

## TERMS OF REFERENCE

Project:	Sustainable Energy Solutions for Rural Livelihoods in DPRK (SES Project)
Objective:	Technical Support for successful implementation and execution of innovative approaches and designs for cost-effective stand-alone RE and EE technologies for local production and repair, including pico hydro, bio-digesters, efficient cook stoves
Expected places of travel:	6 Oups and 15 Ris selected as SES Project sites
Timeframe of the planned activities:	15 May – 31December 2018
Supervisor's name and functional post:	SES Project Manager
Functional linkages:	Under the overall guidance of the UNDP DPRK Deputy Resident Representative, and day-to-day supervision of the SES Project Manager, the contractor will work closely with Programme Analyst, and Project Administrative Assistant.
Administrative arrangements:	Refer to Sections 6 and 9

### 1. Background

Adequate supply of sustainable energy is a prerequisite for strengthening rural livelihoods in DPR Korea, including agricultural activities, small-scale processing facilities (such as food processing) and public services (such as rural medical clinics, hospitals, schools, nurseries and kindergartens), and for meeting energy demand by rural households. The objective of this Project 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. The Project will strengthen County and Ri-level capacity for energy planning and resource management, thereby improving the resilience of local communities. Strong linkages are made with ecosystem management, disaster prevention, and socio-economic development interventions in rural areas. This project is consistent with the support of sustainable human development objectives as well as in the achievement of the SDGs. The Project specifically targets the needs of rural, low-income population in Counties and public services at Ri level in DPR Korea.

To date, SES project was successful in the completion of activities under Output 1; and progress is being achieved in the implementation of activities towards the realization of Output 2, 3 and 4.

Output 1: The project established a baseline energy demand and usage pattern in the selected 15 Ris. Further, assessed available renewable resources such as biomass, hydro, solar, wind and geothermal resource potential in 15 Ris across the selected 6 Counties. Data was also collected from a range of rural energy users including households, institutions, community services, productive and agricultural processes operated by Counties and cooperative farms. Since houses and community buildings in DPRK are to a large degree standardized, identified energy saving measures that have large potential for replication. To assess the

UNDP in DPRK, 21 Munsudong, Pyongyang | Tel. & Fax: + (8502) 381 7301 | Registry email: [registry.kp@undp.org](mailto:registry.kp@undp.org)



potential RE and EE interventions, energy audits were conducted in basic-necessity facilities, agricultural processes, and community buildings. These audits identified several RE and EE technologies including improved Ondol system, thermal insulation in buildings including double glazed windows, EE coal and biomass stoves, solar water heaters, solar PV systems for pumping and lighting, small hydropower, hydraulic ram, and biogas systems. Further, conducted technology feasibility studies (including a tailored cost-benefit assessment) for selected RE and EE interventions.

Output 2: The project aims to strengthen community engagement and participatory planning processes to establish effective structures for renewable energy resource management under the authority of County's People's Committees. Strong synergies exist with parallel initiatives like community based disaster risk management, which include reforestation activities to prevent soil erosion, strengthening of river beds, enabling communities' capacities to respond to the disasters etc. Using participatory techniques, engaged County personnel and community-level organizations in the development of draft version of County energy management plans to increase energy security and self-reliance in the selected six Counties. The project also provided training for decision makers and energy experts at County and community-level on energy resources, conservation, conversion, efficiency, and planning. In the year 2018, these energy management plans will be further updated with institutional mechanism for implementation of the plans. Promotional and educational activities will be conducted in the targeted Counties to increase awareness on energy conservation and induce behavioural changes.

Output 3: Robust supply chains are critical to ensure sustainability of energy service delivery to end-users in the target Counties including public services, and for replication of the delivery models to other areas of DPRK. This output aims to assess local production of proposed RE/EE solutions. EE technologies such as double-glazed windows, thermal building blocks and insulating doors, can be produced by workshops at community- and County-level. Small-scale energy solutions can provide adequate services while avoiding high investments, demand for financial resources and labor. Solar photovoltaic systems and wind generators may provide an effective alternative without the need for extensive civil works. Smaller and cheaper technologies also provide opportunities to improve redundancy in case of technical failure or to sustain in the extreme weather events. Efficient energy technologies, including biomass stoves, LED lighting, and drip irrigation, and renewable energy solutions such as solar water heaters, have the potential to reduce primary energy demand and are modular.

Output 4: Implementation of the RE/EE solutions identified under Output 1 to the targeted user groups in the pilot Counties. This further involves procurement of materials and equipment from national and international suppliers, local production and assembly, installation, testing and the provision of training and support to end-users. It is envisaged that the local workshops and dissemination centres (established under Output 3) will deliver most of the civil works and installation services. The local workshops are also expected to produce some of the basic RE/EE technologies.

