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**United Nations Development Programme**

**Renewable Energy for All**

**Monitoring and Evaluation Document**

**May, 2015**

**Project Document Format for non-CPAP Countries or Projects outside a CPAP**

**United Nations Development Programme**

**Country: occupied Palestinian territory**

**Monitoring and Evaluation Plan**

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| **Program Title** | Renewable energy for All – Gaza Strip |
| **UNDAF Outcome(s):** | Outcome 6: By 2016, Palestinian institutions more effectively manage and regulate urban development and natural resources to ensure the equitable provision of sustainable infrastructure and to safeguard cultural heritage |
| **Expected CP Outcome(s):** | Essential social and public sectors service delivery are sustainable overcoming challenges related to energy context in oPt. |
| **Expected Output(s):** | 1. 2.8 MW generated utilizing renewable energy on top roofs of public buildings including health, education and municipal building. 2. Energy consumption in public building is 20% reduced utilizing energy audit, use of energy saving fixtures and equipment and building management system (BMS). 3. Promotion of five innovative ideas for renewable energy and energy saving and scaling them up. |
| **Project Title:** | Sustainable Renewable Energy for Health Sector |
| **Project Expected outputs:** | Output 1: 170 Kilowatt renewable energy generated.  Output2: Energy Efficiency maintained for target departments within four hospitals  Output 3 : Capacity Development for counterparts and PENRA design team |
| **Executing Entity:** | UNDP |
| **Implementing Agencies:** | UNDP and PENRA |

## *Purpose of M&E Plan*

* Allows working more effectively and efficiently towards achieving programme goals and objectives.
* Is a communication tool that outlines various roles and responsibilities regarding monitoring and evaluation for the project.
* Organizes plans for data collection, analysis, use, and data quality.
* Engages a wider body of people in an organization so that M&E is integrated into part of everyone’s’ job.

## *Project Overview*

The project is part of a comprehensive program for the use of renewable energy as sustainable new resources to overcome the chronic deficit in electricity supply in Gaza Strip which is as high as 50-75%. Right to energy is one of the aspects for decent life in communities. Gaza Strip has been suffering from gap in energy supply because of prolonged blockade applied as a result of IDF policy to keep Gaza People deprived from essential services to manage their daily activities. The project targets four hospitals in Gaza to facilitate continuity of health service to the public even during long hours of blackouts.

The health sector in Gaza needs developmental intervention to improve its infrastructure. It was neglected while passing from crisis to another. On the other hand, the sector is serving vulnerable portion of the community, the patients, who are denied to cross borders to get professional diagnostic and treatment.

## *Project Rationale and Description*

The needs of the social and public infrastructure sectors in Gaza Strip are closely linked with the availability of energy. The repetitive hostilities in Gaza within the last six years in addition to the tight siege on the entry of construction materials to reconstruct and rehabilitation of the damaged electricity networks; have exacerbated the grieve reality of the energy sector in Gaza. The deficit in power supply changes from 50%-75%, while the normal consumption growth of electricity is estimated to be 7% with the unchanged situation of the available resources. This reality is translated into long hours of electricity cuts that have serious impacts on access to basic human rights and service sectors in Gaza. The black outs prevent people from realizing their right to health as the medical services, including dialysis centres, surgical operating rooms, intensive care units, and blood banks, all rely on electricity supplies.

Realizing Gaza being rich area of solar energy, where the annual average solar intensity of the year is about 222 W/m2, then the operation of Photo Voltaic Cells (PV) is considered to be an optimal sustainable solution. The project will provide intervention for production of 170 KW clean energy using PV cells within four hospitals, namely, The European, Al Aqsa, Al Rantisi and Kamal Adwan Hospitals.

During implementation the concept of energy efficiency and audit as well as building management system will be mainstreamed to reduce the gap of deficit. Ultimately, comprehensive approach to social and public infrastructure facilities would contribute effectively to enhance the constrained performance to deliver various services.

