at the village level pose challenges for overall sustainability.

3.3.6 Gender equality and social Inclusion (GESI)

The ACCESS project strived to recognize importance of the role of women in the energy sector, tailoring its programs and activities to meet their specific needs. This approach ensured equitable rights and equal opportunities, fostering meaningful participation in energy initiatives and promoting balanced representation in decision-making processes. This commitment is reflected in project document that demonstrated a strong commitment to recognize and facilitate gender needs of women through various strategies.

Prior to the installation of solar infrastructure, a series of activities were conducted to ensure the long-term viability of the project and the readiness of the community to utilize the solar infrastructure sustainably. Local institutions within the villages were prepared and

strengthened to support this process. The project established a collaborative partnership with BUMDES to manage the solar power plant. This entire process placed significant emphasis on women's involvement and participation, recognizing the importance of gender-disaggregated data for baseline assessments and tailoring the infrastructure to meet the needs of both men and women.

The Project document clearly targeted poor and vulnerable communities, particularly in rural areas. By prioritizing support for these marginalized groups, the project aligned with a Gender Equality and Social Inclusion (GESI) approach, acknowledging the unique challenges faced by these communities especially women and vulnerable groups in accessing basic provisions. This is translated into an affirmative commitment to ensuring that at least 30% of direct beneficiaries were women. In addition to this, the project implemented a strategy to ensure that women's voices significantly influence decision-making within both the project management team and its implementation. Within project staffing structure, women comprised 50% of the project management unit in both Indonesia and Timor-Leste. This approach indicates a proactive step towards addressing gender disparities within the project setting. These targets were a significant step towards addressing gender equality, as it aimed to provide equitable benefits to women, who were often overlooked in energy sector.

Another effort made by the project to ensure gender were mainstreaming along the project cycle, the project incorporated gender indicators within its framework. In Indonesia, the indicator for promoting low-emission and climate-resilient development emphasized economic diversification in renewable energy sectors, which implicitly contributed to social inclusion and other cross cutting issues by creating new economic opportunities for women and vulnerable groups. Similarly, in Timor-Leste, the project aimed to increase equitable access to water and sanitation, recognizing the embedded traditional role of women in domestic roles as homemakers and strive to bring better advancement for its beneficiaries. Furthermore, the document acknowledged the gendered impacts of lack access and control over energy in rural areas. It highlighted that women and girls were primarily responsible for water fetching; firewood collecting for cooking, and it also highlighted the debilitated effects of lack of modern energy on their lives. The project also noted the vulnerabilities faced by women-headed households and the underrepresentation of women in renewable energy technologies.

The Theory of Change (ToC) of the project focused on improving livelihoods by promoting access to renewable energy. While the ToC broadly addressed inequality, it didn't specifically emphasize women's needs. However, the project strategies filled this gap by focusing on women, especially those women as the head households in rural and low-income areas. These strategies recognized that women often face greater challenges in accessing energy services, as they typically bear the responsibility for gathering fuel for cooking and other domestic provisions. The project's commitment to ensuring at least 30% of beneficiaries were women was a significant step toward global gender equality goals.

Another key aspect of the project was encouraging women's involvement in decision-making. In Indonesia, a good proportion of women were consulted about how electricity should be used and priced, ensuring that their voices were heard on issues that directly affect their lives. This approach was important because women often have different priorities compared to men for energy use, such as focusing on their fulfillment of daily practical gender

needs like homemaking, sanitation and education purposes. These gender-specific needs were addressed in the strategies and carefully considered by the project.

The project's outputs, such as building renewable energy-based power plants and providing clean water, were designed to benefit entire communities including 50% women. Recognizing that women, particularly in rural areas, faced distinct challenges in accessing and benefiting from these services, the project focused on addressing these issues. **Many women had previously relied on traditional, time-consuming methods for cooking and lighting, which posed health risks and limited their opportunities for capacity building or earning an income. By improving energy access, the project effectively alleviated these burdens, offering women more time for self-care and other productive activities.**

According to GCF guidelines, UNDP emphasizes that gender analysis is crucial at all stages of a project cycle. Conducting a thorough situational analysis helps clarify gender-related issues and challenges at the project sites. This served as a foundation for the project to ensure that gender aspects were mainstreamed throughout the project cycle. Key actions included conducting a gender assessment to understand the social, economic, and political factors underlying gender inequality, implementing gender action plan, and designing a monitoring and evaluation framework to measure the outcomes and impacts on the target groups.

The commitment to gender equality and social inclusion was clearly demonstrated from the outset, aligning with humanitarian principles 'leaving no one behind'. The project addressed key gender issues by preparing a comprehensive Gender Equality and Social Inclusion (GESI) analysis and action plan in September 2021 led to the development of a relevant gender action plan, ensuring that the project would effectively address and integrate gender aspects moving forward. This ensured that gender-related activities were not merely add-ons but were essentially embedded within every phase of the project, fundamentally integrating gender concerns, as well as the different interests and experiences of gender groups. These documents served as crucial references throughout the project's implementation. The project also placed emphasis in data collection methodology that underscores the importance of utilizing gender-disaggregated data. This approach ensures a comprehensive understanding of gender dynamics and enables informed decision making by actively integrating gender considerations into its activities.
The project was aligned with the GEN-2 rating of the UNDP Gender Marker. "Even though gender equality is not the main objective of the expected output, the project promotes gender equality in a significant and consistent way". The project was committed to addressing gender disparities by ensuring that poor households, particularly those headed by women, had equitable access to and benefited from the clean energy electricity facilities established through the initiative. It is important to highlight that the gender thematic evaluation accomplished by the country office revealed that ACCESS has great potential to move from GEN-2 to GEN-3 due to its great endeavor and results on GESI mainstreaming.

The gender assessment conducted for the ACCESS Project revealed key areas requiring improvement, such as the need for greater gender awareness among project staff, limited female participation in decision-making, and the absence of gender-sensitive guidelines. These findings were effectively addressed through the project's Gender Action Plan (GAP) from 2021 to 2024, which implemented seven main activities aimed at promoting gender equality.

a) Gender sensitivity training for project team, partners and stakeholders

Understanding gender issues within the project has been a critical component of its success. All project staff have already completed gender mainstreaming training, equipping them with the knowledge and tools to recognize and address gender disparities effectively in the project's ongoing activities and interventions. Moreover, in building involved stakeholder's capacity on gender issues, the project consistently met and exceeded its targets. In 2021, two gender sharing sessions were conducted, targeting partners, contractors, and stakeholders, with a total of 24 participants (17 men and 7 women).

The training expanded in 2022 to include local operators, incorporating GESI (Gender Equality and Social Inclusion) as a core framework. Additionally, a gender-specific session was held for trainers to enhance their ability to integrate gender perspectives into their methodologies. In 2023, the training continued for operators across various villages, again incorporating GESI principles. On 25 October 2023, a seminar titled "Women in the Renewable Energy Sector" was held, with 206 participants (136 women and 70 men), demonstrating 66% female participation. This momentum continued into 2024, with training and certification sessions for 20 local operators (7 women and 13 men), ensuring that gender considerations remained embedded in the learning process.

Extending the effort, the project also achieved its target of involving women instructors in every training session. In 2022 alone, out of nine trainers, three were women, delivering sessions related to their expertise in solar panel-based electricity. By 2023, two out of five instructors for on-the-job training (OJT) were women, participating in both pre-OJT training and module development. In 2024, the project continued this approach, with one out of the three trainers in the certification process being female, reaffirming its commitment to fostering gender diversity among facilitators.

From 2021 through to the end of the project in 2024, the development and implementation of gender-sensitive guidelines, curricula, and manuals have been consistently prioritized. In 2021, a curriculum for solar PV power plant operation and maintenance, along with a pocketbook for village facilitators, was developed with gender-sensitive content. These materials were updated and used in subsequent years, with training sessions incorporating this framework to enhance the technical skills of participants, including those on PV operation and maintenance. This comprehensive approach has ensured the consistent integration of gender-sensitive practices into project planning and implementation, fostering more equitable and impactful outcomes for all stakeholders.

b) Gender Assessment

The gender assessment within the ACCESS Project recognized the distinct needs of women and men, aiming to engage vulnerable groups actively and build their capacity to become key actors in preserving energy resources and participating in decision-making committees. To translate its commitment to inclusivity of target beneficiaries, sex -disaggregated demographic data has been available since 2021, prior to the construction of PV infrastructure, and has been used for Request for Proposal (RFP) and Engineering, Procurement, and Construction (EPC) purposes throughout the project.

Gender assessment and gender action served as guidance to ensure that gender concerns, risks, and opportunities were addressed along the project lifecycle, with a consistent focus on integrating sex-disaggregated data into the project's baseline. Gender-sensitive safety

requirements were embedded in the RFP for EPC activities, and this data formed a core part of the project's baseline information, facilitating gender-sensitive planning and implementation. The GESI action plan was regularly reviewed and implemented, with monitoring reports such as the Gender Marker Report submitted to UNDP Indonesia. This approach has enabled the project to consistently align its activities with gender mainstreaming objectives, fostering inclusive outcomes for both men and women within the communities it serves.

Promoting women's economic empowerment was another key objective of the gender action plan. **Recognizing that energy access can serve as a powerful tool to enhance women's roles in local economies, the project explored ways to support women in utilizing solar energy and other renewable sources to improve their livelihoods.** This support enabled women to engage in entrepreneurship and increase productivity in traditionally female-dominated sectors, such as weaving, small-scale farming, and home-based businesses. Through targeted training, capacity building, and financial support for women-led enterprises, the project contributed to empowering women economically and expanding them in fulfilling their strategic gender needs within their communities.

c) Gender Inclusive project employment

Another emphasis the project made in ensuring inclusivity is through Gender Inclusive Project Employment. This initiative has shown significant progress while ensuring affirmative action in recruitment without compromising the essential capacities needed for the roles. The project received 153 applicants (99 men and 54 women) from 23 villages and shortlisted 110 candidates (70 men and 40 women) for local operator roles. Eventually, 46 operators (23 men and 23 women) were recruited and involved in the project, achieving a 50% gender balance. The RESCO/UPLD boards were composed of 22 males (51%) and 21 females (49%), with a continued 50-50 male-to-female ratio for local operators.

The project consistently implemented affirmative action strategies to ensure women's participation, including setting a target for at least 30% female candidates during recruitment, while applying a mainstreaming policy where the highest-scoring female candidate was selected when no women made the top rankings. This policy was carefully designed to encourage women's participation without overlooking the necessary capacities required for each role, in alignment with UNDP mandates.

Moreover, beyond the provision of women's quotas in related committees (BUMDESA, etc.), the project emphasized women' essential roles through documentation in newsletters and product knowledge, as well as by promoting women's strategic roles and preventing labor feminization in energy sector, which is typically perceived as a male-dominated domain. Success stories highlighted how women could be agents of change and contribute to energy development. This approach was essential for tackling entrenched gender inequalities in communities where socio-cultural norms often restricted women's participation in public and economic spheres.

Meanwhile in Timor-Leste, gender inclusivity is starting to be noticed, for example there were 30 trainees from Timor-Leste out of which 8 were women. In addition, the SWP contractor had also involve women during the construction of the project. For example, for the SWP system in Hatuermera, the contractor hired 60 locals to carry materials to the site and out of the 60, there were 27 women hired.

d) Gender sensitive infrastructure

In regards to the gender sensitive Infrastructure, the activity emphasizes making renewable energy infrastructure accessible to all, ensuring both women and men can benefit equally from the projects. This includes providing adequate lighting and clean water, essential for creating a safe and inclusive environment. Since the initiation of infrastructure construction, the safety requirements have been incorporated into the RFP for EPC activities. the aim was to ensure that the infrastructure is designed and built with accessibility in mind, accommodating the specific needs of both genders. Additionally, the project is focused on creating a safe work environment for both women and men local operators, with measures like safety gear and protective SOPs integrated into the planning. A key lesson learned from this is that the community, in general, and women in particular, have learned the importance of PPE usage in performing their duties and ensuring their safety.

e) Promote women's participation in project interventions

The promotion of women's participation in project interventions and activities has been a key focus of the project, ensuring that women have been included throughout project implementation. In 2021, the project held preparatory meetings in 23 villages, attended by 669 community representatives, 248 of whom (37%) were women. During the free, prior, and informed consent process, 27% of participants were women. In 2022, the project made efforts to involve women in several activities: 30% of community consultation participants, 34% in electricity tariff socialization, and 49% in the RESCO/UPLD boards were women. In the subsequent years of the project, inclusivity continued to be a core principle, with balanced gender representation among speakers at seminar series and knowledge-sharing events. Women made up 34% of the participants, reflecting the project's ongoing commitment to promoting gender equity and ensuring women's active involvement in traditionally male-dominated domains.

A notable example is the determination of the monthly electrical tariff, where women were consulted alongside men. This inclusive approach recognized that women often have distinct priorities and needs related to energy use. For instance, women emphasized the importance of affordable electricity for fulfilling daily practical needs, such as homemaking, sanitation, and education. By incorporating these insights, the project tailored its strategies to address these gender-specific needs effectively. **Women's involvement in discussions about electricity usage and pricing highlighted their unique perspectives, ensuring that the project addressed the needs of all community members equitably. Women, who traditionally bore the brunt of household labor, have benefited from reduced time spent on tasks like fetching water, allowing them to focus on productive roles and community participation. Children, particularly girls, have better access to education through improved lighting and internet connectivity.**

f) Monitoring and Evaluation of gender inclusivity of the outcomes

In terms of monitoring and evaluation of gender-inclusive interventions and activities, two key actions were fully achieved. First, the project built the capacity of village facilitators to collect sex-disaggregated data, ensuring that gender-inclusive data was embedded in monitoring reports. The baseline monitoring report already included gender-sensitive data, and this practice was maintained consistently through the project years, with regular reporting of sex-disaggregated. This commitment ensured that gender data was a foundational component of all project reports, from initiation to phase-out. Second, the

project developed and consistently updated a manual on gender-inclusive data collection methods. This manual, which contains essential gender-related information and indicators, was first created in 2021 and continued to guide data collection and reporting through the final stages of the project in 2024. Together, these efforts ensured comprehensive and consistent gender monitoring throughout the entire project implementation.

g) Gender strategy for sustainability

For the project's sustainability, a primary focus has been on integrating a gender strategy, with ongoing efforts to ensure long-term gender inclusivity. This approach reflects a commitment to ensuring that poor households, particularly those led by women, have access to and benefit from clean energy solutions. At the village level, the project has worked to ensure the inclusion of women and underserved communities throughout its implementation. Key activities include creating space for women's agencies and voices to be heard, ensuring that women are actively involved in decision-making, setting a target of 30% representation of women in local energy institutions, including operators and members of BUMDESA/UPLD, empowering women in local renewable energy institutions, and supporting women-led small enterprises to foster economic opportunities for women in the community. These efforts are mainstreamed through the inclusion of gender considerations in the governing documents of BUMDESA/UPLD, such as the Anggaran Dasar (Association Charter) and Anggaran Rumah Tangga (By-laws), ensuring that women are represented in the governance of local renewable energy initiatives. **By focusing on gender inclusivity at the village level, the project aimed to create tangible impacts, ensuring that women and underserved communities benefit from the project's clean energy solutions.**

h) Gender analysis matrix to assess the impact of the project for target beneficiaries

To evaluate gender impacts across various dimensions, the Gender Analysis Matrix (GAM) was employed. For labour, it assessed how the project shifted men's roles in energy-related tasks and whether women's participation increased their workload or fostered shared responsibilities. Regarding resources, it explored how men and women gained access to and control over project benefits, such as funding or energy infrastructure. The time allocation dimension looked at whether the project reduced women's unpaid domestic work or if men contributed more to household chores. In terms of socio-cultural factors, the GAM assessed whether the project challenged traditional gender roles, especially in leadership and decision-making aspects, promoting equal involvement for both genders. The analysis sought to understand the different levels of power that men and women held in each intervention, their differing needs and interests, constraints and opportunities, and the impact of these differences on their lives, not only at the individual level but also at the household and community levels. This analysis aimed to go deeper than simply describing the division of labour between women and men; it answered which men and which women were affected in what ways by the program. Please see Annex-9, for details of the Gender Analysis Matrix.

i) Inclusion of and benefits received by the vulnerable and marginalized groups including persons with disabilities

Overall, **the project has adhered to the principles of leaving no one behind and as mentioned in the previous sections all segments of target communities including the vulnerable and marginalized groups has equally benefited from equal access to electricity and clean water in project target villages. Keeping in view the universal nature of the project benefits i.e. electricity and clean water, it can be deduced that project has made considerable efforts not to exclude any segment of the society.** In Timor-Leste for provision

of LTSHE special priority was given to the poor and disadvantage groups. Poor and disadvantaged people equally benefited from the reduced costs of energy and increased economic opportunities, through engaging in small-scale businesses etc. Similarly, the vulnerable groups like the elderly and widows also have safer and more accessible environments due to solar streetlights and reduced reliance on physically taxing tasks like collecting water.

Regarding disability inclusion, the project has conducted disability identification in the baseline phase. The results showed that no person with disability was found during the baseline phase. The project highlighted the gender and social inclusion later on the implementation stages. The identification of persons with disability was highlighted again in later stages. In 2022, during the midline survey, 1 man was identified with disability in the Kopeang Village, West Sulawesi. In 2023-2024, this person with disability was provided seed funding support due to which he developed duck farming business. Another individual utilized the benefits of solar power infrastructure to earn income by selling internet voucher credits. **Although PWDs experienced the general benefits of access to electricity and clean water, no unique or targeted advantages for this group were identified.**

3.3.7 Country ownership

As mentioned earlier, the project was launched to supplement GOI efforts in achieving the 100% electrification and renewable energy mix targets in the left behind remote villages. In this context, the overall project outcome of affordable and clean energy through the provision of access to renewable-based electricity and related interventions of establishment of village level solar power plants were found highly consistent and aligned with priorities GOI. Discussions with governmental stakeholders suggest that **due to the high level of alignment of project interventions with governmental priorities the ownership level for project interventions is quite high among the relevant institutions. Similarly, the project addressed some of the very basic and pressing needs of local communities therefore the level of ownerships is also very high with local communities in the target villages.**

Similarly, the project also supplemented GoTL efforts in achieving its stipulated electrification and access to clean water supply targets in some of the left behind remote villages. In this context, the overall project outcome of strengthened SSTC between Indonesia and Timor-Leste in promoting the use of clean energy and clean water in rural areas and related interventions of establishment of solar water pumps and provision of LTSHE were found highly consistent and aligned with priorities of GOTL. Discussions with governmental stakeholders suggest that due to the high level of alignment of project interventions with governmental priorities the ownership level for project interventions is quite high among the relevant institutions. Similarly, the project addressed some of the very basic and pressing needs of local communities therefore generally the level of ownerships is also very high with local communities in the target villages. However, according to MOV it was also found that in some of the village communities were reluctant to pay dues, which indicates that the community does not yet fully have a "sense of ownership" of the facilities that have been built.