Training of energy experts, project designers, and technicians in the Counties and community-level institutions will be an integral part of the activities under the Output 3 to create competent human resources. It is envisaged to take benefit from international experts to provide technical backstopping to these local centres in coordination with relevant counterparts. The Project will seek opportunities to benefit from regionally available know-how and equipment/product designs and encourage South-South cooperation. Renewable energy technologies that may benefit from regional know-how include low-cost pico hydro, wind generators; mechanical wind pumps, small-scale biomass systems for thermal and electrical energy. DPRK can further benefit from regional experiences with the introduction of energy efficiency measures and the introduction of efficient technologies for lighting in the region. The Project will encourage the interaction of local counterparts with foreign experts through specialized consultancies, workshops and seminars to be held in DPRK. As and if appropriate, exposure visits to Countries in the region, will be considered.



## 2. Objective of the Assignment

The Project will contract a qualified consultancy/consulting firm (international) to conduct innovative approaches and designs for cost-effective stand-alone RE and/or EE technologies for local production and repair including exposure visits and trainings of energy experts, project designers, and workshop technicians.

This activity aims at delivering a range of designs and approaches for the utilization of RE/EE technologies in rural areas that are adapted to local circumstances, including available materials and production methods, low investment costs, suitability for local operation and maintenance. Designs for RE technologies which depend on civil works (such as pico hydro, bio-digesters, etc.) will be adapted to minimize risks, simplify project management, and reduce exposure to external threats (such as flooding). In a way, this is to attain sustainability of such activities that were implemented.

The purpose of this activity is also to prepare competent human resources to be employed in the County and community-level workshops and expert centres, as well as other energy experts involved in the delivery chain of rural RE/EE solutions. The contractor will also provide technical inputs for designing the curriculum and act as master trainers/resource persons during training events.

## 3. Scope of Assignment

The scope of the assignment is limited only to County and Ri levels that are targeted under SES project. Under the direct supervision of the Project Manager (PM) as well as overall guidance of the Deputy Resident Representative (DRR) in UNDP DPRK, the Contractor will conduct the following tasks:

A. Identify innovative approaches and designs for cost-effective stand-alone RE and/or EE technologies for local production and repair, including Pico hydro, bio-digesters, and efficient cook stoves.

- Closely work with national experts to assess the RE/EE technologies produced locally including available materials and production methods, investment costs, suitability for local operation and maintenance in DPRK;
- Come up with alternative design options, and suggestions. SES project the development of pico hydro systems of less than 10 kW capacity in sub-village level as RE intervention and energy efficient coal/biomass heating system in small public building as EE intervention;
- Prepare detailed list of equipment and materials including technical specifications of one RE and one EE technology interventions suggested;
- Carry out at least two (2) pilot tests with pre-production models and implementation approaches for selected technologies.

B. Organize and facilitate exposure visit and/or training for energy experts, project designers, and workshop technicians of Counties and community-level organizations.

- Identify the locations for training cum awareness activities;
- Finalise the agenda and presentations for training activities including good practices in the production and implementation of RE and EE technologies;
- Organize and facilitate exposure visit for energy experts, project designers, and workshop technicians. Total participants to the exposure visit will be 9 persons including project team members, and 2 weeks duration of the visit is expected including travel;
- Conduct at least two in-country trainings in the selected Counties/communities facilitated by the participants of the exposure visit under the guidance of international consulting firm. One is for RE and another is for EE innovative approach. Total participants to an in-country training will be 30 persons (2 persons in each community), and 5 days of the training is expected including travel.

#### 4. Deliverables

The final product of the assignment will be the reports including findings and recommendations of the assigned activities.

- Detailed work plan including implementing strategy/methodology/approach, and rough schedule / timeframe of each activities;
- Innovative approaches and designs for cost-effective stand-alone RE/EE technologies for local production and repair and experience with pilot tests in DPRK;
- Report on exposure visit and training for energy experts, project designers, and workshop technicians of Counties and community-level organizations;
- Final report of the assignment.

#### 5. Monitoring / Reporting Requirement

The Contractor will prepare all of the reports and deliverables in the agreed format, stating all actions taken during the assignment. Reports shall be submitted after each deliverable achieved according to the agreed schedule.

