United Nations Development Programme
조선민주주의인민공화국주재
유엔개발계획대표부

Terminal Evaluation of the "Sustainable Energy Solutions for Rural Livelihoods in DPRK" Project (SES Project)
[Award ID: 00090996, Project ID: 00096469]

TERMINAL EVALUATION REPORT

Prepared By:
Dr. Jeff Fang
International Consultant

January 2020

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

I would like to acknowledge people and organisations that helped and supported directly and indirectly in this terminal evaluation.

I am very thankful to UNDP DPRK Programme Evaluation Team (Ms Le Le Lan and Mr Yu Kwang Song) for organizing the comprehensive work programme and all the guidance given for the terminal evaluation

I appreciate the UNDP DPRK Programme Evaluation Team, Madam Hong Jong Hui (National Counterpart representative for MEPI) and all SES Project national consultants onsite for all the assistance rendered to make my field mission trip in DPRK fruitful, insightful and pleasant.

I am very grateful to the National Counterparts of the DPRK Government for their support, time and openness during the evaluation.

I thank UNDP DPRK SES Project Team and all UNDP DPRK staff for their cooperation and support. Many other interviewees at Singye County (North Hwanghae Province), Hoechang County and Kaechon City (South Pyongan Province), and Unsan County (North Pyongan Province) were very helpful in meeting and sharing their views, ideas and perspectives. All of them added great value and were excellent hosts.

LIST OF ACRONYMS/ABBREVIATIONS

CO	Country Office
CBS	Central Bureau of Statistics
CBDRM	Strengthening the Resilience of Communities through Community-Based Disaster Risk Management
CDR	Combined Delivery Report
CPC	County Peoples' Committee
CPD	Country Programme Document
DPRK	Democratic People's Republic of Korea
DIM	Direct Implementation Modality
DRR	UNDP Deputy Resident Representative
EE	Energy Efficiency
EOP	End-Of-Project
FGD	Focus Group Discussion
FMV	Field Monitoring Visits
HQ	Headquarters
ICF	Internal Control Framework
M&E	Monitoring and Evaluation
MDG	Millennium Development Goal
MEPI	Ministry of Electric Power Industry
MTR	Mid-Term Review
NCC	DPRK National Coordinating Committee
NTDC	County New Technology Dissemination Centers
PRODOC	Project Document
PSC	Project Steering Committee
PV	Photovoltaic
RE	Renewable Energy
SAOS	State Academy of Sciences
SCoST	State Commission of Science and Technology
SDG	Sustainable Development Goal
SED	Support to Socio-Economic Development of Rural Areas in DPRK
SES	Sustainable Energy Solutions for Rural Livelihoods in DPRK
TE	Terminal Evaluation
TOR	Terms of Reference
TRAC	Target for Resource Assignment from the Core System
UNCT	United Nations Country Team
UNDP	United Nations Development Programme
UNEG	United Nations Evaluation Group

EXECUTIVE SUMMARY

This report is the result of the terminal evaluation mission which took place from November to December 2019, including the field mission in DPRK from 2 to 9 December 2019. It was conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluations".

1. Project Summary Table

Project Title	"Sustainable Energy Solutions for Rural Livelihoods in DPRK" Project (SES Project)		
ATLAS Business Unit, Award #, Project ID	Business Unit: UNDP DPRK Award ID: 00090996, Project ID: 00096469		
Country:	DPRK	Date project manager hired:	March 2016
Region:	Northeast Asia	Planned closing date:	31-12-2019
Project Document (ProDoc) Signature Date:	26-08-2015	If revised, proposed. closing date:	
Executing Agency/ Implementing Partner:	UNDP DPRK CO		
Other project partners:	• National Coordinating Committee (NCC) for UNDP • Ministry of Electric Power Industry (MEPI) • State Academy of Sciences (SAOS) • State Commission of Science and Technology (SCoST) • Central Bureau of Statistics (CBS) • Local counterparts at the county level: CPCs, NTDCs and beneficiaries of Hoechang County (South Pyongan Province), Singye County (North Hwanghae Province), Yonsan County (North Hwanghae Province), Unsan County (North Pyongan Province), Kaechon City (South Pyongan Province) and Yangdok County (South Pyongan Province)		
Project Financing	*at Senior Management/Executive Board Level endorsement (US$)*	*Actual Expenditure at Terminal Evaluation (US$)*	
[1] UNDP contribution:	US$6,117,572 (approved PRODOC budget)	US$ 4,169,390.18	
[2] Government:	In-kind contributions	In-kind contributions	
[3] Other partners:			
Project Total Costs	US$6,691,380	US$ 4,169,390.18 (as of 3 December 2019)	

2. Project Description in Brief

DPRK experienced significant economic ramifications as a result of the collapsed socialist market systems in the 1990s. Combining with frequent severe natural disasters in the country, DPRK and its people faced socio-economic challenges. Hence, the DPRK national development strategy considered improvement in people's living standards as a high priority.

Rural areas and communities in DPRK lacked access to adequate and reliable energy services due to:

i. insufficient supply of primary energy inputs;
ii. inadequate infrastructure, technological and managerial know-how and competence for the sustainable exploitation of local renewable energy sources; and
iii. lack of appropriate operational modalities enabling the sustainable delivery of the technologies to provide basic energy services.

The SES Project addresses this developmental challenge by drawing upon the lessons from two previous UNDP DPRK projects that focused on sustainable energy i.e. Sustainable Renewable Energy Development Programme (SRED), and Small Wind Energy Development Project for Rural Areas (SWEDPRA).

The SES Project focuses on the attainment of effective and sustainable local energy solutions that generate positive impact among rural beneficiaries. The SES Project will reinforce sustainability aspects and aims to strengthen energy service delivery at the local level.

The SES Project was formulated in August 2015 with the following objective:

To provide local rural communities in pilot areas with adequate, secure and reliable access to renewable energy resources, cost-effective energy efficiency and energy conservation technologies for meeting basic energy demands under appropriate operational modalities.

In order to achieve the above project objective, four outputs are expected from the SES Project:

- Output 1: Information about energy resources and feasible RE/EE solutions updated and made accessible to local beneficiaries.
- Output 2: Increased technical know-how of county-level personnel for energy planning and sustainable management of local renewable energy resources.
- Output 3: Strengthened supply chains for the delivery of appropriate RE/EE solutions for local communities in rural areas.
- Output 4: Increased energy security and self-reliance of rural population through the implementation of RE/EE solutions for local communities.

The SES Project is aligned with the UNDP DPRK CPD Outcome 6 which is "Strengthened enabling environment for use of conventional energy, and accessibility of alternative energy sources, and strategies in adaptation and mitigation to climate change", specifically Output 6.1 which is "Improved rural energy supply through development and utilization of renewable and conventional sources". Indirect contributions from the SES Project are expected towards the UNDP DPRK CPD Outcome 3 ("Increased standards of living and sustainable livelihood").

Adopting DIM, the SES Project's Implementing Agency is UNDP with a dedicated project management team based in the UNDP DPRK CO. An International Project Manager is responsible for the daily management of the project with assistance from national project staff and recruited consultants. The SES Project had the following project partners:

- National counterparts - NCC for UNDP, line ministries, State Institutions at the central level
- Local counterparts – County People's Committees and other key stakeholders of: Hoechang County, South Pyongan Province; Singye County, North Hwanghae Province; Yonsan County, North Hwanghae Province; Unsan County, North Pyongan Province; Kaechon City, South Pyongan Province; Yangdok County, South Pyongan Province

The SES Project has devised criteria for the selection of its sites in early 2016. Given the common parameters in terms of vulnerability, repeated exposure to disasters, and insufficient resources to respond, selected seven project sites in common with another ongoing "Strengthening the Resilience of Communities through Community-Based Disaster Risk Management" (CBDRM) Project in the portfolio, given the inter-connections between energy access and disaster management, through integrated responses to leverage synergies of both projects for a magnified development result.

3. Evaluation Rating Table

Overall Results/Impact:	Achievement Rating[a]
Outcome Strengthened enabling environment for use of conventional energy, and accessibility of alternative energy sources, and strategies in adaptation and mitigation to climate change.	
Output 1 Information about energy resources and feasible RE/EE solutions updated and made accessible to local beneficiaries.	**HS**
Output 2 Increased technical know-how of county-level personnel for energy planning and sustainable management of local renewable energy resources.	**S**
Output 3 Strengthened supply chains for the delivery of appropriate RE/EE solutions for local communities in rural areas.	**MS**
Output 4 Increased energy security and self-reliance of rural population through the implementation of RE/EE solutions for local communities • Renewable energy solutions identified and implemented through energy resource/demand assessments • Renewable energy solutions identified through 24 feasibility studies in targeted user groups in the pilot Counties were substantively not implemented	**HS** **U**

Note:
a. Evaluation Rating:
6. Highly Satisfactory (HS): no shortcomings
5. Satisfactory (S): minor shortcomings
4. Moderately Satisfactory (MS): moderate shortcomings
3. Moderately Unsatisfactory (MU): significant shortcomings
2. Unsatisfactory (U): major shortcomings
1. Highly Unsatisfactory (HU): severe shortcomings

Evaluation Ratings:			
Category	**Rating[b]**	**Category**	**Rating[b]**
Relevance	**S**	National Ownership	**S**
Effectiveness	**S**	Basic Human Needs/Gender Equality	**S**
Efficiency	**MS**	Synergy	**S**

Note:
b. Evaluation Rating:
6. Highly Satisfactory (HS): no shortcomings
5. Satisfactory (S): minor shortcomings
4. Moderately Satisfactory (MS): moderate shortcomings
3. Moderately Unsatisfactory (MU): significant shortcomings
2. Unsatisfactory (U): major shortcomings
1. Highly Unsatisfactory (HU): severe shortcomings

Sustainability Ratings	
Category	**Rating[c]**
Sustainability	**ML**

Note:
c. Sustainability Rating:
4. Likely (L): negligible risks to sustainability
3. Moderately Likely (ML): moderate risks
2. Moderately Unlikely (MU): significant risks
1. Unlikely (U): severe risks

4. Summary of Conclusions and Lessons Learned

Conclusion #1: Significant External Factors/Challenges Severely Affected the Project

Significant external factors/challenges beyond the control of the UNDP DPRK CO were encountered throughout the entire SES project implementation, and severely affected the timely delivery of project outputs relating to procurement-related activities. The 6 rounds of UN Sanctions on DPRK (2016-2017) and the extended period of the banking channel disruptions/closure were identified as the main constraints.

The evaluation noted that the SES PRODOC had appropriate risk assessments which identified a total of 15 risks (1 governance risk, 3 operational risks, 5 strategic risks, 3 financial/fiduciary risks, and 3 sustainability risks) with impact and probability ratings, and prepared corresponding counter-measures/management responses which were appropriate at that point of time and during the project implementation (2015 to 2019). However, the risk analysis did not plan for scenarios of extreme UN sanction measures and the extended banking channel disruption/closure. Furthermore, the implementation of the SES PRODOC's counter-measures/management responses did not appropriately resolve the significant change of events caused by the UN Sanction measures and the extended banking channel disruption/closure during the project implementation.

Lesson Learned:

- Delayed efforts to complete procurement-related interventions, especially those listed as part of the feasibility studies severely disrupted county and village community (Ri) development plans/activities, resulting in potential economic hardship/losses and supply chain sustainability/productivity not fully realized.
- Long-term scenario planning together with annual reviews for change of direction should form part of risk assessment and mitigations in special country context projects.

Conclusion #2: The UNDP SES Project Team has done their best but there is room for improvement in project implementation

Despite the challenging circumstances, The SES Project Team has done their best and laid strong foundations to enable sustainable energy solutions at the village community (Ri) level. The SES Project Team was able to implement the project despite encountering the significant external factors and challenges that were beyond the control of the UNDP DPRK CO throughout the entire SES Project by:

- displaying good project management abilities and effectively utilising appropriate project management tools to implement the SES Project to the best of their abilities
- applying effective adaptive management in planning procurement activities

However, improvements/consistencies could still be further strengthened in the following areas:

1. Registering/updates of assets/delivered items list and tagging of assets/delivered items by project team, in full compliance and adherence to relevant UNDP Policies and Procedures and UNDP DPRK Guidelines for Field Monitoring Visits, should be more consistent to ensure complete and proper physical verification and handover for the intended use/purpose.
2. Signed acceptance at time of delivery and physical verification of all assets/items from the project, while continuing to monitor on the use of delivered items and assets in full operations, should be more consistent. This ensures successful delivery onsite and the use of the delivered items for their intended purpose to achieve the desired project results.
3. Field data collection to measure effectiveness and impact on completed project activities.
4. For improved financial accountability and transparency purposes as part of demonstrating the efficient use of funding on project output-based activities, future financial reporting processes and templates of UNDP DPRK projects should:
    - track and report consistent financial figures (budget and actual expenditure).
    - have consistent comparisons between budget and actual expenditure, as per project outputs, based on project CDRs, for submissions of all relevant project reports (including annual progress reports and submissions to PSC meetings).

Lesson Learned:

To maintain sustainability and determine any project output/activity effectiveness and impact, even after any formal hand-over and/or completion of project output technical support and assistance, it is important that project teams, at minimum during project implementation, still continue monitoring and reporting on post project initiatives, including the use of the assets and delivered equipment items after handover to project beneficiaries. This would ensure successful delivery onsite and the use of the delivered items for their intended purpose to achieve the desired project results.

For improved financial accountability and transparency purposes, financial reporting processes and templates should be consistent, especially on the:

- tracking and reporting of financial figures (budget and actual expenditure).
- consistent comparisons between budget and actual expenditure to demonstrate the efficient use of funding on project output-based activities.

Conclusion #3: SES model has potential for replication across DPRK but requires strong national ownership and commitment as the key to overcome any difficulties faced and achieve optimum results

The high level of national and local ownership ensured sustainability and positive environmental impact, despite the SES Project encountering external challenges that severely constrained the project beneficiaries.

The SES model has the potential to be replicated across DPRK in close partnership collaboration with National and Local Counterparts. However, this replication must be complemented with fully sustainable and well-equipped energy supply chains to benefit the end-users at the county/village community (Ri) level.

Lesson Learned:

- Strong national ownership combined with strong commitment/support and participation from CPCs and village communities (Ris) is key to accelerate the SES model to overcome any difficulties faced and achieve/bear lasting results.
- Replication of knowledge/operational capabilities and capacities of National Consultants to enhance the pool of national and local resources are strongly recommended.

Conclusion #4: Significant delays through the sanctions exemptions/clearance process and the extended banking channel disruption/closure hindered project implementation and severely affected UNDP's reputation of not being able to effectively deliver.

Significant delays through the sanctions exemptions/clearance process and the extended banking channel disruption/closure hindered project implementation and have severely affected UNDP's reputation as an organization of not being able to effectively deliver.

Many other significant achievements in the SES project at village community (Ri) level through the use of solar PV systems in 170 public institutions and EE retrofitting measures in 67 public community buildings across 15 village communities (Ris) should be given more on-the-ground recognition.

Lesson Learned:
Stronger on-the-ground visibility on UNDP's unique contributions would be required at current SES project sites and future SES-related interventions (such as UNDP logos, nameplates, asset/delivered item tags), and communication of project results among international and national stakeholders (through a suitable communications platform for active sharing of information and lessons learned). UNDP's reputation as an organization to deliver results would need to be restored

It is important to:

- better manage village community (Ri) expectations to avoid/minimize potential economic losses to counties/Ris due to extensive surveys, project document preparation, frequent site visits, and extended/delayed/disrupted delivery times of UNDP assets/items to project sites
- impart knowledge to local counties/village communities (Ris) on more effective electricity usage and better control of the demand and energy consumption
- observe and pay attention to safety measures and procedures for RE/EE equipment to minimize/prevent occupational accidents and hazards from occurring
- conduct an independent impact evaluation study as a future project output/activity component to measure impact effectiveness, final end-line indicators and actual benefits gained
- ensure the use of assets/delivered items for their intended purposes

Key Success Story:
The Use and Application of Renewable Energy/Energy Efficient Solutions to Improve Rural Livelihoods

The SES Project aims to provide local rural village communities with adequate, secure and reliable access to renewable energy resources, cost-effective energy efficiency and energy conservation technologies for meeting basic energy demands.

UNDP made one crucial/important strategic decision in the early stages of the SES Project to identify and promptly implement RE/EE solutions at the village communities based on the comprehensive energy resource and demand assessments. The SES Project has mostly implemented humanitarian-oriented activities/interventions and resulted in producing notable positive impacts, especially to the rural community social service providers such as kindergartens, nurseries, hospitals and clinics as shown below.

	Prior to UNDP SES Project Interventions	**Post UNDP SES Project Interventions**
Kindergartens and nurseries	• Use of coal and firewood to heat up rooms and for cooking but the indoor temperature was still not warm enough in extreme cold conditions and this could increase unhealthy/hazardous indoor air quality conditions for the teachers and children • Using diesel and gasoline generators which is costly to purchase and incurred high maintenance costs • Rely on unreliable grid electricity which could only lasts a few hours a day and may have frequent power supply outages/cuts • Forming of ice and condensation on the walls would cause long-term damage to the building structure	Teachers and children are benefiting from the increased and better use of kindergartens and nurseries. This is because: • cleaner air quality due to improved Ondol floor heating system using less coal which would improve the health and well-being of the teachers and children inside the building • there is no more forming of ice and water condensation on the walls which would improve the preservation and protection of the building structure • constant electricity supply means teachers can now use computers, electronic equipment and televisions to provide continuous and better education to the kindergarten children • the rooms are well insulated with suitable temperature conditions for the children to rest and sleep in comfort
Hospitals and clinics	• Very cold and difficult to control the indoor temperature to be constantly warm for patient well-being • Forming of ice and water condensation on the walls would cause long-term damage to the building structure • Rely on unreliable grid electricity which could only lasts a few hours a day and medical equipment could not be used • Use of coal to heat up the indoor environment could increase unhealthy/hazardous indoor air quality conditions for doctors, nurses and patients • Cannot fully operate the hospital/clinics during the night and during winter seasons which can be up to 6 months in a year	Hospitals and clinics are now able to provide more reliable services to vulnerable groups such as elderly, pregnant women, children, the sick, and people with disabilities. This is because: • the hospital and clinic environment now have cleaner air quality (coal is not required) and the indoor temperature can be controlled to treat patients and ensure the comfort, health and well-being of doctors, nurses and patients • there is no more forming of ice and water condensation on the walls which would improve the preservation and protection of the building structure • constant electricity supply means medical equipment and computer equipment can be used to treat patients without any disruptions • hospitals and clinics are now able to operate 24 hours a day and whole year round, especially at night if need to

5. Recommendations

The evaluation proposes 7 recommendations for consideration and implementation whereby:

- 4 operational recommendations relate to how the UNDP DPRK CO could further improve the way it operates as an organization. It is to be noted that the implementation of these recommendations would be dependent on the future of the UNDP DPRK CO structure operating in DPRK in view of the geo-political environment and the availability of an approved UNDP DPRK CPD.

R1: Strengthen financial reporting processes

For improved financial accountability and transparency purposes, UNDP DPRK project financial reporting processes and templates should track and report progress of consistent financial figures i.e. budget and actual expenditure for consistent comparisons between budget and actual expenditure, as per project outputs, based on project CDRs, for submissions of all relevant project reports (including annual project progress reports), to demonstrate the efficient use of funding on project output-based activities.

R2: Extensive review and update of country office policies and procedures with long-term scenario planning

UNDP DPRK CO should ensure that suitable policies and procedures can be implemented to resolve future issues in the event of unforeseen circumstances and minimize reputational risks by:

R2.1) working with UNDP Regional HQ to extensively review and update all operational, procurement and financial management policies and procedures to account for all that happened within the 2015-2019 period and appropriately mitigate any future constraints.

R2.2) incorporating extensive long-term scenario planning processes with appropriate and specific risk assessments and counter-measures.

R3: Consistent monitoring and reporting of assets/delivered items

To ensure successful delivery onsite and the use of the delivered items for their intended purpose to achieve the desired project results (in line with the established practice, UNDP rules and procedures and UNDP DPRK ICF guidelines), UNDP DPRK must ensure the following:

R3.1) procurement of any equipment/materials must strictly comply to relevant UNDP Policies and Procedures, with the monitoring process/procedure stringently following UNDP DPRK Guidelines for Field Monitoring Visits.

R3.2) project team should register any assets/items in the asset/delivered items list and physically monitor them, regardless of how they are procured given the DPRK special context working environment.

R3.3) continuation of monitoring and reporting on the use of the assets/delivered items after handover to project beneficiaries, at minimum during project implementation, should be adhered to.

R4: Management of reputational risks and stakeholder expectations

To restore its reputation as an organization that can deliver, UNDP DPRK should:

R4.1) set conditions and mechanisms to implement "Force Majeure" or early termination of projects if need to.

R4.2) strengthen its relationship management processes with project beneficiaries such as continued field visits, as practical and as relevant as required during the project implementation period, to better manage stakeholder expectations. By doing so, this would avoid/minimize potential economic and productivity losses to counties/village communities (Ris).

R4.3) minimize and/or avoid unequal distribution of delivered assets/items to avoid unhealthy comparisons between project beneficiaries and across any projects that have synergies.