3.3.8 Progress to impact

Overall the longer term goal of the project was to improve the lives and livelihoods and reduce inequalities through provision of equitable and sustainable services of clean electricity and clean water. The project intended to achieve the overall goal through achieving two

outcomes: 1) Localized implementation of SDGs No.7 Affordable & Clean Energy through the provision of access to renewable-based electricity and 2) Strengthened South-South and Triangular Cooperation (SSTC) between Indonesia and Timor-Leste in promoting the use of clean energy in rural areas.

Overall livelihoods improvements are long term and complex endeavors and pertains to, among other, the continuity of benefits for longer duration. Therefore, at this stage, when the project is just nearing its end, it is a bit too early to assess the longer term impacts of the project interventions and results. The measurable impacts and longer term benefits could be assessed after a while once the local communities continue using facilities and services, established by the project, for a longer period of around 5-7 years. Having said this, in the following an attempt has been made to provide a summary analysis of the early signs of expected/potential longer term impacts based on the progress made so far.

As mentioned in detail in the effectiveness section, overall analysis and discussions with stakeholders and field observations from selected site visits, suggest before the project either the local population didn't had electricity at all or were dependent on the costly diesel/petrol generators for electricity, which the poor and vulnerable couldn't afford. The electricity from power plants is now available to all and is much cheaper and cleaner. Life has changed a lot for better for the local people, now they can utilize and enjoy uninterrupted electricity. All segments of the village are equally benefiting. The poor and vulnerable have lightened homes, fishermen have sufficient supply of ice to keep their catches fresh, students can study for longer hours and women have been able to save more time and energy through using electric appliances etc. Clean drinking water is available at low costs with sustained supply. Use of electric water pumps has cut down significantly the water fetching time. Public facilities like schools, health facilities, offices and mosques etc. are also now connected to the power plants, which greatly facilitates the students, patients, officials and worshippers etc.

To improve livelihoods, project was also very instrumental in promoting business activities at the village level through establishing and building the capacities of respective BUMDESA and developed village level business development plans and has provided seed funding to respective BUMDESA and selected deserving individuals for implementation of these business plans. A number of BUMDESA have already started their businesses, and it is expected that they will invest the profits from these businesses in the wellbeing of local communities. Nevertheless, the sustained supply of electricity is greatly helping in the growth and profitability of small businesses at the village level. **Overall it is expected that sustained benefits from project interventions will greatly help in improving the lives and livelihoods of the local population especially the poor and vulnerable. However, there are also some sustainability related challenges, which needs to be duly address to fully achieve the impacts.**

Analysis and discussions with stakeholders and field observations from selected project site visits during in Timor-Leste, suggest that target villages didn't had any prior clean water infrastructures or lighting facilities. Before the project most of the target population was fetching water manually from distant water sources and were burning kerosene lamps for lighting. After the project interventions, life has changed a lot for better for the local people with easy access to clean water and basic electricity for lighting. All segments of the village have been equally benefiting from the water supply and lighting facilities including women, vulnerable and marginalized people. Now, children can have more time for study and cleaning

and washing has become easy, therefore the educational, health and hygienic conditions of communities have started improving. Women have more times to help the men in the agriculture and farming activities to make extra resources. Having said this, the project interventions in Timor-Leste faces considerable sustainability related challenges, which needs to be duly addressed to attain the desired impacts.

Furthermore, **project has promoted South South Triangular Cooperation (SSTC), between Indonesia and Timor-Leste, which has helped in benefiting from the similar experiences and good practices of various institutions in Indonesia. It has greatly helped in building the institutional capacities and learning mechanisms.** However, this was done under the umbrella of the ACCESS project and mechanisms for the future such regular exchanges between Indonesia and Timor-Leste are not clear. In this regards it is important to mention that most recently (in Oct 2024) the GOI and GoTL has signed a memorandum of understanding to promote bilateral development cooperation, which may help in longer term cooperation in the future.

4. SUMMARY CONCLUSIONS AND LESSONS

4.1 Main Conclusions

Based upon the detailed analysis and findings of the evaluation exercise, following are the main conclusions:

a) Project Design

Overall, project Results Framework was well formulated and exhibited clear linkages among outputs, outcomes and objectives. The project TOC was also found appropriate, however improving livelihoods and reducing inequalities doesn't depend only on provision of electricity and clean water but also involves several other factors. Having said this provision of electricity and clean water does contribute handsomely to livelihood improvement.

b) Relevance and Coherence

Overall project objectives, outcomes and interventions were found very relevant, aligned and consistent with the national priorities, policies and plans and needs of the target communities, including vulnerable groups regarding sustainable access to clean electricity and clean water supply and livelihood improvement in Indonesia and Timor-Leste. Similarly, the project mandate is also well aligned and consistent with priorities of United Nations, in general, and UNDP in particular, and Korean International Cooperation Agency (KOICA) in Indonesia and Timor-Leste.

c) Effectiveness

Output-1: To provide sustained access to electricity in remote villages in Indonesia, the project has supported the establishment and operationalization of solar power plants and distribution systems in targeted 22 remote villages in 10 Districts in the East Nusa Tenggara, West Sulawesi, South-East Sulawesi and Central Kalimantan provinces. By now all 22 power plants are reported to be fully operational. The project has also helped considerably in building local capacities for operation and maintenance of power plants has trained a cadre of local operators and has also strengthened village institutional capacities of respective BUMDESA, to operate and manage the power plants as a sustainable way.

The accumulative electricity generation capacity from all 22 power plants in Indonesia is around 1,098 KWp, which serves around 3,449 Households consisting of 14,514 peoples, including 52% females. Overall project interventions were found quite instrumental and effective in providing sustainable access to cleaner and cheaper 24 hours' electricity for local population in the target villages. Life has changed for better and all segments of the village are equally benefiting, especially the poor and vulnerable. The sustained supply of electricity is greatly helping in the growth and profitability of small businesses at the village level. Nevertheless, there are some sustainability related challenges for continuity of benefits.

Output-2: To provide sustained access to clean water in remote villages in Timor-Leste, the project has supported, through exchange of knowledge and best practices from Indonesia, under SSTC, the construction of solar water pumps and supply system and has provided LTSHE in target villages of Manatuto, Bobonaro, and Atauro municipalities. To effectively operate and maintain the solar water supply schemes the project has trained a cadre of local operators. However, so far the community based institutional mechanisms are not put in place to effectively oversee and manage the operation and maintenance of these facilities. Similarly, the project has supported the provision of 1000 LTSHE units to local communities.

Overall clean water supply schemes have been established at 7 sites, which facilitate clean water access for 12 sub villages across the three municipalities benefiting 773 households (4321 people, including 50% females). Similarly, the project has supported, the provision of LTSHE for 1000 most vulnerable households in 27 remote sub villages benefiting 5041 people including 50% females. Life has changed for better and all segments of the village have been equally benefiting, especially the poor and vulnerable. Sustained supply of clean water is greatly helping in improving health and hygiene conditions and lighting has made life easy. Nevertheless, there are sustainability related challenges for the continuity of longer term benefits.

The project has generated several valuable knowledge products during its implementation including; technical documents/manuals related to design, construction and operation of power plants and SWPs and training material etc. These material are very instrumental and can be used by relevant institutions to replicate the similar interventions in left behind villages in Indonesia and Timor-Leste.

d) Efficiency

The total original project budget was USD 18.028 Million provided as a grant by the KOICA. As of October 2024, the project has utilized $ 17.53 Million (Actual expenses + Commitments), with a total delivery rate of 96%. A major chunk (78%) of the total spent resources has been utilized for the establishment of solar power plants and solar water pumps infrastructure. The rest is spent on local capacity building and project management etc. The project has no cost overruns, however, the overall cost of doing business was on the higher side due to the remoteness of project sites, engagement of international companies, use of high standard imported equipment and associated capacity building costs.

The project was originally designed for a 3.5-year term from May 2020 to Dec 2023. However, due COVID pandemic, recruitment key staff, EPC tendering process and construction of infrastructure consumed considerable time and the project implementation was considerably

delayed. Keeping in view the delays, a 12-month extension was approved by the PB and project end date was extended to 31 Dec 2024.

The project was implemented using Direct Implementation Modality of UNDP with UNDP as Implementing agency and MEMR Indonesia and MSA Timor-Leste as main governmental counterparts. The project was overseen and guided by Project Board, consisting members from UNDP, Governmental counterparts and KOICA, and remained the main decision making and oversight body. The project has collaborated with a wide range of governmental institutions at the national, provincial, district/municipal and village level including local communities etc., in both countries.

Overall collaboration among various stakeholders remained satisfactory. However, there were coordination challenges as there were no formal agreements signed with multiple layers of involved institutions except the two main counter parts. Which has made the collaboration a bit informal and need based. The project has also regularly monitored and evaluated the progress and performance through internal review meetings, PB meetings and site visits and regularly reported its progress on quarterly and annual basis.

There were some turn overs of project staff including PM Timor-Leste and Procurement Specialist and M&E Specialists in Indonesia. However, these vacancies were refilled in due course. Overall discussions with project team suggest that the project has managed its human resources well and in an efficient manner to support project implementation.

e) Sustainability

Overall the longer term sustainability of solar power plants and SWP presents a mix picture. A number of the villages have reasonable capacities and are expected to sustain the facilities, especially in Indonesia, while others, mostly in TL will face challenges to sustain without institutional mechanisms and further capacity building. Having said this, the alignment and relevance of project results and interventions with national priorities, policies and plans, ownership of local institutions and local communities and expected availability of funds from electricity tariffs and village fund and social acceptance provides basis for sustainability of project interventions and continuity of benefits.

The main sustainability concern is the operational safety and security and repair/replacement of various equipment in the incident of a major breakdown as result of manmade or natural calamities. Since all installed equipment is currently under a 2-year warranty, therefore it is expected that in the near future the major repairs and replacements are somehow ensured. It is also expected that by that time the warranty expires the BUMDESA in target villages, in Indonesia, would have accumulated sufficient funds from the electricity tariffs and will be used for major repairs and replacements. However, in view of the low tariffs and high cost of equipment it will be quite challenging and may require external resources from village funds and governmental allocations to do the major replacements etc.

In case of Timor-Leste there is no such tariff collection mechanism put in place so far for the water supply schemes and neither has the establishment of community based institutional arrangement (GMFs) for operation and maintenance finalized so far, which is a matter of concern for longer term sustainability. The project has helped in building the local capacities and has trained a cadre of local operators to run and look after the facilities in Indonesia and Timor-Leste. However, the main concern is the turnover of LOs due to low salaries in case of

Indonesia, and in case of TL they are working only on voluntary basis. Furthermore, lack of financial resources with the governmental institutions in Indonesia and TL are also posing impediments in the wider replication of the project model in the left behind remote villages.

f) Gender equality and social inclusion

The project has been implemented to ensure maximum participation of women in their decision making and operational roles and as beneficiaries. Since project interventions benefited men and women equally, therefore project beneficiaries include around 50% women both in Indonesia and Timor-Leste.

The Project's potential GEN-3 rating highlights its commitment to gender equality through planning, resource allocation, implementation, and monitoring. The project supported women in technical training and income-generating activities, enabling them to foster economic empowerment. Through access to clean energy and water supply, women experienced reduced labor burdens and greater participation in economic activities, challenging traditional gender roles.

The involvement of women in energy management and decision-making in the project has shifted perceptions about women's role, challenging traditional norms and promoting equality within households and communities. The access to energy and clean water has positively affected household dynamics, with shared responsibilities around energy and water management, leading to more balance role in decision-making.

Overall, the project has adhered to the principles of leaving no one behind and all segments of target communities including the vulnerable and marginalized groups has equally benefited from equal access to electricity and clean water in project target villages. Keeping in view the universal nature of the project benefits i.e. electricity and clean water, it can be deduced that project has made considerable efforts not to exclude any segment of the society.

g) Impact

Overall livelihoods improvements are long term and complex endeavors and pertains to, among other, the continuity of benefits for longer duration. Therefore, at this stage, when the project is just nearing its end, it is a bit too early to assess the longer term impacts. However, life has changed a lot for better for the local people, now they can utilize and enjoy uninterrupted electricity and clean water. It is expected that sustained benefits from project interventions will greatly help in improving quality of life and livelihoods through income generation, improvement in educational, health and hygiene conditions, especially for the poor and vulnerable in the longer run. However, sustainability related challenges needs to be duly address to fully achieve the overall impacts.

4.2 Lessons Learned

Following is a summary of the main lessons learnt during project implementation:

1. Continued need for external technical and financial resources

The project has provided much needed technical and financial resources to provide sustained electricity and clean water to some of the very remote and marginalized communities. Which has considerably helping in improving their lives and livelihoods. However, there are still many more remote villages left behind, which are aspiring access to sustained electricity and clean water. Keeping in view the limited resources of the host countries, there is a continued

need for external technical and financial support to reach out to these left behind remote communities. The project has established a good working model, which needs to replicated on a wider scale to create a formidable impact. Moreover, a successful operational experience in a certain village in this project can be a good learning points for other villages as well as for replication of this type of project.

2. Continued need for capacity building

The project has significantly contributed to the capacity building of local institutions and especially target communities in the operation and maintenance of the established facilities. However, they are still quite new and will need further capacity building to fully enable them to duly operate and maintain these facilities for longer term benefits. It is important to mention that in Timor-Leste the establishment of community based institutional structures are still not finalized, which poses risk to sustainability and continuity of benefits. Therefore, the required institutional mechanisms should be put in place and their capacities should be fully built to operate and manage the established facilities for longer term impacts.

3. Strengthening of coordination mechanisms among stakeholder

The project has involved a wide range of stakeholders in the implementation of the project. However, coordination among various stakeholders was found quite challenging. Therefore, future such endeavors should pay greater attention to putting in place adequate coordination mechanisms to facilitate cooperation and collaboration among stakeholders. The project has involved most of the stakeholders informally, therefore for future such initiatives should conduct detailed stakeholder mapping at the design stage and such collaborations should be formalized, through signing memorandum of understandings and agreements, outlining their roles and obligations etc. Some operational excellent experience needs to be shared with other locations via online sharing and discussion, especially after 1 year in operation.

4. Ensuring sustainability

The project has made commendable efforts in establishing state of the art facilities for provision of clean electricity and clean water for some of the neglected and remote communities. Which will play an important role in improving their lives and livelihoods in the coming times. However, keeping in view their limited resources and capacities there are some risks to sustainability and continuity of benefits. Therefore, on one hand, some sort of oversight and capacity building support need to be continued and mechanisms should be put in place to continuously monitor the progress and performance of established facilities. On the other hand, future such initiatives should duly incorporate sustainability concerns in the design of the projects and programmes to ensure sustainability.

5. RECOMMENDATIONS

Based on the detailed analysis and conclusions of the evaluation exercise following are the main recommendations:

No	Recommendation	Timeframe	Entitiy Responsible
1	To ensure sustainability of project interventions, the project should develop a pragmatic exit strategy, outlining various measures to effectively hand over project assets and knowledge products to responsible parties in Indonesia and Timor-Leste to smoothly phase out ensuring sustainability. The project should, towards its end, organize a grand conference involving all stakeholders to highlight the achievements and to discuss and determine the future course of actions to ensure sustainability.	By End Dec 2024	Project Team, UNDP MEMR Id MFA TL
2	To ensure sustainability of project interventions, the handing over of project assets/facilities needs to be carefully planned and executed under formal agreements with all relevant stakeholders including national, provincial, district and village level institutions and local communities. The roles need to be clearly defined in maintaining and managing the established facilities. The handing over process should be officially documented for record.	By End Dec 2024	Project Team, UNDP MEMR Id MSA TL etc.
3	Some stakeholders, also suggested to hand over the power plants in Indonesia to PT PLN, due to their expertise. The project may explore if this suggestion can be materialized in the current scheme of things. In case, if it is not possible due technical difficulties then some kind of arrangement should be explored to involve PLN in oversight or advisory role.	By End Dec 2024	Project Team, UNDP MEMR Id
4	In Timor-Leste the envisaged community based Facility Management Groups (GMFs) are not established yet. In the absence of GMFs the handing over of water supply schemes in Timor-Leste will be quite challenging. Therefore, it is recommended that the establishment of GMFs should be finalized as soon possible before the end of the project.	By End Dec 2024	Project Team, UNDP MSA TL etc.
5	Local Operators have been trained to operate the project facilities, however their remunerations or either low or they work on voluntary basis. For longer term retention of Local Operators in Indonesia and Timor-Leste, it is recommended that adequate honorarium/salaries should be provided and some	In near future after the project is ended.	MEMR Id Village Govt. BUMDES

	kind of bonds should be signed up for at least 3-5 years of compulsory service to ensure sustainability.		
6	The installed equipment at the facilities are under a 2 year warranty from the vendor. To facilitate and ensure these warranties, a mechanism should be established both involving UNDP CO and MEMR, with designated staff and communication lines, which should duly monitor and provide timely support to the villages in times of breakdowns, repairs and replacements.	For the warrenty period.	UNDP MEMR Id Village Govt. Id BUMDES
7	To ensure operational sustainability, the respective BUMDESA should regularly collect electricity bills and keep a separate bank account and should use this money only for the salary of LOs and maintenance of the power plants. In case of fund deficiencies provisions should be made to utilize village funds for major repairs etc.	After the project end till the life of the PLTS	Village Govt. Id BUMDES
8	Since BUMDESA are still young are there is need for further capacity building, therefore the Ministry of Villages should further invest in the capacity building of the BUMDESA in project villages to enable them to generate needed funds to operate and sustain the power plants.	After the project end.	MOV Id BUMDES
9	The PPSDM, with project support, have developed and organized training programs for LOs, therefore it should make some budgetary provisions for refresher trainings for existing LOs and new LOs in case of vacancies or future such programs.	After the project end.	PPSDM MEMR Id
10	The project has generated several valuable knowledge products, therefore it is recommended that these should be properly handed over and published online including; technical documents/manuals related to design, construction and operation of power plants and SWPs and training material etc., to the respective institutions for future use and replication.	By End Dec 2024	Project Team UNDP MEMR Id MSA TL
11	To ensure sustainability, the project should map project beneficiary villages into three categories in terms of longer term sustainability 1) fully sustainable, 2) partially sustainable and 3) major threats to sustainability. For category 2 and 3 suitable remedial action needs to be identified and implemented by the respective partner institutions.	By End Dec 2024	Project Team UNDP
12	Since the project has face some coordination issues. Therefore, future such project should carefully carry out stakeholder mapping at the time of project design and identify all governmental and non-governmental stakeholders and clearly define their roles and proper MOUs/LOAs should be signed with all partners to formalize and ensure their participation and support. Furthermore, effective communication and coordination mechanisms should be established to facilitate collaboration among stakeholders.	At the time of design of future projects	UNDP MEMR MSA TL
13	To reduce dependency on external funds, future such projects should focus on modular solutions that can be scaled based on community demand and funding availability. Similarly, potential for pilot innovative financing models, such as community-based microfinancing etc. need to be explored.	At the time of design of future projects	UNDP MEMR MSA TL
14	To move towards a 'Gender Transformative' approach, future projects should make efforts to tackle the root causes of gender inequalities, including cultural norms, power dynamics, and barriers to women's participation and decision making.	At the time of design of future projects	UNDP MEMR Id MSA TL