#### 6. Draft Timeframe of the Services

The start date for the Consultancy Services will be upon signing of the contract between the Contractor and UNDP DPRK. The Services are expected to be completed by the end of December 2018. The tentative timeframe is from the mid of May according to the following schedule:

No	Outputs and Activities	Due Date
1	Detailed work plan including implementing strategy / methodology / approach, and rough schedule / timeframe of each activities	Within 2 weeks after contract signed
2	Identify innovative approaches and designs for cost-effective stand-alone RE/EE technologies for local production and repair	
2.1	Closely work with national experts to assess the RE/EE technologies produced locally including available materials and production methods, investment costs, suitability for local operation and maintenance in DPRK	May to June 2018
2.2	Come up with alternative design options, and suggestions	July 2018
2.3	Carry out few pilot tests with pre-production models and implementation approaches for selected technologies	August to October 2018
3	Organize and facilitate exposure visit and/or training for energy experts, project designers, and workshop technicians of Counties and community-level organizations	
3.1	Finalise the agenda and presentations for training activities including good practices in the production and implementation of RE and EE technologies	June 2018
3.2	Organize and facilitate exposure visit for energy experts, project designers, and workshop technicians	July / August 2018
3.3	Conduct trainings in the selected Counties/communities	September 2018

#### 7. Composition of the Team

In executing this TOR, the Contractor team is expected to have a mix of international and relevant DPR Korea national experts, specifically in identifying innovative approaches and designs for cost-effective stand-alone

*C. B. Kim*



RE/EE technologies for local production and repair. The prospective Contractor should have a thorough understanding of Country context of DPR Korea or experience with similar circumstances in another Country or region. Eligibility criteria for key personnel are as follows.

#### **I. Team Leader (1 international)**

##### **Essential:**

- At least Master degree in relevant engineering, or energy related field or applied science fields;
- At least 10 years of international professional experience in energy management solutions, energy efficiency and renewable energy, particularly on RE-based power engineering and construction.

##### **Desirable:**

- Good writing, training, presentation and reporting skills;
- Experience in managing teams with a mix of international and local expertise; scheduling, managing deliverables, costing and status reporting, demonstrated strong leadership, effective management skills, good coordination ability, and team working spirit;
- Past experience in developing training modules in energy planning, conversion technologies, and demand side management is an added advantage;
- Good oral and written communication skills in English;
- Good interpersonal/communication skills.

#### **II. Team members (1 international RE expert, 1 national RE expert, 2 national EE experts):**

##### **Essential:**

- At least Master degree (international) and Bachelor degree (national) in relevant engineering, or energy related field or applied science fields;
- At least 7 years of professional experience in renewable energy and energy efficiency sector particularly in the field of cost-effective stand-alone RE/EE technologies with detailed technical specifications and engineering designs (international); At least 3 years of professional experience in renewable energy and energy efficiency sector (nationals).

##### **Desirable:**

- Good writing, training, presentation and reporting skills (both international and nationals);
- Good coordination ability, and team working spirit (both international and nationals);
- Good oral and written communication skills in English (both international and nationals); Good oral and written communication skills in Korean (national);
- Good interpersonal/communication skills (both international and nationals).

#### **8. Expertise of the Consulting Firm/Organization**

##### **Corporate Competencies:**

- Demonstrates integrity by complying with the UN's values and ethical standards;
- Promotes the vision, mission, and strategic goals of UNDP;
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability.

##### **Functional Competencies:**

- Must have at least 10 years of proven experience in conducting RE and EE interventions;
- Must have at least 10 years of proven experience in conducting energy management, planning, business, economics or accounting.

##### **Project & Resource Management**

- Team leader should have strong organizational skills;

- Members of the team should be able to work independently and collectively to produce individual high-quality inputs and collectively high quality and TOR-compliant outputs;
- Team leader and members possess sound judgment, strategic thinking and the ability to manage competing priorities.

#### Team Work

- Demonstrated ability of the team to work in a multi-cultural environment;
- Communications and Advocacy;
- The team members (including the leader) have strong ability to write clearly and convincingly, adapting style and content to different audiences and speak clearly and convincingly;
- Collectively, the team has strong presentation skills in meetings with the ability to adapt for different audiences;
- Collectively, the team possesses proven strong analytical, research and writing skills with demonstrated ability to think strategically.