- 3 recommendations relate to future directions by building on the successful pilot model in the SES Project. By doing so, this will further replicate and upscale with a significant focus on humanitarian-oriented interventions to attain effective and sustainable local energy solutions that generate positive impact among rural beneficiaries. Similarly, it is to be noted that the implementation of these recommendations would be dependent on the future of the UNDP DPRK CO structure operating in DPRK in view of the geo-political environment and the availability of an approved UNDP DPRK CPD.

  R5: Rollout/replication of the SES Project in DPRK at county/village community (Ri) level
  In the future of any approved UNDP CPD for DPRK, it is strongly recommended that UNDP DPRK should fully adopt the SES Project approach and continue to upscale from its successful pilot SES model for future rollout/replication at county/village community (Ri) level in DPRK. This should be done by working in close partnership with relevant DPRK national counterparts (MEPI, SCoST, SAOS and CBS) and local DPRK counties to implement at county/village community (Ri) level:

  R5.1) facilitate knowledge/operational transfer of the SES Project's procedural, operational and hands-on training manuals, guidelines, SOPs, CEMPs and other related SES equipment/materials on:
    - Hybrid RE systems (electricity production for local village community (Ri) needs in rural environments).
    - RE and EE technologies such as eco-buildings (thermal insulation materials) and Solar PV panels (high performance energy efficiency).
    - Load management (more effective electricity usage and better control of the demand and energy consumption).
    - Establishing suitable and cost-effective RE/EE centers and manufacturing/maintenance workshops as part of strengthening the county/village community (Ri) energy supply chains.

  R5.2) organize study tours, in other countries of similar context and/or culture to DPRK, for increased exposure to acquiring knowledge/application of best practices in RE/EE.

  R5.3) conduct a base-line study to establish the starting indicators of current energy consumption and socio-economic development in local village communities (Ris).

  R5.4) conduct an independent impact evaluation study, as a future project output/activity component, to measure the impact effectiveness, final end-line indicators and actual benefits gained.

  R6: Communication of project results
  To strengthen the communication of project results and recognition of UNDP's unique contributions, UNDP DPRK should implement the following:

  R6.1) It is strongly recommended that any future SES-related projects should strengthen its communication/sharing platforms to engage in closer collaboration/synergies with international organizations/agencies on SES-related activities.

  R6.2) Current SES project sites and future SES-related interventions should display stronger on-the-ground visibility of UNDP's unique contributions at the county/village community (Ri) level through the consistent placing of UNDP logos, nameplates and/or asset/delivered item tags.

R7: Implementation of safety measures and procedures on RE/EE equipment

It is strongly recommended for UNDP DPRK that future SES-related project activities should incorporate safety measures and procedures for end-users when operating and maintaining any RE/EE equipment. These would include:

R7.1) installing protective covering over live equipment for insulation from any electrical shocks.

R7.2) creating risk-free and secured access to any sites housing the RE/EE equipment to minimize/prevent any potential workplace accidents.

R7.3) developing safety procedures/manuals when operating, cleaning and/or maintaining any RE/EE equipment.

1. INTRODUCTION

This report covers the TE of the UNDP project entitled "Sustainable Energy Solutions for Rural Livelihoods in DPRK (SES)" Project (SES Project). The TE was conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'.

The SES Project had a duration of 4.5 years (August 2015 to December 2019) at an approved budget of US$6,117,572. Following its final year of project implementation in 2019 and as stated in the PRODOC, the SES Project is now required to undergo a TE.

1.1 Purpose of the Terminal Evaluation

As outlined in the SES PRODOC, a TE would be required upon completion of implementation and to be conducted by an independent third party, in consultation with UNDP and SES stakeholders at national and local levels. The objectives of the TE are to:

- assess the achievement, outcomes and impacts of the SES Project compared to the baseline
- detail the lessons learnt and issues faced during the implementation phase of the SES Project
- provide recommendations of future possible interventions for the DPRK

It was further noted that significant challenges were encountered throughout the entire SES Project implementation such as:

- 6 rounds of UN sanction resolutions on DPRK, wherein the latest UNSC resolution 2397 (22 December 2017) required case-by-case exemption request for procurement of goods;
- extended period of banking channel disruption/closure for funds transfer to UNDP CO which affected the ability to proceed with international and local procurement.

In view of the above context and circumstances faced by the SES Project, the TE assessed on project results and experiences as well as key challenges met, lessons learnt, and areas for improvement. This will be done through the questions of the following evaluation criteria as outlined in the TOR: (1) Relevance, (2) Effectiveness, (3) Efficiency, (4) Sustainability, (5) Basic Human Needs, (6) Gender Equality, and (7) Synergy.

1.2 Scope and Methodology

As stated in the TOR, the SES PRODOC required a TE to:

- *"… be conducted by an independent third party, will be initiated at the end of the Project and involve consultation with the Project stakeholders at the national and local levels*".
- "*… detail the achievements, outcomes & impacts of the project compared to baseline, the issues faced, and lessons learned during the project implementation and will provide recommendations for future actions*".

The TE of the SES Project reviewed the entire duration of project implementation (August 2015 to December 2019), focusing on project results and experiences as well as key challenges met, lessons learnt, and areas for improvement, through the lenses of Relevance, Efficiency, National Ownership, Effectiveness and Sustainability as well as taking into consideration issues of gender, basic human needs and leaving no one behind. This would lead to recommendations of areas and methods of possible future interventions for the DPRK.

Based on the objectives and scope of the evaluation assignment as outlined in the TOR, the evaluation methodology was conducted in three phases.

The Evaluator was of a view that the data collected should also capture, where possible, case study examples of what has worked well in the SES Project.

Phase 1 – Desk Review of Documentation (11 to 22 November 2019):

Prior to and during the field mission in DPRK, the Evaluator reviewed a wide variety of documents covering project design, implementation progress, monitoring, amongst others such as annual progress and monitoring reports, minutes from PSC meetings, work plans, technical documents, implementing partner agreements, capacity building/training materials and other materials related to SES Project activities.

At the start of the field mission trip in DPRK, an inception and planning meeting was held between the Evaluator, UNDP DPRK and possibly other key stakeholders with in-depth knowledge of the SES Project. This included government line ministries and national/local counterparts who:

- have historical knowledge of the SES Project
- are current/previous counterpart project managers and key SES project beneficiary representatives
- provided the funds and/or in-kind resources to the SES Project
- can ensure the correct data is identified to address the evaluation questions.

The Evaluator also utilized local knowledge, insights and understanding obtained from the previous terminal evaluation of the "Pilot Project to Support Socio-economic Development of Rural Areas in DPRK" (SED) project to contextualize, synergize and value-add to the SES Project.

Expected Deliverable #1: Inception Report (including Evaluation Matrix) – 10 to 15 pages

Phase 2 – Data Collection/Field Mission in DPRK (2 to 9 December 2019)

Data collection comprised interviews with key informants, focus group discussion (FGD) and field visits for the gathering, verification and analysis of the evaluation required data.

(1) Face-to-Face consultations

Face-to-face consultations in the form of semi-structured interviews with key informants and focus group discussion (FGD) was conducted with a wide range of key stakeholders and beneficiaries. Conducted in English and assisted by a DPRK staff/translator if required to, the face-to-face consultations enabled the Evaluator to understand about the experiences, feelings, hopes, views and opinions expressed in the words of the respondents on the SES Project activities. This also included conversations focusing on capturing the essence, meaning or significance of the experiences of respondents within their work environment.

The order of sequence for the interview/focus group questions was flexible and dynamic, and allowed follow-up questions to clarify. Triangulation of results such as comparing information from different sources like documentation and interviews, or interviews on the same subject with different stakeholders, was used to corroborate or check the reliability of evidence.

Proposed participants for the semi-structured interviews and FGDs included (but not limited to):

- UN/UNDP senior management
- UNDP SES project team
- National counterparts - NCC for UNDP, Line Ministries and State Institutions at the central level [Ministry of Electric Power Industry (MEPI), State Academy of Sciences (SAOS), State Commission of Science and Technology (SCST), CBS]
- Local counterparts – CPCs, NTDCs and other key stakeholders of: Hoechang County, South Pyongan Province; Singye County, North Hwanghae Province; Yonsan County, North Hwanghae Province; Unsan County, North Pyongan Province; Kaechon City, South Pyongan Province; Yangdok County, South Pyongan Province

(2) Direct observations of project results and activities thru SES Project site visits

Site visits were conducted to better understand the on-the-ground environment, experience, views and culture of the project beneficiaries.

This enabled the Evaluator to be immersed into the world of the SES project beneficiaries and provided the context on different work place settings. The site visits were conducted over 3 days in the following locations:

- Hoechang County, South Pyongan Province
- Singye County, North Hwanghae Province
- Unsan County, North Pyongan Province
- Kaechon City, South Pyongan Province

Observation data collected complemented with other primary and secondary data collected to give a more holistic and accurate context around the role and contributions of the SES Project. The site visits validated key tangible outputs and interventions from the SES Project.

A Stakeholder Workshop meeting was organized which brought together key SES project stakeholders to consider and discuss/validate findings, conclusions and recommendations. It aimed to:

- organize a validation / debriefing meeting with relevant key national counterparts and UNDP DPRK staff
- present the findings and recommendations, covering achievement and experiences, challenges and lessons, future improvement in possible continuation and/or replication

Expected Deliverable #2: Evaluation Debriefing – Presentation of field mission findings and recommendations

Phase 3 – Draft and Finalization of Evaluation Report (9 to 31 December 2019):

Using thematic analysis and comparative analysis, the draft evaluation report aimed to identify and translate the collated data into key issues, findings, conclusions and recommendations such as:

- Presentation of clear data analysis against all evaluation questions, including triangulated information
- Substantiation by credible evidence that has been checked for accuracy, consistency and reliability
- Limitations or gaps in evidence (if applicable)
- Indications where evidence is inconclusive (if applicable)

The Evaluator would prepare the TE (Terminal Evaluation) report, which incorporated feedback from UNDP and national counterparts to convey clear findings, conclusions and recommendations.

Deliverable #3: Draft Evaluation Report – 40 to 60 pages
Deliverable #4: TE (Terminal Evaluation) Report (including an executive summary) – 40 to 60 pages

In planning for future developments, the Evaluator worked with UNDP DPRK to further develop recommendations of areas and methods of possible future interventions for the DPRK. In addition, the Evaluator also consolidated project completion activities to conclude the evaluation assignment:

- Data records management: Archive, compile and store all primary and secondary data
- Develop and submit Project Completion Report

Deliver electronic copies of TE package (including TE Report, all data records and Project Completion Report) to UNDP DPRK.

1.3 Evaluation Criteria and Questions

Based on the TOR requirements, this TE applied the UNDP evaluation criteria of "Relevance", "Effectiveness", "Efficiency", and "Sustainability" to align with the evaluation objectives. The TOR further highlighted the "Basic Human Needs", "Gender Equality" and "Synergy" elements to integrate their cross-cutting linkages with the other criteria.

The TOR included a set of evaluation questions to be assessed in relation to Relevance, Effectiveness, Efficiency, Sustainability, Basic Human Needs, Gender Equality and Synergy:

Category	Sample Questions
Relevance	• To what extent was the project in line with the national development priorities, the CPD outputs, CPD outcomes, UNDP Strategic Plan and the SDGs? • To what extent does the project contribute to the Theory of Change for the relevant CPD outcome? • To what extent were lessons learned from other relevant projects considered in the project's design? • To what extent were perspectives of those who could affect the outcomes, and those who could contribute information or other resources to the attainment of stated results, taken into account during the project design processes? • To what extent does the project contribute to gender equality, the empowerment of women and the basic human needs? • To what extent has the project been appropriately responsive to political, legal, economic, institutional, etc., changes in the country?
Effectiveness	• To what extent did the project contribute to the CPD outcomes and outputs, the SDGs, UNDP Strategic Plan and national development priorities? • To what extent were the project outputs achieved? • What factors have contributed to achieving or not achieving intended CPD outputs and CPD outcomes? • To what extent has the UNDP partnership strategy been appropriate and effective? • What factors contributed to effectiveness or ineffectiveness? • In which areas does the project have the greatest achievements? Why and what have been the supporting factors? How can the project build on or expand these achievements? • In which areas does the project have the least achievements? What have been the constraining factors and why? How can they or could they be overcome? • What, if any, alternative strategies would have been more effective in achieving the project's objectives? • Are the projects objectives and outputs clear, practical, and feasible within its frame? • To what extent have stakeholders been involved in project implementation? • To what extent is project management and implementation participatory and is this participation contributing towards achievement of the project objectives? • To what extent has the project been appropriately responsive to the needs of the national constituents and changing partner priorities? • To what extent has the project contributed to gender equality, the empowerment of women and the realization of basic human needs?
Efficiency	• To what extent was the project management structure as outlined in the PRODOC efficient in generating the expected results? • To what extent has UNDP's project implementation strategy and execution been efficient and cost effective? • To what extent has there been an economical use of financial and human resources? Have resources (funds, human resources, time, expertise, etc.) been allocated strategically to achieve outcomes? • To what extent have resources been used efficiently? Have activities supporting the strategy been cost-effective? • To what extent have project funds and activities been delivered in a timely manner? • To what extent do the monitoring and evaluation systems utilized by UNDP ensure effective and efficient project management?

Category	Sample Questions
Sustainability	• Are there any financial risks that may jeopardize the sustainability of project outputs? • To what extent will financial and economic resources be available to sustain the benefits achieved by the project? • Are there any social or political risks that may jeopardize sustainability of project outputs and the project's contributions to CPD outputs and CPD outcomes? • Do the legal frameworks, policies and governance structures and processes within which the project operates pose risks that may jeopardize sustainability of project benefits? • To what extent did UNDP actions pose an environmental threat to the sustainability of project outputs? • What is the risk that the level of stakeholder's ownership will be sufficient to allow for the project benefits to be sustained? • To what extent do mechanisms, procedures, and policies exist to carry forward the results attained on gender equality, empowerment of women, basic human needs and human development by primary stakeholders? • To what extent do stakeholders support the project's long-term objectives? • To what extent are lessons learned being documented by the Project Team on a continual basis and shared with appropriate parties who could learn from the project? • To what extent do UNDP interventions have well designed and well-planned exit strategies? • What could be done to strengthen exit strategies and sustainability?
Basic Human Needs	• Based on the principles of Human Rights, to what extent have poor, indigenous and physically challenged, women and other disadvantaged and vulnerable groups benefitted from UNDP DPRK's work in contributing to enhance fulfilment of people's economic and social needs?
Gender Equality	• To what extent has 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? Were there any unintended effects?
Synergy	• To what extent the synergies of CBDRM and SES Projects have been addressed contributing to a magnified development results?

1.4 Structure of the Terminal Evaluation Report

The report is divided into five major sections:

- **Section 1** summarizes the project together with the purpose of the TE, scoping and methodology
- **Section 2** outlines the development context and discusses the problems that the project sets out to address, the strategy adopted, operationalization arrangements and key milestones and stakeholders impacted by the SES Project
- **Section 3** reports the key findings from the SES Project and presents under the perspectives of project strategy, project implementation and project results
- **Section 4** features one key success story on the use and application of renewable energy/energy efficient solutions to improve rural livelihoods
- **Section 5** reveals the conclusions, lessons learned and recommendations

2. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

2.1 Project Start and Duration

Project Implementation Start : 26th August 2015
Closing Date (Original) : 31st December 2019

The SES Project was launched in August 2015. The project document was signed on 26 August 2015 after the PAC meeting on 14 July 2015. The project was implemented by UNDP in direct implementation modality (DIM). The project had a duration of 4.5 years (August 2015 to December 2019).

2.2 Problems that the Project Sought to Address

DPRK experienced significant economic ramifications as a result of the collapsed socialist market systems in the 1990s. Combining with frequent severe natural disasters in the country, DPRK and its people faced socio-economic challenges. Hence, the DPRK national development strategy considered improvement in people's living standards as a high priority.

Rural areas and communities in DPRK lacked access to adequate and reliable energy services due to:

i. insufficient supply of primary energy inputs;
ii. inadequate infrastructure, technological and managerial know-how and competence for the sustainable exploitation of local renewable energy sources; and
iii. lack of appropriate operational modalities enabling the sustainable delivery of the technologies to provide basic energy services.

The SES Project addressed this developmental challenge by drawing upon the lessons from two previous UNDP DPRK projects that focused on sustainable energy i.e. Sustainable Renewable Energy Development Programme (SRED), and Small Wind Energy Development Project for Rural Areas (SWEDPRA). The SES Project focused on the attainment of effective and sustainable local energy solutions that generate positive impact among rural beneficiaries. The SES Project would reinforce sustainability aspects and aims to strengthen energy service delivery at the local level.

2.3 Immediate and Development Objectives of the Project

The SES Project was formulated in August 2015 with the following objective:

To provide local rural communities in pilot areas with adequate, secure and reliable access to renewable energy resources, cost-effective energy efficiency and energy conservation technologies for meeting basic energy demands under appropriate operational modalities.

The Sustainable Energy Solutions for Rural Livelihoods in DPRK (SES) project addressed problems in rural energy access by drawing upon the lessons from the SRED and SWEDPRA experiences. The project focused on the attainment of effective and sustainable local energy solutions that generate positive impact among rural beneficiaries, rather than involving in technology development.

Seven project sites were selected as pilot areas in common with another ongoing "Strengthening the Resilience of Communities through Community-Based Disaster Risk Management" (CBDRM) Project in Yonsan and Singye Counties (North Hwanghae Province) and Yangdok County (South Pyongan Province). Given the inter-connections between energy access and disaster management, vulnerability of these communities to repeated exposure to disasters, and insufficient resources to respond, both SES and CBDRM projects aimed to provid integrated responses to leverage synergies of both projects for a magnified development result.

2.4 Baseline Established

The established baseline was a result of the joint efforts of UNDP in the DPRK, the local partners and engaged consultant. Implemented survey, analytical tools and methods used for this study were accepted by all the stakeholders as the best possible in the given conditions. The baseline of SES Project is as follow:

Project outputs	Baseline Indicators	Baseline Assumptions
Output 1 Information about energy resources and feasible RE/EE solutions updated and made accessible to local beneficiaries.	(1a) Number of technology feasibility studies (including CBA) conducted for RE and EE; (1b) Number of energy resource assessment conducted in selected counties; (1c) Number of rural energy demand assessments conducted in selected counties; (1d) Number of energy audits conducted in selected counties.	▪ General lack of background information, socio-economic data, environmental studies and maps at county level, and information on the stocks of local forest reserves, mineral coal reserves, and watershed areas ▪ Lack of understanding and description of institutional framework, including legal basis and mandates ▪ Lack of information to describe the baseline situation of targeted beneficiaries in rural areas, and to assess the impact of improved energy services on their quality of life, local productivity, and local environmental parameters ▪ Available information is mostly anecdotal; quantified data are often not consistent and/or not validated ▪ National counterparts lack skills to conduct high-quality end-use surveys ▪ Government restrictions with respect to access to information

Project outputs	Baseline Indicators	Baseline Assumptions
Output 2 Increased technical know-how of county-level personnel for energy planning and sustainable management of local renewable energy resources.	(2a) Number of personnel (decision makers and energy experts) trained at county level; (2b) Number of counties with prepared energy management plans; (2c) Number of counties with established institutional framework for implementation of energy management plans; (2d) Area (ha) of sustainably management biomass resources.	▪ Lack of investment and obsolete technologies translate into very high losses in power generation and distribution, inadequate power quality and excessive operating costs ▪ Poor transport infrastructure is prohibitive for a cost effective delivery of coal from central stocks and even from the local, low-grade coal mines ▪ National energy institutes lack the know-how to design and implement small-scale energy solutions ▪ Quality standards are poorly developed or inadequately enforced ▪ Cost aspects are not acknowledged and not considered to devise adequate, sustainable energy solutions
Output 3 Strengthened supply chains for the delivery of appropriate RE/EE solutions for local communities in rural areas.	(3a) Number of local suppliers involved in production and servicing (maintenance, technical support, repair) of EE and RE technologies; (3b) Number of local expert centres established at county level; (3c) Number of technology experts, project designers and mechanics trained.	▪ Insufficient rural energy supply ▪ No quantitative targets set in terms of basic services required to improve Human Development Indicators (HDIs) for rural people ▪ Lack of detailed, quantitative description of baseline situation ▪ Inadequate institutional framework to address rural people's energy needs is in terms of mandate, competences and resources

Project outputs	Baseline Indicators	Baseline Assumptions
Output 4 Increased energy security and self-reliance of rural population through the implementation of RE/EE solutions for local communities.	(4a) Number of successfully implemented RE/EE solutions; (4b) Number of beneficiaries (m/f) directly served by implemented RE/EE solutions in selected counties; (4c) Average increase of RE/EE based energy supply per person for heat (kgce) and electricity (kWh); (4d) Annual electricity savings in agriculture (kWh/y).	▪ No consistent framework for assessing the costs and benefits of individual energy solutions ▪ Cooperative farms and counties lack a full understanding of the local energy problem and lack the know-how, resources and technology for proposing adequate solutions ▪ It is not clear whether their mandate allows taking full ownership of the local energy situation, and whether county- and community-based energy generators, necessities factories and service providers can operate on sustainable operational principle

2.5 Main Stakeholders

Adopting DIM, the SES Project's Implementing Agency was UNDP with a dedicated project management team based in the UNDP DPRK CO. An International Project Manager was responsible for the daily management of the project with assistance from national project staff and recruited consultants. The SES Project also had the following project partners:

- National counterparts - NCC for UNDP, line ministries, State Institutions at the central level including Ministry of Electric Power Industry (MEPI), the State Academy of Sciences (SAOS) and the State Commission of Science and Technology (SCoST)
- Local counterparts – CPCs and other key stakeholders of:
  - Hoechang County, South Pyongan Province
  - Singye County, North Hwanghae Province
  - Yonsan County, North Hwanghae Province
  - Unsan County, North Pyongan Province
  - Kaechon City, South Pyongan Province
  - Yangdok County, South Pyongan Province
- County level: People's Committees, forest management boards, energy committees, factory managers, Cooperative Farm manager, representatives from relevant county-level organs.
- End-user level: Individual households, managers and staff of medical clinics, schools, nurseries, factory staff, land laborers, sloping land user groups (SLUGs)

The SES Project was managed by the Project Manager (PM), under the oversight of the Deputy Resident Representative (DRR), and the SES Project Steering Committee (PSC). The PM was supported by the Project Management Team, located at the UNDP DPRK CO in Pyongyang and comprised the:

- National Administrative Assistant to assist the PM with administrative and financial tasks and reporting
- National Technical Coordinator to provide technical support to all aspects and activities of the project
- Project Driver

Administrative, financial and procurement support to the SES Project Team was also provided by the Operations Team of the UNDP DPRK CO.