	Furthermore, detailed assessment of the needs of the vulnerable should be conducted at the time of project design and project should include specific and targeted intervention for women and vulnerable groups.		
15	The project has targeted a limited number of villages in Indonesia and Timor-Leste and there are many more remote villages still left behind. Keeping in view the limited governmental resources, the much needed external technical and financial support should continue in the short run to consolidate the sustainability of existing facilities and replicate the good practices and learnings from the project to benefit other such marginalized communities. UNDP may prepare future proposals in consultation with stakeholders to reach out to potential donors.	At the time of design of future projects	UNDP

Annex-1 List of persons interviewed during evaluation exercise

1) Indonesia:

a) Government Counterparts National Level:

Ministry of Energy and Mineral Resources, *DitJen EBTKE ESDM*, 27 September 2024,

No.	Nama/Name	Jabatan/Position	Female/Male
1.	Mr. Sahid Junaidi	Secretary of Director General New, Renewable Energy, and Energy Conservation	M
2.	Mr. Gatot Tri Widodo	Coordinator of RE Infrastructure Development	M
3.	Mr. Widya Adi Nugroho (Widi)	Coordinator of Plans and Reports of the Directorate of New Renewable Energy & Energy Conservation of the Ministry of Energy and Mineral Resources (ESDM)	M
4.	Mr. Iqbal	Staff of Secretariat Director General	M

Ministry of Village, *PKEI DitJen PEID DTT*, 22 October 2024, 3F:

No.	Nama/Name	Jabatan/Position	Female/Male
1.	Tiwi Asfianto	Anjak Muda, Direktorat Pengembangan Kelembagaan Ekonomi dan Investasi Desa, daerah Tertinggal, dan Transmigrasi, DitJen PEID DTT	F
2.	Siti Nurmuminah Fitriah (Mimi)	Analis Kebijakan Ahli Pertama, PKEI, PEID DTT	F
3.	Siti Sholihah (Sishol)	Penelaah Teknis Kebijakan, PKEI, PEID DTT	F

b) Government Counterparts Provincial Level:

MEMR Southeast Sulawesi Provincial Office, *Dinas ESDM Prov Sulawesi Tenggara*, 12 September 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Dewi Rosaria, Mrs	Kepala Bidang Energi Baru Terbarukan (EBT) *Head of New and Renewable Energy (NRE) Division*	F	+628114004559
2.	Muh. Ilyas, Mr	Kepala Bidang Ketenagalistrikan	M	+6281340060282

MEMR Central Kalimantan Provincial Office, *Dinas ESDM Prov Kalimantan Tengah*, 24 September 2024,

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Mr. Syaripudin, S.Hut	Secretary of the Service, Secretary of EMR Office of *Kalteng* Province	M	+6282153212340
2.	Mr. Ferryanson	Head of Field of New Energy, Renewable Energy, and Energy Conservation *Kepala Bidang EBTKE, Energi Baru, Terbarukan dan Konservasi Energi*	M	+628115008958
3.	Mr. Adietya D.	SubKor EBTKE	M	+6281370213333
4.	Mr. Sutoyo	SubKor EBTKE	M	+6285252856364
5.	Mr. Victor S.	FU, Functional Unit	M	+628115216868
6.	Mr. Yustani L	SubKor EBTKE	M	+6281349154996
7.	Mr. Abbas	FU, Functional Unit	M	+6281346339304
8.	Mr. Mikhel	FU, Functional Unit	M	+6285248151681
9.	Mrs. Titin Juliah	Staff	F	+6282353151696
10.	Mrs. Esri	Staff	F	+6285348575000
11.	Mrs. Naomi R. Tondok	Analis Konservasi Energi	F	+6285754955545
12.	Mrs. Nina Erlianty	IK Ahli Muda	F	+6282255640778
13.	Mr. Rahmad Maulana	Staff	M	+6285252982133
14.	Mrs. Puput	Staff	F	+6285389343912
15.	Mr. Budyanur	FU, Functional Unit	M	+6281349552965

c) Government Counterparts District Level:

Office of Community and Village Empowerment of Bombana District, SE Sulawesi, *DPMD Kabupaten Bombana*, 12 September 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Alwin, Mr	Penggerak Swadaya Masyarakat Ahli Muda	M	+6285241912128
2.	A. Astri As'ad, Mrs	Sekretaris DPMD	F	+6285299935300

District Regional Secretariat of Barito Selatan District, Central Kalimantan, *Setda Kabupaten Barito Selatan*, 25 September 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Mr. Drs. Mirwansyah	Asisten III, Administrasi Umum, General Administration	M	

2.	Mr. Hugo YN	Analis Kebijakan; SDA, Sumber Daya Air, SetDa	M	+6285252131274
3.	Mrs. Irmatati	JFU, Jabatan Fungsional Umum, Setda	F	+6285249104515

Office of Social and Community and Village Empowerment of Barito Selatan District, Central Kalimantan, *DSPMD Kabupaten Barito Selatan*, 25 September 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Mrs. Maria Ulfah	Analis Kebijakan, DSPMD	F	+6282154131612
2.	Mrs. Kahana	JFT, Jabatan Fungsional Tertentu, DSPMD	F	+6285249180522
3.	Mrs. Yarinatalina, SH	JFT, Jabatan Fungsional Tertentu, DSPMD	F	

d) KOICA (Korea International Cooperation Agency) – Donor, 21 October 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Soo young Park Ph.D., Rep of Korea	Deputy Country Director Indonesia Office	F	+62 21 5150941/2
2.	Mercy Panggabean, Ms	Program Manager	F	+6285718057088
3.	Jiyul Kim, Ms	Program Manager	F	+6281110684184

e) KDS (Korea Institute for Development Strategy), 27 September 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Hongmin Chun (Andrew), Mr	Vice President	M	+821037119175
2.	Dr. Deogho Lee, Mr	CTO S&D Powermics	M	+821082284941
3.	Yaya Kim, Ms	Research Fellow	F	+821085613288
4.	Sulji Kim, Ms	Program Officer	F	+821090633235

f) UNDP & PMU, 27 September & 16 October 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Gwyneth Anne Palmos	Programme Manager Energy – UNDP	F	+639178444917
2.	M Yayat Afianto	Monitoring and Reporting Officer – UNDP	M	+62811107080
3.	Aang Darmawan	Senior Advisor Energy – UNDP	M	+6281399294337

4.	Mathilde SG	National Project Manager – ACCESS	F	+6281318664443
5.	Sugiyanto	MonEv Analyst – ACCESS	M	+6281315714160
6.	Imas Agustina	Project Technical Officer (Local Capacity Development) – ACCESS	F	+628156092388
7.	Nichollas F.	Intern – ACCESS	M	+6285959308012

g) Vendors:

PLNE - Owner's Engineer, 24 October 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Abdur Rouf	PLNE	M	abdur.rouf@plne.co.id
2.	Mr. Agung Pratama	PLN Enjiniring (Electrical Eng.)	M	+6281278520510
3.	Iwan Setyawan	PLNE	M	
4.	Radhitya Pratama	PLNE	M	
5.	Bayu Sandi	PLNE	M	
6.	Gusde Adi	PLNE	M	
7.	Mr. M. Oky Saputra	PLN Enjiniring (Civil Eng.)	M	+6281379640359

EPC Contractor, 24 October 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Canggih Sandro	P3TEK, Lot 1 & Lot 3	M	canggih.sandro@esdm.go.id
2.	Agung Riyanto	Eco Terra Dinamika, Lot 1	M	agungr84@gmail.com

h) PEAP, Patriot Energy ACCESS Project, Village Facilitator

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Syachrul L, Mr	Boepapa & Nelayan PLTS	M	+6285245674933
2.	Lilia Oktadiani, Mrs	Danau Masura PLTS & Muara Ripung PLTS	F	+6285249877363
3.	Syakraniel A., Mr.	Wangkolabu PLTS	M	+6281242484060

i) Village Counterparts:

PLTS Boepapa and Nelayan Hamlets, Lengora Pantai Village, Central Kabaena Sub-district, Bombana District, Southeast Sulawesi Province, 13 September 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Hidayati, Mrs	*Pemilik UMKM*, Micro, small, and medium enterprises owner	F	+6285230325684
2.	Sri Novia Febriani, Mrs	*Warga*, Woman community member, a household mother	F	+6285299935300
3.	Hasrianti, Mrs	Local Operator/LO of the PLTS	F	+6282298578440
4.	Maryam, Mrs	Finance Staff of Village Power Plant Unit for Boepapa and Nelayan Hamlets as well as Treasurer of Village-Owned Enterprises Larano Jaya, Lengora Pantai Village as well as a teacher in Public Primary School 131 Lengora Pantai.	F	+6281244433895
5.	Darson, Mr	*Warga*, Male community member	M	+6281268691566
6.	Asmadi, Mr	*Pemilik UMKM*, Micro, small, and medium enterprises owner	M	
7.	Safiruddin, Mr	Manager UPLD Dusun Boepapa dan Nelayan	M	+6285298134665
8.	Marten, Mr	Local Operator/LO of the PLTS	M	+6285317172391

PLTS Muara Ripung Village, Dusun Selatan Sub-district, Barito Selatan District, Central Kalimantan Province, 26 September 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Mr. Sirajuddin	Local Operator (M), *UPLD, Unit Pengelola Listrik Desa,* Village Electricity Management Unit	M	+6287837742685 sira.13.juddin@gmail.com
2.	Miss Rani Eka Huang	Local Operator (F), *UPLD, Unit Pengelola Listrik Desa,* Village Electricity Management Unit	F	+6282350052856 raniekahuang823@gmail.com

3.	Mr. Septino	*Pemerintah Desa* Muara Ripung, Village Admin	M	+6282282224470 savethinnoptm@gmail.com
4.	Mrs. Warine HS	*UMKM, Usaha mikro, kecil, dan menengah,* Micro, small, and medium enterprises, MSMEs	F	+628
5.	Mrs. Suhainiarti	*BPD*	F	+628
6.	Mrs. Rayeni	*BPD*	F	+6282251745466
7.	Mrs. Epi Wahyuni	*Pemerintah Desa* Muara Ripung, Village Admin	F	+6282253846629
8.	Mr. Fixgan Dolli	Backup Local Operator/LO of the PLTS	M	+628
9.	Mr. Firmansyah	Backup Local Operator/LO of the PLTS	M	+628
10.	Mrs. Rikencanawati	Director of BUMDes	F	+628
11.	Mr. Karnianto K	Secretary of BUMDes	M	+628
12.	Mr. Sutrisno	Head of Village, *Kades*	M	+6285350046555

PLTS Danau Masura Village, Dusun Selatan Sub-district, Barito Selatan District, Central Kalimantan Province, 26 September 2024

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Mr. Angga	Local Operator (M), *UPLD, Unit Pengelola Listrik Desa,* Village Electricity Management Unit	M	+6287837742685 sira.13.juddin@gmail.com
2.	Mrs. Damayanti	Local Operator (F), *UPLD, Unit Pengelola Listrik Desa,*	F	+6282350052856 raniekahuang823@gmail.com

		Village Electricity Management Unit		
3.	Mrs. Hesnawati Anggrasari	Backup Local Operator/LO of the PLTS	F	+6282282224470 savethinnoptm@gmail.com
4.	Mrs. Hela	Backup Local Operator/LO of the PLTS	F	+628
5.	Mrs. Islah	Backup Local Operator/LO of the PLTS	F	+628
6.	Mr. Hendra Gunawan	Backup Local Operator/LO of the PLTS	M	+6282251745466
7.	Mrs. Melda Wati	*UPLD* Manager	F	+6282253846629
8.	Mrs. Suharni	*BUMDes* Director	F	+628
9.	Mr. Suriansyah		M	+628
10.	Mrs. Mani	*Sekretaris BPD*	F	+628
11.	Mr. Ahi	*Pemerintah Desa Kasi Pemerintahan* Danau Masura, Village Admin	M	+628
12.	Mrs. M. Arina	*Ketua PKK, Pemberdayaan Kesejahteraan Keluarga,* Head of Family Welfare Empowerment	F	+6285350046555

PLTS Wangkolabu Village, Tobea Sub-district, Muna District, Southeast Sulawesi Province, 17 October 2024,

No.	Nama/Name	Jabatan/Position	Female/Male	No. Telp
1.	Hadir D	Head of Village	M	+6281341975228
2.	Hadriani	Sekretaris BUMDes	F	+6282344080780
3.	Jumir	Dirut/Manager BUMDes	M	+6282132816085
4.	Awaludin	Main Local Operator	M	+6282125107806
5.	Suwaldi	Manager UPLD	M	+6282293155071
6.	WD. Hartin	Keuangan/Finance UPLD	F	+6281245555603
7.	Sri Wulandari	Main Local Operator	F	+6285240998068

8.	Dahrin	Secretary of Village	M	+6285234386145
9.	Riswal	Teknisi Depot Air & BPD	M	+6282251051669
10.	Fatmawati	Bendahara/Treasurer BUMDes	F	+6285210915274
11.	Jawaria	UMKM seedfund benef	F	

2) Timor Leste:

Table 1-Interview List of Government Representatives, KOICA, and UNDP

No.	Name	Sex (Male/ Female)	Position	Interview	
				Date	Location
1.	Antonio Augusto Guterres	Male	Director General of Decentralization and Local Governance – MSA	3 October 2024	Dili
2.	Marito Ferreira	Male	Technical Advisor at Cabinet of Secretary of State for Electricity, Water, and Sanitation	3 October 2024	Dili
3.	Crescensio dos Santos	Male	Legal Advisor at Cabinet of Secretary of State for Electricity, Water, and Sanitation	3 October 2024	Dili
4.	Zeca Smith	Male	Technical Advisor at Cabinet of Secretary of State for Electricity, Water, and Sanitation	3 October 2024	Dili
5.	Julião Baptista	Male	Technical Advisor at Cabinet of Secretary of State for Electricity, Water, and Sanitation	3 October 2024	Dili
6.	Sung Hwan Jang	Male	Deputy Country Director – KOICA Timor-Leste - Donor	15 October 2024	Dili
7.	Adeline Carrier	Female	Deputy Resident Representative – UNDP Timor-Leste	30 November 2024	Dili
8.	Expedito R. Maria Belo	Male	Project Manager for ACCESS Timor-Leste – UNDP TL	16 October 2024	Dili

Table 2-Interview List of Local Leaders, Local Operators, and Beneficiaries in Atauro Municipality

No.	Name	Sex (Male/ Female)	Position	Interview	
				Date	Location
1.	João Gomes	Male	Director of Public Works and SMASA, Certified Trainee through ACCESS Project	27 September 2024	Vila, Atauro
2.	Mateus Belo	Male	President of Municipal Authority – *Presidente Authoridade Municipio (PAM)* Atauro	27 September 2024	Vila, Atauro
3.	Adão da C. Nunez	Male	Chief of *Suco* (Village) Beloi	28 September 2024	Beloi, Atauro
4.	Angelica Soares	Female	Beneficiary	26 September 2024	Arlo, Atauro
5.	Ana Martins	Female	Beneficiary	26 September 2024	Arlo, Atauro
6.	Agustinha Soares	Female	Beneficiary	26 September 2024	Arlo, Atauro
7.	Albertina da Cruz	Female	Beneficiary	26 September 2024	Arlo, Atauro
8.	Deolindo Soares	Male	Focal Point	26 September 2024	Arlo, Atauro
9.	Joaquim Masa	Male	Chief of Sub-Village	26 September 2024	Arlo, Atauro
10.	Francisco de Araujo	Male	Chief of Sub-Village	26 September 2024	Douro, Atauro
11.	Calistro Martins	Male	Local Operator	26 September 2024	Douro, Atauro
12.	Simão Ximenes	Male	Beneficiary, Local Leader	26 September 2024	Douro, Atauro
13.	Catarina Goncalves	Female	Beneficiary (Widow)	26 September 2024	Douro, Atauro

14.	Deolinda Martins Sarmento	Female	Beneficiary	26 September 2024	Douro, Atauro
15.	Lidia de Araujo	Female	Beneficiary (Widow)	26 September 2024	Douro, Atauro
16.	Natalina de Araujo	Female	Beneficiary	26 September 2024	Douro, Atauro
17.	Moises Gomes	Male	Beneficiary	26 September 2024	Douro, Atauro
18.	Evangelina Gomes Nunes	Female	Beneficiary	26 September 2024	Douro, Atauro
19.	Ulda Gomez Freitas	Female	Beneficiary	26 September 2024	Douro, Atauro
20.	Maria Dias	Female	Beneficiary	26 September 2024	Douro, Atauro
21.	Maria Gomes	Female	Beneficiary	26 September 2024	Douro, Atauro
22.	Napoleão Dias	Male	Beneficiary	26 September 2024	Douro, Atauro
23.	Martinha Gomes	Female	Beneficiary	26 September 2024	Douro, Atauro
24.	Elsa Dias Martins	Female	Beneficiary	26 September 2024	Douro, Atauro
25.	Delfina Dias Mouzinho	Female	Beneficiary	26 September 2024	Douro, Atauro
26.	Augusta Mouzinho Nunez	Female	Beneficiary	26 September 2024	Douro, Atauro
27.	Andre Soares	Male	Beneficiary (Local Leader)	26 September 2024	Iliana, Atauro
28.	Marcos de Castro	Male	Beneficiary	26 September 2024	Iliana, Atauro
29.	Maria Abrantes Gomes	Female	Beneficiary	26 September 2024	Iliana, Atauro

30.	Virginia de Araujo	Female	Beneficiary	26 September 2024	Iliana, Atauro
31.	Maria Ximenes	Female	Beneficiary	26 September 2024	Iliana, Atauro
32.	Teresa de Araujo	Female	Beneficiary	26 September 2024	Iliana, Atauro
33.	Angenina Gomes Soares	Female	Beneficiary	26 September 2024	Iliana, Atauro
34.	Bertina Gomes da Silva	Female	Beneficiary	26 September 2024	Iliana, Atauro
35.	Amelia Gomes	Female	Beneficiary	26 September 2024	Iliana, Atauro
36.	Carlos Alves	Male	Vice Chief of Sub-Village	26 September 2024	Iliana, Atauro
37.	Daniel da Silva	Male	Beneficiary	26 September 2024	Iliana, Atauro
38.	Antonio Gereiro	Male	Beneficiary	26 September 2024	Iliana, Atauro
39.	Adelina Colo	Female	Beneficiary	26 September 2024	Iliana, Atauro
40.	Paulina Guterres	Female	Beneficiary	26 September 2024	Iliana, Atauro
41.	Reinaldo da C. Magno	Male	Beneficiary	26 September 2024	Iliana, Atauro
42.	Eduardo da Costa	Male	Beneficiary	26 September 2024	Iliana, Atauro
43.	Wadi Soares	Male	Disabilities	26 September 2024	Iliana, Atauro
44.	Fernanda do Santos	Female	Local Operator	28 September 2024	Fatu'u, Atauro

Table 3-Interview List of Local Leaders, Local Operators, and Beneficiaries for Manatuto Municipality