***Challenges in the energy sector:***

By the year 2020 the population of Gaza will increase to around 2.1 million, from an estimated

1.8 million People today. The substantial population growth rate will thus add some 300,000 people to a living area which is restricted and already heavily urbanized. Fundamental infrastructure in electricity, water and sanitation, municipal and social services, is struggling to keep pace with the needs of the growing population. By 2020, electricity provision will need to double to meet demand and thus new resources are needed within the complex political situation. Renewable energy as a clean available source for Gaza context will not only contribute to shrinking the gap of demand but also will contribute to improve the living conditions of Gazans by reducing CO2 emissions into the atmosphere which is increasing through excessive use of generators powered by fossil fuel.

The Gaza Strip is suffering from a continuous deficit in electricity since 2006. The electricity deficit was 50% out of 350 MW, which is the current demand of Gaza strip without the activation of the industrial sector, prior to the summer escalations in 2014, and currently the deficit has grown up to 75% for which Gaza residents are having 4 hours electricity every 12 hours. This is expected to increase in the near future. As the electricity supplied from Egypt and Israel is fixed at 27 MW and 120 MW, respectively, the only way to improve supply and to reduce deficit is by increasing the weekly amount of industrial fuel to Gaza’s power plant to 3.5 million litres. This should increase the output of the power plant from 65 MW to 140 MW. However, the damages during the last hostilities on Gaza are not yet rectified, where the generation company is operating on temporary arrangement until the experts can come into Gaza to assess and evaluate the damages for reinstatement. Until then maximum 65 KW can be evacuated and distributed.

***Vulnerabilities in Health sectors and realities:***

Around 500 patients in the Gaza Strip suffer from kidney failure and regularly undergoing kidney dialysis twice or three times a week. Gaza is ranked among the top 15 countries with dialysis population worldwide. The Ministry of Health (MOH) is the sole provider for dialysis services through 5 haemodialysis centres having 111 dialysis units. The need for dialysis is increasing at 27% annually, whereas, the demand on the dialysis units is growing high as each one hosts 5 sessions per day. Accordingly, the lifetime and efficiency of the unit is reduced where excessive maintenance costs are incurring. The most critical is the evening and night sessions where the families of the patients are suffering. During blackouts of the day time, the need for power supply induce extra burden on the process where additional load is imposed on the MOH budget to cover costs for running medium size generators. The need for the dialysis sessions is crucial and can’t be postponed since the patients will be empoisoned.

It is worth mentioning that there are many patients on the waiting list for dialysis that are currently sustained under medication due to lack of capacity of the existing facilities. According to the MOH strategic plan 2014-2018, more than 50,000 dialysis sessions were made in 2011 at a cost of 5.8 million dollars as a direct cost annually in addition to 2.4 million dollars as energy cost.

On the other hand, intensive care units (ICUs) are equal in importance to get sustainable energy to enable delivering services to vulnerable patients under emergency. Gaza Strip has been addressed to repetitive hostilities and bombardments that have resulted in massive causalities for children, youth, elderly and adults. With the siege and inability to move the seriously injured and wounded, most of the cases are treated in the emergency rooms and operation theatres where ICUs are attached to them to take care of the patients after operation. These departments will be targeted within the project activities.

Eventually, the project is pivoted on two main issues that are:

* New sustainable clean resources of energy, namely, the solar energy.
* Reducing the facilities loads through utilizing luminaries and equipment that utilize less energy and carrying out energy audit as well as building management system.

**Project expected results as linked to program results**

**Program Outcome**

Essential social and infrastructure service delivery are sustainable overcoming challenges related to energy context in oPt

**Program outputs**

* 2.8 MW generated utilizing renewable energy on top roofs of public buildings including health, education and municipal building.
* Energy consumption in public building is 20% reduced utilizing energy audit, use of energy saving fixtures and equipment and building management system (BMS).
* Promotion of five innovative ideas for renewable energy and energy saving and then scaling them up.

**Project specific targets are as follows**:

Output 1: 170 Kilowatt renewable energy generated.

