Decentralized Wastewater Treatment and Reuse in Institutions: Mafraq Pilot in 3 Schools

Dec. 1, 2018 – Dec. 31, 2018
RFP#: WASH/JOR/PCA2018178/PD2018188/2018/MIRRA/Mafraq
PROJECT FACT SHEET

PROJECT TITLE: Decentralized wastewater treatment and reuse in institutions

FUNDING AGENCY: The United Nations International Children’s Emergency Fund (UNICEF)

START DATE: December 1st, 2018

END DATE: August 31st, 2019

IMPLEMENTING PARTNER IN JORDAN:

Methods for Irrigation and Agriculture (MIRRA) - a Jordanian non-governmental organization that specializes in the development of water and agricultural sectors including optimizing pressurized irrigation networks at the field and network levels, wastewater reuse in agriculture and capacity-building activities for individuals and institutions.

http://mirra-jo.org

CONTACT INFORMATION:

<table>
<thead>
<tr>
<th>MIRRA Email</th>
<th><a href="mailto:info@mirra-jo.org">info@mirra-jo.org</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>MIRRA Mail</td>
<td>P.O. Box 941454 Amman 11194 Jordan</td>
</tr>
<tr>
<td>Name of Organization Head</td>
<td>Dr. Samer Talozi</td>
</tr>
<tr>
<td>Title of Head</td>
<td>Chairman</td>
</tr>
<tr>
<td>Email of Head</td>
<td><a href="mailto:samer.talozi@mirra-jo.org">samer.talozi@mirra-jo.org</a></td>
</tr>
<tr>
<td>Phone of Head</td>
<td>+962-795204154</td>
</tr>
<tr>
<td>Name of Progr. Focal Point</td>
<td>Eng. Alham Al-Shurafat</td>
</tr>
<tr>
<td>Title</td>
<td>Project Officer/ Water and Environment</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:elham-al-shurofat@mirra-jo.org">elham-al-shurofat@mirra-jo.org</a></td>
</tr>
<tr>
<td>Telephone</td>
<td>+962-779217409</td>
</tr>
</tbody>
</table>
# Contents

General Information .................................................................................................................. 4
Section One: Summary ............................................................................................................. 4
Section Two: Activities and Progress ....................................................................................... 5
Section Three: Outputs and Deliverables .................................................................................. 8
Section Four: Evaluation .......................................................................................................... 8
Section Five: Risks, Issues and Challenges .............................................................................. 8
Section Six: Collaboration ....................................................................................................... 8
Section Seven: Financial Statement .......................................................................................... 9
Section Eight: Official Requests ................................................................................................ 9
Section Ten: Next Steps ........................................................................................................... 9
Section Eleven: List of Equipments .......................................................................................... 9
General Information

Country: Jordan

Programme Code & Title: WASH/JOR/PCA2018178/PD2018188/2018/MIRRA/Mafraq

Project Code & Title: WASH/JOR/PCA2018178/PD2018188/2018/MIRRA/Mafraq

Responsible Officer(s): Alham Al-Shurafat

Workplan Code & Title: WASH

Implementing Partner Name & Code: MIRRA

Project Name: Decentralized wastewater treatment and reuse in institutions

Project Period: From 1/12/2018 to 31/8/2019

Reporting period: From 1/12/2018 to 31/12/2018

Report Submission date: 6/1/2019

Section One: Summary

This project is a collaboration between MIRRA and UNICEF that works within the framework of decentralizing most of the services in Jordan. This project focuses on sanitation and wastewater management by targeting three schools in Irhab district within Mafraq Governorate. Irhab district has a population of 23,874 residents, of which 2,970 are Syrians. The district is an agricultural area with no sewer network coverage relying on cesspit for disposal of wastewater, water needs for agriculture are usually met through the piped water network that is supplied for domestic use. Alternatively, water trucking for agricultural purposes from privately owned boreholes is also practiced.

The collaboration aims to pilot a new approach to wastewater treatment at a decentralized level within institutions but also communities to achieve the following objectives:

- Safe management of wastewater at a decentralized level to prevent groundwater pollution and to reuse water for agricultural purposes.
- Greywater reuse to reduce the volume of fresh water consumption
- Solar power as an alternative sustainable energy source for the operation of the WWT system including the operation of the irrigation network.
- Increase awareness between students and teachers on the importance of water conservation, environmental impacts of poor management of sanitation, and renewable energy as a sustainable source to provide energy.
Section Two: Activities and Progress

- Preliminary studies have been completed on the site, the stakeholders have been identified, required specifications and designs for various have been completed. The information was communicated through prior visits and meetings with relevant schools, institutions, and local people.

![Figure 1: Previous meeting with all stakeholders including school staff, relevant ministries, local municipality, UNICEF team and experts in relevant sectors on August 2018.](image)

- Preliminary studies have been completed to determine the optimal locations for the installation of treatment and reuse systems for wastewater and greywater.
- Preliminary studies have been completed to determine the optimal locations for the installation of solar power systems.
- The sampling of influent wastewater and greywater at the schools and doing the main water quality testing.
- Drafting two tender offers: one for WWTPs, GWS, and sanitation facilities maintenance and the second for SPSs.
- Met with an agricultural expert who is a teacher in the schools to discuss the plan and design of the reorganization of agriculture (~3 dunums) and cultivation of empty spaces (~3 dunums) inside the 3 schools taking into account the local conditions in the village of Irhab.
Figure 2: Meeting Mr. Hassan a well known local Agriculture expert from the schools in Irhab, Al-Mafraq on 24 Dec 2018.

- Planning the reorganization of agriculture (~ 3 dunums) and cultivation of empty spaces (~ 3 dunums) into account all local conditions, feedback, and preliminary studies.