No.	Name	Sex (Male/ Female)	Position	Interview	
				Date	Location
1.	Antonio Nunes Soares	Male	Chief of *Suco* Hohora'i	1 October 2024	Hatuermera
2.	Manuel Jose Soares	Male	Chief of *Aldeia* Hatuermera/Local Operator	1 October 2024	Hatuermera
3.	Albino Soares	Male	Local Operator	1 October 2024	Hatuermera
4.	Jesuinha de Jesus Raimundo	Female	Beneficiary	1 October 2024	Hatuermera
5.	Elias de Jesus	Male	Beneficiary	1 October 2024	Hatuermera
6.	Domingas Soares	Female	Beneficiary	1 October 2024	Hatuermera
7.	Mateus Soares	Male	Beneficiary	1 October 2024	Hatuermera
8.	Mateus Vicente Maia	Male	Beneficiary	1 October 2024	Hatuermera
9.	Paulino Barbosa	Male	Beneficiary	1 October 2024	Hatuanahun
10.	Aniza Soares	Female	Beneficiary	1 October 2024	Hatuanahun
11.	Julião Filale	Male	Beneficiary	1 October 2024	Hatuanahun
12.	Felizarda Soares	Female	Beneficiary	1 October 2024	Hatuanahun
13.	Alfredo dos Santos	Male	Local Operator	1 October 2024	Hatuanahun
14.		Male	Chief of *Aldeia* Hatuanahun	1 October 2024	Hatuanahun

15.	Matias Soares	Male	SMASA Manatuto	1 October 2024	Hatuermera
16.	Luis Inacio	Male	President Authority of Municipality	4 October 2024	Hatuermera
17.	Filomeno Rodrigues Pereira Carceres	Male	Local Operator/Administrator Post Administrative of Laclo	4 October 2024	Hatuermera

Table 4-Interview List of Local Leader, Local Operator, and Beneficiaries for Bobonaro Municipality

No.	Name	Sex (Male/ Female)	Position	Interview	
				Date	Location
1.	Alfredo	Male	Beneficiary	2 October 2024	Faloai
2.	Domingas dos Santos	F	Beneficiary	2 October 2024	Faloai
3.	Jacinto	M	Beneficiary	2 October 2024	Faloai
4.	Duarte dos Santos	M	Beneficiary	2 October 2024	Faloai
5.	Imelda Takabuti	F	Beneficiary	2 October 2024	Faloai
6.		M	Representative of Chief of Village	2 October 2024	Faloai
7.	Apolinario da Purificação	M	Local Operator/Former Chief of Suco	2 October 2024	Faloai

Annex-2: Field Mission/Meeting Plan:

Indonesia

Field Visit to PLTS Boepapa and Nelayan, Central Kabaena, Bombana, Kabaena Island, South East Sulawesi

Date	Route	Time	Craft	Remarks
Thu, 12 Sep 2024	Home – CGK	03:30 – 05:00	Taxi	
Thu, 12 Sep 2024	CGK – KDI	06:15 – 10:10 (2hrs 55min)	Flight IP810	
	Haluoleo Airport in Ambaipua, Ranomeeto, Konawe Selatan – Kendari City	10:10 – 11:00 (30min, 20km)	Booked car	

	Kendari City for Interview Provincial Government	11:00 – 12:00 (1hr)	Booked car	1. Bappeda; 2. Dinas ESDM (Provincial level of MEMR) terkait; 3. Dinas PMD (Provincial level of MoV) yaitu: a. Bidang UED, SDA & TTG terkait BUMDes serta b. Bidang PemDes & Kelurahan terkait Dana Desa (Village Fund Allocation); 4. Dinas Lingkungan Hidup terkait pembuangan battery (Environmental **Office)** 5. PT. PLN Persero UP3 Kendari (State Electricity Company)
	Kendari City: Lunch	12:00 – 12:30 (30min)	Booked car	At your own cost
	Kendari – Rumbia Town, Bombana District	12:30 – 16:00 (3hrs 30min, 156km)	Booked car	Poros Bombana Road, 156km
	Rumbia Town for Interview District Government	16:00 – 17:00 (1hr)	Booked car	1. Bappeda; 2. Dinas ESDM (District level of MEMR) yang terkait; 3. Dinas PMD (District level of MoV) yaitu: a. Bidang UED, SDA & TTG terkait BUMDes serta b. Bidang PemDes & Kelurahan terkait Dana Desa (Village Fund Allocation); 4. Dinas Lingkungan Hidup terkait pembuangan battery (Environmental **Office)** 5. PT. PLN Rayon Bombana (State Electricity Company)
	Rumbia / Kasipute	Overnight	Hotel Persada R5	At your own cost - Rp 412,500
Fri, 13 Sep 2024	Kasipute – Bombana Harbour	06:30 – 06:40 (10 min, 4km)	Booked car	
	Bombana Harbour – Boepapa Nelayan Hamlet, Lengora Pantai Village, Kabaena Island	06:40 – 09:30 (2hrs 30min, 46km)	Booked boat	
	Boepapa Nelayan Hamlet, Lengora Pantai Village, Central Kabaena Sub-district, Bombana District in Kabaena Island	09:30 – 14:00 (4hrs 30min)	Walk around	For Interview Community and Observation of Hamlet please see below the expected agenda. Note: Friday prayer for the males.
	Boepapa, Kabaena Island – Kasipute	14:00 – 17:00	Booked boat	
	Kasipute – Kendari	17:00 – 20:30	Booked car	
	Kendari City	Overnight	Hotel Same Boutique	At your own cost - Rp 650,000
Sat, 14 Sep 2024	Hotel – KDI, Haluoleo Airport	09:45 – 10:15	Grabcar? GoCar?	At your own cost
	KDI – CGK	11:15 – 13:10	Flight IP811	
	CGK - Home			At your own cost

Field Visit to PLTS Danau Masura & PLTS Muara Ripung, Dusun Selatan, Barito Selatan, Kalimantan Tengah

Date	Route	Time		Remarks
Tue, 24 Sep 2024	Home – CGK	09:00 – 11:35	Taxi	At your own cost
Tue, 24 Sep 2024	Jakarta (CGK) Soekarno Hatta International Airport – Palangkaraya (PKY) Tjilik Riwut Airport	12:35 (GMT+7) – 14:15 (GMT+7) (1hrs 40min)	Citilink Indonesia Flight QG - 452	Booking Code: KY95MY
	Tjilik Riwut Airport on A. Donis Samad Street Panarung, Pahandut, Palangkaraya City to Provincial Energy and Mineral Resources Unit, Dinas ESDM Provinsi Kalteng, Jl. Tjilik Riwut Km 5,5, Kec. Jekan Raya, Palangkaraya.	14:45 – 15:15 (30min, 15km)	Booked car	
	Dinas ESDM Provinsi Kalteng, Jl. Tjilik Riwut Km 5,5, Kec. Jekan Raya, Palangkaraya for Interview	15:15 – 16:00 (45min)	Booked car	Interviewees: ACCESS List of Participants - Google Drive
	Dinas ESDM Provinsi Kalteng to Loca Hotel, Jl. RTA Milono No.Km.3,5, Menteng, Jekan Raya, Palangka Raya City, Central Kalimantan 74874, Indonesia	16:00 – 16:16 (16min, 8km)	Booked car	Overnight in Palangkaraya at your own cost. Loca Hotel Rp 400,000 to be paid in advance, no breakfast
Wed, 25 Sep 2024	Palangkaraya – Buntok Town, Barito Selatan District	08:00 – 12:00 (4hrs, 203km)	Booked car	
	Buntok Town for lunch	12:00 – 13:00 (1hr)	Booked car	Lunch at your own cost
	SetDa and Community & Village Empowerment Unit the meeting was in Ruang Ass III SetDa at Kantor Bupati BarSel Dinas Sosial PMD Kab. Barito Selatan on JL.Pahlawan KM.3 No .70, Kec. Dusun Selatan, Kabupaten Barito Selatan, Kalimantan Tengah 73713 Buntok Town for Interview	13:00 – 14:30 (1.5hrs)	Booked car	Interviewees: ACCESS List of Participants - Google Drive
	DSPMD – SEKRETARIAT DAERAH KABUPATEN BARITO SELATAN Jl. Pelita Raya 305 F Buntok Kalimantan Tengah 73711 In one meeting above	Travel 5 min, 2km 14:30 – 16:00 (1.5hrs)	Booked car	Interviewees:

	Buntok Town	16:00	Booked boat	Dinner & Overnight in Buntok Town at your own cost Hotel Lutfan Rp 275,000
Thu, 26 Sep 2024	Buntok – Mabuan Village (15mins, 7km) – 15mins crossing the Barito River – Muara Ripung Village	08:00 – 09:30 (30min)	Car + Boat	
	Muara Ripung Village Interview (190 HHs, 494 People of Dayak, Bejaju, Java)	09:30 – 10:30 (1hr)		Interviewees: ACCESS List of Participants - Google Drive
	Muara Ripung Village Observation to PLTS, BUMDes, UPLD, Homes	10:30 – 11:30		
	Lunch at Muara Ripung Village	11:30 – 12:00		
	Muara Ripung Village – Danau Masura Village	12:00 – 12:20 (20mins)	Motorbike due low river water level. On high water level could ride kelotok/boat	
	Danau Masura Village Interview	12:30 – 13:30 (1hr)		Interviewees: https://drive.google.com/file/d/1XX57I6-zxBuq5wmgkf4b_SOQJIQM1z6B/view?usp=sharing
	Danau Masura Village Observation to PLTS, BUMDes, UPLD, Homes	13:30 – 14:30		
	Danau Masura Village – Mabuan Village (Barito River crossing)	14:30 – 15:00	Booked boat	
	Mabuan Village, Kec. Dusun Selatan, Kab. Barito Selatan – Palangka	15:00 – 19:00	Booked car	
	Palangkaraya City	Overnight		Overnight at Loca Hoter at your own cost Loca Hotel Rp 400,000 to be paid in advance, no breakfast
Fri, 27 Sep 2024	Loca Hotel – PKY, Tjilik Riwut Airport of Palangkaraya	06:30 – 06:00	GrabCar	At your own cost Rp 33,000
	PKY – CGK	07:00 – 08:40 (1hr 40mins) Both Locations GMT+7	Batik Air Flight ID - 6201	Booking Code: LMYFGL
	CGK - UNDP Office		Taxi	At your own cost Golden Bird Rp 180,000

	Meeting with DitJen EBTKE in Cikini Jakarta (KDS & ACCESS Project Team)	14:30 – 16:30	Taxi UNDP	Slamet Bratanata Building, EBTKE
	KDS Debriefing with UNDP & ACCESS Project Team at UNDP Office	17:00 – 19:30	Korean Interpreter's car	Aceh Meeting Room
	UNDP Office Menara Thamrin - Home	20:00 – 21:30	GoCar	At your own cost Rp 106,500

Field Visit to PLTS Wangkolabu, Tobea, Muna, Tobea Island, South East Sulawesi

Date	Route	Time	Craft	Remarks
Wed, 16 Oct 2024	Home – Aceh Meeting Room, UNDP ID, Menara Thamrin Jakarta	09:00 – 11:00	Taxi	At your own cost
	UNDP Office - CGK T3	11:30 - 12:30	Taxi	At your own cost
	CGK – KDI	13:45 – 17:40 (2hrs 55min)	Flight QG 330 Citilink	Keep the Boarding Pass for disbursement to UNDP
	Haluoleo Airport in Ambaipua, Ranomeeto, Konawe Selatan – Kendari City	18:00 – 18:30 (30min, 20km)	Airport Taxi, Rp 160,000	At your own cost? Overnight at the Same Boutique Hotel, Kendari. 2 nights x Rp 750,000 Dinner at the hotel
Thu, 17 Oct 2024	Kendari City - Port Toli-toli, Bangun Jaya Village, Lainea, Konawe Selatan	07:15 – 10:30 (3 hrs 15 min, 85 km) 23km of bad road (2hrs)	Booked Pajero car, Driver Samuel	Poros Kendari Road
	Port Toli-toli, Bangun Jaya, Lainea, KonSel - Wangkolabu Village Port, Tobea Island, Muna	10:37 – 10:44 (7mins, 1.5km)	Booked boat	
	Lunch at Wangkolabu	12:00 – 13:00		House of HoV
	Wangkolabu Village Port - Lainea Tampo Port	15:15 – 16:15 (1hr)	Booked boat	
	Lainea Tampo - Kendari City	16:15 – 17:30 (1hr 15mins)	Booked Pajero car, Driver Samuel	The Same Boutique Hotel, Kendari Dinner at the Hotel.
Fri, 18 Oct 2024	Same Boutique Hotel Kendari – Haluoleo Airport, KDI	06:45 – 07:20 (35 min, 22km)	GoCar, Rp 100,000	
	KDI – CGK	08:00 – 09:40	Flight Batik Air ID-6723	
	CGK - Home	10:00 - 12:00	Taxi	At your own cost

Timor-Leste

a) Field Visit to Atauro

Date	Route	Time	Craft	Remarks
Thursday, 26 September 2024	Dili to Beloi, Atauro	8:00 - 9:15	Dragon Ferry/Fast Ferry	Traveling to Atauro depends on Ferry schedules: Tuesday, Thursday, and Saturday. $10/person for Dragon Ferry
	Brunch (Breakfast/Lunch)	9:30 - 10:30	Walking	
	Traveling from Beloi to Arlo	10:30 - 12.30	Contractor's Vehicle	
	Site Visit and Interviewing Beneficiary and Chief of *Aldeia*	12:30 - 14:30		
	Traveling from Arlo to Iliana	14:30 - 15:30	Contractor's Vehicle	
	Site Visit and Interviewing Beneficiary and Chief of *Aldeia*	15:30 - 17:30		
	Traveling from Iliana to Douro	17:30 - 18:00	Contractor's Vehicle	
	Site Visit and Interviewing Beneficiary and Chief of *Aldeia*	18:00 - 19:30		
	Traveling from Douro to Beloi	19:30 - 20:30	Contractor's Vehicle	
Friday, 27 September 2024	Traveling from Homestay to PAM's office in Vila	9:30 - 10:00	Contractor's Vehicle	
	Interview with PAM Atauro and Director of Public Works	10:00 - 12:00		
	Lunch	12:30 - 13:30		
	Interview with SWP Subcontractor Owner and Technician - Mr. Rosantino	13:30 - 15:00		
Saturday, 28 September 2024	Traveling from Homestay to Chief of Suco Beloi's Office	9:30 - 10:00	Contractor's Vehicle	
	Interview with Chief of Suco Beloi	10:00 - 11:00		
	Interview with Local Operator from Fatuu	11:30 - 12:30		At the Marketplace.
	Lunch	12:30 - 13:30		
	Traveling from Beloi, Atauro to Dili	15:00 - 16:15	Dragon Ferry	

b) Field Visit to Manatuto

Date	Route	Time	Craft	Remarks
Tuesday, 1 October 2024	Traveling from Dili to Hatuermera	9:30 - 11:30	Cars	TL National Consultant, UNDP TL, PM UNDP Indonesia, and KDS
	Site Visit, Meeting and Interview with Chief of Suco Hohorai, Chief of Aldeia Hatuermera, SMASA and Beneficiaries	11:30 - 15:30		

	Traveling from Hatuermera to Hatuanahun	15:30 - 16:30	Cars	
	Site Visit, Interview with Chief of Village Hatuanahun and Beneficiaries	16:30 - 18:30		
	Traveling from Hatuanahun to Dili	18:30 - 20:30	Cars	

c) Field Visit to Bobonaro

Date	Route	Time	Craft	Remarks
Tuesday, 2 October 2024	Traveling from Dili to Faloai	9:30 - 12:30	Cars	TL National Consultant, UNDP TL, PM UNDP Indonesia, and KDS
	Site Visit, Meeting and interview with Representative of Chief of Aldeia and Beneficiaries	12:30 - 14:30		
	Traveling from Faloai to Dili	14:30 - 17:30	Cars	

Annex-3: Evaluation Matrix

Evaluation Criteria	Key Evaluation Questions	Data Sources/ Methods	Indicators	Methods for Data Analysis
Relevance	• To what extent is the ACCESS project relevant to the social, economic, and political environment in the region, sub-regional and at national levels as well as the requirements of targeting women, men and vulnerable groups? Does it adapt well to changes in the context? • To what extent is the theory of change and objectives at outcome and output levels relevant and appropriate to achieve the overall objective? • To what extent is UNDP support relevant to the achievement of the SDGs in the country? • To what extent did UNDP adopt gender-sensitive, human rights-based and conflict-sensitive approaches?	• Review of project documents including National policies and strategies • Key informant interviews • Focus group discussions	- Degree of alignment with the national and subnational policies, plans and priorities - Degree of appreciation from national stakeholders with respect to adequacy of project in addressing prevailing issues. - Level of involvement of government and other partners in the design and implementation - Linkages between project results and the needs of relevant stakeholders	Qualitative data analysis methods i.e. - Triangulation - Validations - Interpretations - Abstractions

Evaluation Criteria	Key Evaluation Questions	Data Sources/ Methods	Indicators	Methods for Data Analysis
	• To what extent is UNDP engagement a reflection of strategic considerations, including the role of UNDP in a particular development context and its comparative advantage? • Which programme areas are the most relevant and strategic for UNDP to scale up or consider going forward? •		- Level of adaptation of gender-sensitive, human rights-based and conflict-sensitive approaches	
Effectiveness	• Does the ACCESS project achieve planned results (intended and unintended, positive, or negative)? • In which areas does the project have the greatest and fewest achievements? Why and what have been the supporting factors? • What are the main quantifiable results (outputs and outcomes) of the project so far, against the original targets? • Do the assumptions of the theory of change hold? • To what extent the outcomes and outputs influenced gender equality and the empowerment of women, and how these results be classified based on the NDP gender results framework (gender negative, gender blind, gender targeted, gender responsive, gender transformative)? • What have been the key results and changes attained for men, women and vulnerable groups? • To what extent did the project contribute to strengthened SSTC between Indonesia and Timor-Leste? • Is there any knowledge sharing/exchange mechenisms and forums established/available to promote SSTC between the two countries in relavant sectors? • If yes, then what were the main SSTC intervetions and benfits for both countires in the context of the project. • What is the quality of the results? How do the stakeholders perceive them and what is the feedback of the stakeholders on the project effectiveness?	• Review of project documents including National policies and strategies • Key informant interviews • Focus group discussions • Site visits	- Progress towards output indicators and targets of project results framework - Number and type of beneficiaries involved or benefited (sex disaggregated) -Completeness of risk identification and assumptions during project planning and design - Kind and types of benefits generated for women and vulnerable groups - Level of involvement of government and other partners in the design and implementation - Availability and functionality of knowledge sharing/exchange mechenisms and forums to promote SSTC. - Kind and types of benefits generated from SSTC interventions	Qualitative data analysis methods i.e. - Triangulation - Validations - Interprétations - Abstractions Quantitative méthods - Progress and trend analysis of project planned and achieved targets