Programme monitoring and oversight of SES Project activities was led by the M&E Specialist with support from the Programme Analyst.

2.6 Expected Results

Project Outputs	Expected Results/Output Targets
Project Objective: Strengthened enabling environment for use of conventional energy, and accessibility of alternative energy sources, and strategies in adaptation and mitigation to climate change.	✓ Information about energy resources and feasible RE/EE solutions updated and made accessible to local beneficiaries. ✓ Increased technical know-how of county-level personnel for energy planning and sustainable management of local renewable energy resources. ✓ Strengthened supply chains for the delivery of appropriate RE/EE solutions for local communities in rural areas. ✓ Increased energy security and self-reliance of rural population through the implementation of RE/EE solutions for local communities.
Output 1: Information about energy resources and feasible RE/EE solutions updated and made accessible to local beneficiaries. <u>Indicated Activities</u> 1.1 Updated assessments of energy demand and social, economic, and environmental indicators. 1.2 Implementation of detailed resource assessments of biomass and small hydro. 1.3 Detailed energy audits of county factories, agricultural processes, and community buildings. 1.4 Design of and approval of methodology for cost benefit analysis(CBA) of rural energy solutions. 1.5 Identification of RE/EE solutions (including modal switch) for selected areas and end-users, including functional specifications.	<u>Indicators:</u> (1a) Number of technology feasibility studies (including CBA) conducted for RE and EE; (1b) Number of energy resource assessment conducted in selected counties; (1c) Number of rural energy demand assessments conducted in selected counties; (1d) Number of energy audits conducted in selected counties. <u>Baseline:</u> (1a) 0 studies; (1b) 0 energy resource assessments; (1c) 0 rural energy demand assessments; (1d) 0 energy audits.

Project Outputs	Expected Results/Output Targets
1.6 Feasibility studies of proposed RE/EE solutions for implementation under the Project. 1.7 Finalisation of energy solutions ready for implementation in consultation with stakeholders, considering capabilities for local and national production	Targets (EOP): Y1: (1a) 24 studies; (1b) 8 energy resource assessments; (1c) 4 rural energy demand assessments; (1d) 20energy audits. Y2: N.A. Y3: N.A. Y4: N.A.
Output 2: Increased technical know-how of county-level personnel for energy planning and sustainable management of local renewable energy resources. Indicated Activities 2.1 Training of decision-makers and energy experts at county and community-level on energy resources, conservation, conversion, efficiency, and planning. 2.2 Participatory development of energy planning scenarios to increase energy security and self reliance. 2.3 Participatory development of county-level management plans for local energy resources (sustainable biomass production, small-hydro watershed areas). 2.4 Establishment of county-level institutional framework for successful implementation of energy management programmes. 2.5 Conservation and increase of local energy resource base (sustainable biomass, conservation of watershed areas). 2.6 Promotion and educational activities to increase awareness on energy conservation and induce behavioural changes.	Indicators: (2a) Number of personnel (decision makers and energy experts) trained at county level; (2b) Number of counties with prepared energy management plans; (2c) Number of counties with established institutional framework for implementation of energy management plans; (2d) area (ha) of sustainably management biomass resources. Baseline: (2a) 0 persons; (2b) 0 counties; (2c) 0 counties; (2d) 0 hectare. Targets (EOP): (2a) 100 people; (2b) 3 counties; (2c) 3 counties; (2d) 60 hectare. Y1: (2a) 20 people; (2b) 0 counties; (2c) 0 counties; (2d) 0 hectare. Y2: (2a) 40 people; (2b) 1 counties; (2c) 1 counties; (2d) 20 hectare.

Project Outputs	Expected Results/Output Targets
	Y3: (2a) 80 people; (2b) 2 counties; (2c) 2 counties; (2d) 40 hectare. Y4: (2a) 100 people; (2b) 3 counties; (2c) 3 counties; (2d) 60 hectare. Note on gender: the Project strives at equitable numbers of men (m) and women (f) being trained. Attained targets to be segregated for m/f.
Output 3: Strengthened supply chains for the delivery of appropriate RE/EE solutions for local communities in rural areas. <u>Indicated Activities</u> 3.1 Strengthening of community- and county-level workshops involved in production of EE technologies. 3.2 Strengthening of county-level workshops for assembly of RE technologies. 3.3 Innovative approaches and designs for costeffective stand-alone RE/EE technologies for local production and repair. 3.4 Establishment of expertcentresat county-level for technical support, quality assurance, and performance monitoring. 3.5 Training of energy experts, project designers, and workshop technicians of counties and community-level organizations.	<u>Indicators:</u> (3a) Number of local suppliers involved in production and servicing (maintenance, technical support, repair) of EE and RE technologies; (3b) Number of local expert centres established at county level; (3c) Number of technology experts, project designers and mechanics trained. <u>Baseline:</u> (3a) 0 suppliers; (3b) 0 expert centres; (3c) 0 people. <u>Targets (EOP):</u> (3a) 8 suppliers; (3b) at least 2 expert centres; (3c) 40 experts and 200 mechanics. Y1: (3a) 0 suppliers; (3b) 0 expert centres; (3c) 0experts and 0 mechanics. Y2: (3a) 2 suppliers; (3b) 0 expert centres; (3c) 20 experts and 75 mechanics. Y3: (3a) 5 suppliers; (3b) 1 expert centres; (3c)30 experts and 150 mechanics.

Project Outputs	Expected Results/Output Targets
	Y4: (3a) 8 suppliers; (3b) 2 expert centres; (3c) 40 experts and 200 mechanics. Note on gender: the Project strives at equitable numbers of men (m) and women (f) being trained. Attained targets to be segregated for m/f.
Output 4: Increased energy security and self-reliance of rural population through the implementation of RE/EE solutions for local communities. <u>Indicated Activities</u> 4.1 Procurement and implementation of cost effective RE and EE solutions in productive processes. 4.2 Procurement and implementation of RE and EE solutions for community services, including local social service providers, such as, schools and medical centers). 4.3 Procurement and implementation of cost effective RE and EE solutions in households. 4.4 Procurement and implementation of energy conservation and RE solutions to enhance natural resource management and agriculture. 4.5 Technical supervision and monitoring of procurement, civil works, and operation. 4.6 Technical training for local operators and end users. 4.7 Project monitoring and evaluation.	<u>Indicators:</u> (4a) Number of successfully implemented RE/EE solutions; (4b) Number of beneficiaries (m/f) directly served by implemented RE/EE solutions in selected counties; (4c) Average increase of RE/EE based energy supply per person for heat (kgce) and electricity (kWh); (4d) Annual electricity savings in agriculture (kWh/y). <u>Baseline:</u> (4a) 0 technologies; (4b) 0 people; (4c) 0 kgce, 0 kWh; (4d) 0 (kWh/y). <u>Targets (EOP):</u> (4a) nine (9) different RE and EE technologies implemented and operated under sustainable operational modalities; (4b) 24,000 people (12,000male,12,000 female); (4c) heat: +200 kg coal eq/ person-y; electricity: +100 kWh/person-y; (4d) 2,400,000 kWh/y. Y1: (4a) 0 RE and EE technologies; (4b) 0 people; (4c) 0; (4d) 0. Y2: (4a) 6 RE and EE technologies (improved Ondol floor heating system, thermal insulation in buildings including double glazed windows, EE coal stoves, EE biomass stoves, EE buildings, solar water heaters; solar PV); (4b)8,000 people; (4c) heat: +100 kg coal eq/ person-y; electricity: +50 kWh/person-y; (4d) 800,000kWh/y.

Project Outputs	Expected Results/Output Targets
	Y3: (4a) 9 RE and EE technologies; (4b)16,000 people; (4c) heat: +200 kg coal eq/ person-y; electricity: +100 kWh/person-y; (4d) 1,600,000 kWh/y. Y4: (4a) 9 technologies; (4b) 24,000 people; (4c) heat: +200 kg coal eq/ person-y; electricity: +100 kWh/person-y; (4d) 2,400,000 kWh/y.

3. FINDINGS

3.1 Project Design

3.1.1 Project Document (PRODOC) Formulation

The SES PRODOC indicated that the earliest commencement of the SES Project formulation was a UNDP fact-finding mission to conduct a rural energy survey in June 2014. A detailed assessment indicated to implement local-level energy solutions in rural areas through an approach that entails:

i. the establishment of delivery models enabling the sustainable supply and operation of energy solutions in rural areas
ii. the introduction of renewable energy technologies (RE), and solutions for more efficient energy use (EE) and energy conservation (EC)
iii. the increase of county-level energy self-reliance by enhanced ownership and technical and managerial competencies for the sustainable use of local renewable energy resources.

The SES PRODOC developed TORs to recruit suitable project team members to implement and manage the SES Project. The evaluation determined that the SES Project Team (comprising one International Project Manager, one National Technical Coordinator and One National Administrative Assistant) had the project management expertise and suitable technical expertise to deliver the project outputs which are technically complex and required specialised expertise and knowledge in RE/EE.

3.1.2 Analysis of Results and Resources Framework (Project Logic/Strategy and Indicators)

In reviewing the effectiveness and efficiency of the SES Project in meeting its outcome, the evaluation reviewed the SES Project's Results and Resources Framework in relation to the UNDP DPRK CPD (2011 to 2015) and UNSF (2011 to 2016, 2017 to 2021) on the strategic priorities, outcomes, outputs and the primary applicable key environment and sustainable development key result areas (KRAs). The evaluation assessment also addressed the SES Project's strategy, indicators, baseline, end of project target, source of verification, and risk and assumptions.

The evaluation reviewed that the SES Project's Results and Resources Framework design has taken careful consideration of the UNDP DPRK CPD and UNSF outcomes and was aligned to the key environment and sustainable development KRAs. Furthermore, the SES Project's Results and Resources Framework was prepared with in-depth thinking, accurately described the end of project goals, listed the sources of verification, and appropriately identified the risks and the assumptions.

The Results and Resources Framework was clearly described with the indicative activities and end of project targets. There were 15 indicators in total which reflected against outputs and activities.

The SES Project took extensive consideration to stakeholder participation in project design, decision making, planning, implementation and monitoring. For example, the National Counterparts and Local Counterparts were invited to contribute to designing of project interventions and technical discussions on the output activities. This translated to an increase in confidence and ownership of project activities in the SES Project implementation.

The SES Project's outcome and outputs were consistent with the DRPK Government's national priorities. A consultative approach with the National and Local Counterparts was followed in the development and design of project outputs and activities, resulting in strong project ownership and commitment.

The SES Project's proposed outcome and outputs of the Project individually addressed specific needs identified and collectively presented a comprehensive solution to strengthen local capacity for improved nutrition and food security.

The SES Project also aligned with local county development plans and reinforced stakeholders' engagement and supported their achievement of priorities. The SES Project design was also strategically aligned and consistent with the UN MDGs and subsequent UN SDGs.

The evaluation further noted that the SES Project's expected results in the SES PRODOC are more output-oriented (WHAT IS BEING PRODUCED - EFFICIENCY) than outcome-oriented (WHAT IS THE VALUE/BENEFIT/ CHANGE/IMPACT - EFFECTIVENESS). While this is not an assessment of the SES Project Team's performance, the evaluation is of a view that future PRODOC design should consider a balance of expected results with outcome-oriented targets/indicators to determine the effectiveness.

3.1.3 Risks and Assumptions

The SES PRODOC had appropriate risk assessments with impact and probability ratings, and prepared corresponding counter-measures/management responses which were appropriate at that point of time and for the project duration (2015 to 2019). The SES Project identified a total of 15 risks:

- 1 governance risk
- 3 operational risks
- 5 strategic risks
- 3 financial/fiduciary risks
- 3 sustainability risks

However, the evaluation reviewed that the risk assessments could be further extended to be part of the Results and Resources Framework to identify the key risks and appropriate counter-measures/management response for each of the 4 SES Project outputs. Many of these activities would have governance, operational risks, strategic risks, financial/fiduciary and/or sustainability risks that would require appropriate counter-measures/management responses.

The evaluation also determined that the SES PRODOC's risk analysis did not account for scenarios of extreme UN sanction measures and the extended banking channel disruption/closure. Furthermore, the implementation of the SES PRODOC's counter-measures/management responses did not appropriately resolve the significant change of events caused by the UN Sanction measures and the extended banking channel disruption/closure over the project duration.

3.1.4 Lessons from Other Relevant Projects Incorporated into Project Design

The evaluation observed that the SES Project Team took opportunity to align the SES Project with the CBDRM Project to maximize the synergy effects (more details found in Section 3.3.8).

The SES Project was also built from the experience and lessons learned from two previous UNDP DPRK projects:

- Small Wind Energy Development Programme Rural Areas (SWEDPRA) Project
- Sustainable Rural Energy Development (SRED) Project

For example:

- the SES Project focused on the attainment of effective and sustainable local energy solutions that generate positive impact among rural beneficiaries, rather than involving in technology development.

- the SES Project focused on implementing RE/EE technologies and solutions at community-level (such as public institutions , buildings and facilities) rather than household level (individual homes). This would be through area-based clustering or crowding-in approach to maximize demonstration effects and awareness raising.

3.1.5 Planned Stakeholder Participation

The SES Project generated strong stakeholder interest, especially at the DPRK national/central government ministries and Local Counterparts such as CPCs and NTDCs in Kaechon City and Hoechang, Singye, Unsan, Yonsan, and Yangdok Counties.

In terms of project design, the proxy indicators would be the number of stakeholders involved in planning and attendance during the project formulation/planning meetings. The evaluation interviews with National and Local Counterparts indicated sufficient evidence of direct involvement based on detailed accounts of the project outputs.

The minutes of the PSC meetings recorded perfect attendance and representations from the National Counterparts. The proxy indicators from M&E Field Monitoring Visits for participation at the project implementation stage indicated high project output ownership, perfect attendance at project field site meetings, capacity development/knowledge dissemination activities, and the visible evidence of construction/installation taking place. During the evaluation interviews, there were high levels of project output-ownership as the Local Counterparts and beneficiaries were able to provide extensive technical details of their project outputs.

3.1.6 Replication Approach

Replication and up-scaling are fundamental to the SES Project as it provides the opportunity to build on best practices and lessons learned, and expand the reach and impact of its project outputs. As such, UNDP, government agencies, international agencies/organizations and the private sector would utilize these given opportunities to support the replication and up-scaling of the most successful projects and practices through their networks and contacts.

The SES Project has the potential for replication in other provinces/counties in DPRK through:

- Methodologies and approaches for energy resource assessments, energy demand assessments, energy audits and feasibility studies including cost-benefit analysis
- Development and implementation of County Energy Management Plans (CEMPs)
- Dissemination, promotion and demonstration on the uses/applications of RE/EE solutions at village community (Ri) level through NTDCs
- Roll-out implementation of suitable RE/EE interventions at public buildings, institutions and facilities
- Establishment of institutional frameworks and energy supply chains at county level to continue the sustainability of RE/EE equipment and interventions.

3.1.7 Management Arrangements

Execution Modality: In accordance with the SES PRODOC, the SES Project modality was Direct Implementation Modality (DIM) which meant the project execution and implementation would be undertaken directly by UNDP DPRK in accordance with UNDP Programme and Operations Policies and Procedures (POPP). The overall decision, including financial accountability would rest with UNDP DPRK and the SES Project was to be executed in coordination with relevant partners, including at the local county level, with a view to ensuring that effective assistance flowed directly to targeted beneficiaries.

Project Steering Committee (PSC): The PSC was established to provide high-level oversight and to steer the SES Project. The PSC is responsible for high-level management decisions and policy guidance required for implementation of the project, including recommendations and approval of project plans, budget and revision. The PSC membership comprised the following key stakeholders:

- UNDP DPRK:
  - Deputy Resident Representative of UNDP DPRK (PSC Chairperson)
  - SES Project Manager
  - Programme Analyst
  - M&E Specialist
- Government of the DPRK:
  - Coordinator of National Coordinating Committee (NCC) for UNDP (PSC Co-Chairperson)
  - Representative of Ministry of Electric Power Industry (MEPI)
  - Representative of State Academy of Sciences (SAOS)
  - Representative of State Commission of Science and Technology (SCoST)
  - Representative of Central Bureau of Statistics (CBS)

The evaluation reviewed that PSC decisions in relation to the SES Project were effective and adhered to standards that ensure efficiency, cost effectiveness, transparency, effective institutional coordination, and harmony with overall priorities of the Government of DPRK and UNDP.

The PSC was first constituted in April 2016 and met regularly every quarterly. The meeting minutes for all meetings made available showed that the PSC effectively provided important directions and oversight. In addition, the PSC was also successful in advising on technical aspects of project implementation, discussions and deliberations on the external/environmental challenges faced in relation to procurement and prioritization of interventions keeping project cost considerations in view.

UNDP: As the DIM agency, UNDP offered substantive support services to the SES Project, which included project management/administration, financial reporting, procurement support, and technical advisory services. The SES Project updates to the PSC, Project Annual Progress Reports, Programme and Project Field Monitoring Visits (FMV) Reports were comprehensive and timely produced. These reports covered many details and provided insights into project implementation, overall management, the many challenges faced in project implementation and mitigations/counter-measures to overcome the barriers.

Project Counterparts: At the National/Central level, the DPRK government agencies involved in the project were:

- National Coordinating Committee (NCC) for UNDP
- Ministry of Electric Power Industry (MEPI)
- State Academy of Sciences (SAOS)
- State Commission of Science and Technology (SCoST)
- Central Bureau of Statistics (CBS)

At the local level, the main project partners were CPCs, NTDCs and beneficiaries of:

- Hoechang County, South Pyongan Province
- Singye County, North Hwanghae Province
- Yonsan County, North Hwanghae Province
- Unsan County, North Pyongan Province
- Kaechon City, South Pyongan Province
- Yangdok County, South Pyongan Province

The SES Project Team travelled to the respective county locations to hold regular and quarterly meetings with the project partners to review the project progress and initiate early corrective actions.

The SES Project FMV reports indicated effective discussions to resolve project management and coordination issues, and also contained details of reviews and actions taken. The Programme FMV, led by the M&E Specialist and CO Management, validated the results achieved. All recommended actions were consistently followed up and presented by the M&E Specialist at PSC meetings and captured in the quarterly programme and oversight FMV reports. These reports were subsequently sent to the UNDP Regional HQ Bureau as required by the UNDP DPRK ICF. The evaluation reviewed that there was a focus on results and activity scheduling across activities and outputs. Progress was reviewed against the objectives and targets set in the SES PRODOC's Results and Resources Framework. The Project and Programme FMV reports were written to reflect the progress achieved against targets.

Project Management Unit (PMU): Being a DIM agency, the UNDP formed a PMU comprising one International Project Manager, one National Technical Coordinator and one National Administrative Assistant.

The PMU would be fully responsible for the coordination of National/Local Counterparts for project execution in a timely manner and within budget. The PMU facilitated effective project planning, that included preparation of annual work plans and project monitoring and reporting. The PMU was charged with coordinating and facilitating the procurements. As a curator, the evaluation reviewed that the PMU had effectively and efficiently held all the records, publications and minutes of meetings pertaining to the SES Project.

3.2 Project Implementation

3.2.1 Adaptive Management

The SES Project was formally signed off on 26 August 2015. However, there were prolonged delays at the start of the project due to the:

- extended period of banking channel disruption/closure for funds transfer to the UNDP DPRK CO

  Due to the early UN Sanctions on DPRK (UN Resolutions #2087 and #2094), the UNDP DPRK CO had to implement prolonged periods of organizational cash conservation mode due to the lack of funds being transferred into DPRK. Hence, there were minimal funds to implement any project activities and eventually slow progress in delivering project results.