Figure 3: Zoning the area for Agriculture and initial irrigation scheme
<table>
<thead>
<tr>
<th>School</th>
<th>Zone #</th>
<th>Area m²</th>
<th>Purpose</th>
<th>Result</th>
<th>Species/Greenhouses</th>
<th>Period of planting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irhab Secondary school for Girls</td>
<td>Zone #1</td>
<td>2720</td>
<td>Plants for production and vocational education</td>
<td>Products</td>
<td>Drumstick tree (المورلينجا) for fodder</td>
<td>Mid-February to mid-March</td>
</tr>
<tr>
<td></td>
<td>Zone #2</td>
<td>1120</td>
<td>Garden in front the student break area</td>
<td>Aesthetic</td>
<td>various types</td>
<td>Mid-February to mid-March</td>
</tr>
<tr>
<td></td>
<td>Zone #3</td>
<td>1180</td>
<td>Fruit trees for production</td>
<td>Fruit</td>
<td>Olive trees</td>
<td>Mid-February to mid-March</td>
</tr>
<tr>
<td></td>
<td>Zone #4</td>
<td>770</td>
<td>Fruit trees for production</td>
<td>Fruit</td>
<td>Trees of almonds (أشجار لوزيات)</td>
<td>Mid-February to mid-March</td>
</tr>
<tr>
<td></td>
<td>Zone #5</td>
<td>440</td>
<td>High trees give aesthetic next to the entrance to the school overlooking the main street</td>
<td>Block the wind and the sun rays. Shadow and aesthetic</td>
<td>Thuja trees (شجر الثويا)</td>
<td>Mid-February to mid-March</td>
</tr>
<tr>
<td></td>
<td>Zone #6</td>
<td>710</td>
<td>Elevated trees act as a buffer against the wind and the sun rays to protect students plays in the football pitch behind it and also to give aesthetic aspects</td>
<td>Block the wind and the sun rays. Shadow and aesthetic.</td>
<td>Paulownia (الباولونيا)</td>
<td>Mid-February to mid-March</td>
</tr>
<tr>
<td></td>
<td>Zone #7+Zone #9</td>
<td>1770</td>
<td>A garden for students to practice various activities and play and to</td>
<td>Shadow and aesthetic.</td>
<td>Chinaberry (الزنزلخت)</td>
<td>Mid-February to mid-March</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cottonwood (شجر الحور)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pine trees (شجر الصنوبر)</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: The agriculture zones and their purposes as planned for the schools.
Zone # 8

<table>
<thead>
<tr>
<th>Zone # 8</th>
<th>550</th>
<th>An area planted with trees as an entrance to the project and schools. Also containing the project panel</th>
<th>Aesthetic</th>
<th>Thuja trees (شجر الثويا)</th>
<th>Mid-February to mid-March</th>
<th>Cypress golden (جولدين ستار)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>9260</strong></td>
<td><strong>receive visitors.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Section Three: Outputs and Deliverables**

Deliverables:
1. Drafted a plan for the reorganization of agriculture (~ 3 dunums) and cultivation of empty spaces (~ 3 dunums).
2. Drafts of the two tenders. One for WWTPs, GWS, and Sanitation facilities maintenance, the second for SPSs.
3. Draft of the workplan.
4. Water quality testing of influent water

**Section Four: Evaluation**

The overall project is progressing in terms of accomplishing the objectives and adhering to the overall timeline.

**Section Five: Risks, Issues, and Challenges**

- The implementation of hygiene promotion and soft activities may face timeline restrictions due to the school schedule and final exams. The schools are available during the dates between mid-February through mid-June. Furthermore, there is a month-long period from mid-July to mid-August the students from the agricultural branch at the Irhab Secondary School for Girls have a mandatory training period at the school.
- Decentralization projects are still being tested in Jordan, this may cause challenges in terms of the distribution of tasks to fully ensure the projects sustainability.

**Section Six: Collaboration**

Thus far there have been no collaborations.
Section Seven: Financial Statement

MIRRA received the first installment of 70,016 Jordanian Dinars on 17 December 2018. A number of bureaucratic roadblocks, however, initially complicated MIRRA’s collection of the funds. The Jordan Kuwait Bank refused to accept the withdraw of funds until it received official written approval from the Ministry of Environment. Meanwhile, the Ministry of Environment notified MIRRA that it was unable to give approval until the Prime Ministry also granted official approval. After numerous conversations the Jordan Kuwait Bank agreed to allow MIRRA to withdraw it funds on the condition that the Ministry of Environment would send its approval letter in early 2019.

Section Eight: Official Requests

- Mira asks if you can send an official letter to the Ministry of Finance asking for exemption from sales tax for the project because it is a development project.

Section Ten: Next Steps

Briefly listed below are the activities planned and additional relevant information next month (Jan 2019) of the project.

- Finalizing two tender offers: 1) A tender offer for WWTPs, GWS, and Sanitation facilities maintenance and 2) A tender offer for SPS.
- Finalizing the design and the timeline for the reorganization of agriculture (~ 3 dunums) and cultivation of empty spaces (~ 3 dunums) inside the three schools.
- Starting the purchasing process of all required materials for the reorganization of agriculture (~ 3 dunums) and cultivation of empty spaces (~ 3 dunums) inside the three schools.
- Tender announcements in a Jordanian newspaper for the two tenders.
- Making project brochures on the project and announcements about the project on all MIRRA media channels.

Note: It’s important to have the crops and planting zones fully prepared by the end of January because it is well known that saplings or seed dispersal should be extended from mid-February to mid-March in Mafraq.

Section Eleven: List of Equipment

No equipment was purchased from the budget of this project yet.