Evaluation Criteria	Key Evaluation Questions	Data Sources/ Methods	Indicators	Methods for Data Analysis
	• To what extent has UNDP improved the capacities of national implementing partners to advocate on environmental issues, including climate change issues etc? • How well are risks, assumptions and impact drivers being managed? • What lessons have been learned from the project regarding achievement of outcomes?			
Efficiency	• Have resources (financial, human, technical) been allocated strategically and economically to achieve the Project's results? • Are the expected results achieved within the original budget or the budget was revised? • Were the accounting and financial systems in place? • How timely is the project in producing outputs and initial outcomes? Are there implementation delays and why? • Were progress reports produced accurately, timely and responded to reporting requirements including adaptive management changes? • Did the leveraging of funds (co-financing) happen as planned? Were financial resources utilized efficiently? • Was procurement carried out in a manner making efficient use of project resources? • Is the governance structure of ACCESS conducive for achieving results and for scale and speed of the intervention? • Is the M&E system working to produce the necessary data and analysis to show results and proof of concept?	• Review of project documents (financial statements and audit reports) • Key informant interviews • Focus group discussions • Site visits	- Availability and quality of financial and progress reports and its timeliness - Level of discrepancy between planned and utilized financial expenditures - Planned vs. actual funds leveraged - Cost in view of results achieved compared to costs of similar projects from other organizations - Quality of results-based management, monitoring and evaluation and reporting) - Timeliness of project implementation	Qualitative data analysis methods i.e. - Triangulation - Validations Quantitative methods - Progress and trend analysis of project allocations and expenditures
Coherence	• To what extent are the policies and activities of different actors in the region complementary or contradictory in adding value while avoiding duplication of effort? • To what extent is the project effective in coordinating its activities with UN agencies, relevant development partners, donors, CSO, NGOs and community groups?	• Review of project documents including secondary sources • Key informant interviews • Focus group discussions	- Level of synergies and interlinkages with other projects and program by UNDP, UN Agencies, Govt. and other partners - Level of alignment with UNDP priorities and national and sub-national policies and programmes. - Availability and effectiveness of coordination mechanisms	Qualitative methods - Triangulation - Validations - Interpretations - Abstractions

Evaluation Criteria	Key Evaluation Questions	Data Sources/ Methods	Indicators	Methods for Data Analysis
	• What were the constraining factors and how were they overcome? What were the supporting factors? • To what extent was the project in line/coherent with national development priorities, country programme outputs and outcomes, the UNDP Strategic Plan, and the SDGs? • To what extent were lessons learned from other relevant projects considered in the design? • To what extent has the project been appropriately responsive to political, legal, economic, institutional, etc., changes in the country?	• Site visits	with other stakeholders working in the same area	
Sustainability	• What is the likelihood that the benefits that resulted from the ACCESS project will continue at national and sub-national levels through adequate ownership, commitment, financing, and willingness displayed by stakeholders? • To what extent do mechanisms, procedures and policies exist to carry forward the results attained on gender equality, empowerment of women, human rights, and human development by primary stakeholders? • To what extent do national partners have the institutional capacities, including sustainability strategies, in place to sustain the outcome-level results? • Are there financial risks that may jeopardize the sustainability of project outcomes? • Are there ongoing activities that may pose an environmental threat to the sustainability of project outcomes? • Are there social or political risks that may threaten the sustainability of project outcomes? • Is there any knowledge sharing/exchange mechenisms established/available to promote, if yes, how it will be sustained after the project end. • What is the risk for instance that the level of stakeholder ownership will be insufficient to allow for the project outcomes/benefits to be sustained? • Is there an exit strategy prepared for phasing out of the project?	• Review of project documents including secondary sources • Key informant interviews • Focus group discussions • Site visits	- The likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. - Level of Financial, Social, Institutional and Environmental risks to sustainability of benefits - level of ownership of project interventions and availability of mechanisms to carry forward the results attained - Availability of an exit strategy to ensure sustainability	Qualitative data analysis methods i.e. - Triangulation - Validations - Interpretations - Abstractions

Evaluation Criteria	Key Evaluation Questions	Data Sources/ Methods	Indicators	Methods for Data Analysis
Impact	• What kind of longer term social, economic and environmental differences/changes will the project intervention induce? Are there any early signs for the same? • To what extent project longer term goal are shared by stakeholders? • How the project has helped in building longer term capacities of stakeholders? • What will be longer term benefits the project will produce for women and vulnerable groups	• Review of project documents including secondary sources • Key informant interviews • Focus group discussions • Field visits	- Type and kind of long term positive and negative, foreseen and unforeseen changes produced by project interventions - Level of contribution to gender equality and needs of the disadvantaged groups.	Qualitative data analysis methods i.e. - Triangulation - Validations - Interpretations - Abstractions
Cross cutting issues (Gender Equality, Human Rights, Environment and Disability)	• To what extent have gender equality and the empowerment of women been addressed in the design, implementation and monitoring of the project? • To what extent did project adopt gender-sensitive, human rights-based and conflict-sensitive approaches? • To what extent has the project promoted positive changes in gender equality and the empowerment of women? • Is the gender marker data assigned to this project representative of reality? • Were disadvantaged and vulnerable groups consulted and meaningfully involved in project design and implementation? • Were persons with disabilities consulted and meaningfully involved in project planning and implementation? • What proportion of the beneficiaries of a programme were persons with disabilities? • What barriers did persons with disabilities face in benefiting from project outcomes?	• Review of project documents including secondary sources • Key informant interviews • Focus group discussions	- No and ratio of women involved and benefited from project - Availability of gender sensitive indicators in the RF Interventions -No of people from disadvantaged groups involved and benefited - integration of gender-sensitive measures in project design and reporting on gender-specific outcomes - specific changes in gender equality and women's status, instances of unintended effects on gender dynamics - Level of access and benefits received by disadvantaged and marginalised groups, specific improvements in human rights conditions for these groups.	Qualitative data analysis methods i.e. - Triangulation - Validations - Interpretations - Abstractions Quantitative methods - Progress and trend analysis

Annex-4: Long list of Questions for Stakeholders Consultation/Interviews

a) Specific questions for UNDP and Project Team

1. How was the project conceptualized and who was involved in the design process?
2. What were the main issues project intended to address?
3. To what extent were the project objectives, design and implementation appropriate and relevant to national priorities and other international obligations? Are these objectives still relevant in the current context?
4. Is the project theory of change and the design adequate and technically feasible to address the problems that had been identified?
5. Is the project results chain from outputs, outcomes to impact clear, logical and achievable, and whether the respective indicators and targets are SMART and gender disaggregated?
6. To what extent are the programme interventions aligned with the needs women and vulnerable segments of the target areas?
7. Who were the main stakeholders of the project and what was the level of stakeholder ownership and collaboration in implementation? Were there any collaboration or coordination related issues?
8. How was the project governed and managed? Were the project governance and management structures appropriate and suitable?
9. What were the coordination mechanisms among various stakeholders at the national and sub national levels, was it efficient and effective?
10. Are there any changes/revisions made to the results framework indicators and targets during implementation, if yes why and what type of changes were made?

11. How is the project progress and performance being monitored and evaluated? What kind of M&E mechanisms are in place for collection, analysis and reporting of data related to results framework indicators?
12. How was the information provided through the M&E system used to improve the project's performance and to adapt to respond to the changing needs?
13. To what extent the intervention addressed the synergies and interlinkages with other interventions carried out by UNDP, Governmental institutions and development partners working in the same sphere?
14. What were the major issues in project implementation which hindered the timely achievements of the project targets and how were they mitigated?
15. Were financial resource and timeframe adequate to achieve targets? Were there any project extensions, if yes what were the main reasons for it?
16. How and to what extent were the project co-financing contribution materialized from partners?
17. To what extent have resources (financial, human, institutional and technical) been allocated and utilized strategically, keeping the best value for money?
18. To what extent have the expected project outcomes: 1) Localized implementation of SDGs No.7 Affordable & Clean Energy through the provision of access to renewable-based electricity and
19. To what extent the have the expected project outcome: 2) Strengthened South-South and Triangular Cooperation (SSTC) between Indonesia and Timor-Leste in promoting the use of clean energy in rural areas have been achieved?
20. Is there any knowledge sharing/exchange mechanisms established/available to promote SSTC between the two countries in relevant sectors?
21. If yes, then what were the main SSTC interventions and benefits for both countries in the context of the project. What were the main cooperation related challenges?
22. If available, how these knowledge sharing/exchange mechanisms will be sustained to continue the SSTC between the two countries in the future.
23. What are the expected longer term impacts of the project? Are there any indications that the project has contributed to improving socio-economic conditions of the target communities, especially the women and vulnerable groups?
24. What will be the project longer term impacts on the environmental and ecological status in the target areas?
25. What is the likelihood of continuation and sustainability of the project outcome and benefits after completing the project?
26. What is the level of ownership of the project interventions at governmental level and how will the project benefits be sustained after the project? Are there any financial, technical, environmental or social risks which could hinder the sustainability of the project benefits, if yes, please elaborate?
27. What is the comparative advantages of UNDP in the context of the project?
28. What are the main lessons that have emerged?
29. What will you suggest to overcome the challenges and to improve performance of future interventions.

b) Specific questions for main governmental counterparts at the national, sub-national and district levels.

1. How was the project idea was conceptualized and by whom? Was your organization involved in the project conception and design process?
2. What were the main challenges project intended to address? Did the project help address the capacity building needs of your organization in the context of project objectives?
3. Were the project objectives and interventions consistent with the overall Government of Indonesia and Timor Leste priorities and especially the mandate and needs of your institution?
4. What was the role of your institution in overall project implementation?
5. Did your organization receive any material/technical inputs from the project, if yes, pleased elaborate?
6. What are the main role and contributions of your institution in the project implementation?
7. Is the project design, approach and inputs appropriate in addressing the needs of your institution and the targets groups?
8. What was the level of cooperation and coordination between your institution and project partners and were there any coordination/collaboration issues?
9. Have you participated in the Project Board meetings, if yes how often were the meetings held and what kind of decisions were made?
10. Was the support and inputs from UNDP and the project team up to your expectations and what is the comparative advantage of UNDP?
11. Have you or someone from your organization benefited from project capacity building interventions, if yes, kindly elaborate.
12. To what extent have women, marginalized and disadvantaged groups, benefited from the Project ‘s activities?
13. In you view, what were the main issues and limitations faced during the implementation of the project?
14. To what extent have the expected project outcome: 1) Localized implementation of SDGs No.7 Affordable & Clean Energy through the provision of access to renewable-based electricity have been achieved?
15. To what extent the have the expected project outcome: 2) Strengthened South-South and Triangular Cooperation (SSTC) between Indonesia and Timor-Leste in promoting the use of clean energy in rural areas have been achieved?
16. Is there any knowledge sharing/exchange mechanisms established/available to promote SSTC between the two countries in relevant sectors?
17. If yes, then what were the main SSTC interventions and benefits for both countries in the context of the project.
18. Were there any official or un-official communication, exchanges and events took place between relevant governmental institutions of the two countries, which were supported by the project? If yes provide some highlights?
19. If available, how these knowledge sharing/exchange mechanisms will be sustained to continue the SSTC between the two countries in the future.
20. Do these achievements meet your expectations and are you satisfied with the overall project progress and performance?
21. What is the level of ownership of the project interventions at your institution and how will the project benefits be sustained after the project? Do you have financial and technical resources available to sustain project benefits after the project?
22. Do you still have more capacity building or any other needs or challenges, which are not being fulfilled so far, if yes, what are these.

23. What would have been the implications if this project was not implemented at all?
24. What are the main lessons that have emerged from project implementation?
25. How would you rate the project performance in terms of its relevance and effectiveness on scale 1-10, 1 being lowest and 10 being the highest?
26. What will you recommend to overcome challenges and improve performance of future such initiatives.
27. Will you recommend this type of project to other Rural Areas in your province/district?

c) Specific questions for project main beneficiaries i.e. target communities etc.

1. What is the total population of your village and what were the main livelihood related challenges faced by your community in general and related to availability and use of electricity/energy (in case of Indonesia) and clean drinking water (in case of TL) in particular before the project?
2. How you come to know about the project, who contacted you and when? Why was your community selected among others?
3. What were the main interventions implemented by the project in your community and how was your community involved in these project interventions?
4. How were the local governmental institutions involved in the implementation of the project activities and was their collaboration found satisfactory?
5. What kind of challenges were faced during project implementation and installation of solar power systems in your community?
6. Is the solar power generation facility, installed by the project, in your village fully functional by now? If yes, what is the total generation capacity and does it satisfy the current needs of your community?
7. Are all households living in the village have an electricity connection by now or someone are still without electricity? If yes, please elaborate reasons why they are left behind.
8. Did your community contribute financially or in kind for the installation of the solar power facility in your village? If yes, please elaborate.
9. Did the project provide trainings to community members for the operation of the power facility? If yes, how many persons (men and women) were trained and are they able to run the operations smoothly?
10. Are these operators being paid? If yes, then how much and from which source? Are you satisfied with the performance of these operators?
11. What kind of management system/structure has been put in place for the smooth running for the power plant? Is it totally community based or some governmental institutions are also involved?
12. Do you pay electricity bills? If yes, how is tariff determined and what is the average bill per household? In your view is it cheap or expensive?
13. What is the mechanisms for collection of money? Where does the money goes and for what purpose it is used, does it remain the village fund etc.?
14. What are the main benefits received so far from installation of the power facility and for what purpose the electricity is being used by your community?
15. Did the availability of power also bring economic empowerment or business opportunities in your village? If yes, please elaborate.
16. How many men and women have benefited from project interventions and how?
17. Are there any specific concessions or prioritization for women led households and vulnerable groups and poor people? If yes please elaborate. What if someone can't afford to pay the bill?

18. Have you encountered any break downs in power facility so far? If yes, how many times and how was it solved?
19. What mechanisms are in place for major break downs and repairs? Who will do these major repairs and on average how much time it will take and who will bear the cost of these major repairs?
20. What are the main challenges in the longer term sustainability and smooth operation of the power facility installed by the project?
21. What is the level of ownership and commitment towards sustainable management and operation of these facilities in your community in the longer run?
22. What kind of support you will require from local governmental institutions in the sustained operation of the power plants?
23. How would you rate the performance and benefits of these power facilities on scale 1-10, (1 being lowest and 10 being the highest)?
24. What more needs to be done to improve livelihood conditions in your community in general, and availability and use of electricity in particular?

d) Specific questions for power plant operators

1. What is your education background and experience prior to being an operator? What were the selection criteria and how many operators (men and women) were trained in your community?
2. What kind of training have you received, what was the total duration and which organization provided the training and where?
3. What are your main roles as an operator to whom you report? are you now fully equipped to operate and trouble shoot the power plant in your village?
4. Are you been paid, if yes how much, is the salary sufficient for you to work full time as an operator?
5. What are the main challenges you face in the operation of the power facility? Are there any specific challenges for women operators?
6. Have you encountered operational issues so far and how did you solve it? What if there is a major break down, how will be it repaired and by whom and who will bear the cost?
7. If the repair requires funds, where does the fund come from, what is the procedure and where will you buy spare parts or call a technician?
8. If you decide to resign, who will replace you and how would he/she be trained and by whom?
9. Do you need any specific support from your community and local governmental institutions in the operation of the facility?
10. What will you recommend to further improve and sustain the smooth operation of the power facility in the longer run?

e) Specific questions for donor (KOICA)

1. How was the project conceptualized and was KOICA involved in the design process?
2. What are KOICA main priority areas in Indonesia and Timor Leste and to what extent were the project objectives aligned with KOICA priorities?

3. Is KOICA member to project board, if yes then, was the guidance and oversight of the PB found instrumental in the steering of the project?
4. How often the project reported its progress to KOICA and was project progress and performance found satisfactory? If not, please elaborate.
5. How KOICA monitored the implementation of the project and what mechanisms and tools were employed in this regard?
6. In KOICA's view what were the main challenges the project faced during its implementation?
7. How was collaboration with UNDP and other stakeholders found, was it found satisfactory from KOICA stand point? If not, please elaborate.
8. From KOICA stand point what were the main benefits produced by the project? Were there any limitation to achieving desired results?
9. From KOICA stand point, did the project provide value for money? Were overhead costs reasonable?
10. What are the views of KOICA on gender equality and inclusion of vulnerable groups in project implementation and benefits received?
11. What are the views of KOICA on the overall sustainability of project interventions after the project is completed? Is there any concern in this regard, if yes, please elaborate?
12. Will KOICA replicate lessons from the project in their other initiatives in Indonesia and elsewhere?
13. Is there any plan and funding availability for replication and scaling up of project good practices to other areas in need in Indonesia and TL.
14. What will KOICA recommend/suggest to further improve performance of such projects in future?
15. Any specific issues and remarks which KOICA would like to offer in the context of the project.

f) Gender Equality and Social Inclusion (GESI) Specific Questions

Note: GESI specific questions are already incorporated in above. However, in the following a summary of main GESI specific questions are reproduced for reference and further clarity:

1. How was gender assessment integrated into the project design phase to identify specific gender issues or gaps in energy sector?
2. In what ways did the findings from gender assessment influence the development of the Theory of Change for the project?
3. What specific gender-related objectives were established in the project's results framework as a result of the initial gender analysis?
4. To what extent does the project contribute to gender equality, women's empowerment, and the human rights-based approach?
5. What have been the key results and changes attained for men, women, and vulnerable groups?
6. To what extent do mechanisms, procedures, and policies exist to allow key stakeholders to carry forward the results attained on gender equality, women's empowerment, human rights, and human development?

7. Do the programs/activities implemented by the project provide equitable opportunities for women and men?
8. Have affirmative actions or specific policies been used to achieve gender equality? If so, to what extent have these measures been effective?
9. To what extent have the poor, indigenous peoples, persons with disabilities, women, men, and other disadvantaged and marginalized groups benefited from the project?
10. What were the visible and tangible benefits of various activities implemented through the project, especially for women and marginalized groups?
11. To what extent has the project promoted positive changes in gender equality and the empowerment of women? Did any unintended effects emerge for women, men, or vulnerable groups? If so, how were they addressed?
12. How is gender incorporated into the monitoring system of the project?
13. What are the long-term effects of the project on gender equality, women's empowerment, and social inclusion? (If any, can the positive results regarding gender equality and social inclusion be sustained?)
14. What recommendations can be given for the sustainability of the project regarding women's empowerment and marginalized groups?
15. Are there (written/unwritten) joint strategies regarding gender mainstreaming and social inclusion for future project implementation or recommendations? If yes, how effective are they in implementation, and what is their continuity beyond the project period?