- Late recruitment of the SES Project Team

  The extended period of banking channel disruption/closure created uncertainties for the UNDP DPRK CO and possibly resulted in the late recruitment of the SES Project Team. The Project Manager, National Technical Coordinator and Project Administrative Assistant were eventually on board in the 1st quarter of 2016.

Despite the early and recurring setbacks, the evaluation reviewed that the SES Project Team displayed good project management abilities and effectively utilised appropriate project management tools to implement the SES Project to the best of their abilities.

The project implementation was delayed by 7 months from August 2015 until March 2016, with the first PSC Meeting involving the SES Project Team on board held on 21 April 2016. The SES Project Team effectively applied adaptive management in planning by having to reschedule the timelines for activities in order to accomplish the project outputs, with activities starting in 2016.

The UN Security Council imposed two UN Sanctions (UN Resolutions #2270 and #2321) in 2016 and another four UN Sanctions (UN Resolutions #2356, #2371, #2375 and #2397) in 2017 were imposed on DPRK which included (among many measures) import, financial and economic restrictions.

Table 1 below showed the implementation status of each SES Project output as assessed by the evaluation. The evaluation noted that the SES Project would have produced a significantly different implementation status if there were no UN Sanctions imposed on DPRK and there was no banking channel disruption/closure issue to deal with.

Table 1: SES Project Implementation Status

SES PRODOC	Implementation Status[1]
Outcome Increased standards of living and sustainable livelihood	
Output 1 Information about energy resources and feasible RE/EE solutions updated and made accessible to local beneficiaries.	Fully Achieved
Output 2 Increased technical know-how of county-level personnel for energy planning and sustainable management of local renewable energy resources.	Almost Fully Achieved
Output 3 Strengthened supply chains for the delivery of appropriate RE/EE solutions for local communities in rural areas.	Partially Achieved
Output 4 Increased energy security and self-reliance of rural population through the implementation of RE/EE solutions for local communities.	Partially Achieved

Note:
1. The implementation status is purely based on the desired results of the SES PRODOC. It has not been moderated based on the implications and resultant consequences attributed to the 6 UN Sanctions imposed on DPRK in 2016 and 2017, and the extended period of banking channel disruption/closure which severely disrupted funds being transferred into DPRK to implement project activities.

In the case of Outputs 3 and 4, the evaluation reviewed that these implications and resultant consequences were beyond the control of the SES Project Team and the UNDP DPRK CO, and there were minimal or no alternative adaptive management measures that could have produced a better outcome.

The evaluation assessed and made the following observations relating to safety and durability:

- Safety handling of RE technologies/solutions – there is a need to pay close attention to handling live wirings/connections, and the cleaning/maintenance and durability of the RE technologies/solutions during extreme weather conditions such as typhoons, heavy snow storms. In relation to open live equipment, care and attention should be undertaken to minimize exposure to potential electrical shock and injuries.
- Access to the site housing the RE technologies/solutions – there is a need to improve the pathways to access the sites to minimize potential injuries and hazard

The evaluation assessed that specific communication aspects of the SES Project would need to be strengthened as follow:

1. Communications – enhanced visibility and communication of project results
   Even though facing significant setbacks on procurement-related activities to deliver RE/EE equipment and materials, the SES Project did make significant impacts at village community (Ri) level such as the successful delivery and implementation of:
   - 200 sets of solar PV systems in 170 public institutions across 15 Ris (from project reports):
     - 29 sets of solar PV systems in 26 productive facilities and implemented energy efficiency interventions in 11 productive processes.
     - 171 sets of solar PV systems in 144 social service institutions.
   - energy efficiency interventions in 67 public institutions (improved Ondol floor heating system, thermal insulation in buildings including double glazed windows and doors, retrofitting with foamed cement bricks on building envelop, EE coal stoves, EE biomass stoves, and solar PV systems) and 62 community social service providers across 15 Ris such as kindergartens, nurseries, schools, hospitals and clinics.

   However, during the field visit to project sites, the evaluation noted many items were confirmed as funded by the UNDP SES Project but missing UNDP-registered name tags, name plates and/or logos that would enable local counties and village communities to recognize and acknowledge UNDP's contributions to improving livelihoods. The evaluation determines that UNDP's unique contributions should be given more on-the-ground recognition through stronger visibility and communication of project results at project sites such as UNDP logos, nameplates, asset/delivered item tags.

   The evaluation also observed that a number of items procured/provided under the SES Project were not updated accordingly into the asset/delivered items list. This could potentially lead to be externally viewed/perceived as not physically accepted at time of delivery by the SES Project Team and/or not physically verified by the M&E Specialist, as required in the UNDP DPRK Guidelines for Field Monitoring Visits.

2. Communications – Management of expectations and reputational risk
   There is a need to manage village community (Ri) expectations on (1) UNDP's "inconsistent" delivery of items (such as RE/EE equipment) to different Ris to minimize the occurrence of unhealthy comparisons and unhealthy competitions between project Ris, and (2) prolonged delays in UNDP interventions to minimize/avoid potential economic and productivity losses to Counties/Ris.

   UNDP DPRK has gained a reputation among national and local counterparts as an organization that failed to deliver on its promises. Restoring UNDP's reputation as an organization that can effectively deliver would be a key priority. The evaluation would therefore find it beneficial for UNDP DPRK by:
   - prescribing conditions and mechanisms to implement "Force Majeure" or early termination of projects if need to; and
   - continuing field visits, as practical and as relevant as required during the project implementation period, to maintain relationships and communications with village communities (Ris).

3.2.2 Partnership Arrangements

The SES Project generated strong stakeholder interest and participation from National/Local Counterparts in DPRK. The stakeholders at the National/Central level were:

- National Coordinating Committee (NCC) for UNDP
- Ministry of Electric Power Industry (MEPI)
- State Academy of Sciences (SAOS)
- State Commission of Science and Technology (SCoST)
- Central Bureau of Statistics (CBS)

At the local level, the main project partners were CPCs, NTDCs and beneficiaries of:

- Hoechang County, South Pyongan Province
- Singye County, North Hwanghae Province
- Yonsan County, North Hwanghae Province
- Unsan County, North Pyongan Province
- Kaechon City, South Pyongan Province
- Yangdok County, South Pyongan Province

There was evidence of strong interest and commitment at the local county level through stakeholder contributions (both financial and in-kind), roles and responsibilities to implement the SES Project activities.

Despite the external factors/challenges that were beyond the control of the UNDP DPRK CO, the partnership arrangement between SES Project Team and the National and Local Counterparts endured the challenging 4.5-year project period, and demonstrated great patience, understanding and resilience to overcome the difficulties faced. The fruits of this partnership agreement in challenging circumstances were the successful completion of many SES Project interventions as follow:

- Energy resource assessments and energy demand assessments completed for 15 village communities (Ri).
- 24 feasibility studies integrating cost-benefit assessment methodology for RE/EE interventions completed.
- 20 energy audits for basic-necessity facilities, agricultural processes and public community buildings completed.
- Dissemination, promotion and demonstration on the uses/applications of RE/EE solutions at village community (Ri) level through NTDCs.
- Successfully delivered and installed 200 sets of solar PV systems in 170 public institutions across 15 Ris (from project reports):
  - 29 sets of solar PV systems in 26 productive facilities and implemented energy efficiency interventions in 11 productive processes.
  - 171 sets of solar PV systems in 144 social service institutions.
- Successfully implemented energy efficiency interventions in 67 public institutions (improved Ondol floor heating system, RE hybrid system units, thermal insulation in buildings including double glazed windows and doors, retrofitting with foamed cement bricks on building envelop, EE coal stoves, EE biomass stoves, and solar PV systems) and 62 community social service providers across 15 Ris such as kindergartens, nurseries, schools, hospitals and clinics.

3.2.3 Project Finance

The SES Project had a duration of about 4.5 years (August 2015 – December 2019) with an approved funding of US$6,117,572. The details of the planned financing allocation based on the SES PRODOC are as follow:

Table 2: SES Project – Original Planned Budget as per SES PRODOC

SES Project	2015 and 2016 (US$)	2017 (US$)	2018 (US$)	2019 (US$)
Output 1	543,500	354,500	162,500	122,500
Output 2	141,750	539,250	199,250	156,750
Output 3	251,750	468,750	292,750	207,750
Output 4	142,750	1,168,322	827,750	537,750
Total	**1,079,750**	**2,530,822**	**1,482,250**	**1,024,750**

While the SES PRODOC did not include any co-financing from National/Local Counterparts, the evaluation reviewed that the Local Counterparts provided in-kind contributions (labor and construction materials) to assist the timely completion of SES Project activities.

The budget and actual expenditure of the SES Project is provided below in Table 3.

Table 3: Summary of Budget and Actual Expenditure (SES Project)

SES Project	2015 and 2016 (US$)	2017 (US$)	2018 (US$)	2019 (US$)
Operational Expenses (Actual)	1,573.41	323,321.58	4,878.37	4120.92
Output 1 (Actual)	190,077.29	480,374.36	174,522.36	82,493.57
Output 2 (Actual)	33,795.07	313,228.68	244,935.66	105,478.13
Output 3 Actual)	34,144.28	79,916.14	75,458.84	464,993.32
Output 4 (Actual)	68,803.31	1,157,608.30	166,697.68	162,968.91
Total (Actual)[1]	328,233.98	2,354,449.06	666,492.91	820,054.85
Utilization Rate (Actual/PRODOC Budget)	**30%**	**93%**	**45%**	**80%**

Note:
1. Actual figures are based on financial system extracts provided by the UNDP DPRK CO

The evaluation noted that the SES Project under-spent its allocated total project funds by about 32% and its utilization with an average of 62%. This was due to the banking channel disruption/closure, caused by the UN Sanctions, which disrupted funds from being transferred into DPRK. This further resulted in the SES Project's inability to obtain funds to implement the SES Project procurement-related activities.

In considering the UN sanction measures together with recurring and extended banking channel disruption/closure which led to the UNDP DPRK CO activating the cash conservation mode to sustain the office operations, the SES Project Team displayed sound financial management processes to implement the relevant SES Project activities which were not affected by the UN sanction measures.

However, the evaluation reviewed that there were inconsistencies (and inconsistent templates) in the SES Project Team's financial reporting processes due to different reporting requirements given.

1. Different reporting of SES Project budget figures

The budget figures in the SES Project Annual Work Plans were different from that of the SES Project Annual Progress Reports. This was due to the different submission timelines required by different reports which led to different budget figures being reported, e.g. due to budget revisions made during the year.

2. Inconsistent reporting of SES Project actual expenditure figures

The actual expenditure provided to the evaluation was based on actual expenditure according to project outputs. However, the actual expenditure in the SES Project Annual Progress Reports were based on actual expenditure, as per financial reporting templates being provided by UNDP DPRK CO, according to the categories of Project Activity, Management and Staff, General Operations Expenditure, and/or Common Services.

3. Inconsistent reporting on comparison of SES Project budget versus actual expenditure figures

The SES Project Team did not provide budget and actual expenditure figures in PSC meetings. However, the SES Project Annual Progress Reports report these comparisons for the calendar year period but not at output levels as the SES Project Team followed the financial reporting templates being provided by UNDP DPRK CO. The evaluation further noted that only the SES Project's CDR run was attached at the time of the report submission.

For improved financial accountability and transparency purposes as part of demonstrating the efficient use of funding on project output-based activities, future financial reporting processes and templates of UNDP DPRK projects should:

- track and report consistent financial figures (budget and actual expenditure)
- have consistent comparisons between budget and actual expenditure, as per project outputs, based on project CDRs, for submissions of all relevant project reports (including annual progress reports and submissions to PSC meetings)

3.2.4 Monitoring and Evaluation (M&E) Activities Used for Adaptive Management

The M&E framework consisted of local monitoring and reporting as well as international independent evaluations. Both the SES Project Manager and the UNDP DPRK Programme M&E Specialist were responsible for the preparation and submission of the M&E reports and evaluations at project and programme levels respectively, as stated in the SES PRODOC. Table 4 below summarizes the achievement of monitoring actions as required by the SES PRODOC.

Table 4: M&E Plan and Completion Status

Type of M&E Activity/Report	Frequency/ Timing	Status	Comments
Detailed Quarterly Workplan	Every beginning of the quarter	Completed	Detailed workplans for 2016, 2017, 2018 and 2019 completed
Annual Workplan and Budget	Beginning of each year	Completed	Detailed workplans with budget for 2016, 2017, 2018 and 2019 completed
Quarterly Progress Report	Quarterly	Completed	Reports completed every quarter in 2016, 2017, 2018 and 2019
Annual Progress Report	End of year	Completed	Reports completed in 2016, 2017 and 2018. The Annual Progress Report for 2019 is to be completed by the SES Project Manager in December 2019
Mid-Term Review	End of Year 2	Completed	This M&E activity was delayed with one MTR report completed by an independent evaluator in August 2018
Terminal Report	End of Project (end of Year 4)	In progress	One Terminal Report to be completed by the SES Project Manager in December 2019
Terminal Evaluation and Audit	End of Project (end of Year 4)	In progress	One Terminal Evaluation report to be completed by an independent evaluator in January 2020
Mission reports	After each mission	Completed	Mission reports by individual experts (International and National) completed
Other Reports and Deliverables	After each TA or sub-contract	Completed	Reports and deliverable by individual experts (International and National) completed
Monitoring Reports	After every field visits	Completed	Field Monitoring reports by SES Project Team and UNDP DPRK Programme M&E Team completed
Financial records & reporting	Continuous	Completed	Financial records and reporting completed

The UNDP DPRK CO and the SES Project Team proactively responded with specific adaptive management measures to recommendations from MTR as shown below in Table 5:

Table 5: Management Response to SES Project MTR Recommendations

SES Project MTR Recommendation	Management Response
SES project is experiencing significant delays in procurement of RE and EE systems that need to be piloted. Therefore, the project shall develop a contingency plan to refocus on wider implementation of EE installations and consolidating knowledge gains among engineers and decision makers at the provincial and county level in order to prepare for (eventual) scale-up of the initiatives by the government.	• Conduct in-country study tours (bringing together national partners) including NTDCs to discuss and share lessons and areas for intervention ➢ National consultants select most qualified experts at the NTDCs, Counties and Ris with the support of SES project team. ➢ Such visits could be expanded beyond the project and to the places such as Jangchon Co-operative farm, Pyongyang City and Natural Energy Institute under the State Academy of Science. ➢ Produce a report following in-country study tours and commitment received from its participants in scaling up of the EE interventions. • Establish a regular communication with communities in the implementation of EE technologies with the ownership of MEPI by sustaining momentum in activity implementation.
Project team works closely with county-level stakeholders (i.e. managers of public buildings and national consultants) to improve their data collection on how many people (disaggregated by sex, age, disability) access services, and the impacts that the RE and EE improvements have had on particular humanitarian outcomes, particularly health.	• Firm up of the methodology of data collection from local stakeholders ➢ Rely on a good expertise of national consultants hired under SES ➢ Train them on the data collection on how many people (disaggregated by sex, age, disability) access public services.
It is critical that the project team monitor results of capacity building at the output level, beyond demonstrating the successful implementation of capacity building activities. Below proposed output indicators, and targets, which aim to allow for the collection of data which can be used to analyze the meaningful change in capacity and quality effected by the project to date. These suggestions aim to identify possible entry points for the project, conscious of data access limitations.	• In consultation with MEPI following indicators will be monitored by SES project. These will be reported in the Quarterly Progress Reports: ➢ Extent to which County Energy Management Plans receive budgetary support for implementation from the county governments (Target: County Energy Management Plans receive at least 75% of necessary funding) ➢ Extent to which NTDCs are operational (Target: plans and budgets for 3 NTDCs approved) ➢ % change in improved attendance of 5-7-year-old children in target kindergartens between November-March (Target: at least a 50% increase)

SES Project MTR Recommendation	Management Response
It is recommended that instead of having joint reports following field visits, whether it is for implementation and/or monitoring purposes, team members should submit individual BTORs separately for project and programme.	• Projects and programme team will submit separate BTORs upon field missions. • Quarterly Progress Reports (QPRs) should be completed by the project team (lead by the Project Manager), with quality assurance of the data and analysis undertaken. • Report qualitative changes of the projects in ROAR through captured qualitative results from projects.
With the inclusion of more qualitative indicators at the output level, it is hoped that more meaningful analysis of the humanitarian importance of the project will be captured, bearing in mind the sensitivities in sharing project results publicly due to the complex geopolitical context under which UNDP operates in DPRK. Following are some of the key actions that will be taken to improve the reporting of qualitative changes that the project is leading on the ground.	• SES project to share communication material (videos/brochures…) with relevant parties including Bangkok Regional Headquarters
As the SES project will end by December 2019 according to the ProDoc, it's the right time to start deploying its exit strategy to meaningfully consolidate the results achieved till date and ensure the sustainability of the project activities and results.	• SES project shall organize a National Partners Meet to assess what was done better and what else need to be completed in fulfilling the needs of the communities. ➢ At this meet, SES project must encourage the local communities to make in-kind contributions in the absence of procurement activities. ➢ Consolidating SES project results till date

The evaluation reviewed that the M&E process at the project and programme level was very comprehensive. The UNDP DPRK Programme M&E Team showed high competency in:

- conducting field monitoring visits every quarterly to assess the progress of the SES Project outputs. This included the verification of delivered items and assets through the identification of UNDP item/asset identity tags at the field sites, the onsite testing of equipment delivered by UNDP, and monitoring the use of the delivered items and assets to ensure sustainable operations.
- producing high quality quarterly and annual Programme monitoring and oversight reports, as required by the UNDP DPRK ICF and UNDP DPRK CO Guidelines for Field Monitoring Visits, with key findings and analysis of progress towards results, project performance and implementation issues.
- providing key recommendations and corrective actions/measures to further improving the SES Project, and monitoring the implementation of these key recommendations and corrective actions/measures until completion.
- updating the M&E progresses at all PSC meetings.

The SES Project Team showed high competency in:

- conducting project field monitoring visits every quarterly to assess the progress of the SES Project outputs. This included the onsite testing of equipment delivered by UNDP.
- producing high quality quarterly and annual project progress reports and presenting them at all PSC meetings.
- identifying key issues faced, and providing key recommendations and corrective actions/measures to address these key issues.
- updating project implementation monitoring progress at all PSC meetings.

However, the M&E process at the project level could be further improved in 2 key areas:

1. Verification of delivered items and assets through the identification of UNDP item/asset identity tags at the field sites

In numerous occasions during the field mission trips, the project beneficiaries would show the UNDP items/assets and would also compliment the high-quality conditions of UNDP items/assets as compared to other similar items/assets delivered onsite by other organizations.

However, the Evaluator was unable to establish or fully verify whether the sighted items/assets were actually from UNDP due to a lack of identification either with an UNDP logo or a UNDP identification tag. The Evaluator would frequently rely on the M&E Specialist, Programme Analyst and DPRK Government focal point onsite for confirmation and verification.

Tagging of assets/delivered items should be more consistent to clearly distinguish UNDP's quality items/assets, while also adhering to UNDP DPRK Guidelines for Field Monitoring Visits to ensure complete and proper physical verification and handover for the intended use/purpose.

2. Field data collection to measure effectiveness and impact on completed project activities

While the SES Project has consistently reported the impact through reduced coal usage and electricity consumption, there is a need for the SES Project Team to collect data to measure the effectiveness and impact on the village community beneficiaries.

For example, the installed 200 sets of solar PV systems in 170 public institutions across 15 Ris, and energy efficiency interventions in 67 public institutions and 62 community social service providers across 15 Ris such as kindergartens, nurseries, schools, hospitals and clinics, should be continuously monitored with relevant data collected to determine its positive impacts and actual benefits gained on individual, family and community well-being among the village communities.

Enabling the field data collection to measure effectiveness and impact on village communities would further strengthen the:

- overall sustainability results of the SES Project pilot activities
- case for future replication of the SES model in other counties/village communities (Ris) in DPRK

3.2.5 Implementing Agency

The SES Project adopted the direct implementation modality (DIM) which meant that UNDP DPRK would be the Implementing Agency with a dedicated project team based in the UNDP DPRK CO. An International Project Manager would be recruited and be responsible for the daily management of the project with assistance from recruited national project staff (comprising one National Technical Coordinator and one National Administrative Assistant). The SES Project Team would further engage International and/or National Consultants as required based on the SES Project's technical requirements.

The SES Project also formed a Project Steering Committee (PSC) to guide the project direction and address any challenges. The PSC was co-chaired by the UNDP Deputy Resident Representative (DRR) and the National Coordinator from the DPRK National Coordinating Committee (NCC) for UNDP, with participation of representatives from the MEPI, CBS, SCoST, SAOS and other institutions as needed at the central level.

The SES Project would also work closely with Local Counterparts such as CPCs and NTDCs from:

- Hoechang County, South Pyongan Province
- Singye County, North Hwanghae Province
- Yonsan County, North Hwanghae Province
- Unsan County, North Pyongan Province
- Kaechon City, South Pyongan Province
- Yangdok County, South Pyongan Province

The evaluation established that there were strong working relationships between the UNDP DPRK CO, the SES Project Team and National/Local Counterparts and project beneficiaries at the county/village community (Ri) level. These working relationships were frequently tested by the slow progress of the SES Project. Key representatives of the National/Local Counterparts expressed disappointments at the prolonged delays and unsuccessful implementation of the SES Project procurement-related activities.