Output2: Energy Efficiency maintained for target departments within four hospitals

Output 3: Capacity Development for counterparts and PENRA design team

**Key Activities**

* Common activities for all outputs:
  + Recruitment of the program staff and preparing the working area for the team
  + Forming a team of two engineers within PENRA for designing, following the needs assessment and verification of the criteria with different stakeholders. The team will develop the tendering packages and follow up the implementation in close coordination with UNDP technical team.
  + Signing MoUs with different stakeholders to form technical steering committee.
  + Identifying the scope of activities within the targeted hospitals.
  + Audit for all activities after finalizing the program and annually as may be deemed required.
* Deliverable 1: The construction of solar PV system for 4 hospitals.
* Review of baseline with steering committee members
* Review the selection versus criteria to assure the viability of implementation. Criteria will take into consideration:
* Maximizing the benefits of project to large target beneficiaries.
* The top roof is free and the building is suitable to install the solar panels.
* Provision electricity to marginalized areas and vulnerable groups.
* Priority to the location that can serve at time of emergencies.
* Accounting for the gender balance in delivery of services.
* Design the project elements and develop the tendering documents. All procurement activities will follow the UNDP standard procedures
* Implementing the different packages.
* Hand over to PENRA for operation.
* Deliverable 2: Energy consumption in public building is 20% reduced utilizing energy audit, use of energy saving fixtures and equipment and building management system (BMS).
  + Collecting information about the electricity bill and consumption to guide the parameters of design.
  + Carrying out energy audit of each facility under intervention.
  + Applying the Building Management System in the designs to reduce electricity consumption through effective monitoring. Activities include utilizing the local area network concept (LAN).
  + Replacing all items and equipment by others that consume less energy thus reducing the energy consumption by 20% for the facility as a whole.
  + Developing TORs and tender documents. All procurement activities will follow the UNDP standard procedures.
  + Implementing different packages.
  + Handover to MOH for operation.

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| **Monitoring and Evaluation Plan** | | | | | | | | |
| **Start-up** | **Mobilization of UNDP implementation team** | | | | | | | |
| **Activities** | **Project measures** | **Total projected**  **outputs** | **How will progress be measured** | **When will**  **progress be**  **measured** | **What tools/ resources are**  **required to measure**  **progress** | **Who is**  **responsible**  **for measuring**  **progress** | **Activity**  **completion**  **date** | |
| MOU with MOH, and PENRA prepared and signed | Signed MOU | 2 | Draft of MOUs  Communication of acceptance | Two months after signing the Agreement | Signed documents | Project manager | By the end of 2nd month |
| Forming Steering committee of concerned parties. | Appointment of members | 1 | Joint meetings, official letters from stakeholders | One month after signing the Agreement | Minutes of meetings signed and decisions are reflected on tenders regarding different packages | Project manager | By the end of 1st month |
| Recruitment and or mobilization of UNDP core team | Contracts for staff | 2 | Documentation of HR process or internal assignment | Three months after signing the Agreement | Development of TORs | Project manager | By the end of 3rd month |
| **Output 1:** | **170 KW generated utilizing renewable energy on top roofs of hospital buildings** | | | | | | | |
| **Activities** | **Project measures** | **Total projected**  **outputs** | **How will progress be measured** | **When will**  **progress be**  **measured** | **What tools are required to measure progress** | **Who is**  **responsible**  **for measuring**  **progress** | **Activity**  **completion**  **date** | |
| Setting Criteria and list of priorities identified and agreed upon | Needed KW for every hospital | 170 | Establishing photo  reference points and Completing initial field assessment report | Completion of  site assessment  and work plan | Detailed report assessing the number of beds in emergency unit, the number of dialysis chairs, the energy needs for desalinated water, calculation for essential load …etc. | PENRA, Project Manager, Ministry of Health | By the end of 2nd month | |
| **Output 2:** | **Energy consumption in hospital building is 20% reduced utilizing energy audit, use of energy saving fixtures and equipment and building management system (BMS).** | | | | | | | |
| **Activities** | **Project measures** | **Total projected**  **outputs** | **How will progress be measured** | **When will**  **progress be**  **measured** | **What tools are required to measure progress** | **Who is**  **responsible**  **for measuring**  **progress** | **Activity**  **completion**  **date** | |
| Carrying out energy audit. | Energy saving | 20% | Physical inspection of buildings and equipment | Completion of  site assessment  and work plan | Survey and assessment by experts, Detailed report on the existing load and possible alternative measures for reduction and control. | PENRA, Project Manager, Ministry of Health | By the end of 6th month | |
| Applying the Building Management System – BMS including Local Area Network - LAN for health. | Energy control | 40% | Testing and minutes of test review. Questionnaires for different units. | After Hardware and software commissioning | Bill of electricity of each hospital.  Detailed report on the existing load and possible alternative measures for reduction and control. | PENRA, Project Manager, Ministry of Health, | By the end of 7th month | |
| **Output 1&2** | **Common Implementation process** | | | | | | | |
| **Activities** | **Project measures** | **Total projected**  **outputs** | **How will progress be measured** | **When will**  **progress be**  **measured** | **What tools are required to measure progress** | **Who is**  **responsible**  **for measuring**  **progress** | **Activity**  **completion**  **date** | |
| Developing Terms of reference, specification, bill of quantity for design and build tender document | Tender documents prepared | 2 | Review comments by UNDP  2 complete tender packages ready for floating | After development of TOR  After development of BOQ  Comments implemented | Official letters, minutes of meeting for discussions, site visits, and steering committee sign off. | PENRA and UNDP | By mid of 4th month | |
| Planning procurement process | Development of Dual materials’ list  Procurement plan on UNDP database | 2 | Submission of request to get approval on project to access relevant const. materials.  Uploading the packages on UNDP procurement database | Approval on project to access relevant materials | Approval letter | Project manager | By the end of 6th month | |
| Procurement of different packages & Award and implement different contract | Signed Contracts with successful bidders | 2 | All documents are shared for public; locally and internationally, on three platforms | Completion of  Tendering stage including evaluation | Pre-bid meeting, Bid opening session,  Bid evaluation report, number of contracts signed | Procurement unit - UNDP | By the end of 6th month | |
| Implementing the activities | Identified Systems’ elements purchased, accessed and implemented | 2 | Progress reports  (quarterly and end year reports) | After issuing the letter to commence, entry of materials, letter for handing over | Site visits, photos, reports and handover committee. | Contracting Firm | By the end of 14th months | |
| Commissioning and hand over of Works to MoH and PENRA | Hand over committee notes and report | 2 | Manuals produced for effective performance, continuity of electricity service for essential loads during the day and night | End of construction works | Testing and questionnaires to different hospital units | Contracting firm & PENRA | By the end of 15th months | |

