

**Activity Brief**

**Energy Efficiency  
Lighting System  
Monastir Municipality Main Building**

|  |  |
|--|--|
| <b>Activity Name</b>                       | <b>Lighting</b>                              |
| <b>Lead Partner</b>                        | <b>NERC/RSS</b>                              |
| <b>Supporting Partner(s) if applicable</b> | -  |
| <b>Geographical Scope of Activity</b>      | <b>Monastir Municipality - Main Building</b> |
| <b>Budget Line Item</b>                    | <b>4.1 Implement pilot projects</b>          |
| <b>Budget Amount</b>                       | <b>JD 12,000</b>                             |
| <b>Start Date</b>                          | <b>Q4, 2018</b>                              |
| <b>End Date</b>                            | <b>Q3, 2019</b>                              |

**SECTION A: ACTIVITY DESCRIPTION**

**1.1 Activity Summary**

Monastir Municipality building is located in the middle of the Al Monastir city. The building consists of two buildings and the utilized area equals to (1500 m2) including with two floors and 30 offices.

The main energy consumers are the lighting units, air conditioning system and office equipment. Existing lighting system consumes around 84422 KWh annually, while AC system 161925 KWh.

The action includes replacement of all inefficient units by efficient LED. The expected annual energy saving through introducing EE measures by replacing old inefficient lighting will be around 54,163 KWh with an estimated investment of about JD 8,957 (TD 29,647). Table below shows the No. and type of Lighting units to be replaced as well as expected savings and cost.

| <b>ECMS</b>                               | <b>NO. OF LAMPS TO BE REPLACED</b> | <b>TOTAL CONNECTED LOAD (KW)</b> | <b>ANNUAL ENERGY SAVING (KWH)</b> | <b>ANNUAL COST SAVING (TD)</b> | <b>INVESTMENT (TD)</b> | <b>EXPECTED LIFETIME (YR.)</b> | <b>SIMPLE PAYBACK PERIOD (YR.)</b> |
|---|------------------------------------|----------------------------------|-----------------------------------|--------------------------------|------------------------|--------------------------------|------------------------------------|
| <b>REPLACING WITH LED T8 18W</b>          | 202                                | 3.6                              | 16,987.4                          | 5,096                          | 6,060                  | 25                             | 9.51                               |
| <b>REPLACING WITH LED T8 9W</b>           | 418                                | 3.8                              | 17,576.1                          | 5,273                          | 9,753                  | 25                             | 9.84                               |
| <b>REPLACING WITH LED ROUND PANEL 12W</b> | 112                                | 1.5                              | 3,484.7                           | 1,045                          | 10,667                 | 25                             | 1.95                               |
| <b>REPLACING WITH LED BULBS 6W</b>        | 16                                 | 0.9                              | 14,695.8                          | 4,409                          | 2,467                  | 25                             | 8.23                               |
| <b>REPLACING WITH LED FLOODLIGHT 100</b>  | 148                                | 0.3                              | 1,419.1                           | 426                            | 700                    | 25                             | 0.79                               |
| <b>TOTAL</b>                              |                                    | <b>12.1</b>                      | <b>54,163</b>                     | <b>16,249</b>                  | <b>29,647</b>          |                                | <b>1.82</b>                        |

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#### **1.2 Approach to Ensure Community Participation**

Reducing energy usage in Municipality buildings offers a great opportunity to significantly reduce municipalities' energy expenses at a time when many are facing budget difficulties. In this regard, two main strategies that can be considered with municipal buildings: training of facility managers to ensure energy is not wasted, and retrofitting of Municipal buildings to reduce ongoing energy demand. Energy efficiency needs to be easy to undertake for both unsophisticated cities that do not have enough staff knowledgeable in energy management, as well as larger cities that may have energy expertise. Programs also need to produce results in a short run so that communities can see the benefits of their actions (e.g., reduced operating expenses, more comfortable buildings). Results should be visible to the Municipality's citizens in order to garner continued community support. These results can be communicated to the citizens through awareness workshops, leaflets, brochures...etc. In addition, citizens are normally eager to see that their local authority is doing its best to preserve natural resources and leads by example showing the great benefit of improving energy efficiency for its facilities. Where necessary, citizens or communities can be involved in municipality's actions related to energy efficiency from the planning phase through participating in meetings, discussions and in taking the right decision. Furthermore, citizens should feel and touch the impact of improving Energy efficiency at their municipality, as this should be positively reflected on the provided services by the municipality towards its community.