Many of these expressed disappointments were understandably justified as, in their views, tangible results were not delivered, especially the procurement activities for RE/EE equipment during the 2nd half of the 4.5-year project duration. Despite these procurement setbacks, the National/Local Counterparts expressed deep gratitude and appreciation on the limited but successful implementation of the SES Project interventions that has a great potential for scale up and replication.

The National/Local Counterparts expressed deep gratitude and appreciation for the SES Project Team who had done their very best, in the midst of many external factors/challenges faced, to implement the project with some significant success.

The National/Local Counterparts, while fully understanding that the external factors/challenges such as the UN Sanctions and the geo-political situation had severely affected the SES Project, highlighted their disappointment in the UNDP as an organization for not being able to deliver the results.

3.3 Achievement of Project Results

The evaluation rated the SES Project's project results according to the evaluation ratings table listed below in Table 6.

Table 6: Evaluation Overall Results/Impact Rating

Evaluation Ratings for Overall Results/Impact, Relevance, Effectiveness, Efficiency, Basic Human Needs, Gender Equality, National Ownership	Sustainability Ratings:
6. Highly Satisfactory (HS): no shortcomings 5. Satisfactory (S): minor shortcomings 4. Moderately Satisfactory (MS): moderate shortcomings 3. Moderately Unsatisfactory (MU): significant shortcomings 2. Unsatisfactory (U): major shortcomings 1. Highly Unsatisfactory (HU): severe shortcomings	4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML): moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks
Additional ratings where relevant: Not Applicable (N/A) Unable to Assess (U/A)	

3.3.1 Overall Results/Impact

The evaluation rated the SES Project's overall results/impact with reference to its 4 project outputs as per stated in the SES PRODOC. The overall results/impact are presented below in Table 7.

Table 7: Overall Results/Impact – SES Project

SES PRODOC	Achievement Rating	Comments
Outcome Increased standards of living and sustainable livelihood		
Output 1 Information about energy resources and feasible RE/EE solutions updated and made accessible to local beneficiaries.	**6/6** (Highly Satisfactory) No shortcomings	• Energy resource assessments and energy demand assessments completed for 15 village communities (Ri). • 24 feasibility studies integrating cost-benefit assessment methodology for RE/EE interventions completed. • 20 energy audits for basic-necessity facilities, agricultural processes and public community buildings completed. • Dissemination, promotion and demonstration on the uses/applications of RE/EE solutions at village community (Ri) level through NTDCs. • Technical study tours in Serbia and China on RE/EE solutions conducted.

SES PRODOC	Achievement Rating	Comments
Output 2 Increased technical know-how of county-level personnel for energy planning and sustainable management of local renewable energy resources.	**5/6** (Satisfactory) Minor shortcomings	• Comprehensive training workshops conducted by international and national consultants for decision makers, energy experts and technicians at County and community-level on energy resources, conservation, conversion, efficiency, and planning • Technical study tours in Serbia and China enabled participants in application of knowledge. • Training manuals on RE/EE solutions for improvement of rural livelihoods in DPRK developed. • Promotional and educational activities were conducted to increase awareness on the use of RE/EE solutions at village community (Ri) level. • 6 counties developed and refined County Energy Management Plans with technical assistance from the National Consultants. However counties still require further technical support before they could fully "run" on their own. • There is a need to replicate the knowledge/operational capabilities and capacities of National Consultants to enhance the pool of national and local resources • Based on project reports, about 450 ha of biomass resources were sustainably managed by Ris through in-kind afforestation and reforestation of fast growing firewood trees such as Acacia, Poplar, bamboo willow (this would need to be independently verified).
Output 3 Strengthened supply chains for the delivery of appropriate RE/EE solutions for local communities in rural areas.	**4/6** (Moderately Satisfactory) Moderate shortcomings	• Capacities of community and county-level workshops involved in manufacturing facilities and/or service centres for RE/EE products such as foamed cement bricks, EE stoves, double glazed windows, insulated doors, etc. improved. • Challenges in procurement due to UN Sanctions and banking channel disruption/closure to procure in-country (beyond the control of the UNDP DPRK Project Team and CO) could not fully deliver the all necessary equipment and tools for efficient manufacturing and/or assembly of RE/EE technologies. However local abilities could not be fully realized/achieved to their full potential. • County NTDCs functioning as expert centres, with roles and responsibilities, organization and management of these centres finalized for technical support, quality assurance, and performance monitoring of RE and EE applications identified. However, independent post impact evaluation study required to verify how well these expert centres are functioning and its impact on the local communities.

SES PRODOC	Achievement Rating	Comments
Output 4 Increased energy security and self-reliance of rural population through the implementation of RE/EE solutions for local communities.	**6/6** (Highly Satisfactory) No shortcomings	Renewable energy solutions identified and implemented through energy resource/demand assessments **(the evaluation noted that this was a crucial/important strategic decision taken by the SES Project)** • Successfully delivered and installed 200 sets of solar PV systems in 170 public institutions across 15 Ris (from project reports): ➢ 29 sets of solar PV systems in 26 productive facilities and implemented energy efficiency. interventions in 11 productive processes ➢ 171 sets of solar PV systems in 144 social service institutions. • Successfully implemented energy efficiency interventions in 67 public institutions (improved Ondol floor heating system, thermal insulation in buildings including double glazed windows and doors, retrofitting with foamed cement bricks on building envelop, EE coal stoves, EE biomass stoves, and solar PV systems) in 62 community social service providers across 15 Ris such as kindergartens, nurseries, schools, hospitals and clinics.
	2/6 (Unsatisfactory) Major shortcomings	• Renewable energy solutions identified through 24 feasibility studies in targeted user groups in the pilot Counties were substantively not implemented • Challenges in procurement due to UN Sanctions and banking channel disruption/closure to procure in-country. (beyond the control of the UNDP DPRK Project Team and CO) could not fully deliver 21 out of the 24 feasibility studies.

The evaluation further noted that the SES Project Team had done its best to deliver and achieve the desired project results despite encountering significant external factors/challenges, mainly due to the 6 UN Sanctions in 2016 and 2017 and the recurring banking channel disruption/closure that prevented funds transfer into DPRK during the SES Project implementation.

3.3.2 Relevance

Relevance with national priorities

Achievement Rating: **5/6** (Satisfactory - Minor Shortcomings)

The SES Project was highly relevant and aligned with the DPRK national strategies and priorities. The SES Project was designed with humanitarian-oriented outputs and activities which were aimed to address the humanitarian needs of intended beneficiaries.

The SES Project's relevance was further strengthened with National and Local Counterparts being involved and consulted during the project design and also during project implementation. The SES Project Team, particularly the Project Manager, also had suitable technical skillsets and competencies to deliver most of the project outputs which are technically complex and required specialised expertise and knowledge in RE and EE.

The SES Project's relevance could be further improved if challenges in procurement due to UN Sanctions and banking channel disruption/closure severely disrupted the ability to procure internationally and in-country were appropriately resolved (which is beyond the control of the UNDP DPRK Project Team and CO) in response to the geo-political environment. Hence the SES Project's relevance was affected as it could not fully deliver the required procurement-related activities to strengthen the energy supply chains (RE/EE tools/equipment/materials, civil works and construction).

Relevance with UNSF Outcomes and SDGs

Achievement Rating: **3/6** (Moderately Unsatisfactory - Significant Shortcomings)

The SES Project aligns closely with UNSF Outcomes 2.2, 3.2 and 4.3, MDGs 3, 4 and 7. The SES Project also contributes to the SDGs (SDG 7 on affordable and clean energy, and SDG 13 on climate action).

The UNSF (2017-2021) emphasized coherent and coordinated implementation in support of a common objective in order to achieve potential synergies among UN agencies and possibly with international organizations.

The evaluation assessed that the SES Project needed to improve its weak synergies with other UN agencies and international organizations with similar project/programme outputs and results. In particular, information sharing, communication of project results and valuable lessons learned should be further disseminated and strengthened on application, uses and impacts of RE/EE with other UN agencies and international organizations towards collectively achieving the UNSF Outcomes and also the SDGs.

3.3.3 Effectiveness

Achievement Rating: **5/6** (Satisfactory – Minor Shortcomings)

External factors/environment such as the extended banking channel disruption/closure and significant delays through the sanctions exemptions/clearance process hindered the SES Project's implementation and severely affected UNDP's reputation as an organization of not being able to effectively deliver (beyond the control of the UNDP project team and CO). This in-turn affected the desired Output 3 and 4 results to be fully achieved, particularly the procurement of RE/EE equipment and materials to strengthen energy supply chains.

There were significant results for the village community (Ri) beneficiaries which potentially contributed to the SDGs such as:

- Hospitals/Clinics – Hospitals/clinics have reliable electricity and thermal insulation to treat patients in a conducive temperature-controlled environment and able to all year round (24 hours a day, including at night if required); Unsan County's women hospital was able to operate all year round to further enhance the treatment of women's well-being and health (including reproductive health disorders)
- 10-Day kindergartens and nurseries – children and female teacher/staff well-being and health were potentially enhanced with increased learning opportunities
- Public welfare amenity facilities – cleaner air quality and improved temperature management; potential increase in work productivity and hence income-generating opportunities for employees

The above-mentioned output activities met the intended needs of the target beneficiaries at the county and village community (Ri) level. However, an independent impact evaluation study would be required as a future project output/activity component to measure the impact effectiveness, final end-line indicators and actual benefits gained.

3.3.4 Efficiency

Achievement Rating: **4/6** (Moderately Satisfactory – Moderate Shortcomings)

The project achieved the intended outcome. Out of the 4 outputs:

- Output 1 considered fully achieved
- Output 2 considered almost fully achieved
- Outputs 3 and 4 considered partially achieved

As of 3 Dec 2019, project under-spent allocated total project funds by about 32%. This is mainly due to the inability to obtain project funds for procurement and delivery of RE/EE equipment/materials, which is caused by the delayed UN sanctions exemptions/clearance process and the extended banking channel disruption/closure.

Financial reporting processes and templates should be further strengthened for consistencies, financial accountability and transparency purposes in financial budgeting and accounting:

- tracking progress of budget vs expenditure at output level for submissions of all relevant project reports (including APPRs), to demonstrate the efficient management and use of funding on project output-based activities, and align activity/output impact and results to the corresponding financial budgets
- reporting these budget vs expenditure comparisons at output levels at PSC meetings

3.3.5 National Ownership

Achievement Rating: **5/6** (Satisfactory – Minor Shortcomings)

While the SES PRODOC did not include any DPRK counterparts to lead in implementing any project outputs, strong national ownership was achieved at the National/Central level through perfect attendance by DPRK counterpart representatives (NCC-UNDP, MEPI, CBS, SAOS and SCoST) of all PSC meetings.

The evaluation also found high national ownership through strong commitment and interest at the local county level with sustained results of initiation, knowledge/operational transfer and innovative creativity from the SES Project, as follow:

- Increased knowledge and public awareness of the uses of RE/EE to improve rural livelihoods at the county/village community (Ri) level.
- CBS benefited from the energy demand and resource assessments surveys conducted in the year 2016. Statisticians' capacities and capabilities improved in the surveys related to energy access and related indicators.
- Increased knowledge and strengthened capacities of national and local resources in RE and EE
- High degree of national ownership at county and village community Ri level:
  - In-kind contributions through self-supplied equipment and material as well as labor work
  - Public buildings are now able to self-operate and maintain their own RE/EE solutions
  - Tailoring of training materials by National Consultants to the local context for stronger application by local counties and village communities (Ris)
  - Extensive utilization of National Consultants to provide on-the-ground advisory and practical hands-on to local counties and village communities (Ris)

However, the evaluation observed that county stakeholders still require continuous technical support (such as continued update of county energy management plans, conducting energy audits and conducting energy demand and resource assessments) before they could fully function on their own. Due to the incomplete procurement activities, local abilities for efficient manufacturing and/or assembly of RE/EE technologies could not yet be fully realized/achieved to their full potential.

While there are evidences of dissemination, promotion and demonstration on the uses/applications of RE/EE solutions at village community (Ri) level through the county NTDCs, there is an important need to further promote public awareness and impart knowledge to local counties/village communities (Ris) on the efficient use of electricity and better energy management practices to control demand and energy consumption at end-user level.

3.3.6 Sustainability

Sustainability Rating: **3/4** (Moderately Likely - Moderate Risks)

Risk assessments and mitigation strategies/action plans were identified and implemented during project design. However, it did not account for new external environments such as the UN sanctions and the extended banking channel disruption/closure. This resulted in unanticipated sustainability issues (incomplete procurement-related interventions for strengthening energy supply chains) emerging during project implementation and the outcome could not be fully realized/implemented.

The evaluation observed that National Consultants received extensive capacity building and knowledge in RE/EE technology and solutions. This is a commendable effort which should be continued long-term by the relevant DPRK national counterparts to conduct knowledge/operational transfer to have an extended pool of national resources for roll-out of future SES model roll-out.

The SES Project appropriately developed an exit strategy and took into account the following:

- Political factors – there is strong support and commitment from the DPRK Government and CPCs to continue.
- Financial factors – there is financial stability to operate on its own without further financial support.
- Technical factors - skills and expertise needed were suitably assessed and with capacity building activities organized to upgrade the skillsets and competencies of the beneficiaries. However, county stakeholders still require continuous technical support before they could fully function on their own.
- Environmental factors – the SES model can be replicated (in close cooperation with national and local counterparts) to other counties/Ris but this needs to be complemented with appropriate and timely procurement-related interventions for strengthening energy supply chains to maximize effectiveness and impact. It is also critically important to:
  - observe and pay attention to safety measures and procedures for RE/EE equipment to minimize/prevent occupational accidents and hazards from occurring
  - impart knowledge to local counties/village communities (Ris) on the efficient use of electricity and better energy management practices to control demand and energy consumption

3.3.7 Basic Human Needs / Gender Equality

Achievement Rating: **5/6** (Satisfactory – Minor Shortcomings)

The SES PRODOC did not include specific gender mainstreaming/social inclusion strategy. However the SES Project has factored these into its activities. Basic human needs and gender equality were potentially achieved based on anecdotal/proxy indicator evidence through concrete examples of:

- Increased attendance of children in kindergartens and nurseries because of improved indoor environment during winter and; female teachers benefiting from cleaner air quality due to improved floor heating system.
- Hospitals/clinics able to provide more reliable services to vulnerable groups such as elderly, pregnant women, children, the sick, people with disabilities.

The evaluation further noted that less women participated in training even though the SES Project prioritized/encouraged more women. This is possibly due to the technical roles in the energy and construction sectors predominantly taken up by men in DPRK.

While the reported benefits by project reports could be perceived as immense, the evaluation could not fully verify the actual benefits at ground level. This could be further realized if an impact evaluation study at project output/activity level could be externally conducted by an independent party.

Due to the lack of follow-up in monitoring and evaluating the UNDP-sponsored training courses/workshops' impact and effectiveness, the evaluation assessed that there was insufficient data available to demonstrate how the capacity development and knowledge dissemination activities of the SES Project improved women's employment and income generation opportunity as part of contribution to gender equality.

Future projects in DPRK should continue to prioritise gender mainstreaming activities to assess the capacity needs according to gender requirements, and capacity development activities specifically relating to enhancing gender equality and improving the women's living and livelihood standards.

3.3.8 Synergy

Achievement Rating: **4/6** (Moderately Satisfactory – Moderate Shortcomings)

The evaluation assessed that there were strong synergy effects between the SES Project and CBDRM Project as follow:

- strengthening of embankment concept from CBDRM Project was implemented with SES Project activities to enable and strengthen the implementation of RE technologies.
- as part of the SES Project, public buildings such as kindergartens and schools were retrofitted with EE measures. Some of these public buildings were also selected as evacuation centers in the CBDRM Project. This would result in a positive impact to the well-being and safety of beneficiaries during emergency situations such as floods and typhoons.
- the SES Project implemented EE measures to improve the indoor heating system (Ondol floor heating). This would also increase indoor thermal comfort and also increase the protection of village communities from extreme cold conditions as part of CBDRM Project interventions in disaster risk management.
- EE stoves and solar PV panels were installed as part of the SES Project which helped to improve the heat insulation, improve cooking efficiency and maintain the warm indoor environment. This would result in less timber being collected by SLUG groups and used by village communities (Ris) for firewood which would be required for cooking and also for keeping the indoor environment warm during winter season. The lessened use of timber meant that more trees would be preserved on mountain slopes to strengthen prevention of soil erosion and landslides as part of CBDRM Project interventions in disaster risk management.
- CBDRM project provided seeds (pinus koreansis, larix leptolepis, and castanata crenata) for improving livelihoods and saplings (aronia melanocarpa, and bamboo willow) to prevent soil erosion using soil bioengineering. Communities have further used firewood species such as poplar to enhance biomass resources availability.

The evaluation would also like to highlight another synergy effect that, in another separate UNDP DPRK SED Project, the SED Project Team learnt key lessons from the SES Project to develop innovative energy solutions such as Solar PV Panels to provide sustainable and reliable energy supply to the Spirulina and Pistia Centres in Unryul and Unchon Counties (South Hwanghae Province) for the UNDP DPRK SED Project.

As previously mentioned, the evaluation assessed that the SES Project needed to improve on its weak synergies with other UN agencies and international organizations with similar project/programme outputs and results, which need to be improved. As previously mentioned in Section 3.3.2, information sharing, communication of project results and valuable lessons learned should be further disseminated and strengthened on application, uses and impacts of RE/EE with other UN agencies and international organizations towards collectively achieving the UNSF Outcomes and also the SDGs.

The evaluation also observed that synergy effect between the SES Project and CBDRM Project have undesirable implications such as:

- village communities (Ri) who were not the beneficiaries of both SES and CBDRM Projects would perceive as receiving less "benefits".
- unhealthy comparisons and competitions between the projects village communities (Ris) observed. For example:
  - some Ris received such as tree seeds and saplings while other Ris did not receive these items. Proposed "compensation" with more project interventions were not realized.

- selected Ris were able to successfully procure RE assets, while other Ris were not successful in procuring similar RE assets with a lack of a sound explanation from UNDP on why this happened.

The evaluation further noted that the SES Project Team justified its response to the needs on ground based on the project objective whereby:

- certain interventions, mainly RE, are based on resource availability.
- the SES and CBDRM projects have responded to the needs on ground considering availability of budget, prioritisation at the community level in order to balance its overall support.
- procurement plans 2018 and 2019 were not materialised under SES and CBDRM. This is beyond the SES Project Team's control.

4. KEY SUCCESS STORY: THE USE AND APPLICATION OF RENEWABLE ENERGY/ENERGY EFFICIENT SOLUTIONS TO IMPROVE RURAL LIVELIHOODS

Background and context:
Agriculture and livestock breeding would be the main economic activity in rural DPRK. Heavy labor work such as mining and wood logging would typically be done by men. Women would typically be teachers in kindergartens, nurseries and schools. Women would also be commonly in charge of cooking and fuelling the heating system within the rural household.

In general, electricity consumption peaks during farming season as it is used for running harvest machinery such as rice and grain threshing, and for water pumping. As such, households could only consume electricity for only during a few hours per day.

Electricity would reportedly make up less than 10% of total household energy use and even less for public buildings such as rural hospitals, clinics, kindergartens, nurseries and schools. Electricity service could also be sporadic outside the harvesting period.

Hence, rural village communities would develop small-scale solutions such as small hydropower, battery backup systems, and solar PV systems that were available in the local market. Biomass is by far the largest energy source in rural DPRK and is normally used for cooking and space heating during the long cold winter which could last up to 6 months in a calendar year. Village communities would also rely on state-supplied grid electricity (if locally available), coal and gasoline/diesel generators to meet their day-to-day energy usage needs.

Results and Impact:
The SES Project aims to provide local rural village communities with adequate, secure and reliable access to renewable energy resources, cost-effective energy efficiency and energy conservation technologies for meeting basic energy demands.

UNDP made one crucial/important strategic decision in the early stages of the SES Project to identify and promptly implement RE/EE solutions at the village communities based on the comprehensive energy resource and demand assessments. As a result (from project reports and the evaluator's limited field site verification), it was established that:

- 200 sets of solar PV systems were successfully delivered and installed in 170 public institutions across 15 Ris:
  - 29 sets of solar PV systems in 26 productive facilities and implemented energy efficiency interventions in 11 productive processes
  - 171 sets of solar PV systems in 144 social service institutions.
- energy efficiency interventions were successfully implemented in 67 public institutions (improved Ondol floor heating system, thermal insulation in buildings including double glazed windows and doors, retrofitting with foamed cement bricks on building envelop, EE coal stoves, EE biomass stoves, and solar PV systems) and in 62 community social service providers across 15 Ris such as kindergartens, nurseries, schools, hospitals and clinics.