# Results and Resources Framework

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| **UNDAF Outcome(s):**  By 2016, Palestinian institutions more effectively manage and regulate urban development and natural resources to ensure the equitable provision of sustainable infrastructure and to safeguard cultural heritage  **Intended Outcome as stated in the Country Programme Results and Resource Framework:**  **Outcome**  Essential social and infrastructure service delivery are sustainable overcoming challenges related to energy context in oPt.  **Expected Output(s):**  Access to effective social, economic, education, public services and public utilities enhanced.  1. 2.8 MW generated utilizing renewable energy on top roofs of public buildings including health, education and municipal building.  2. Energy consumption in public building is 20% reduced utilizing energy audit, use of energy saving fixtures and equipment and building management system (BMS).  3. Promotion of five innovative ideas for renewable energy and energy saving and scaling | | | | |
| * **Outcome indicators as stated in the Country Programme Results and Resources Framework, including baseline and targets:**   **Outcome Indicators and targets**  **Target:**   * 170 KW of electrical energy provided from alternative sources other than the main grid. * 20 % decreased fuel consumption in health facilities * --% reduced the co2 emission and to restore the environment.   **Indicators:**   * % increase of renewable energy generated utilizing solar system * % of reduction in the hospital facilities allocated budget for electricity bills * Number of electricity cut hours is reduced   **Baseline:**   * Number of dialysis sections operated with PV cells is null. * Number of intensive care units operated with PV cells is one. * 101 KW generated for health sector(namely: Al Nasser hospital, Al Shifa hospital and European hospital ) * 45 Kw generated for education sector( namely: Al Faloga, Bashier Al Rayes, Akaa, Raba’a Al Adawiya and Al Fokhari schools) | | | | |
| **Applicable Key Result Area (from UNDAF outcome6)** | | | | |
| **Partnership Strategy:** UNDP/PAPP**,** PENRA and MOH. | | | | |
| **Objective one: 170 KW of electrical energy provided from alternative sources other than the main grid.** | | | | |
| **OBJECTIVE** | **OUTPUT TARGETS** | **INDICATIVE ACTIVITIES** | **RESPONSIBLE PARTIES** | INPUTS **USD (without GMS)** |
| **Output 1:**  170 KW generated utilizing renewable energy on top roofs of public buildings including health, education and municipal building. | * 4 health facilities utilizing solar system. * 1,000 working opportunities created | * MOU with MOH and PENRA prepared and signed. * Recruitment and mobilize UNDP supervision team. * Forming Steering committee of concerned parties. * Criteria and list of priorities identified and agreed upon * Tendering documents prepared and revised * Award and implement different contracts | UNDP, MOH, and PENRA | 911,800 |
| **Output 2**  Energy consumption in public building is 20% reduced utilizing energy audit, use of energy saving fixtures and equipment and building management system (BMS). | * 20% of power consumption of 4 facilities is reduced | * Carrying out energy audit. * Applying the Building Management System – BMS including Local Area Network - LAN for health facilities. * Changing all existing luminaires and equipment to be power saving. | UNDP, MOH and PENRA | 318,100 |
| *Total cost of PIU* |  |  |  | 158,989 |
| *GMS cost* | | | | 111,111 |
| *Total of Activities including PIU and GMS (US$)* | | | | 1,500,000 |
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# Implementation Work Plan