#### **1.3 Gender Mainstreaming Approach & Plan**

A gender mainstreaming approach requires that gender equality issues be raised at each step in any project cycle. In most cases, women capacities related to energy efficiency issues are invisible and limited. Enhancing women role especially for household sector is crucial as they normally using and dealing with home appliances & equipment. We think that women have the right to own efficient and clean cooking tools, refrigerator, washing machine, efficient lighting and proper ventilation systems as they normally spend more time using these equipment at their homes. Therefore, they need special support and assistance to build their skills on how to purchase, own and use energy these efficient equipment. Gender engagement especially women can be enhanced through the following:

- Ensure equal participation of women in project's meetings and discussions
- Ensure active participation in relevant awareness workshops
- Where possible, to participate in planning and implementation of at least simple energy efficiency actions such as replacing inefficient lamps with efficient ones at their homes.

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**1.4 Activity Objectives & Expected Results**

| Activities                               | Objective   | Input  | Outputs/Measureable Results                                      | Outcomes                                   | Purpose/Impact  |
|--|---|--|--|--|---|
| Replacing old inefficient lighting lamps | Deployment of resource efficiency practices at the Municipality level and reducing energy consumption in lighting system by at least 60 % of the total lighting consumption and reducing accompanying CO2 emission. . | <ul style="list-style-type: none"> <li>- Efficient lamps (LED)</li> <li>- Financial resources</li> <li>- Municipality technical staff participation</li> <li>- Qualified contractors (installers of units)</li> <li>- MINARET project management and supervision of activity implementation</li> </ul> | Around 896 lamps of different types are replaced and operational | Up to 54,163 KWh energy saving is realized | <ul style="list-style-type: none"> <li>- Municipalities act as “lead by example” actors</li> <li>- Promotion of efficient and clean technology</li> <li>- Enhancing community awareness on best practices for resource efficiency</li> <li>- Contribute to climate change mitigation actions</li> <li>- Achieving market transformation towards efficient and clean technologies</li> <li>- Promoting sustainable development concept at municipality &amp; communities levels</li> </ul> |

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#### 1.5 Implementation Plan & Time-frame including gender mainstreaming & community participation

| Task   | Responsibility                               |  | Indicator   | Tools & Means of Verification            | 2018 |   |   |    |    |    | 2019 |    |    |    | 2020 |    |    |    |
|--|--|--|---|--|------|---|---|----|----|----|------|----|----|----|------|----|----|----|
|  | Organization                                 | Person   |   |  | 7    | 8 | 9 | 10 | 11 | 12 | Q1   | Q2 | Q3 | Q4 | Q1   | Q2 | Q3 | Q4 |
| 1. Updating data, if necessary                                 | - RSS/NERC<br>- Municipality Staff           | - Eng. Sawsan Bawaresh                               | - Updated # of lamps units  | - Updated summary paper/report           |      |   |   |    |    |    |      |    |    |    |      |    |    |    |
| 2. Preparation of technical specification and tender documents | - RSS/NERC<br>- Municipality Staff           | - Eng. Sawsan Bawaresh<br>- Municipality Focal point | - Technical specifications and tender conditions are prepared.                  | - Tender documents files                 |      |   |   |    |    |    |      |    |    |    |      |    |    |    |
| 3. Tender announcement, evaluation and awarding                | - RSS/NERC<br>- Municipality Staff           | - Eng. Sawsan Bawaresh<br>- Municipality Focal point | - Announcement in newspaper or other means<br>- One contractor has been awarded | - Evaluation report<br>- Awarding letter |      |   |   |    |    |    |      |    |    |    |      |    |    |    |
| 4. Implementation of the action                                | - Awarded contractors/installers             | - Awarded contractor/installer                       | - 896 lamps are installed and operational                                       | - Progress reports                       |      |   |   |    |    |    |      |    |    |    |      |    |    |    |
| 5. Supervision and monitoring & evaluation                     | - RSS/NERC<br>- Municipality technical Staff | - Eng. Sawsan Bawaresh<br>- Municipality Focal point | - # of corrective actions and notes   | - Progress reports                       |      |   |   |    |    |    |      |    |    |    |      |    |    |    |

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#### 1.6 Communication Plan

- Coordination and communication with Municipality staff and country's focal point to ensure better management of the action implementation
- Organize meetings; face-to-face, skype, phone calls...
- Share progress reports and MoMs

#### SECTION B: ACTIVITY BUDGET

The total budget of the action is broken down as follows:

| Task   | Budget /cost (JD) |
|--|-------------------|
| 1. Updating data, if necessary                                 | 500               |
| 2. Preparation of technical specification and tender documents | 500               |
| 3. Tender announcement, evaluation and awarding                | 1000              |
| 4. Implementation of the action                                | 9000              |
| 5. Supervision and monitoring & evaluation                     | 1000              |
| <b>Total</b>   | <b>12000</b>      |