The SES Project has mostly implemented humanitarian-oriented activities/interventions and resulted in producing notable positive impacts, especially to the rural community social service providers such as kindergartens, nurseries, hospitals and clinics as shown in Table 8:

Table 8: The Impact of RE/EE Solutions on Rural Community Social Service Providers

	Prior to UNDP SES Project Interventions	Post UNDP SES Project Interventions
Kindergartens and nurseries	• Use of coal and firewood to heat up rooms and for cooking but the indoor temperature was still not warm enough in extreme cold conditions and this could increase unhealthy/hazardous indoor air quality conditions for the teachers and children • Using diesel and gasoline generators which is costly to purchase and incurred high maintenance costs • Rely on unreliable grid electricity which could only lasts a few hours a day and may have frequent power supply outages/cuts • Forming of ice and condensation on the walls would cause long-term damage to the building structure	Teachers and children are benefiting from the increased and better use of kindergartens and nurseries. This is because: • cleaner air quality due to improved Ondol floor heating system using less coal which would improve the health and well-being of the teachers and children inside the building • there is no more forming of ice and water condensation on the walls which would improve the preservation and protection of the building structure • constant electricity supply means teachers can now use computers, electronic equipment and televisions to provide continuous and better education to the kindergarten children • the rooms are well insulated with suitable temperature conditions for the children to rest and sleep in comfort
Hospitals and clinics	• Very cold and difficult to control the indoor temperature to be constantly warm for patient well-being • Forming of ice and water condensation on the walls would cause long-term damage to the building structure • Rely on unreliable grid electricity which could only lasts a few hours a day and medical equipment could not be used • Use of coal to heat up the indoor environment could increase unhealthy/hazardous indoor air quality conditions for doctors, nurses and patients • Cannot fully operate the hospital/clinics during the night and during winter seasons which can be up to 6 months in a year	Hospitals and clinics are now able to provide more reliable services to vulnerable groups such as elderly, pregnant women, children, the sick, and people with disabilities. This is because: • the hospital and clinic environment now have cleaner air quality (coal is not required) and the indoor temperature can be controlled to treat patients and ensure the comfort, health and well-being of doctors, nurses and patients • there is no more forming of ice and water condensation on the walls which would improve the preservation and protection of the building structure • constant electricity supply means medical equipment and computer equipment can be used to treat patients without any disruptions • hospitals and clinics are now able to operate 24 hours a day and whole year round, especially at night if needed

5. CONCLUSIONS, LESSONS LEARNED AND RECOMMENDATIONS

5.1 Conclusions and Lessons Learned

Conclusion #1: Significant external factors/challenges severely affected the project

Significant external factors/challenges beyond the control of the UNDP DPRK CO were encountered throughout the entire SES project implementation, and severely affected the timely delivery of project outputs relating to procurement-related activities.

Table 9 below shows the timeline of how the significant external factors/challenges overlapped each other, hence the SES Project Team would not be free of any constraints at any point of time between 2015 to 2019 to effectively and efficiently implement the project outputs relating to procurement activities to fully achieve the desired project outcome.

Table 9: Timeline of External Factors/Challenges Faced by UNDP DPRK CO

	2015				2016				2017				2018				2019			
	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Project Design delay			**																	
Late recruitment of the SES Project Team																				
6 rounds of UN sanction resolutions on DPRK (2016-2017), severely affecting international/ local procurement					2270			2321		2356	2371 2375	2397								
Extended period of banking channel disruptions/closure due to UN Sanctions for international funds transfer to UNDP DPRK CO																				

** SES PRODOC signed in August 2015

In particular, the evaluation highlights below the 2 external factors/challenges as the main constraints.

1. 6 Rounds of UN Sanctions on DPRK (2016-2017); and
2. Extended Period of Banking Channel Disruptions/Closure

The UN Security Council imposed two UN Sanctions (UN Resolutions #2270 and #2321) in 2016 and another four UN Sanctions (UN Resolutions #2356, #2371, #2375 and #2397) in 2017 were imposed on DPRK which included (among many measures) import, financial and economic restrictions. As a result, the UNDP DPRK CO and SES Project Team were severely constrained and the SES project's delivery negatively impacted as follow:

- The complicated, lengthy and increasingly difficult process to obtain clearance or exemptions for international procurement from UN Sanctions Committee 1718 which oversees the implementation of the UN Sanctions on DPRK.
- The recurred disruption/closure of the banking channel prevented funds transfer into DPRK for the UNDP DPRK CO to fully implement local activities and local procurement. This also led to the UNDP DPRK CO having to activate cash conservation mode and enforce stringent internal measures to sustain the office operations, which resulted in (1) restrictions for in-country/local procurement, and (2) increased complexity and time to implement the SES Project's procurement activities.

The SES PRODOC had appropriate risk assessments which identified a total of 15 risks (1 governance risk, 3 operational risks, 5 strategic risks, 3 financial/fiduciary risks, and 3 sustainability risks) with impact and probability ratings, and prepared corresponding counter-measures/management responses which were appropriate at that point of time and during the project implementation (2015 to 2019).

The risk assessments could be further extended by identifying the key risks and appropriate counter-measures/management response for each of project outputs within the Results and Resources Framework.

The evaluation noted that the risk analysis did not plan for scenarios of extreme UN sanction measures and the extended banking channel disruption/closure. Furthermore, the implementation of the SES PRODOC's counter-measures/management responses did not appropriately resolve the significant change of events caused by the UN Sanction measures and the extended banking channel disruption/closure during the project implementation.

Lesson Learned:

- Delayed efforts to complete procurement-related interventions, especially those listed as part of the feasibility studies severely disrupted county and village community (Ri) development plans/activities, resulting in potential economic hardship/losses and supply chain sustainability/productivity not fully realized.
- Long-term scenario planning together with annual reviews for change of direction should form part of risk assessment and mitigations in special country context projects.

Conclusion #2: The UNDP SES Project Team has done their best but there is room for improvement in project implementation

Despite the challenging circumstances, The SES Project Team has done their best and laid strong foundations to enable sustainable energy solutions at the village community (Ri) level. The SES Project Team was able to implement the project despite encountering the significant external factors and challenges that were beyond the control of the UNDP DPRK CO throughout the entire SES Project by:

- displaying good project management abilities and effectively utilising appropriate project management tools to implement the SES Project to the best of their abilities and resulted in:
  - Energy resource assessments and energy demand assessments completed for 15 village communities (Ri).
  - 24 feasibility studies integrating cost-benefit assessment methodology for RE/EE interventions completed.
  - 20 energy audits for basic-necessity facilities, agricultural processes and public community buildings completed.
  - Dissemination, promotion and demonstration on the uses/applications of RE/EE solutions at village community (Ri) level through NTDCs.
- applying effective adaptive management in planning procurement activities in order to accomplish the following project results:
  - Successfully delivered and installed 200 sets of solar PV systems in 170 public institutions across 15 Ris (from project reports):
    - 29 sets of solar PV systems in 26 productive facilities and implemented energy efficiency interventions in 11 productive processes.
    - 171 sets of solar PV systems in 144 social service institutions.
  - Successfully implemented energy efficiency interventions in 67 public institutions (improved Ondol floor heating system, thermal insulation in buildings including double glazed windows and doors, retrofitting with foamed cement bricks on building envelop, EE coal stoves, EE biomass stoves, and solar PV systems) in 62 community social service providers across 15 Ris such as kindergarten, nursery, schools, hospitals and clinics.

However, improvements/consistencies could still be further strengthened in the following areas:

- Registering/updates of assets/delivered items list and tagging of assets/delivered items by project team, in full compliance and adherence to relevant UNDP Policies and Procedures and UNDP DPRK Guidelines for Field Monitoring Visits, should be more consistent to ensure complete and proper physical verification and handover for the intended use/purpose.
- Signed acceptance at time of delivery and physical verification of all assets/items from the project, while continuing to monitor on the use of delivered items and assets in full operations, should be more consistent. This ensures successful delivery onsite and the use of the delivered items for their intended purpose to achieve the desired project results.
- Field data collection to measure effectiveness and impact on completed project activities.
- For improved financial accountability and transparency purposes as part of demonstrating the efficient use of funding on project output-based activities, future financial reporting processes and templates of UNDP DPRK projects should:
  - track and report consistent financial figures (budget and actual expenditure).
  - have consistent comparisons between budget and actual expenditure, as per project outputs, based on project CDRs, for submissions of all relevant project reports (including annual progress reports and submissions to PSC meetings).

Lesson Learned:

To maintain sustainability and determine any project output/activity effectiveness and impact, even after any formal hand-over and/or completion of project output technical support and assistance, it is important that project teams, at minimum during project implementation, still continue monitoring and reporting on post project initiatives, including the use of the assets and delivered equipment items after handover to project beneficiaries. This would ensure successful delivery onsite and the use of the delivered items for their intended purpose to achieve the desired project results.

For improved financial accountability and transparency purposes, financial reporting processes and templates should be consistent, especially on the:

- tracking and reporting of financial figures (budget and actual expenditure).
- consistent comparisons between budget and actual expenditure to demonstrate the efficient use of funding on project output-based activities.

Conclusion #3: SES model has potential for replication across DPRK but requires strong national ownership and commitment as the key to overcome any difficulties faced and achieve optimum results

An important result demonstrated in the SES Project was how the intended project outputs addressed country priorities and also fit within the county development priorities with new strategies and initiatives being planned for sustainable living and livelihoods. This was further strengthened with strong support and commitment from National and Local Counterparts.

The high level of national and local ownership ensured sustainability and positive environmental impact, despite the SES Project encountering external challenges that severely constrained the project beneficiaries.

The SES model has the potential to be replicated across DPRK in close partnership collaboration with National and Local Counterparts. To ensure the continuity and also strengthening of national ownership, future replication projects should also be accompanied by appropriate capacity building activities at local county and village levels. However, this replication must also be complemented with fully sustainable and well-equipped energy supply chains to benefit the end-users at the county and village community (Ri) level.

Lesson Learned:

- Strong national ownership combined with strong commitment/support and participation from CPCs and village communities (Ris) is key to accelerate the SES model to overcome any difficulties faced and achieve/bear lasting results.
- Replication of knowledge/operational capabilities and capacities of National Consultants to enhance the pool of national and local resources are strongly recommended.

Conclusion #4: Significant delays through the sanctions exemptions/clearance process and the extended banking channel disruption/closure hindered project implementation and severely affected UNDP's reputation of not being able to effectively deliver

Significant delays through the sanctions exemptions/clearance process and the extended banking channel disruption/closure hindered project implementation and have severely affected UNDP's reputation as an organization of not being able to effectively deliver.

However, many other significant achievements in the SES Project at village community (Ri) level through the use of solar PV systems in 170 public institutions and EE retrofitting measures in 67 public community buildings across 15 village communities (Ris) should be given more on-the-ground recognition for UNDP's unique contributions.

Lesson Learned:

Stronger on-the-ground visibility on UNDP's unique contributions would be required at current SES project sites and future SES-related interventions (such as UNDP logos, nameplates, asset/delivered item tags), and communication of project results among international and national stakeholders (through a suitable communications platform for active sharing of information and lessons learned). UNDP's reputation as an organization to deliver results would need to be restored.

It is important to:

- better manage village community (Ri) expectations to avoid/minimize potential economic losses to counties/Ris due to extensive surveys, project document preparation, frequent site visits, and extended/delayed/disrupted delivery times of UNDP assets/items to project sites
- impart knowledge to local counties/village communities (Ris) on more effective electricity usage and better control of the demand and energy consumption
- observe and pay attention to safety measures and procedures for RE/EE equipment to minimize/prevent occupational accidents and hazards from occurring
- conduct an independent impact evaluation study as a future project output/activity component to measure impact effectiveness, final end-line indicators and actual benefits gained
- ensure the use of assets/delivered items for their intended purposes

5.2 Recommendations

The evaluation proposes 7 recommendations for consideration and implementation whereby:

- 4 operational recommendations relate to how the UNDP DPRK CO could further improve the way it operates as an organization.
- 3 recommendations relate to future directions by building on the successful pilot model in the SES Project. By doing so, this will further replicate and upscale with a significant focus on humanitarian-oriented interventions to attain effective and sustainable local energy solutions that generate positive impact among rural beneficiaries.

It is to be noted that the implementation of these recommendations would be dependent on the future of the UNDP DPRK CO structure operating in DPRK in view of the geo-political environment and the availability of an approved UNDP DPRK CPD.

5.2.1 Operational Recommendations

R1: Strengthen financial reporting processes

For improved financial accountability and transparency purposes, UNDP DPRK project financial reporting processes and templates should track and report progress of consistent financial figures i.e. budget and actual expenditure for consistent comparisons between budget and actual expenditure, as per project outputs, based on project CDRs, for submissions of all relevant project reports (including annual project progress reports), to demonstrate the efficient use of funding on project output-based activities.

R2: Extensive review and update of country office policies and procedures with long-term scenario planning

UNDP DPRK CO should ensure that suitable policies and procedures can be implemented to resolve future issues in the event of unforeseen circumstances and minimize reputational risks by:

R2.1) working with UNDP Regional HQ to extensively review and update all operational, procurement and financial management policies and procedures to account for all that happened within the 2015-2019 period and appropriately mitigate any future constraints.

R2.2) incorporating extensive long-term scenario planning processes with appropriate and specific risk assessments and counter-measures.

R3: Consistent monitoring and reporting of assets/delivered items

To ensure successful delivery onsite and the use of the delivered items for their intended purpose to achieve the desired project results (in line with the established practice, UNDP rules and procedures and UNDP DPRK ICF guidelines), UNDP DPRK must ensure the following:

R3.1) procurement of any equipment/materials must strictly comply to relevant UNDP Policies and Procedures, with the monitoring process/procedure stringently following UNDP DPRK Guidelines for Field Monitoring Visits.

R3.2) project team should register any assets/items in the asset/delivered items list and physically monitor them, regardless of how they are procured given the DPRK special context working environment.

R3.3) continuation of monitoring and reporting on the use of the assets/delivered items after handover to project beneficiaries, at minimum during project implementation, should be adhered to.

R4: Management of reputational risks and stakeholder expectations

To restore its reputation as an organization that can deliver, UNDP DPRK should:

R4.1) set conditions and mechanisms to implement "Force Majeure" or early termination of projects if need to.

R4.2) strengthen its relationship management processes with project beneficiaries such as continued field visits, as practical and as relevant as required during the project implementation period, to better manage stakeholder expectations. By doing so, this would avoid/minimize potential economic and productivity losses to counties/village communities (Ris).

R4.3) minimize and/or avoid unequal distribution of delivered assets/items to avoid unhealthy comparisons between project beneficiaries and across any projects that have synergies.

5.2.2 Recommendations in Relation to Proposed Future Directions

R5: Rollout/replication of the SES Project in DPRK at county/village community (Ri) level

In the future of any approved UNDP CPD for DPRK, it is strongly recommended that UNDP DPRK should fully adopt the SES Project approach and continue to upscale from its successful pilot SES model for future rollout/replication at county/village community (Ri) level in DPRK. This should be done by working in close partnership with relevant DPRK national counterparts (MEPI, SCoST, SAOS and CBS) and local DPRK counties to implement at county/village community (Ri) level:

R5.1) facilitate knowledge/operational transfer of the SES Project's procedural, operational and hands-on training manuals, guidelines, SOPs, CEMPs and other related SES equipment/materials on:
- Hybrid RE systems (electricity production for local village community (Ri) needs in rural environments).
- RE and EE technologies such as eco-buildings (thermal insulation materials) and Solar PV panels (high performance energy efficiency).
- Load management (more effective electricity usage and better control of the demand and energy consumption).
- Establishing suitable and cost-effective RE/EE centers and manufacturing/maintenance workshops as part of strengthening the county/village community (Ri) energy supply chains.

R5.2) organize study tours, in other countries of similar context and/or culture to DPRK, for increased exposure to acquiring knowledge/application of best practices in RE/EE.

R5.3) conduct a base-line study to establish the starting indicators of current energy consumption and socio-economic development in local village communities (Ris).

R5.4) conduct an independent impact evaluation study, as a future project output/activity component, to measure the impact effectiveness, final end-line indicators and actual benefits gained.

R6: Communication of project results

To strengthen the communication of project results and recognition of UNDP's unique contributions, UNDP DPRK should implement the following:

R6.1) It is strongly recommended that any future SES-related projects should strengthen its communication/sharing platforms to engage in closer collaboration/synergies with international organizations/agencies on SES-related activities.

R6.2) Current SES project sites and future SES-related interventions should display stronger on-the-ground visibility of UNDP's unique contributions at the county/village community (Ri) level through the consistent placing of UNDP logos, nameplates and/or asset/delivered item tags.

R7: Implementation of safety measures and procedures on RE/EE equipment

It is strongly recommended for UNDP DPRK that future SES-related project activities should incorporate safety measures and procedures for end-users when operating and maintaining any RE/EE equipment. These would include:

R7.1) installing protective covering over live equipment for insulation from any electrical shocks.

R7.2) creating risk-free and secured access to any sites housing the RE/EE equipment to minimize/prevent any potential workplace accidents.

R7.3) developing safety procedures/manuals when operating, cleaning and/or maintaining any RE/EE equipment.

ANNEXES

A.1 TERMS OF REFERENCE

TERMS OF REFERENCE

Final Evaluation of the "Sustainable Energy Solutions for Rural Livelihoods in DPRK" (SES Project)

Location	- Home based - DPRK: Pyongyang and SES project areas in 15 Ris (Including 3 Oups and 1 Dong) in 6 Counties: 1. Hoechang County, South Pyongan Province 2. Singye County, North Hwanghae Province 3. Yonsan County, North Hwanghae Province 4. Unsan County, North Pyongan Province 5. Kaechon City, South Pyongan Province 6. Yangdok County, South Pyongan Province
Application deadline	14 October 2019
Type of Contract	Individual Contractor
Post Level	International Consultant
Languages required:	English
Duration of Initial Contract:	Total 25 working days (including 7 working days in DPRK)

BACKGROUND

Briefly describe the project rationale / background and the objectives of the project

About the project:

About the project:
Rural areas and communities in Democratic People's Republic of Korea (DPRK) lack access to adequate and reliable energy services due to:
(i) insufficient supply of primary energy inputs;
(ii) inadequate infrastructure, technological and managerial know-how and competence for the sustainable exploitation of local renewable energy sources; and;
(iii) lack of appropriate operational modalities enabling the sustainable delivery of the technologies to provide basic energy services.

The SES Project addresses this development challenge by drawing upon the lessons from the previous two UNDP projects that focused of sustainable energy i.e. Sustainable Renewable Energy Development Programme (SRED), and Small Wind Energy Development Project for Rural Areas (SWEDPRA).

The SES project focuses on the attainment of effective and sustainable local energy solutions that generate positive impact among rural beneficiaries. The SES Project will reinforce sustainability aspects and aims to strengthen energy service delivery at the local level.
The project's objective is to provide local rural communities in targeted areas with adequate, secure and reliable access to renewable energy resources, cost-effective energy efficiency and energy conservation solutions for meeting basic energy demands under appropriate operational modalities. This will be achieved through the implementation of local-level energy solutions in rural areas through an approach that entails: (i) the establishment of delivery models enabling the sustainable supply and operation of energy solutions in rural areas; (ii) the introduction of renewable energy technologies (RE), and solutions for more efficient energy use (EE) and energy conservation (EC); and (iii) the increase of county-level energy self-reliance by enhanced ownership and technical and managerial competencies for the sustainable use of local renewable energy resources.

Traditionally, UNDP used to rely on Cooperative Farms as the entry point. The SES Project strategy mainly depends on the assumption that the counties play a pivotal role in the allocation of energy resources for local users and have autonomy over part of the natural resources in their territory. Engagement of the SES project therefore at the County for certain initiatives is best addressed at that level, creating more opportunities to promote energy self-reliance and address the exposure of communities to climate risks as well as to create greater impact. The SES project will focus on proven and cost-effective energy solutions that require low capital costs.

Key Outputs:

1. Output 1: Information about energy resources and feasible RE/EE solutions updated and made accessible to local beneficiaries
2. Output 2: Increased technical know-how of county-level personnel for energy planning and sustainable management of local renewable energy resources
3. Output 3: Strengthened supply chains for the delivery of appropriate RE/EE solutions for local communities in rural areas
4. Output 4: Increased energy security and self-reliance of rural population through the implementation of RE/EE solutions for local communities

Management structure and stakeholders for the project:
Adopting a direct implementation modality (DIM), the project has its dedicated management team based in the UNDP CO. An International Project Manager responsible for the daily management of the project with assistance from national project staff and consultant was recruited.

A Project Steering Committee was formed for guiding the project direction and addressing challenges, cochaired by the UNDP Deputy Resident Representative (DRR) and the National Coordinator from the DPRK National Coordinating Committee (NCC) for UNDP, with participation of representatives from the Line Ministries and other institutions as needed at the central level.

Synergy with other UNDP project
The SES project has purposefully selected some pilot areas in common with UNDP's another ongoing project "Strengthening the Resilience of Communities through Community-Based Disaster Risk Management" (CBDRM) given the inter-connections between energy access and disaster management, through integrated responses to leverage synergies of both projects for a magnified development result.

EVALUATION PURPOSE, SCOPE AND SAMPLE QUESTIONS

Purpose and scope of evaluation:
The project conducted a Mid-Term-Review in 2018 to assess its relevance, efficiency, effectiveness and recommend specific measure for further improvement of project implementation including solutions for overcoming the challenges.

The project document also requires a "*Terminal Evaluation, to be conducted by an independent third party, will be initiated at the end of the Project and involve consultation with the Project stakeholders at the national and local levels*". It further outlines that the "*Terminal Evaluation will detail the achievements, outcomes & impacts of the project compared to baseline, the issues faced, and lessons learned during the project implementation and will provide recommendations for future actions*".