Annex-5: Evaluation Rating Table and Scales

1. Monitoring & Evaluation (M&E)	Rating
M&E design at entry	
M&E Plan Implementation	
Overall Quality of M&E	
2. Implementing Agency (IA) Implementation & Executing Agency (EA) Execution	Rating
Quality of UNDP Implementation/Oversight	
Quality of Implementing Partner Execution	
Overall quality of Implementation/Execution	
3. Assessment of Outcomes	Rating
Relevance	
Effectiveness	
Efficiency	
Overall Project Outcome Rating	
4. Sustainability	Rating
Financial sustainability	
Socio-political sustainability	
Institutional framework and governance sustainability	
Environmental sustainability	
Overall Likelihood of Sustainability	

Ratings for Outcomes, Effectiveness, Efficiency, M&E, Implementation/Oversight, Execution, Relevance	Sustainability ratings:
6 = Highly Satisfactory (HS): exceeds expectations and/or no shortcomings 5 = Satisfactory (S): meets expectations and/or no or minor shortcomings 4 = Moderately Satisfactory (MS): more or less meets expectations and/or some shortcomings 3 = Moderately Unsatisfactory (MU): somewhat below expectations and/or significant shortcomings 2 = Unsatisfactory (U): substantially below expectations and/or major shortcomings 1 = Highly Unsatisfactory (HU): severe shortcomings Unable to Assess (U/A): available information does not allow an assessment	4 = Likely (L): negligible risks to sustainability 3 = Moderately Likely (ML): moderate risks to sustainability 2 = Moderately Unlikely (MU): significant risks to sustainability 1 = Unlikely (U): severe risks to sustainability Unable to Assess (U/A): Unable to assess the expected incidence and magnitude of risks to sustainability

Annex 6: List of Documents Reviewed

1. PAR/ Annual Report
2. UNDP Initiation Plan
3. UNDP Project Document
4. UNDP Social and Environmental Screening Procedure (SESP)
5. Project Inception Report
6. All Project Implementation Reports
7. Quarterly progress reports and work plans
8. Audit reports
9. Oversight mission reports
10. All monitoring reports prepared by the project
11. Financial statements, CDR for each year
12. Mid-Term Review report, and the updated management responses
13. Sample of project communications materials
14. List of contracts and procurement items over ~US$5,000 (i.e. organizations or companies contracted for project outputs, etc.)
15. Project operational guidelines, manuals and systems
16. UNDP country/countries programme document(s)
17. Minutes of the (Project Title) Board Meetings and other meetings
18. Project site location maps
19. Technical Studies and Publications
20. Workshop, training, events and field visit reports
21. National and State Level Strategic and Legal Documents etc.

22. Secondary sources and national statistics and online resources etc.
23. Exit strategy / Sustainability Plan document
24. Online resources

Annex-7: UNEG Code of Conduct for Evaluators/Consultant Agreement Form

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 imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.
8. Must ensure that independence of judgement is maintained, and that evaluation findings and recommendations are independently presented.
9. Must confirm that they have not been involved in designing, executing or advising on the project being evaluated and did not carry out the project's Mid-Term Review.

Evaluation Consultant Agreement Form

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

Name of Evaluator: 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 22 August 2024 (Date)

Signature: _____

Consultant:

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.
8. Must ensure that independence of judgement is maintained, and that evaluation findings and recommendations are independently presented.
9. Must confirm that they have not been involved in designing, executing or advising on the project being evaluated.

Terminal Evaluation National Consultant Agreement Form

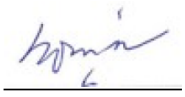
Agreement to abide by the Code of Conduct for Evaluation in the UN System:

Name of Consultant: Dining Tantri S. Sonia DW.

Name of Consultancy Organization (where relevant): N/A

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

Signed at Bekasi, Jawa Barat, Indonesia (Place) on 30 August 2024 (Date)

Signature: 

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.
8. Must ensure that independence of judgement is maintained and that evaluation findings and recommendations are independently presented.
9. Must confirm that they have not been involved in designing, executing or advising on the project being evaluated.

Evaluation Consultant Agreement Form

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

Name of Consultant: Pascoela Marciana da Silva Sequeira

Name of Consultancy Organization (where relevant): N/A

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

Signed at Dili (Place) on 27 September, 2024

Signature: 

Consultant:

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.
8. Must ensure that independence of judgement is maintained and that evaluation findings and recommendations are independently presented.
9. Must confirm that they have not been involved in designing, executing or advising on the project being evaluated.

MTR Consultant Agreement Form

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

Name of Consultant: Laeli Sukmahayani

Name of Consultancy Organization (where relevant): N/A

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

Signed at Mataram, Lombok, West Nusa Tenggara (Place) on 29 August 2024 (Date)

Signature: _____

Annex-8. Terminal Evaluation Terms of Reference

Accelerating Clean Energy Access to Reduce Inequality (ACCESS)

BASIC CONTRACT INFORMATION

Location	**: Jakarta (with travel as necessary)**
Application Deadline	**: 10 July 2024**
Type of Contract	**: Individual Contract**
Post Level	**: Senior Specialist Consultant (International & National Evaluator)**
Languages Required	**: English**
Starting Date	**: 25 July 2024**
Duration of Initial Contract	**: 25 July 2024 – 31 October 2024**
Expected Duration of Assignment	**: 88 working days (for all team members)**

1. BACKGROUND AND CONTEXT

In accordance with UNDP policies and procedures, all full-sized UNDP-supported projects are required to undergo a Terminal Evaluation (TE). These Terms of Reference (ToR) set out the expectations for the Evaluation Team. An International Evaluator will lead the Terminal Evaluation of a full-sized project titled "Accelerating Clean Energy Access to Reduce Inequality (ACCESS)" implemented by UNDP Country Offices in Indonesia and Timor Leste. The project commenced on 1 May 2020 and is expected to be completed by 31st December 2024. The TE process must follow the guidance outlined in the document 'UNDP Evaluation Guidelines' (a)

In Indonesia, in line with its Country Program 2021-2025, UNDP Indonesia partnered with the Government of Indonesia and KOICA to develop a renewable energy initiative aimed at enabling the poor and most vulnerable communities to have equitable and sustainable access to basic services required for improving livelihoods. The project has been working closely with the key partners, including the Ministry of Energy and Mineral Resources (MEMR) Indonesia, Ministry of Village Indonesia, and district and provincial government agencies, to implement the ACCESS Project in target locations. In Indonesia, the project will cover 22 villages in East Nusa Tenggara, West Sulawesi, Southeast Sulawesi, and Central Kalimantan Provinces with 13.966 people (52%M and 48%F) to be beneficiaries.

Key partners and their roles and involvement in the project in Indonesia are listed below:

No	Key partners	Role	Involvement
1	Ministry of Energy and Mineral Resources (MEMR) Indonesia	Main beneficiaries	Provides strategic advice in the planning and implementation of the project in Indonesia. It also functions to provide approval and to ensure the realization of project results from the perspective of project beneficiaries.
2	Ministry of Village and Underserved Areas Indonesia.	Coordinating	Provide advice on the process of establishment and assistance of Village Owned Enterprise (Bumdesa) development
4	EMR Unit of Provincial government Indonesia	Coordinating	Provide advice on the implementation of the project and involved in the sustainability plan implementation
5	Village Empowerment Unit of District and Provincial Government Indonesia	Coordinating	Provide advice on the implementation of the project and involved in the sustainability plan implementation

No	Key partners	Role	Involvement
6	Village Government of local people of the target location	Main beneficiaries	Involved in the implementation and the beneficiary of the project results

Similarly, in Timor Leste in line with its National Strategic Development Plan 2011-2030 targets that everyone in Timor-Leste will have access to reliable electricity 24 hours a day by 2030 and in line with its Water and Sanitation Master Plan (2016-2030) to accelerate water supply infrastructure for domestic and sanitation, the project is working closely with the key partners, including the Ministry of State Administration (MSA) Timor-Leste, and the Municipal and Village government of the target locations. The project covers 25 *sucos* (villages) in three municipalities, namely, Bobonaro, Dili (Atauro) and Manatuto covering 1,800 households, which is about 2,561 beneficiaries (51% F, 49%M).

Key partners and their roles and involvement in the project in Timor-Leste are listed below:

No	Key partners	Role	Involvement
1	Ministry of State Administration (MSA) Timor-Leste	Main beneficiaries	Provides strategic advice in the planning and implementation of the project in Indonesia. It also functions to provide approval and to ensure the realization of project results from the perspective of project beneficiaries.
2	Village Government	Main beneficiaries	Involved in the implementation and the beneficiary of the project results
3	Municipality government Timor-Leste	Coordinating	Provide advice on the implementation of the project and involved in the sustainability plan implementation
4	SMASA	Coordinating	Municipal agencies responsible for the management of water and sanitation in municipality level

Contribution of the Project to the National Priorities in Indonesia and Timor Leste

Indonesia:

1. The project contributes and supports the government of Indonesia in achieving the target of 100% national electrification ratio as stipulated in the National Energy Plan. Electrification is an important goal to reduce economic inequality between regions considering the Gini Ratio in 2022 was estimated at 0.388 (*National Statistical Agency, 2023*). Like other archipelagic countries, this has been a challenging target to be met considering the country's geographical situation and limited government budget to connect all 82,000 villages on a grid. In 2019, about 2,200 villages were without or minimal access to electricity and mainly are in the Eastern provinces of Indonesia.

2. The project is In line with the country's target for having a 23% renewable energy portion in the primary energy mix by 2025, as stated in the National Energy Policy (Government Regulation No. 79/2014). Increasing the contribution of renewable energy is in line with the Paris Commitment of Indonesia. The energy sector is expected to reduce 314 million tons of CO2 from the country's greenhouse gas business as usual emission by 2030.

3. The project will also contribute to the efforts undertaken by MEMR in assigning the National Utility Company (PLN) for the implementation of rural electrification as the progress is still below expectations due to economic/resource consideration and limited internal funding of the PLN to invest in rural electrification.

Timor-Leste:

1. The project is in line with the priority of the Timor-Leste government for rural electrification and clean water access. As targeted in Timor-Leste's National Strategic Development Plan 2011-

2030, everyone in Timor-Leste will have access to reliable electricity 24 hours a day by 2030. To achieve this target, rural electrification is a priority in Timor-Leste which will also contribute to urban and rural job growth and development. Based on the National Rural electrification master plan (REMP), in 2018, the electricity grid has reached most parts of the country. However, according to the National Directorate for Research and Electricity Development, over 25% *Sucos* (Villages) & Aldeias (sub-villages) in Timor-Leste still have no access to the electricity grid.

2. The project also contributes to the achievement of the National Strategic Plan of Timor-Leste 2011-2030 in regard to the renewable energy target as the potential solution to make a dramatic contribution to economic growth and help to reduce poverty levels in remote rural areas.
3. On the side of water supply infrastructure for domestic and sanitation, the project contributes the target achievement of 75% of the population having access to clean water and sanitation by 2030 as mandated in the "Water and Sanitation Master Plan (2016-2030).

Contribution to the UNDP Strategic Plan

Anchored in the 2030 Agenda for the Sustainable Development Goals (SDGs) and committed to the principles of universality, equality and leaving no one behind, the UNDP has issued the UNDP Strategic Plan 2022-2025 as guideline to help countries achieve SDGs by focusing UNDP's competence and expertise on six signature solutions:

1. Poverty Eradication: Focuses on reducing poverty and promoting inclusive economic growth that benefits all segments of society, particularly the most vulnerable populations.
2. Governance for Peace and Institutional Strengthening: Aims to strengthen governance systems, promote rule of law, and enhance institutions to foster peaceful and inclusive societies.
3. Resilience to Crises and Shocks: Addresses vulnerabilities and builds resilience of communities and countries to various shocks, including conflicts, natural disasters, and economic crises.
4. Environmental Sustainability and Climate Action: Promotes sustainable environmental management practices, addresses climate change impacts, and supports countries in achieving environmental sustainability goals.
5. Gender Equality and Women's Empowerment: Focuses on advancing gender equality, empowering women and girls, and ensuring their full participation in social, economic, and political spheres.
   Inclusive and Sustainable Growth: Seeks to foster inclusive economic growth that creates opportunities for all, reduces inequalities, and promotes sustainable development outcomes.

This initiative is aligned with the UNDP Strategic Plan signature solutions pertaining to reducing poverty & inequality and accelerating access to modern energy using locally available renewable resources is a feasible intervention. Notably, because there are about 2,000 villages in Indonesia without sustainable access to power, and there are 17,000 islands in Indonesia that makes national grid interconnection costly. The Government of Indonesia has been addressing this challenge by allocating state-owned budgets for a rural electrification programme. With current fiscal capacity, meeting the target of national electrification with quality of service remains a big challenge. Likewise, in Timor-Leste, rural electrification and clean water access remain as challenges and development priorities for the country with around 37,000 families living in isolated areas of the mountains, small islands, or near the border do not have access to electricity. About 28% of population in Manatuto, 42% of Bobonaro, and 60% in Atauro (Dili) have no access to electricity for lighting (Statistic Office, 2014). In the clean water access, it was reported that access to improved water supply in the rural area is only 60% (*Worldbank, 2018).*

Contribution to CPD/UNDAF Outcomes

Indonesia: CPD (2021-2025) Outcome 2. Institutions and people contribute more effectively to advance a higher value-added and inclusive economic transformation.

Timor-Leste: UNDAF (2015-2020) Outcome 2: People of Timor-Leste, especially the rural poor and

vulnerable groups, derive social and economic benefits from improved access to and use of sustainable and resilient infrastructure.

The project contributes to UNDP Indonesia's Country Programme Document (CPD) for 2021-2025, specifically contributing to Outcome 2: "Institutions and people contribute more effectively to advance a higher value-added and inclusive economic transformation." By introducing sustainable solar energy solutions, the project enhances economic transformation by reducing reliance on fossil fuels, promoting renewable energy sources, and fostering inclusive development. It empowers local communities through access to reliable and affordable electricity, thereby supporting economic activities and improving livelihoods. Moreover, the project strengthens institutional capacities in renewable energy infrastructure and governance, facilitating sustainable development and contributing to Indonesia's broader goals of economic diversification and inclusive growth as outlined in the CPD.

Similarly, in Timor-Leste, the project contributes to UNDAF (2015-2020) Outcome 2: People of Timor-Leste, especially the rural poor and vulnerable groups, derive social and economic benefits from improved access to and use of sustainable and resilient infrastructure. The solar water pump is expected to leverage local communities' wellbeing and enhance economic transformation by promoting renewable energy sources and fostering inclusive development. It also enhances the life of local communities through access to clean water.

Project Outcomes

1. Localized implementation of SDGs No.7 Affordable & Clean Energy through the provision of access to renewable-based electricity.
2. Strengthened South-South and Triangular Cooperation (SSTC) between Indonesia and Timor-Leste in promoting the use of clean energy in rural areas.

The project enables the targeted communities to access affordable and clean energy by facilitating and localizing the adoption of renewable energy sources. Through this localized implementation, the project aims at mitigating energy poverty and promoting environmental sustainability. In addition, the second project outcome will foster South-South and Triangular Cooperation (SSTC) between Indonesia and Timor-Leste, specifically on rural development. By leveraging shared expertise and resources, the project endeavors to accelerate the deployment of clean energy solutions, fostering mutual learning and collaboration towards a greener and more resilient future in both countries. The SSTC not only aims to share technological innovations and best practices but also seeks to build institutional capacities and strengthen frameworks conducive to sustainable energy transitions in rural contexts.

The project outcomes are to be achieved through the following outputs:

Output 1: Renewable-based power plants built providing sustainable access to electricity for remote villagers in Indonesia with institutional and local capacity in place.

Activity 1.1 Renewable-based energy infrastructure construction that provides access to electricity for households in targeted villages in Indonesia that can be monitored remotely.

Activity 1.2: Local capacity building for operation and maintenance of the built energy infrastructures. Activity 1.3: Local institution establishment to enhance sustainability and scaled-up use of built energy infrastructures.

Activity 1.4: Results dissemination and planning for scaling up.

Output 2: Under SSTC between Indonesia and Timor-Leste, solar PV water pumps and Highly Efficient Solar Lamp System (LTSHE) are installed in remote villages in Timor-Leste providing sustainable access to clean water and lighting.

Activity 2.1 Commissioning of Feasibility Study consisting of technical, social, economic and environmental assessment.

Activity 2.2 Procurement of EPC contractor for solar water pump and LTSHE provider

Activity 2.3 Construction of solar water pumps and installation of LTSHE in compliance with social and environmental national standards.

Activity 2.4 Construction & installation and performance monitoring by owner's engineer.

Activity 2.5 Open recruitment and selection of operator candidates (women participation is encouraged). Activity 2.6 Development and in-house training of SOP for operation and maintenance by solar water pump and LTSHE contractors.

Activity 2.7 In field training and certification of qualified operators by the formal certifying institution on solar PV water pump and LTSHE.

Activity 2.8 Establishment of Renewable Energy Service Cooperative (RESCO) with a viable business model to ensure service sustainability.

UNDP Indonesia serves as the Implementing Partner for the ACCESS project. While UNDP Indonesia oversees overall project management, while the UNDP Timor-Leste is responsible for producing Output two under South-South Triangular Cooperation (SSTC) activities with Indonesia in forms of clean energy technology and technical certification for local operators. For the project implementation, the ACCESS project is supported by the Project Management Unit (PMU) in Indonesia and Timor-Leste. The Ministry of Energy and Mineral Resources (MEMR) and KOICA Indonesia are the counterparts in Indonesia, while the Ministry of State Administration (MSA), KOICA Timor-Leste are the counterparts in Timor-Leste. These counterparts form part of the Project Board, providing strategic direction and oversight throughout the project's implementation.

Upon project completion, with a minimum of 30% women as direct beneficiaries and in adherence to social-environmental safeguards, ACCESS aims to provide electricity to at least 20,000 people in Indonesia and Timor-Leste. Additionally, around 1.2 MegaWatt of decentralized solar-PV power plants will enable access to water for 3,500 people in Timor-Leste. The project also aims to enhance the technical capacity of 80 local individuals and ensure the sustainability of clean energy infrastructure at the village level through the establishment of local energy service institutions.

Theory of Change

The TE team must assess and report on progress towards the long-term impacts outlined in the project's Theory of Change and the extent to which long-term impacts can be attributed to the project. The programme's Theory of Change logic is provided in **TOR Annex A** and is summarized as follows: The Theory of Change underpinning the ACCESS project interventions in accessing essential services is that people who live in remote locations regardless of gender are at risk of being left behind because of limited financial support, low education, and lack of technology options. If these people are provided with equitable and sustainable (available, accessible, and affordable) essential services of electricity and clean water, they can manage the facilities, and appropriate clean energy technology is introduced in neighboring countries; then their livelihoods will be improved and reduced inequality in the long term.

2. EVALUATION PURPOSE, SCOPE AND OBJECTIVES

The TE 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 TE will also identify factors that have facilitated or impeded the achievement of the objectives as well as review the project's strategy and its risks to sustainability. This evaluation will

also enable UNDP's Commissioning Unit to assess the relevance, efficiency, effectiveness, impact, and sustainability of the ACCESS Project.

The Terminal Evaluation process must follow a collaborative and participatory approach ensuring close engagement with key participants including the Commissioning Unit (the UNDP Country Office), Regional Technical Advisors, Regional M&E Advisors, Country Office M&E Focal Points and Programme Officers, Government counterparts including the Ministry of Energy and Mineral Resources (MEMR), and other key stakeholders.

The Terminal Evaluation (TE) will analyze and report on the project's outcomes from inception to completion, comparing them with the anticipated achievements. It aims to extract valuable lessons that can contribute to enhancing the sustainability of project benefits and overall program improvement. The TE report promotes accountability and transparency and assesses the extent of project accomplishments.

The assessment will encompass the timeframe spanning from 2020 to July 2024. It will comprehensively cover all planned and/or executed activities at both national and regional levels within each project component during this specified period.

Results and recommendations of the TE will be used by KOICA as the project donor. UNDP and national stakeholders for designing other relevant interventions in the future, ensuring national ownership and sustainability of project results. In addition to that, lessons learnt and recommendations from this TE will be used by the country programme board during its annual review and final review of the country programme (Year 2021 - Year 2025), for proper adjustments and improvement of other project/programme design, implementation and evaluation.