### 9. Payment

All payment will be done up on submission of each deliverables and acceptance by UNDP. In order to ensure the assignment to be effective and efficient, the payment in installments will be applied as below:

Description	Percentage of Payment
Detailed work plan including implementing strategy/methodology/approach, and rough schedule / timeframe of each activities	30%
Innovative approaches and designs for cost-effective stand-alone RE/EE technologies for local production and repair; and execution of pilot tests	30%
Report on exposure visit and training for energy experts, project designers, and workshop technicians of Counties and community-level organizations	20%
Final report of the assignment	20%
<b>Total</b>	<b>100%</b>

### 10. Evaluation Criteria and Method

UNDP will award contract to the Contractor that guarantees the best value for money. Thus, award will be made to the lowest priced technically acceptable offer. The technical criteria are described in the following table:

Technical Evaluation Criteria								
Summary of Technical Proposal Evaluation Form			Points Obtainable	Institution / Other Entity				
				A	B	C	D	E
1.	Expertise of Firm / Organization		200					
2.	Proposed Methodology, Approach and Implementation Plan		400					
3.	Management Structure and Key Personnel		400					
	Total		1000					

The obtainable number of points specified for each evaluation criterion indicates the relative significance or weight of the item in the overall evaluation process. The Technical Proposal Evaluation Forms are:

*S. B. B.*



Form 1 Expertise of Firm / Organization

Form 2 Proposed Methodology, Approach and Implementation Plan

Form 3 Management Structure and Key Personnel

**Note:** The score weights and points obtainable in the evaluation sheet are tentative and should be changed depending on the need or major attributes of technical proposal.

#### Detailed Technical Evaluation Criteria

Technical Proposal Evaluation Form 1		Points Obtainable	Institution / Other Entity				
			A	B	C	D	E
Expertise of the Consulting Firm/Organization							
1.1	Must have at least 10 years of proven experience in conducting innovative approaches and designs for RE and EE interventions	100					
1.2	Must have at least 10 years of proven experience in energy management, planning, business, economics or accounting	100					
Total Part 1		200					

Technical Proposal Evaluation Form 2		Points Obtainable	Institution / Other Entity				
			A	B	C	D	E
Proposed Methodology, Approach and Implementation Plan							
2.1	To what degree does the Proposer understand the task mentioned in this TOR?	70					
2.2	Did the proposal addressed in sufficient detail the important aspects of tasks listed?	120					
2.3	Are the different components of this TOR planned to be implemented in a cohesive manner?	70					
2.4	Is the conceptual framework adopted appropriate for the task?	70					
2.5	Is the scope of task well defined and does it correspond to the TOR?	70					
Total Part 2		400					

Technical Proposal Evaluation Form 3				Points Obtainable	Institution / Other Entity				
					A	B	C	D	E
Management Structure and Key Personnel									
3.1	Team Leader		100						
	- Education (PhD – 30, Masters – 25)	30							
	- Professional Experience in innovative approaches and designs for EE and RE (15 years - 50, 10 years – 40)	50							
	- Experience in managing teams with a mix of international and relevant DPR Korea national experts	20							
3.2	Team Member (1 international RE expert)		90						
	- Education (PhD – 25, Master – 15)	25							
	- Professional Experience in EE and RE interventions of at least 5 years (7 years - 45, 5 years – 35)	45							

G. Butler

Technical Proposal Evaluation Form 3			Points Obtainable	Institution / Other Entity				
				A	B	C	D	E
	- Good interpersonal/communication skills (Excellent: 20; Good: 15; Fair: 10)	20						
3.3	National Team Members (1 RE and 2 EE experts)		210					
	- Education (Master – 20, Bachelor – 15)	60						
	- Professional Experience of at least 3 years (5 years - 35, 3 years – 30)	105						
	- Good interpersonal/communication skills (Excellent: 15; Good: 10; Fair: 5)	45						
	Total Part 3		400					

Maximum available technical score - 1000 points.

#### Evaluation Method

☒ Cumulative analysis

Contract award shall be made to the incumbent whose offer has been evaluated and determined as:

- Responsive/compliant/acceptable, and
- Having received the cumulative highest score out of a pre-determined set of weighted technical and financial criteria specific to the solicitation.

\* Technical Criteria weight: 70%

\* Financial Criteria weight: 30%

Only candidates obtaining a minimum 70% from the maximum available technical score (700 points) would be considered for the Financial Evaluation.

The maximum number of points assigned to the financial proposal is allocated to the lowest price proposal and will be equal to 300. All other price proposals will be evaluated and assigned, as per below formula to evaluate financial offer:

$$[\text{max points available for financial part (300 points)}] \times [\text{lowest of all evaluated offered prices of responsive offers}] / [\text{evaluated price}]$$

The proposal obtaining the overall cumulatively highest score after adding the score of the technical proposal and the financial proposal will be considered as the most compliant offer and will be awarded a contract.

Prepared by: Butchaiah Gadde, Project Manager, CBDRM

*G. Butchaiah*

Reviewed and approved by: Stephen Kinloch Pichat, Deputy Resident Representative

*[Signature]*  
12/04/18