Therefore, this Terms of Reference (ToR) outlines the conduct of the Final Evaluation of the SES project.

The international consultant to be recruited will need to review the entire duration of project implementation (August 2015 to December 2019), focusing on project results and experiences as well as key challenges met, lessons learnt, and areas for improvement, through the lenses of relevance, efficiency, national ownership, effectiveness and sustainability. The consultant will also take into consideration issues of gender, human rights and leaving no one behind. This will lead to recommendations of areas and methods of possible future interventions for the DPRK.

Evaluation questions:
The mainstream definitions of the OECD-DAC criteria are neutral in terms of human rights and gender dimensions which need to be added into the evaluation criteria chosen (link Integrating Human Rights and Gender Equality in Evaluations)

- Relevance:
- To what extent was the project in line with the national development priorities, the CPD outputs, CPD outcomes, UNDP Strategic Plan and the SDGs?
- To what extent does the project contribute to the Theory of Change for the relevant CPD outcome?
- To what extent were lessons learned from other relevant projects considered in the project's design?
- To what extent were perspectives of those who could affect the outcomes, and those who could contribute information or other resources to the attainment of stated results, taken into account during the project design processes?
- To what extent does the project contribute to gender equality, the empowerment of women and the human rights-based approach?

- To what extent has the project been appropriately responsive to political, legal, economic, institutional, etc., changes in the country?

- Effectiveness:
- To what extent did the project contribute to the CPD outcomes and outputs, the SDGs, UNDP Strategic Plan and national development priorities?
- To what extent were the project outputs achieved?
- What factors have contributed to achieving or not achieving intended CPD outputs and CPD outcomes?
- To what extent has the UNDP partnership strategy been appropriate and effective?
- What factors contributed to effectiveness or ineffectiveness?
- In which areas does the project have the greatest achievements? Why and what have been the supporting factors? How can the project build on or expand these achievements?
- In which areas does the project have the least achievements? What have been the constraining factors and why? How can they or could they be overcome?
- What, if any, alternative strategies would have been more effective in achieving the project's objectives?
- Are the projects objectives and outputs clear, practical, and feasible within its frame?
- To what extent have stakeholders been involved in project implementation?
- To what extent is project management and implementation participatory and is this participation contributing towards achievement of the project objectives?
- To what extent has the project been appropriately responsive to the needs of the national constituents and changing partner priorities?
- To what extent has the project contributed to gender equality, the empowerment of women and the realization of human rights?

- Efficiency:
- To what extent was the project management structure as outlined in the Project Document efficient in generating the expected results?
- To what extent has UNDP's project implementation strategy and execution been efficient and cost effective?
- To what extent has there been an economical use of financial and human resources? Have resources (funds, human resources, time, expertise, etc.) been allocated strategically to achieve outcomes?
- To what extent have resources been used efficiently? Have activities supporting the strategy been cost-effective?
- To what extent have project funds and activities been delivered in a timely manner?
- To what extent do the monitoring and evaluation systems utilized by UNDP ensure effective and efficient project management?

- Sustainability:
- Are there any financial risks that may jeopardize the sustainability of project outputs?
- To what extent will financial and economic resources be available to sustain the benefits achieved by the project?
- Are there any social or political risks that may jeopardize sustainability of project outputs and the project's contributions to CPD outputs and CPD outcomes?
- Do the legal frameworks, policies and governance structures and processes within which the project operates pose risks that may jeopardize sustainability of project benefits?

- To what extent did UNDP actions pose an environmental threat to the sustainability of project outputs?
- What is the risk that the level of stakeholder's ownership will be sufficient to allow for the project benefits to be sustained?
- 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 stakeholders support the project's long-term objectives?
- To what extent are lessons learned being documented by the Project Team on a continual basis and shared with appropriate parties who could learn from the project?
- To what extent do UNDP interventions have well designed and well-planned exit strategies?
- What could be done to strengthen exit strategies and sustainability?

Evaluation crosscutting issues sample questions:

- Human rights:
- To what extent have poor, indigenous and physically challenged, women and other disadvantaged and marginalized groups benefitted from UNDP DPRK's work in contributing to enhance fulfillment of people's economic and social right
- Gender equality:
- To what extent has 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? Were there any unintended effects?
- Synergy
- To what extent the synergies of CBDRM and SES projects have been addressed contributing to a magnified development results

DUTIES AND RESPONSIBILITIES

Expected Outputs and Deliverables

Methodology:

The evaluation will be guided by the updated UNDP evaluation policy building on its global practices (Programme and Project Operating Procedures). Following this TOR by the UNDP DPRK Country Office, the international consultant should,

Before the field mission to DPRK

- Conduct an extensive project related document review, based on which prepare a draft Inception Report with detailed evaluation methodology proposed such as Key Informant Interviews (KII), Focus Group Discussions (FGD) and other effective ways as appropriate to capture perceptions and evidence from both the key stakeholders at central level and the beneficiaries at the community level in the project areas, utilizing quantitative and qualitative mixed-methods.
- Finalize the Inception Report integrating comments and suggestions from UNDP and national counterparts.

During the field mission in DPRK

- Conduct field assessment applying the methodologies as per the Inception Report.
- Organize a validation / debriefing meeting with relevant key government counterparts and UNDP, to test the assumptions, findings, and recommendations, covering achievement and experiences, challenges and lessons, future improvement in possible continuation and / or replication.

After the field mission in DPRK

- Utilize high quality info-graphics and other means in communicating the data and findings in the final report.
- Illustrate the extent to which the design and implementation of the project incorporate a gender equality perspective and human rights-based approach.
- Adopt an evidence-based approach underpinned by observations and especially data collected in findings provided, conclusions drawn, and recommendations made.

Methodologies may include some or all of the following:

- Evaluation should employ a combination of both qualitative and quantitative evaluation methods and instruments.
- Review of all relevant documentation including:
  - UN Strategic Framework DPRK 2011-2016
  - UN Strategic Framework DPRK 2017-2021
  - UNDP Country Programme Document DPRK 2011-2015
  - UNDP DPRK quarterly programme monitoring and oversight reports
  - Project Document including theory of change and results framework
  - Annual Work Plans
  - Quarterly and Annual Reports
  - Project Steering Committee meeting minutes
  - Field monitoring and visit reports
  - MTR report 2018
  - UNDP Environmental and Social Screening results
  - Technical/Financial Monitoring Reports
  - Other reports and materials produced by the project
- Semi-structured interviews with key stakeholders including key government counterparts, donor community members, representatives of key civil society organizations, UNCT members, and implementing partners:
  - Development of questionnaires assessing relevance, effectiveness, efficiency and sustainability through interviewing different stakeholders.
  - 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.
- Field visits and on-site validation of key tangible outputs and interventions.
- Participatory and consultative approach ensuring close engagement with the evaluation managers, relevant stakeholders and direct beneficiaries.
- Data review and analysis of monitoring and other data sources and methods.
  - Ensure maximum validity, reliability of data (quality) and promote use, the consultant will ensure triangulation of the various data sources.

Deliverables:

- *Evaluation inception report (10-15 pages)*: the inception report should be carried out following and based on preliminary discussions with UNDP CO, desk review and should be produced before the evaluation starts (before any formal evaluation interviews, survey distribution or field visits) and prior to field mission in DPRK.
- *Evaluation debriefings*: before leaving DPRK, UNDP will hold a preliminary debrief and findings with the consultant.
- Evaluation matrix[1]:

Sample Evaluation matrix

Relevant evaluation criteria	Key Questions	Specific Sub-Questions	Data Sources	Data collection Methods/Tools	Indicators/ Success Standard	Methods for Data Analysis

- *Draft evaluation report* (within an agreed length)[2]: UNDP CO will review the draft evaluation report, coordinate inputs from relevant stakeholders and provide an amalgamated set of comments to the consultant within two weeks.
- *Final Evaluation Report with a stand-alone Executive Summary*: final editing to be completed within two weeks by the consultant with incorporation of comments received. For the purpose of *evaluation report audit trail*, changes by the consultant in response to the draft report should be retained by the consultant to show how s/he has addressed comments.

Evaluation ethics

Evaluations in UNDP will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'[3].

This evaluation will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'. The Consultant 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 its data. The Consultant 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 with the express authorization of UNDP and partners.

The Consultant is expected to read carefully, understand and sign the 'Code of Conduct for Evaluators in the UN System', which may be made available as an attachment to the evaluation report.

[1] The evaluation matrix is a tool that evaluators create as map and reference in planning and conducting an evaluation. It also serves as a useful tool for summarizing and visually presenting the evaluation design and methodology for discussions with stakeholders. It details evaluation questions that the evaluation will answer, data sources, data collection, analysis tools or methods appropriate for each data source, and the standard or measure by which each question will be evaluated.

[2] 40 to 60 pages including executive summary is suggested

[3] UNEG, 'Ethical Guidelines for Evaluation', June 2008: http://www.uneval.org/search/index.jsp?q=ethical+guidelines

Institutional Arrangement

- UNDP ensures the participation of key stakeholders and beneficiaries through meetings, discussions and sharing of evaluation report.
- UNDP Evaluation Commissioner/Owner (RR a.i / DRR a.i) as advisory body will provide a sounding board for the international consultant while protecting his/her independence and ensure UNDP's ownership of the report's findings and recommendations.
- UNDP Evaluation Manager (M&ES) and Programme Manager (Programme Analyst) will support the conduct of the evaluation, including provision of feedback to the inception report, participation in the validation meeting, provision and coordination for comments on the draft report, distribution of the final report, and initiation of the recommendations' implementation.
- UNDP Programme Manager will be responsible for facilitating the provision of the existing data / documents to the international consultant and field data collection in DPRK, including preparation of field assessment schedules and logistic coordination.
- The international consultant will work independently.
- Detailed arrangements including service days and schedule of payments will be defined in UNDP's contract with the recruited Individual Consultant.
- UNDP Evaluation Commissioner/Owner will approve the Final Evaluation Report.

Duration of the Work

The estimated duration of the assignment is 25 working days during November/December 2019. The whole process will be completed with the final report submitted and approved by 31st December 2019.

The tentative key stages of evaluation include:

- Phase 1 - Consultant selection: by 18 October 2019
- Phase 2 - Desk review and inception report: by mid of November 2019 (5 consultancy/working days)
- Phase 3 - Data collection/field mission in DPRK: 23 November – 3 December 2019 (7 consultancy/working days)
- Phase 4 - Draft and finalization of report (incl. an executive summary): final report by 31 December 2019 (13 consultancy/working days)

Duty Station

- During mission in the DPRK, the Consultant will be based in Pyongyang, but with at least 2-3 days of field trips to the selected sites in the project areas (Yonsan and Singye Counties, North Hwanghae Province; Unsan County, North Pyongan Province; Yangdok County, Hoechang County, Kaechon City, South Pyongan Province).

COMPETENCIES

- Strong facilitation, communication, presentation skills.
- Strong analytical abilities and reporting skills, with openness to change responding to feedbacks received.
- Ability to plan, organize and implement work, including under pressure and tight deadlines.
- Proficiency in the use of IT facilities including office applications and also networks in conducting research.
- Demonstrates integrity and ethical standards.
- Displays cultural, gender, nationality and age sensitivity and adaptability.

REQUIRED SKILLS AND EXPERIENCE

Educational Qualifications:

- At least master's degree in economics, development or other related fields

Experience

- At least 8 years of demonstrable experience in development project assessment/evaluation
- Experience in dealing with government agencies at different levels, international organizations, and community people
- Understanding of socialist planned economy is a great asset
- Prior work experience with international organizations in DPRK or other countries in Asia Pacific region is desirable

Language requirements

- Excellent communication, presentation and writing skills in English

Price Proposal and Schedule of Payments

The candidates who feel interested in the assignment must send a financial proposal at Lump Sum Amount. The total amount quoted shall be itemized covering all costs required to perform the tasks identified in the TOR, including professional fee, travel costs, living allowance and any other applicable cost to be incurred. The contract price will be output-based regardless of extension of the herein specified duration. Payments will be made upon completion of the deliverables/outputs as per below percentages:

- Deliverables - phase 1: 40% of total contract amount
  - Desk Review, Inception Report and Evaluation matrix produced, submitted to and cleared by UNDP DPRK Country Office
  - Evaluation debriefing conducted with relevant stake-holders before leaving DPRK
- Deliverables - phase 2: 60% of total contract amount
  - Draft Evaluation Report submitted to UNDP for review and comments and acknowledged by UNDP DPRK CO
  - Final Evaluation Report incl. Executive summary incorporating comments received and approved by UNDP DPRK CO

Evaluation Method and Criteria

The candidates will be evaluated based on the ***cumulative analysis*** methodology.

The award of the contract shall be made to the candidate whose offer has been evaluated and determined as a) responsive/compliant/acceptable; and b) having received the highest score out of set of weighted technical criteria (70%) and financial criteria (30%). Financial score shall be computed as a ratio of the proposal being evaluated and the lowest priced proposal received by UNDP for the assignment.

Technical Criteria for Evaluation (Maximum 70 points):

- Criteria 1: Education – Max 10 points (10 pts – PhD degree; 5 pts – Master's degree)
- Criteria 2: Relevant professional experience - Max 20 Points (20 pts – above 12 years; 15 pts – 10 to 12 years; 10 pts – 8 to 10 years);
- Criteria 3: Language skills – Max 5 points (5pts - native English speaker)
- Criteria 4: Knowledge and experience about DPRK – Max 10 points (10 pts - work or consultancy experience in DPRK; 5pts – experience in other Asia Pacific countries)
- Criteria 5: Proposed methodology to undertake the assignment – Max 25 Points (25 pts – fully understand the task, logical and reachable; 15 pts - get sense of the task, basically meet the requirement; 5 pts – rough and unclear)

Only candidates obtaining a minimum of 49 points (70% of the total technical points) would be considered for the Financial Evaluation.

Documentation required

Interested individual consultants must submit the following documents/information to demonstrate their qualifications. Please group them into one (1) single PDF document as follows:

- Letter of Confirmation of Interest and Availability using the template provided in Annex II.
- Personal CV or P11, indicating all past experience from similar projects, as well as the contact details (email and telephone number) of the Candidate and at least three (3) professional references.
- Technical proposal, including a) a brief description of why the individual considers him/herself as the most suitable for the assignment; and b) a methodology, on how they will approach and complete the assignment.
- Financial proposal, as per template provided in Annex II.

Incomplete proposals may not be considered.

Annexes

- Annex I - Individual IC General Terms and Conditions
- Annex II - Offeror's Letter to UNDP Confirming Interest and Availability for the Individual IC, including Financial Proposal Template

For any clarification regarding this assignment please write to operations.dprk@undp.org

A.2 ITINERARY

Date	Time	Place	Schedule
Dec. 2nd 2019 (Monday)	10:30-12:30	Taedonggang Diplomatic Club	**SES:** • Meeting with NCC and national-level stakeholders i.e. line ministries (MEPI, SCOST, SAOS) & National Expert Group under SES • A SCEDM focal point attends in the meeting to explain synergic impact with CBDRM
	14:00-15:30 16:00-17:30	UNICEF SDC	• Meeting with UNICEF on CBDRM/SES • Meeting with SDC on CBDRM/SES
Dec. 3rd 2019 (Tuesday)	08:00-10:30	Pyongyang/Hoechang	• Departure UNDP CO and arrive in Naedong Ri, Hoechang County (SES Project)
	10:30-11:30	Hoechang County, South Pyongan Province	• Visit to project sites and interview with beneficiaries in Naedong Ri, Hoechang county
	11:30-11:40 11:40-13:00 13:00-14:00		• Departure to and arrival in Dokryon-Ri, Hoechang County (SES Project) • Visit to project sites and interview with beneficiaries • Working Lunch
	14:00-14:40 14:40-17:00		• Departure to and arrival in Oup, Hoechang County (SES Project) • Meeting with CPC officials, visit to project sites and interview with beneficiaries
	17:00-18:30	Hoechang/Pyongyang	Departure from Hoechang County and arrival in Pyongyang

Date	Time	Place	Schedule
Dec. 4th 2019 (Wednesday)	07:30-09:30	Pyongyang/ Kaechon	• Departure from UNDP CO and arrival in Joyang-dong, Kaechon City (SES Project)
	09:30-11:00	Kaechon City, South Pyongan Province	• Meeting with CPC officials in Joyang-dong • Visit to project sites and interview with beneficiaries
	11:00-12:30		• Departure to and arrival in Alil Ri, Kaechon City (SES Project) • Meeting with CPC officials in Alil Ri • Visit to project sites and interview with beneficiaries
	12:30-14:30 14:30-17:00	Unsan County, North Pyongan Province	• Departure to Oup, Unsan County (SES project) • Working lunch • Meeting with CPC officials • Visit to project sites and interview with beneficiaries
	17:00-19:00	Unsan/ Pyongyang	• Departure to and arrival in Pyongyang
Dec. 5th 2019 (Thursday)	08:00-10:30	Pyongyang/ Singye	• Departure to Oup, Singye County (SES project)
	10:30-13:00 13:00-14:00	Singye County, North Hwanghae Province	• Meeting with CPC officials, visit to project sites and interview with beneficiaries in Oup, Singye county • Working Lunch
	14:00-14:30 14:30-16:00 16:00-18:30		• Departure to and arrival in Daesong Ri, Singye County • Visit to project sites and interview with beneficiaries • Departure to and arrival in Pyongyang

Date	Time	Place	Schedule
Dec. 6th 2019 (Friday)	09:30-10:30 10:30-11:00 11:00-12:00 14:30-15:30 16:30-17:30	UNDP UNDP UNDP EUPS Unit 3, 4-18, Main Compound UN RC Office	• Meeting with Kiye Mwakawago, Operations Manager • Updates on SES project field visits • Debriefing in Interagency meeting on CBDRM and SES Projects • Meeting with EUPS Unit 3 (Concern Worldwide) on SES (1912501788) • Meeting with Mr Frode Mauring/UNRC a.i.
Dec. 7th 2019 (Saturday)		UNDP	• Prepare for debriefing on SES Project
Dec. 8th 2019 (Sunday)		UNDP	• Prepare for debriefing on SES Project
Dec. 9th 2019 (Monday)	09:45-10:30 11:00-12:00	UNDP Taedonggang Diplomatic Club	• Debriefing UNDP management and project team on SES Project **SES Evaluation:** • Stakeholder debriefing meeting (NCC, representatives from MEPI, SCOST, SAOS) to share / validate findings, conclusions, recommendations under SES
	13:00-15:30	Munsu Guesthouse/ Airport	• Check-out Guesthouse and leave for airport • Departure

A.3 LIST OF PERSONS INTERVIEWED

United Nations Development Programme (UNDP DPRK):
- Mr. Vineet Bhatia, Former Resident Representative a.i., UNDP DPRK
- Mr. Yu Hua, Deputy Resident Representative a.i., UNDP DPRK
- Mr. Kiye Mwakawago, Operations Manager, UNDP DPRK
- Dr. Butchaiah Gadde, Project Manager – SES Project, UNDP DPRK
- Mr. Ri Hak Chol, National Technical Coordinator – SES Project, UNDP DPRK
- Ms. Jo Gi Hyang, Project Administrative Assistant – SES Project, UNDP DPRK
- Ms. Le Le Lan, M&E Specialist, UNDP DPRK
- Mr. Yu Kwang Song, M&E Programme Analyst, UNDP DPRK

United Nations (UN DPRK):
- Mr. Frode Mauring, Resident Coordinator a.i., UN DPRK

United Nations Children's Fund (UNICEF DPRK):
- Ms. Odile Bulten, Deputy Resident Representative, UNICEF DPRK
- Mr. Silas Rapold, M&E Specialist, UNICEF DPRK
- Mr. Kencho Namgyal, WASH Specialist, UNICEF DPRK

European Union Programme Support Unit 3 (EUPS Unit 3):
- Mr. Saroj Dash, Country Director, IFRC DPRK

National Counterparts:
- Mr. Hong Chang Bom, Coordinator - National Coordinating Committee (NCC) for UNDP, DPRK
- Mr. Choe Song Chol, Section Chief, Department of External Cooperation, State Academy of Sciences (SAOS), DPRK
- Mr. Jang Kong Il, Senior Officer, Department of International Cooperation on Science and Technology, State Commission for Science and Technology (SCoST), DPRK
- Ms. Hong Jong Hui, Deputy Director, Bureau of External Affairs, Ministry of Electric Power Industry (MEPI), DPRK
- Mr. Choe Il Su, National Consultant – SES Project
- Mr. Paek Yong Nam, Senior Officer, Bureau of External Affairs, Central Bureau of Statistics (CBS), DPRK

Local Counterparts:

<u>Naedong-Ri, Hoechang County, South Pyongan Province</u>
- Mr. Hong Chang Ho, Section Chief -Culture, Hoechang CPC
- Mr. Ri Nam Chol, Chairman, Naedong Farm Management Board
- Ms. Kim Yong Suk, Chief/Manager, Naedong-Ri 10-Days Kindergarten (beneficiary)
- Mr. Yon Kwang Nam, Principal, Naedong-Ri High School (beneficiary)

<u>Dokryon-Ri, Hoechang County, South Pyongan Province</u>
- Mr. Kim Song Jin, Chairman, Dokryon-Ri Farm Management Boar