The specific objectives of the evaluation are to:

1. Provide an independent assessment of the progress and performance of the project towards the expected outputs and outcomes set forth in the results framework of the project, incorporating findings from reviews and assessments carried out prior to the TE;
2. Draw key lessons from past and current cooperation and provide a set of clear and forward-looking options leading to strategic and actionable recommendations for the next programming;
3. Assess how the project has positioned itself within the development community and national partners with a view to adding value to the country development results; and
4. to draw key lessons from past and current cooperation and provide a set of clear and forward-looking options leading to strategic and actionable recommendations.

The Terminal Evaluation should also provide recommendations for follow-up activities, which require a management response prepared by the project team, which should be uploaded to the UNDP Evaluation Office Evaluation Resource Center (ERC).

The International Evaluator (IE) will be responsible for the preparation of a high-quality report and timely submission, in line with the 'UNDP Evaluation Guidelines' (http://web.undp.org/evaluation/guideline/documents/PDF/UNDP_Evaluation_Guidelines.pdf).

The TE will assess project performance against expectations set out in the project's Logical Framework/Results Framework (**see ToR Annex B**). The TE will also assess results according to the OECD/DAC evaluation criteria outlined in the document 'UNDP Evaluation Guidelines' (http://web.undp.org/evaluation/guideline/documents/PDF/UNDP_Evaluation_Guidelines.pdf). A full outline of the TE report's content is provided in **ToR Annex D**.

The following impact-related topics should be assessed in TE reports, based on qualitative and quantitative evidence:

- Contributions to the strengthening national policy and institutional environment that is governing access to affordable medicines for poor, vulnerable people, and gender-sensitive through evidence based and multi sector collaborations.
- Contributions to the improvement of performance of national programmes that positively impact the coverage and the sustainability of service delivery.

The TE report will include an Evaluation Ratings Table, as shown below:

Evaluation Ratings Table for
Accelerating Clean Energy Access to Reduce Inequality (ACCESS)

Monitoring & Evaluation (M&E)	Rating[17]
M&E design at entry	
M&E Plan Implementation	
Overall Quality of M&E	
Implementation & Execution	Rating
Quality of UNDP Implementation/Oversight	
Quality of Implementing Partner Execution	
Overall quality of Implementation/Execution	
Assessment of Outcomes	Rating
Relevance	
Effectiveness	
Efficiency	
Overall Project Outcome Rating	
Sustainability	Rating
Financial resources	
Socio-political/economic	
Institutional framework and governance	
Environmental	
Overall Likelihood of Sustainability	

3. EVALUATION CRITERIA AND KEY GUIDING QUESTIONS

The terminal evaluation seeks to answer guiding questions, focused on the UNDP and KOICA evaluation criteria of relevance, effectiveness, efficiency, coherence, and sustainability. The evaluators will propose a revised list of criteria and guiding questions prior to launching the terminal evaluation. Below are some questions that could inspire the evaluation:

i. Relevance
   - To what extent is the ACCESS project relevant to the social, economic, and political environment in the region, sub-regional and at national levels as well as the requirements of targeting women, men and vulnerable groups?? Does it adapt well to changes in the context?
   - To what extent is the theory of change and objectives at outcome and output levels

[17] Outcomes, Effectiveness, Efficiency, M&E, I&E Execution, Relevance are rated on a 6-point rating scale: 6 = Highly Satisfactory (HS), 5 = Satisfactory (S), 4 = Moderately Satisfactory (MS), 3 = Moderately Unsatisfactory (MU), 2 = Unsatisfactory (U), 1 = Highly Unsatisfactory (HU). Sustainability is rated on a 4-point scale: 4 = Likely (L), 3 = Moderately Likely (ML), 2 = Moderately Unlikely (MU), 1 = Unlikely (U)

relevant and appropriate to achieve the overall objective?
- To what extent is UNDP support relevant to the achievement of the SDGs in the country?
- To what extent did UNDP adopt gender-sensitive, human rights-based and conflict-sensitive approaches?
- To what extent is UNDP engagement a reflection of strategic considerations, including the role of UNDP in a particular development context and its comparative advantage?

ii. Effectiveness and efficiency of the management systems
- Is the governance structure of ACCESS conducive for achieving results and for scale and speed of the intervention?
- Is the M&E system working to produce the necessary data and analysis to show results and proof of concept?
- Have associated risks at the regional, national, and local level been anticipated and addressed?
- To what extent did UNDP promote gender equality, the empowerment of women, human rights and human development in the delivery of country programme outputs? How effective has UNDP been in applying gender mainstreaming in project planning and delivery to produce gender equality results?
- To what extent have UNDP practices, policies, processes and decision-making capabilities affected the achievement of the country programme outcomes?

iii. Effectiveness of the project
- Does the ACCESS project achieve planned results (intended and unintended, positive, or negative)? In which areas does the project have the greatest and fewest achievements? Why and what have been the supporting factors?
- Do the assumptions of the theory of change hold? Are the conditions in place that are required for the effective transition from humanitarian to development and to improving the perception of State legitimacy and strengthening the social contract?
- To what extent have the results at the outcome and output levels generated results for gender equality and the empowerment of women – being gender responsive or transformative? What have been the key results and changes attained for men, women and vulnerable groups?
- To what extent has UNDP improved the capacities of national implementing partners to advocate on environmental issues, including climate change issues and disaster risk reduction?
- Which programme areas are the most relevant and strategic for UNDP to scale up or consider going forward?

iv. Coherence
- To what extent are the policies and activities of different actors in the region complementary or contradictory in adding value while avoiding duplication of effort?
- To what extent is the project effective in coordinating its activities with UN agencies, relevant development partners, donors, CSO, NGOs and academic institutions? What were the constraining factors and how were they overcome? What were the supporting factors?
- To what extent was the project in line with national development priorities, country programme outputs and outcomes, the UNDP Strategic Plan, and the SDGs?
- To what extent were lessons learned from other relevant projects considered in the design?
- To what extent has the project been appropriately responsive to political, legal, economic, institutional, etc., changes in the country?

v. Sustainability
- What is the likelihood that the benefits that resulted from the ACCESS project will continue at Regional and sub regional levels through adequate ownership, commitment, financing,

and willingness displayed by the member states/Governments?
- To what extent do mechanisms, procedures and policies exist to carry forward the results attained on gender equality, empowerment of women, human rights, and human development by primary stakeholders?
- To what extent do national partners have the institutional capacities, including sustainability strategies, in place to sustain the outcome-level results?
- To what extent are lessons learned documented by the project team on a continual basis and shared with appropriate parties who could learn from the project?

vi. Human rights
- To what extent have women and vulnerable groups in targeted communities benefited from the work of UNDP in the country?

vii. Gender equality
- To what extent have gender equality and the empowerment of women been addressed in the design, implementation and monitoring of the project?
- Is the gender marker data assigned to this project representative of reality?
- To what extent has the project promoted positive changes in gender equality and the empowerment of women – contributed to development results being gender responsive or transformative? Were there any unintended effects?

viii. Environment
- What is the impact on the environment throughout the Project?
- What are the risk management tools/countermeasures for possible environmental damage?

ix. Disability
- Were persons with disabilities consulted and meaningfully involved in programme planning and implementation?
- What proportion of the beneficiaries of a programme were persons with disabilities?
- What barriers did persons with disabilities face?

Based on the identified criteria and guiding questions, the evaluation team is expected to provide overarching conclusions on ACCESS project results in the priority areas of support. The terminal evaluation is additionally expected to offer lessons for UNDP support in the region and elsewhere based on this analysis and provide recommendations for future projects.

4. METHODOLOGY

The TE report must provide evidence-based information that is credible, reliable and useful. Methodological approaches may include some or all of the following:

- Employ a combination of both qualitative and quantitative evaluation methods and instruments.
- **Document review of all relevant documentation.** This would include a review of inter alia
  - Project document
  - Theory of change and results framework.
  - Programme and project quality assurance reports.
  - Annual workplans.
  - Activity designs.
  - Consolidated quarterly and annual reports.
  - Highlights of project board meetings.

  - Technical/financial monitoring reports.
- **Semi-structured interviews** with key stakeholders including key government counterparts, donor community members, representatives of key civil society organizations and implementing partners:
  - Development of evaluation questions around relevance, effectiveness, efficiency and sustainability and designed for different stakeholders to be interviewed.
  - Key informant and focus group discussions with men and women, beneficiaries and stakeholders.
  - All interviews should be undertaken in full confidence and anonymity. The final evaluation report should not assign specific comments to individuals.
- **Surveys and questionnaires** including participants in development programmes and/or surveys and questionnaires involving other stakeholders at strategic and programmatic levels.
- **Field visits** and on-site validation of key tangible outputs and interventions.
- The evaluators are expected to follow a participatory and consultative approach that ensures close engagement with the evaluation managers, implementing partners and direct beneficiaries.
- **Other methods** such as outcome mapping, observational visits, group discussions, etc.
- **Data review and analysis** of monitoring and other data sources and methods.
  - Ensure maximum validity, reliability of data (quality) and promote use; the evaluation team will ensure triangulation of the various data sources.

The TE team is **strongly encouraged** to review UNDP's evaluation quality guidelines and criteria (available here: http://web.undp.org/evaluation/guideline/section-6.shtml) to ensure that the evaluation report meets the highest standards for quality, as the finalized report will be internally reviewed by UNDP to ensure it meets quality standards.

The TE team will review all relevant sources of information including documents prepared during the preparation phase (i.e., Prodoc, UNDP Social and Environmental Screening Procedure/SESP) project reports including annual Project Annual Reports (PAR), project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the team considers useful for this evidence-based evaluation. A Project Information Package (**see Annex C**) shall be provided to the evaluators for reference.

Under the advice of the GESI Expert, the TE team must use gender-responsive methodologies and tools and ensure that gender equality and women's empowerment, social inclusion as well as other cross-cutting issues and SDGs are incorporated into the TE report.

The TE team is expected to follow a participatory and consultative approach ensuring close engagement with the Project Team, government counterparts, Implementing Partners, the UNDP Country Office(s), the direct beneficiaries and other stakeholders. Engagement of stakeholders is vital to a successful TE. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to executing agencies, senior officials and task team/component leaders, Project Board, project beneficiaries, local government and communities, etc. The national evaluators of TE team are expected to conduct field missions to pilot provinces, including the following proposed project sites:

Indonesia: The Province of West Sulawesi, Southeast Sulawesi, East Nusa Tenggara, and Central Kalimantan

Timor-Leste: The Municipality of Bobonaro, Atauro, and Manatuto

If it is not possible to travel to or within the country for the TE mission then the TE team should develop a methodology that takes this into account conducting the TE virtually and/or remotely, including the

use of remote interview methods and extended desk reviews, data analysis, surveys and evaluation questionnaires. If all or part of the TE is to be carried out virtually then consideration should be taken for stakeholder availability, ability or willingness to be interviewed remotely. This should be detailed in the TE Inception Report and agreed with the Commissioning Unit and any limitations arising from this arrangement must be reflected in the final TE report.

Role of Evaluation Partners: The evaluation team is expected to follow a participatory and consultative approach ensuring close engagement with the Project Team, government counterparts, the UNDP Country Office, direct beneficiaries and other stakeholders. Engagement, at minimum, with the following stakeholders is vital to a successful TE.

No	Key partners	Role in the project	Role in the evaluation
1	Directorate General of Energy and Mineral Resources (MEMR) Indonesia	Provides strategic advice and approval during the implementation of the project.	Participate in interviews, meetings, consultations, or discussions.
2	Ministry of Village and Underserved Areas Indonesia.	Provide advice on the process of establishment and assistance of Village Owned Enterprise (Bumdesa) development	Participate in interviews, meetings, consultations, or discussions.
4	EMR Unit of Provincial government Indonesia	Provide advice on the implementation of the project and involved in the sustainability plan implementation in its respective areas	Participate in interviews, meetings, consultations, or discussions.
5	Village Empowerment Unit of Distrcit and Provincial Government Indonesia	Provide advice on the implementation of the project and involved in the sustainability plan implementation in its respective areas	Participate in interviews, meetings, consultations, or discussions.
6	Village Government of local people of the target location	Involved in the implementation and the beneficiary of the project results	Participate in interviews, focus groups, and surveys.
7	LONB groups (women, disability, and other marginalised) as relevant in the project	Involved in the implementation and the beneficiary of the project results	Participate in interviews, focus groups, and surveys.
8	Ministry of State Administration Timor-Leste	Provides strategic advice in the planning and implementation of the project in Timor-Leste. It also provides approval and to ensure the realization of project results from the perspective of project beneficiaries.	Participate in interviews, meetings, consultations, or discussions.
9	Village Government of local people of the target location	Involved in the implementation and the beneficiary of the project results	Participate in interviews, focus groups, and surveys.
10	Municipality government Timor-Leste	Provide advice on the implementation of the project and involved in the sustainability plan implementation	Participate in interviews, meetings, consultations, or discussions.
11	LONB groups (women, disability, and other marginalised) as relevant in the project	Involved in the implementation and the beneficiary of the project results	Participate in interviews, focus groups, and surveys.

Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to government counterparts, senior officials and task team/component leaders, key experts and consultants in the subject area, Project Board, project

beneficiaries, academia, local government and CSOs, etc. If a data collection/field mission is not possible then remote interviews may be undertaken through telephone or online (skype, zoom etc.). International Evaluators can work remotely with the National Evaluators' support in the field, if it is safe for them to operate and travel. No stakeholders, consultants or UNDP staff should be put in harm's way and safety is the key priority.

Feedback Mechanism: Once the draft terminal evaluation report is complete, the evaluation team will share the draft report with the UNDP Country Office and Project team for factual corrections and suggestions for strengthening the quality of the evaluation report. The draft report may be circulated by UNDP to the other project stakeholders who have provided input to the report, as relevant. Once feedback and comments are shared with the evaluation team, the evaluation team will produce the finalized evaluation report, taking into account the feedback and comments received, as appropriate. In instances where there is unresolvable disagreement between the evaluation team and UNDP or other stakeholders on evaluation findings or conclusions, any dissenting views or additional relevant information will be included in the evaluation management response, which will be attached to the evaluation report as an annex.

Principles of the Evaluation: The evaluation must be conducted in accordance with the UNDP M&E Policy, which includes the following principles for evaluation: Credibility, Utility, Impartiality, Transparency, Disclosure, and Participation. The review must also be conducted in line with United Nations Evaluation Group norms and standards. The review must provide evidence-based information that is credible, reliable and useful. The review should follow a participatory and consultative approach ensuring close engagement with government counterparts, and with the UNDP project teams. The review should be carried out in accordance with the guidance outlined in the UNDP Handbook on Planning, Monitoring and Evaluating for Development Results.
The final methodological approach including interview schedule, field visits and data to be used in the evaluation must be clearly outlined in the TE Inception Report and be fully discussed and agreed between UNDP, stakeholders, and the TE team. The above-mentioned parties shall agree on what is appropriate and feasible for meeting the TE purpose and objectives and answering the evaluation questions, given limitations of budget, time and data. The final report must describe the full TE approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the evaluation.

5. EVALUATION PRODUCTS (DELIVERABLES)

The TE Team shall prepare and submit the following 4 deliverables:

a. TE final inception Report: TE Team clarifies objectives and methods of the TE no later than 2 weeks before the TE mission. TE Team submits the Inception Report to the Commissioning Unit and project management. Approximate due date: 14 August 2024
b. Presentation: TE Team presents initial findings to project management and the Commissioning Unit at the end of the TE mission. Approximate due date: 24 September 2024
c. Draft TE Report: TE Team submits full draft report with annexes within 4 weeks of the end of the TE mission. Approximate due date: 4 October 2024
d. Final TE Report* and Audit Trail: TE Team submits revised report, with Audit Trail detailing how all received comments have (and have not) been addressed in the final TE report, to the Commissioning Unit within 1 week of receiving UNDP comments on draft. Approximate due date: 27 October 2024

The International Consultant (30 Person Days) will be responsible for:

- Acting as the Team Leader of the evaluation team members
- Developing the overall design, writing, and presentation of the final report.
- Assessing emerging trends concerning regulatory frameworks, budget allocations, capacity building, and work with the project team in developing the evaluation itinerary, etc.
- Compile the Audit Trail collating the various feedback comments received and detailing how they were addressed.
- Analysis of the data and information, draft and finalise the report

The GESI Expert (10 Person Days) will be responsible for:

- Overseeing the substance of the terminal evaluation to consider the GESI aspect throughout the design, data collection and analysis, and reporting stages.
- Providing advise and guidance to the team in embedding the GESI frameworks captured in the overall project results and impacts.
- Conducting gender-sensitive evaluations and assessments to measure the effectiveness of gender relevant activities.
- Conducting a gender analysis of the project results to identify how gender norms, roles, and relations influence outcomes.
- Provide advice and guidance in the designing and implementing methods for gender-sensitive data collection, ensuring inclusivity and respect for diverse gender identities.
- Help team in drafting the GESI responsive report for the TE

The National Consultant(s) (28 Person Days for Indonesia and 20 person days for Timor-Leste) will be responsible for:

- Assisting the team leader in developing TE design, work plan and strategies for the implementation of the TE in her/his respective areas.
- Developing draft of her/his respective part of the inception report including evaluation matrix;
- Collecting information, conducting desk reviews of relevant documents and interviews with key stakeholders;

Note: The arrangement for the field visit shall be designed to efficiently and effectively achieve the TE overall output. It shall be coordinated with the Team Leader and clearly reflected in the inception report to get approval from UNDP.

- Drafting her/his part and provide inputs on her/his assigned output and result-related parts of her/his respective area of assignments of the drafts and the final evaluation report that meets all of UNDP' evaluation quality standards under close coordination of team leader; and
- Under the guidance of the Team Leader, ensuring the quality and timely expected deliverables.

*The final TE 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.

TERMINAL EVALUATION DELIVERABLES AND FEEDBACK MECHANISM TIMELINE

#	Deliverable	Description	Timing	Responsibilities
1	TE Kick-off Meeting	TE Team meets with Evaluation Reference Group (ERG)[18] led by UNDP Indonesia MPO to present Draft Inception Report setting out the evaluation process and expectations. Also ERG provides guidance to queries raised by TE Team.	No later than 1 week after commencement of TE Approximate due date 6 August 2024.	Organized by UNDP Indonesia MPO in conjunction with the Project Team
2	Feedback from ERG on Draft Inception Report	TE Team receives feedback from ERG.	Feedback by ERG given no later than 1 week after submission of Draft Inception Report: Approximate due date 11 August 2024	UNDP Indonesia MPO in conjunction with the Project Team.
3	Final TE Inception Report	TE Team submits the updated TE Inception Report incorporating the feedback provided by ERG.	No later than 2 weeks before the TE mission: Approximate due date 14 August 2024	TE Team submits Inception Report to Commissioning Unit and project management
4	TE Mission	TE Team conducts mission for Desk Reviews, Data collection, Interviews, Surveys, etc.	No later than 2 weeks after submission of the Final TE Inception Report: Approximate due date 25 August – 20 September 2024	TE Team conducts field missions in the respective project countries
5	Presentation	Initial Findings	End of TE mission: Approximate due date 24 September 2024	TE Team presents to Commissioning Unit and project management Feedback on Initial findings provided by ERG during the presentation.
6	Draft TE Report	Full draft report (using guidelines on report content in ToR Annex C) with annexes	Within 4 weeks of end of TE mission: Approximate due date 4 October 2024	TE Team submits to Commissioning Unit; Feedback on the Draft TE Report will be provided by the Commission Unit and the ERG.
7	Revised Draft TE Report + Draft	Revised Full draft report incorporating the feedback	Within 2 weeks after receiving	TE Team submits to Commissioning Unit;

[18] The Evaluation Reference Group (ERG) will be comprised of UNDP Country Offices, Regional Technical Advisor, Regional Project Management Unit, National Coordinating Units in Indonesia, Timor Leste and PNG. Respective GEF-OFPs will also be invited to join the ERG.