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| **EXPECTED OUTPUTS** | **PLANNED ACTIVITIES** | **Year 2015/2016** | | | | | | | | | | | | | | | **RESPONSIBLE PARTY** | **PLANNED BUDGET US$** | |
| **Start-up** |  | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M12 | M13 | M14 | M15 |  |  |
| Monitoring and Evaluation Plan | MOU with MOH, and PENRA prepared and signed | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  | UNDP, MOH, and PENRA |  |
| Forming Steering committee of concerned parties |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  | UNDP, MOH, and PENRA |
| Recruitment and mobilize UNDP supervision team |  | X | X |  |  |  |  |  |  |  |  |  |  |  |  | UNDP, MOH, and PENRA |
| **Output 1:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 170KW generated utilizing renewable energy on top roofs of hospital buildings. | Criteria and list of priorities identified and agreed upon |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  | UNDP, MOH, and PENRA | 1,113,252 |
| Developing Terms of reference, specification, bill of quantity for design and build tender document |  |  | X | X |  |  |  |  |  |  |  |  |  |  |  | UNDP, MOH, and PENRA |
| Procurement of different packages & Award and implement different contract |  |  |  | X | x | x |  |  |  |  |  |  |  |  |  | UNDP |
| Implementing the activities |  |  |  |  |  |  | x | x | x | x | x | x | x | x | x | UNDP |
| Commissioning and hand over of Works to MoH and PENRA |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | UNDP, MOH, and PENRA |
| **Output 2:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Energy consumption in hospital building is 20% reduced utilizing energy audit, use of energy saving fixtures and equipment and building management system (BMS). | Carrying out energy audit. |  |  |  | x | X |  |  |  |  |  |  |  |  |  |  | UNDP, MOH, and PENRA | 386748 |
| Applying the Building Management System – BMS including Local Area Network - LAN for health and |  |  |  |  |  | X | X |  |  |  |  |  |  |  |  | UNDP, MOH, and PENRA |
| Developing Terms of reference, specification, bill of quantity for design and build tender document |  |  | X | X |  |  |  |  |  |  |  |  |  |  |  | UNDP, MOH, and PENRA |
| Procurement of different packages & Award and implement different contract |  |  |  | X | x | x |  |  |  |  |  |  |  |  |  | UNDP |
| Implementing the activities |  |  |  |  |  |  | x | x | x | x | x | x | x | x |  | UNDP |
| Commissioning and hand over of Works to MoH and PENRA |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x | UNDP, MOH, and PENRA |