<u>Hoechang Oup (Main Town), Hoechang County, South Pyongan Province</u>
- Ms. Ri Kee Ok, Chief/Manager, Kuchang Kindergarten
- Mr. Ri Song Jin, Chairman, Double Glazed Windows Workshop

Joyang-Dong, Kaechon City, South Pyongan Province

- Mr. Pak Sung Gee, Section Chief - Energy, Kaechon CPC
- Ms. Jong Sun Nyo, Chief, Joyang-Dong NTDC (beneficiary)
- Mr. Han Yong Geel, Chief Leader, Joyang-Dong SLUGs (beneficiary)
- Ms. Rim Hye Gyong, Director, Joyang-Dong Coal-Mine Hospital (beneficiary)
- Mr. Jo Dong Chol, National Expert - SES Project

Unsan County, North Pyongan Province

- Mr. Choe Nam Il, Deputy Vice-Chairman, Unsan CPC
- Mr. Kim Sang Guk, Section Chief - Culture, Unsan CPC
- Ms. Kim Yong Hui, Director, Unsan County Women's Hospital (beneficiary)
- Mr. Choe Gyu Nam, Chief, Unsan County NTDC (beneficiary)

Singye Oup (Main Town), Singye County, North Hwanghae Province

- Mr. Kwak Chol Su, Vice-Chairman, Singye CPC
- Ms. Kim Ok Ran, Section Chief – Energy, Singye CPC
- Mr. Kim Chol Su, Chief, Singye County NTDC (beneficiary)
- Mr. Jang Chol Ung, National Expert - SES Project

Taesong-Ri, Singye County, North Hwanghae Province

- Mr. Pak Sang Bok , Chief, Taesong-Ri Farm Management Board
- Mr. Jong Ho Gool, Engineer, Pico-Hydro Power Plant (beneficiary)
- Mr. Pak Chol Nam, National Expert - SES Project

A.4 LIST OF DOCUMENTS REVIEWED

- UN Strategic Framework DPRK 2011-2016
- UN Strategic Framework DPRK 2017-2021
- UNDP Country Programme Document DPRK 2011-2015
- SES Project Document
- UNDP DPRK quarterly programme monitoring and oversight reports
- SES Annual Work Plans
- SES Project Quarterly/Annual Progress Reports
- SES Project Steering Committee Meeting Minutes
- SES Field Monitoring and Visit Reports
- SES MTR report 2018
- SES Project Capacity Building/Knowledge Dissemination Training Plans and Reports
- SES Project internal reports/documents
- UNDP DPRK Annual Monitoring Reports
- UNDP DPRK CO Internal Control Framework
- UNDP DPRK CO Guidelines for Field Monitoring Visits
- UNDP Technical Assistance/Mission Reports

A.5 QUESTIONNAIRES USED DURING THE FIELD MISSION IN DPRK

Field Visit to Hoechang County and Kaechon City (South Pyongan Province), Unsan County (North Pyongan Province) and Singye County (North Hwanghae Province)	
Category	**Sample Questions**
Introduction/ Background	1. What is your background and how are you involved in this SES Project? 2. Before this SES project began: • Did you have access to electricity? • How do you keep yourself warm during the cold?
Relevance	1. What is your understanding on UNDP and this SES Project in the beginning? 2. Were you involved in contributing feedback, comments, ideas and suggestions during the project design stage? 3. What were your expectations then when the SES Project was first introduced to you? 4. Was the explanation of the SES project clear to you and was the SES Project relevant to your needs and priorities?
Effectiveness	1. Did the SES Project contribute to your county development plan and workplan for sustainable energy solutions? 2. Are you and the community able to effectively respond better to current and future energy-related needs? If so, how? 3. What are the successes, strengths or achievements of this SES Project? 4. What are the weaknesses and gaps of this SES Project? What have been the constraining factors and why? How can they or could they be overcome?
Efficiency	1. Did the SES project improve the use of your resources (money, processing/work time, food, travelling time etc.)? If so, how? 2. Have project activities and materials/procured equipment been delivered in a timely manner? 3. How would you assess the quality of the delivered training workshops, programmes, materials? 4. How would you assess the quality of the SES project equipment?
Impact	1. Did you benefit from the capacity building and training workshops? If so, how? 2. Did you benefit from the study tours? If so, how? 3. Was the SES training provided helpful? If so, how? 4. Were the SES EE technologies and solutions beneficial and met the community needs? If so, how?
Sustainability	1. Can this SES training materials, protocols and procedures be replicated to other counties? Would you recommend this to other counties? 2. Would you require further technical support or other form of support in relation to sustainable energy solutions? 3. What would you like to see for future improvements for UNDP or future UNDP projects? 4. Do local CPCs have institutional capacities, systems and processes to develop county energy management plans and implement sustainable energy solutions?
Synergy	1. To what extent are the inter-linkages between project outputs and related activities? 2. To what extent do any partnerships/inter-linkages bring together both CBDRM and SES Projects to result in strengthened outcomes/outputs 3. Did the SES Project collaborate and cooperate with other international agency/organization project efforts which resulted in higher achieving results? 4. Does the County Energy Management Plan enable better synergies with CPCs and relevant international organization stakeholders involved in sustainable energy solutions?
UNDP Project Team	1. How do you find the quality of services/support by UNDP? 2. How do you find the quality of communications and working relationship with UNDP? 3. Is communication with UNDP regular and effective? 4. Are you regulated updated on progress of the UNDP project?

Interview with UNDP DPRK Country Office and DPRK National Counterparts	
Category	**Sample Questions**
Relevance	1. To what extent was the project in line with DPRK national priorities on sustainable energy solutions and energy efficiency? 2. To what extent were lessons learned from other relevant projects considered in the project's design? 3. To what extent were perspectives of those who could affect the outcomes, and those who could contribute information or other resources to the attainment of stated results, taken into account during the project design processes? 4. To what extent has the project been appropriately responsive to political, legal, economic, institutional, etc., changes in the country? 3. Before this SES project began: • How do village communities (Ris) have access to electricity? • How do village communities keep themselves warm during the cold? 4. Are the DPRK Government and project beneficiaries are appropriately and consistently consulted during the project design stage and during the project implementation phase? 5. Did the SES Project communicate its results well with all stakeholders and across sectors? 6. Is the County Energy Management Plan developed under the SES Project relevant to DPRK national priorities?
Effectiveness	1. To what extent did the SES Project contribute to the CPD outcomes and outputs, the SDGs, UNDP Strategic Plan and DPRK national priorities? 2. To what extent were the project outputs achieved? What factors have contributed to achieving or not achieving the desired project outputs? 3. What factors contributed to effectiveness or ineffectiveness? 4. In which areas does the project have the greatest achievements? Why and what have been the supporting factors? How can the project build on or expand these achievements? 5. In which areas does the project have the least achievements? What have been the constraining factors and why? How can they or could they be overcome? 6. What, if any, alternative strategies would have been more effective in achieving the project's objectives? 7. Are the projects objectives and outputs clear, practical, and feasible within its frame? 8. To what extent have national and local counterpart stakeholders been involved in participating in project design and project implementation? Is this participation contributing towards achievement of the project objectives? 9. To what extent has the project been appropriately responsive to the local community needs and changing national/local community priorities?
Efficiency	1. To what extent was the project management structure as outlined in the PRODOC efficient in generating the expected results? 2. To what extent has UNDP's project implementation strategy and execution been efficient and cost effective? 3. To what extent has there been an economical use of financial and human resources? Have resources (funds, human resources, time, expertise, etc.) been allocated strategically to achieve outcomes? 4. To what extent have resources been used efficiently? Have activities supporting the strategy been cost-effective? 5. To what extent have project funds and activities been delivered in a timely manner? 6. To what extent do the monitoring and evaluation systems utilized by UNDP ensure effective and efficient project management?

Interview with UNDP DPRK Country Office and DPRK National Counterparts	
Category	**Sample Questions**
Sustainability	1. Are there any financial risks that may jeopardize the sustainability of project outputs? 2. To what extent will financial and economic resources be available to sustain the benefits achieved by the project? 3. Are there any social or political risks, legal frameworks, policies and governance structures and processes that may jeopardize sustainability of project outputs and project benefits? 4. Taking into account political, financial, technical and environmental factors, to what extent do mechanisms, procedures, and policies exist to carry forward the CBDRM project results? 5. Would MEPI, SCoST, SAOS and CBS require further technical support or other form of support in relation to SES and EE? 6. To what extent are lessons learned being documented by the Project Team on a continual basis and shared with appropriate parties who could learn from the project? 7. Does the SES Project have well designed and well-planned exit strategies? What could be done to strengthen exit strategies and sustainability if any? • Is the level of national/local counterpart ownership sufficient to allow for the project benefits to be sustained after project closure? • Do national and local counterparts have institutional capacities, systems and processes to formulate policies and strategies relating to SES and EE? • Do local CPCs have institutional capacities, systems and processes to implement County Energy Management Plans (CEMP)? • Can the CEMP, SES and EE measures developed by SES Project continue to be implemented and updated even after project closure?
Basic Human Needs	5. Based on the principles of Human Rights, to what extent have poor, indigenous and physically challenged, women and other disadvantaged and vulnerable groups benefitted from UNDP DPRK's work in contributing to enhance fulfilment of people's economic and social needs? 6. Did the SES Project monitor and capture the actual benefits (such as conducting an impact/benefits study on project beneficiaries) that can demonstrate the enhancing fulfilment of people's economic and social needs?
Gender Equality	1. To what extent has gender equality and the empowerment of women been addressed in the design, implementation and monitoring of the project? 2. To what extent has the project promoted positive changes in gender equality and the empowerment of women? Were there any unintended effects? 3. Did the SES Project monitor and capture the actual benefits (such as conducting an impact/benefits study on project beneficiaries) that can demonstrate gender equality?
Synergy	1. To what extent are the inter-linkages between project outputs and related activities? 2. To what extent do any partnerships/inter-linkages bring together both CBDRM and SES Projects to result in strengthened outcomes/outputs 3. Did the synergies and coordination by reinforcing a common strategy among project partners resulted in higher achieving results? 4. Did the SES Project collaborate and cooperate with other international agency/organization project efforts which resulted in higher achieving results? 5. Does the County Energy Management Plan enable better synergies with international organization and national stakeholders relating to SES and EE in DPRK?
UNDP Project Team	1. How do you find the quality of services/support by UNDP? 2. How do you find the quality of communications and working relationship with UNDP? 3. Is communication with UNDP regular and effective? 4. Are you regulated updated on progress of the UNDP project?

Interview with International Organizations and Agencies	
Category	**Sample Questions**
Relevance	1. To what extent was the SES Project in line with DPRK national priorities? 2. To what extent has the SES Project been appropriately responsive to political, legal, economic, institutional, etc., changes in the country? 3. Did the SES Project communicate its results well with all stakeholders and across sectors?
Effectiveness	1. To what extent did the SES Project contribute to DPRK national priorities? 2. To what extent were the project outputs achieved? What factors have contributed to achieving or not achieving the desired project outputs? 3. What factors contributed to effectiveness or ineffectiveness? 4. In which areas does the project have the greatest achievements? Why and what have been the supporting factors? How can the project build on or expand these achievements? 5. In which areas does the project have the least achievements? What have been the constraining factors and why? How can they or could they be overcome? 6. What, if any, alternative strategies would have been more effective in achieving the project's objectives? 7. To what extent has the SES Project been appropriately responsive to the local community needs and changing national/local community priorities?
Efficiency	1. To what extent has UNDP's project implementation strategy and execution been efficient and cost effective? 2. To what extent have resources been used efficiently? Have activities supporting the strategy been cost-effective? 3. To what extent have project funds and activities been delivered in a timely manner?
Sustainability	1. Can this SES training materials, protocols and procedures be replicated to other counties? Would you recommend this to other counties? 2. Would further technical support or other form of support be required in relation to sustainable energy solutions? 3. What would you like to see for future improvements for UNDP or future UNDP projects? 4. Do local CPCs have institutional capacities, systems and processes to develop county energy management plans and implement sustainable energy solutions?
Basic Human Needs	1. Based on the principles of Human Rights, to what extent have poor, indigenous and physically challenged, women and other disadvantaged and vulnerable groups benefitted from UNDP DPRK's work in contributing to enhance fulfilment of people's economic and social needs?
Gender Equality	1. In your view, has gender equality and the empowerment of women been addressed in the design, implementation and monitoring of the SES Project? 2. In your view, has the SES Project promoted positive changes in gender equality and the empowerment of women? Were there any unintended effects?
Synergy	5. In your view, are there inter-linkages between project outputs and related activities? 6. In your view, do any partnerships/inter-linkages bring together both CBDRM and SES Projects to result in strengthened outcomes/outputs 7. Did the SES Project collaborate and cooperate with other international agency/organization project efforts which resulted in higher achieving results? 8. Does the County Energy Management Plan enable better synergies with CPCs and relevant international organization stakeholders involved in sustainable energy solutions?

A.6 EVALUATION CONSULTANT CODE OF CONDUCT 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.

Evaluation Consultant Agreement Form[4]

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

Name of Consultant: Jeff Fang
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 on *26 January 2020* Signature: 

[4] www.undp.org/unegcodeofconduct

A.7 AUDIT TRAIL

Annexed in a separate file

A.8 EVALUATION MATRIX

Evaluation Criteria / Key Questions	Data Sources	Data Collection Methods/Tools	Indicators (Success Standard/ What to Look Out For)	Methods for Data Analysis
RELEVANCE: • To what extent was the project in line with the national development priorities, the CPD outputs, CPD outcomes, UNDP Strategic Plan and the SDGs? • To what extent does the project contribute to the Theory of Change for the relevant CPD outcome? • To what extent were lessons learned from other relevant projects considered in the project's design? • To what extent were perspectives of those who could affect the outcomes, and those who could contribute information or other resources to the attainment of stated results, taken into account during the project design processes? • To what extent does the project contribute to gender equality, the empowerment of women and the basic human needs? • To what extent has the project been appropriately responsive to political, legal, economic, institutional, etc., changes in the country?	• Project Documents • Project Stakeholders • Project beneficiaries	• Documentation review • Interviews/FGDs with project stakeholders and beneficiaries • Field notes during visits to selected project sites	• The project aligns with national strategies • The project addresses the human development needs of • intended beneficiaries (poor, women, disadvantaged groups) • Extensive analysis was done in designing the project • National and local (provincial/county) counterparts, rural communities including women) and/or other stakeholders have been involved and consulted during the project design • Resources are sufficiently allocated to achieve the objectives of the project	• Thematic Analysis • Comparative Analysis

Evaluation Criteria / Key Questions	Data Sources	Data Collection Methods/Tools	Indicators (Success Standard/ What to Look Out For)	Methods for Data Analysis
EFFECTIVENESS • To what extent did the project contribute to the CPD outcomes and outputs, the SDGs, UNDP Strategic Plan and national development priorities? • To what extent were the project outputs achieved? • What factors have contributed to achieving or not achieving intended CPD outputs and CPD outcomes? • To what extent has the UNDP partnership strategy been appropriate and effective? • What factors contributed to effectiveness or ineffectiveness? • In which areas does the project have the greatest achievements? Why and what have been the supporting factors? How can the project build on or expand these achievements? • In which areas does the project have the least achievements? What have been the constraining factors and why? How can they or could they be overcome? • What, if any, alternative strategies would have been more effective in achieving the project's objectives? • Are the projects objectives and outputs clear, practical, and feasible within its frame? • To what extent have stakeholders been involved in project implementation? • To what extent is project management and implementation participatory and is this participation contributing towards achievement of the project objectives?	• Project Documents • Project Stakeholders • Project beneficiaries	• Documentation review • Interviews with project stakeholders and beneficiaries • Field notes during visits to selected project sites	• The project has fully achieved the intended outcome • The project has fully achieved the intended outputs • What percentage of the project results at the output level has been achieved? • What changes can be observed as a result of these outputs? • What other factors may have affected the project results? • What were the unintended results (+ or -)? • The project results reached the intended local community, district, regional or national level • The project has successfully reached and met the intended needs of the target beneficiaries • How have the particular needs of targeted and/or disadvantaged groups been taken into account in the design and implementation, benefit sharing, monitoring and evaluation of the project	• Thematic Analysis • Comparative Analysis

Evaluation Criteria / Key Questions	Data Sources	Data Collection Methods/Tools	Indicators (Success Standard/ What to Look Out For)	Methods for Data Analysis
• To what extent has the project been appropriately responsive to the needs of the national constituents and changing partner priorities? • To what extent has the project contributed to gender equality, the empowerment of women and the realization of basic human needs?				
EFFICIENCY • To what extent was the project management structure as outlined in the Project Document efficient in generating the expected results? • To what extent has UNDP's project implementation strategy and execution been efficient and cost effective? • To what extent has there been an economical use of financial and human resources? Have resources (funds, human resources, time, expertise, etc.) been allocated strategically to achieve outcomes? • To what extent have resources been used efficiently? Have activities supporting the strategy been cost-effective? • To what extent have project funds and activities been delivered in a timely manner? • To what extent do the monitoring and evaluation systems utilized by UNDP ensure effective and efficient project management?	• Project Documents • Project Stakeholders • Project beneficiaries	• Documentation review • Interviews with project stakeholders and beneficiaries • Field notes during visits to selected project sites	• Circumstances giving rise to the need for time extension on the project were justified • Has there been over-expenditure or under-expenditure on the project? • Effective mechanisms are in place to monitor project implementation • Are project resources concentrated on the most important outputs/activities or are they scattered/spread thinly across?	• Thematic Analysis • Comparative Analysis

Evaluation Criteria / Key Questions	Data Sources	Data Collection Methods/Tools	Indicators (Success Standard/ What to Look Out For)	Methods for Data Analysis
SUSTAINABILITY • Are there any financial risks that may jeopardize the sustainability of project outputs? • To what extent will financial and economic resources be available to sustain the benefits achieved by the project? • Are there any social or political risks that may jeopardize sustainability of project outputs and the project's contributions to CPD outputs and CPD outcomes? • Do the legal frameworks, policies and governance structures and processes within which the project operates pose risks that may jeopardize sustainability of project benefits? • To what extent did UNDP actions pose an environmental threat to the sustainability of project outputs? • What is the risk that the level of stakeholder's ownership will be sufficient to allow for the project benefits to be sustained? • To what extent do mechanisms, procedures, and policies exist to carry forward the results attained on gender equality, empowerment of women, basic human needs and human development by primary stakeholders? • To what extent do stakeholders support the project's long-term objectives? • To what extent are lessons learned being documented by the Project Team on a continual basis and shared with appropriate parties who could learn from the	• Project Documents • Project Stakeholders • Project beneficiaries	• Documentation review • Interviews with project stakeholders and beneficiaries • Field notes during visits to selected project sites	• The project has planned and put in place an exit strategy • To what extent does the exit strategy take into account the following: o Political factors (support from national /local authorities) o Financial factors (available budgets) o Technical factors (skills and expertise needed o Environmental factors (environmental appraisal) • Risk assessments and mitigation strategies/action plans were identified and implemented during project design • Unanticipated sustainability threats emerged during project implementation were mitigated with appropriate measures • What actions have been taken to scale up the project if it is a pilot initiative?	• Thematic Analysis • Comparative Analysis

Evaluation Criteria / Key Questions	Data Sources	Data Collection Methods/Tools	Indicators (Success Standard/ What to Look Out For)	Methods for Data Analysis
project? • To what extent do UNDP interventions have well designed and well-planned exit strategies? • What could be done to strengthen exit strategies and sustainability?				
BASIC HUMAN NEEDS 2. Based on the principles of human rights, to what extent have poor, indigenous and physically challenged, women and other disadvantaged and marginalized groups benefitted from UNDP DPRK's work in contributing to enhance fulfilment of people's economic and social needs	• Project Documents • Project Stakeholders • Project beneficiaries	• Documentation review • Interviews with project stakeholders and beneficiaries • Field notes during visits to selected project sites	• The project has concrete example(s) of how the initiative takes into account the needs of vulnerable and disadvantaged groups such as women, youth, disabled persons. • How has the project programmed social inclusion into the output/activity?	• Thematic Analysis • Comparative Analysis
GENDER EQUALITY 3. To what extent has 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? Were there any unintended effects?	• Project Documents • Project Stakeholders • Project beneficiaries	• Documentation review • Interviews with project stakeholders and beneficiaries • Field notes during visits to selected project sites	• The project has concrete examples of contribution to gender equality. • The project results can be disaggregated by gender	• Thematic Analysis • Comparative Analysis

Evaluation Criteria / Key Questions	Data Sources	Data Collection Methods/Tools	Indicators (Success Standard/ What to Look Out For)	Methods for Data Analysis
SYNERGY 4. To what extent the synergies of CBDRM and SES Projects have been addressed contributing to a magnified development results?	• Project Documents • Project Stakeholders • Project beneficiaries	• Documentation review • Interviews with project stakeholders and beneficiaries • Field notes during visits to selected project sites	• There are evidences of inter-linkages between project activities • There are partnerships bringing together both CBDRM and SES Projects concerned within single shared outcomes/outputs • There are evidences of synergies and coordination by reinforcing a common strategy among both project partners towards results	• Thematic Analysis • Comparative Analysis