#	Deliverable	Description	Timing	Responsibilities
	Audit Trail	from the Commissioning Unit and the ERG and Drafter Audi Trail in which the TE details how all received comments have (and have not) been addressed in the final TE report. (See template in ToR Annex H)	feedback from the Commissioning Unit and the ERG: Approximate due date 16 October 2024	Feedback on the Revised Draft TE Report will be provided by the BRH/COSQA.
8	Final TE Report* + Final Audit Trail	Revised final report and Final TE Audit trail in which the TE details how BRH/COSQA comments have (and have not) been addressed in the final TE report (See template in ToR Annex H)	Within 2 weeks of receiving comments on draft report: Approximate due date 27 October 2024	TE Team submits both documents to the Commissioning Unit

*All final TE reports will be quality assessed by the UNDP Independent Evaluation Office (IEO). Details of the IEO's quality assessment of decentralized evaluations can be found in Section 6 of the UNDP Evaluation Guidelines.[19]

The results of the TE Team's work will be submitted to the Commissioning Unit and Project Management Unit. They will evaluate the submission to ensure it complies with what is stated in the ToR and provide input that needs to be followed up by the TE Team. The Head of MPO will approve the deliverables considered to be of acceptable quality and complete.

6. EVALUATION TEAM COMPOSITION AND REQUIRED COMPETENCIES

A team of 4 (four) independent evaluators will conduct the TE – one International Evaluator as Team Leader (with experience and exposure to projects and evaluations in other regions), 2 (two) National Evaluators as team experts from Indonesia and Timor-Leste, and 1 (one) GESI Expert.

The International Evaluator will be the Team Leader and responsible for the overall design, writing, and presentation of the final report. The International Evaluator will also assess emerging trends concerning regulatory frameworks, budget allocations, capacity building, and work with the project team in developing the evaluation itinerary, etc.

The National Evaluators will work closely with the Team Leader in supporting any work that needs to be undertaken as laid out in this TOR and other tasks as required. The National Evaluator will also act as a focal point for coordinating and working with relevant stakeholders at national and sub-national levels. In the case of international travel restrictions and the mission is not possible, alternative interview and data collection methods such as Zoom/Skype interviews, mobile questionnaires, etc., and field visits will be undertaken by the National Evaluator under the Team Leader's guidance.

[19] Access at: http://web.undp.org/evaluation/guideline/section-6.shtml

Note: UNDP evaluation report template is stipulated in the UNDP Evaluation Guidelines 2019 - Annex 3 UNDP evaluation report template and quality standards. The Quality Assurance requirements is stipulated in the UNDP Evaluation Guidelines 2019 - Section 6.10.2 on Evaluation report structure, methodology and data sources; Section 6.10.3 on Cross-cutting issues; and Section 6.10.4 on Evaluation results

The GESI Expert will work closely with the Team Leader in ensuring the comprehensive integration of Gender Equality and Social Inclusion (GESI) considerations throughout the terminal evaluation (TE) process. They will oversee every stage, from initial design through to data collection, analysis, and reporting, ensuring that the evaluation framework effectively captures gender-specific outcomes and impacts. Their expertise will guide the team in conducting gender-sensitive evaluations and assessments, critically analyzing project results to unveil the influence of gender norms, roles, and relationships on outcomes.

In close collaboration with the National Evaluator, the selected International Evaluator shall be responsible to undertake the exercise of having the TE scope as laid down in Section 2 above. The international Evaluator is expected to undertake the following tasks:

1) Develop methodology for the terminal evaluation.
2) Undertake literature review/desk review.
3) Undertake data collection through key informant interviews and FGD and carry out analysis.
4) Develop a report covering the assessment process, lessons learned, key findings with a focus on GESI target groups; and finally frame recommendations.

The evaluation team will identify and collect/collate the appropriate information in-country and in organizing interviews, etc. as well as assess any emerging trends with respect to regulatory frameworks, budget allocations, capacity building, etc. The evaluation team will develop communication with stakeholders who will be interviewed, and work with the Project Team in developing the TE workplan.

The evaluator(s) cannot have participated in the project preparation, formulation and/or implementation (including the writing of the project document), and should not have a conflict of interest with the project's related activities.

Qualifications for the International Evaluator (Team Leader), National Evaluators and GESI Expert

Education

- Master's degree (for international Evaluator and GESI expert) and Bachelor's degree (for National Evaluator) in a field related to Environment, Energy, Climate Change, or other closely related field from an accredited college or university

Experience

- Experience in relevant technical areas for at least *10 years* for International Evaluator and GESI expert and 6 years for National Evaluators. In addition, at least five years of GESI relevant research/evaluation experience with strong reporting/publication track records is required for GESI expert.
- Experience in evaluating UNDP projects;
- Relevant experience with results-based management evaluation methodologies;
- Experience applying SMART indicators and reconstructing or validating baseline scenarios;
- Competence in adaptive management, as applied to climate change mitigation and/or promotion of sustainable and modern energy services in communities
- Experience working with climate change related projects in Indonesia or Southeast Asia
- 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 responsive evaluation and analysis;
- Experience in conducting interview, stakeholders consultation;
- Demonstrable analytical skills;

- Project evaluation/review experience within United Nations system will be considered an asset;

Language

- Fluency in written English (all evaluators)
- Fluency in Bahasa Indonesia (Indonesia National Evaluator)
- Fluency in Tetum/Timorese (Timor-Leste National Evaluator)

Approach of Assignment

- Understands the task and applies a methodology appropriate for the task
- Important aspects of the task addressed clearly and in sufficient detail
- Planning is logical, realistic for efficient project implementation

7. EVALUATION ETHICS

The TE team will be held to the highest ethical standards and is required to sign a code of conduct upon acceptance of the assignment. This evaluation will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation' (**See ToR Annex F**). The Evaluator must safeguard the rights and confidentiality of information providers, interviewees, and stakeholders through measures to ensure compliance with legal and other relevant codes governing collection of data and reporting on data. The Evaluator must also ensure security of collected information before and after the evaluation and protocols to ensure anonymity and confidentiality of sources of information where that is expected. The information knowledge and data gathered in the evaluation process must also be solely used for the evaluation and not for other uses without the express authorization of UNDP and partners.

8. IMPLEMENTATION ARRANGEMENTS

The principal responsibility for managing the TE resides with the Evaluation Manager in the Commissioning Unit. The Evaluation Manager is the Head of Management Performance Oversight (MPO) and the Commissioning Unit for this project's TE is UNDP Indonesia Country Office.

The Commissioning Unit will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the TE consultant The Project Team will be responsible for liaising with the TE consultant to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

9. TIME FRAME FOR THE EVALUATION PROCESS

The TE will be conducted over a duration of about **3 months starting on 25 July 2024 – 31 October 2024**. However, contractually, in terms of person-days this will translated into total of 88 person-days allocated as follows:

- International Evaluator – 30 person-days
- GESI Expert – 10 person=days
- National Evaluator (Indonesia) – 28 person-days
- National Evaluator (Timor Leste) – 20 person-days

The tentative TE timeframe is as follows:

Timeline	Activity	Team day allocation
10 July 2024	Application closes	
10 – 25 July 2024	Selection of TE team, contract issuance	
25 July 2024	Kick-off meeting for TE and handover of project related documents	International evaluator: 0.5 day (s) GESI expert : 0.5 day(s) National evaluator (IDN): 0.5 day(s) National evaluator (TL): 0.5 day(s)
25 July – 5 Aug 2024	Document review and preparation of TE Inception Report *Note: Options for site visits should be provided in the TE Inception Report.*	International evaluator: 5 day (s) GESI expert : 3 day(s) National evaluator (IDN): 3 day(s) National evaluator (TL): 2.5 day(s)
6 Aug 2024	Submission of drat inception report	
6 – 11 Aug 2024	Circulation for feedback of the inception report	
11 – 13 Aug 2024	Incorporating feedback	International evaluator: 4 day (s) GESI expert : 1 day(s) National evaluator (IDN): 2 day(s) National evaluator (TL): 2 day(s)
14 Aug 2024	Submission of final TE Inception Report	
25 Aug – 20 September 2024	Terminal evaluation mission: stakeholder meetings, interviews, surveys, field visits, etc. **Indonesia:** Field visit to at least 1 village per province, and 1 meeting at provincial level with province, district, and ACCESS villages representatives: - West Sulawesi – 5 days - Southeast Sulawesi – 4 days - Central Kalimantan – 4 days - East Nusa Tenggara – 4 days **Timor-Leste:** - Bobonaro (3 days) - Atauro (3 days) - Manatuto (3 days)	International evaluator: 0 day (s) GESI expert : 0 day(s) National evaluator (IDN): 16 day(s) National evaluator (TL): 9 day(s)
24 Sept 2024	Mission wrap-up meeting & presentation of initial findings; earliest end of TE mission	International evaluator: 2.5 day (s) GESI expert : 1 day(s) National evaluator (IDN): 1 day(s) National evaluator (TL): 1 day(s)
23 Sept – 3 Oct 2024	Preparation of draft TE report	International evaluator: 10 day (s) GESI expert : 3 day(s) National evaluator (IDN): 3 day(s) National evaluator (TL): 2.5 day(s)
4 Oct 2024	Submission of Draft TE report	
5 – 14 Oct 2024	Circulation of draft TE report for comments	
15 Oct 2024	Incorporation of comments on draft TE report, TE audit trail & finalization of TE report	International evaluator: 5 day (s) GESI expert : 1 day(s)

Timeline	Activity	Team day allocation
		National evaluator (IDN): 2 day(s) National evaluator (TL): 2 day(s)
24 Oct 2024	Submission of revised TE report + draft Audit trail	
24 – 26 Oct 2024	Feedback and incorporating on the draft (if relevant)	International evaluator: 3 day (s) GESI expert : 0.5 day(s) National evaluator (IDN): 0.5 day(s) National evaluator (TL): 0.5 day(s)
27 October 2024	Submission of Final TE report + Final Audit trail	
23 – 27 Oct 2024	Preparation and Issuance of Management Response **by implementing partner**, concluding Stakeholder Workshop/PBM.	
31 Oct 2024	Expected date of full TE completion	

Duty Station:
For the Internasional evaluator and GESI expert, the duty station will be home-based and no travel is required. The duty station for the national evaluators (Indonesia & Timor-Leste) will be home based with travel to the location samples (Indonesia: the Province of West Sulawesi, Southeast Sulawesi, East Nusa Tenggara, and Central Kalimantan;Timor-Leste: the Municipality of Bobonaro, Atauro, and Manatuto). In the financial proposals, the consultant needs to include travel costs (airplane ticket) from the consultant's home base. Based on UNDP regulation, travel cost should be calculated on the basis of the lowest available airfare.

b) The contractor working will be output-based, thus no necessity to report or present regularly, hence the requirement to travel to the proposed project sites will be upon confirmation from UNDP.

Travel:

- Domestic travel will be required to project sites during the TE mission, considering if it is safe to operate and travel;
- The BSAFE training course must be successfully completed prior to commencement of travel; Herewith is the link to access this training: https://training.dss.un.org/courses/login/index.php. These training modules at this secure internet site is accessible to Consultants, which allows for registration with private email.
- Individual Evaluators are responsible for ensuring they have vaccinations/inoculations when travelling to certain countries, as designated by the UN Medical Director.
- Evaluators are required to comply with the UN security directives set forth under https://dss.un.org/dssweb/
- All related travel expenses will be covered upon submission using travel claim with supporting documents as per UNDP rules and regulations.
- Taking into consideration logistics, security, coverage, representation, financial resources, etc., the evaluation team in consultation with the project team shall select sample project sites to conduct validation field visits.

Indonesia

No	Indicative Location	Frequency	Estimated Number of Travel Days
1	West Sulawesi Province	1	5
2	Southeast Sulawesi Province	1	4

3	East Nusa Tenggara Province	1	4
4	Central Kalimantan Province	1	4

Timor Leste

No	Indicative Location	Frequency	Estimated Number of Travel Days
1	Bobonaro Municipality	1	3
2	Atauro Municipality	1	3
3	Manatuto Municipality	1	3

Annex-9: Gender Analysis Matrix to Assess the Impact of the Project for Target Beneficiaries

Indonesia context
The Impact of Installation of Solar PV construction

Category	Women	Men	Household	Community
Labour	(-) Before: Women manually drew water, collected firewood and performed household tasks. (+) After: Reduced physical labor with the use of electric appliances.	(-) Before: Men used to stand by at home to operate crank generators, limiting other activities. (-) Before: Men have to go far to buy ice blocks to preserve the fish, require fuel/fee for transportation (+) After: Men freed from generator operation, allowing for economic activities (+) After: saving time and money to buy the ice blocks	(+) Reduced labour for both genders due to electrification. Tasks like laundry, water and firewood collection, and food preparation became easier, especially for women	(?) Men may continue to dominate decision-making roles, but women's participation may increase due to time and laborsaving improvements.
Time	(-) Before: women woke up early (3AM) in the morning for meal preparation (-) 1-2 hours spent on water and firewood collection and laundry. (+) After: Time for meal preparation and for water, firewood collection as well as laundry reduced significantly	(-) Before: Time spent managing generators. (+) After: Time freed from generator management for other activities.	(+) Women gained time for income generating activities, childcare, and participation in community enterprises.	(+)With more time available, men and women may participate in broader economic or social community roles. (?) Overburden of women due to family and additional income generator activities

	(only 10 minutes and 30 minutes for laundry)			
Resources	(-) Before: Limited access to resources like washing machines, electric pumps, rice cooker, electric fan etc. (+) After: Access to electric-powered devices reduced manual labor and fuel costs, the money used to spent on fuels now can be used for other necessities	(-) Before: Spent money on fuel for generators. (+) After: Access to solar energy systems reduced fuel expenses and generator reliance.	(+) Household expenditures on energy were reduced. Both men and women gained access to more efficient energy resources	(+) Broader community access to energy resources, especially through solar-powered systems, potentially enhances the local economy and development initiatives
Socio-cultural	(-) Before: Restricted by traditional roles with limited access to technology. (+) After: Gained more knowledge and autonomy, able to operate appliances and contribute to decision making about energy usage	(-) Before: Control over energy resources reinforced traditional gender roles due to men's potent roles in controlling machineries (+) After: Traditional roles were reduced, as technology became easier to manage	(+) Increased women's autonomy over household tasks and energy management could shift household dynamics towards more gender-equitable decision-making	(+) Cultural perceptions of gender roles could begin shifting as women gain more access to and control over household energy resources. Increased well being due to noise from generator and increased safety for community due to appropriate lighting in the neigbourhood

Timor-Leste Context

The impact of Installation of Solar PV Water Pumps and Highly Efficient Solar Lamp System (LTSHE)

Category	Women	Men	Household	Community

Labour	(-) Before: women experiencing time constraint to engage in productive work during the night (-) Before: Women primarily responsible for all labour intensive activities such as water collection, household chores, farming, and weaving baskets (+) After: women have more time to engage in productive activities such as weaving at night and supporting agriculture. (+) After: with water resource near the house, water collection reduced labours and women can have time to rest	(-) Before: Fishing activities is less efficient because the absence of the lights (+) After: Increased productivity in fishing using light bulbs from LTSHE for night fishing (+) After: Productivity in agriculture improved with better access to water.	(+) Household income potential increases due to higher productivity from both men and women. (+) Better division of labour within families, as women can support agriculture and contribute more economically.	(+) Improved local economy with more goods and services being produced and sold (fish, agriculture, woven products). (+) Enhanced local businesses with women playing a more active role. (+) Increased overall community labour efficiency, with more time for collective farming and social activities due to LTSHE and SWP systems.
Time	(-) Before: Women spent more time to fetch water for domestic purposes (4 hours per day) and this requires more than one trip (-) Before: School children spent more time to fetch water before going to school (-) Before: bathroom was not being used because there is no running water nearby, people bath at the water source most of the time	(+) Men benefit from being able to fish at night, maximising the time spent in income-generating activities.	(?) Benefit from reduced time spent fetching water, with more balanced responsibilities between men and women. (+) Children benefit as mothers can spend more time with them and	(-) Before: The local operator schedules water distribution, with water pumped from the source to the reservoir over an 8-hour period, and distributed through taps in the late afternoon. (+) After: Community-wide reduction in time spent on essential tasks such as fetching water and more time for

	(+) After: Significant reduction in time fetching water (+) After: supporting children's school attendance, as they no longer had to fetch water before school (+) Functional toilets and availability of running water, eliminating open defecation, increase of personal dignity due to safety during hygiene activities		manage household tasks more efficiently.	collective activities, social events, and decision-making processes within the community.
Resources	(+) Women now have shared access to essential resources like electricity and clean water, (+) Clean water access improved overall health and productivity (+) Access to clean water reduced health risks related to water collection. (+) Women gained access to training and capacity-building sessions, improving their skills in solar technology and maintenance	(+) Men have greater access to lighting and clean water, improving their productivity in fishing and farming. (+) More control over new resources related to clean water management systems (SWP).	(+) Solar lamps and clean water reduced household energy and water costs. (+) Health improvements, especially for children, due to access to clean water and proper hygiene.	(+) Sustainable access to clean water and energy resources through solar-powered systems. (+) Increased economic opportunities for the community
Socio-cultural	(+) Women's increased visibility in agriculture, weaving, and small	(-) Men continue to dominate in public decision-making and community leadership roles,	(+) Traditional gender roles in households are slowly changing as	(?) Community perceptions of gender roles are changing as women participate in technical

	businesses is shifting traditional gender roles. (+) Women's roles expanded to include participation in capacity-building sessions and solar-related activities (+) Women's participation in decision-making increased, especially with GMF formation.	especially in managing new resources like the solar water pump system (SWP) (+) Men retain traditional roles in fishing and agriculture but benefit from increased economic opportunities through improved access to resources.	women gain more time and resources to contribute economically. (?) Shift in gender dynamics within the household, as women are more empowered through increased skills and reduced time on domestic labour	training and take on leadership roles in project maintenance. (Though the number is small but there are women actively participated as local operators in a male dominated job) (?) Increased social cohesion due to shared benefits from clean water and electricity

Annex-10: TE Report Clearance Form

Terminal Evaluation Report for 00126434 - Accelerating Clean Energy Access to Reduce Inequality (ACCESS)

Reviewed and Cleared By:

Commissioning Unit (M&E Focal Point)

Name: Ari Pratama (Management Performance Oversight Unit)

Signature: DocuSigned by: A9E92855636D444... **Date:** 10-Dec-2024

Deputy Resident Representative

Name: Sujala Pant

Signature: DocuSigned by: Sujala Pant 04186D9E3AB9435... **Date:** 11-Dec-2024