



ReWater MENA Project

The 1st Focus group discussion in the Jordan Valley –13th, July 2020



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Objectives of the workshop, agenda, and participants

Objectives of the day

The 1st Focus Group (FG1) was held in the Middle Jordan Valley (Deir Alla) on the thirteenth of July 2020, in the presence of a group of farmers and representatives of Jordan Valley Authority. This discussion was organized in order to learn and understand the real status of how treated wastewater is used in the Middle Valley and to learn from the farmers experience in the mechanism they apply while utilizing treated wastewater in agriculture. The study objectives can be summed up as follows:

- Meet with the farmers
- Learn and understand the agricultural status and conditions in the Middle Jordan Valley
- Maintain continuous communications and cooperation with targeted farmers who rely on treated wastewater in agriculture.
- Benefit from the citrus cultivation experiment in the Middle Jordan Valley using water from King Talal Dam (KTD).
- Focus on the most important positive aspects of adopting treated wastewater in agriculture, identify challenges that farmers are facing and determine how to overcome these difficulties.
- Learn from farmers experiences with treated wastewater in agriculture to apply the same technique with Northern Jordan Valley farmers.

Detailed agenda

The work agenda included some inquiries, through which the aims can be fulfilled, and it was divided into three domains, each of them consisting of a set of questions (as clarified in details in **Table 1**).

Table 1. Focus group agenda

Middle of Jordan Valley–Focus Group 1 (FG1)	
Location:	Deir Alla / Al Wadi Al-Kahaseeb Society
Date:	13/7/2020
Participants:	20 persons
Time / Duration	10:45- 1:00 / around 2 hours
Domain 1: General Information	
1. What is the number of the farm unit /area/pump?	
2. What are the sources of irrigation water?	
3. Is there alternate irrigation (pumping water from King Talal Dam on some days allocated for irrigation)?	
4. How many days are allocated for irrigation in total, and how many days for pumping water from KTD (alternate irrigation if found)?	
5. How much is the acreage of the cultivated land?	
6. What is the kind of cultivated plants and trees (citrus trees, vegetables...etc.?)	
7. What is the type of applied irrigation style (surface irrigation, drip irrigation, flood/furrow irrigation)?	
8. What is the age of the currently grown crop?	
9. What is the kind of used fertilizer and how long has the land been fertilized?	
Domain 2: Utilization of KTD in the Middle Valley (it aims to learn about the experience of growing citrus in the Middle Jordan Valley by using water from KTD)	
1. Since when has water from KTD been used for irrigation? What was the formerly utilized source of water before KTD?	

2. To what extent has the utilization of water from KTD affected agriculture (relating to the kind of crops, productivity and quality)?
3. Is there any correlation between the age of the trees, most specifically citrus and its adaptation with water from KTD? (if it is noticed that new farms irrigated from the beginning have adapted to the quality of water to a large degree).
4. Are there any challenges or negative effects to the usage of water from KTD (using fertilizers, productivity and quality of the crops)?
5. Is water quantity for irrigation sufficient to meet all water needs of the farms?
6. Do you think that water from KTD can be a successful experience for planting citrus trees in Middle Jordan Valley?
7. From your perspective, if the experience of utilizing treated wastewater in the Northern Valley is repeated, will it be successful or not? Why?
Domain 3: Production and Cost
1. How much is the amount of product per year (ton/acre (dunum))?
2. How much is the average of product sale (Dinar/ton)?
3. How much does water for irrigation costs per year?
4. How much is the cost of preparing land / transportation / labor / fertilization / taxes/ fees and other costs?

The first domain aims to have an overview of what agriculture looks like in the Middle Jordan Valley, so as to learn about the agricultural status in the region. This involves having a clear image about common agricultural areas, water sources and irrigation systems, the types of agricultural crops in the region, and the mainly used fertilizers.

With regard to the second domain, it aims to have a clear idea about the experience of citrus cultivation in Middle Jordan Valley by using water from KTD; this will help highlight the importance of the positive aspects and the challenges faced by farmers when using treated wastewater in agriculture and how to overcome these difficulties. This is actually the main objective of forming a focus group. The second domain includes a set of open-ended questions, to help the participants take part actively to the discussion and speak out. The last domain of the discussion focusses on the identification of agricultural production quantities and the related agricultural production costs.

Participants of the workshop

The total of participants in the FG1 reached thirteen persons, including farmers, and representatives of Jordan Valley Authority. The farmers represented the majority of participants, with a percentage of approximately (77%). With regard to participants from the Jordan Valley Authority, their percentage reached approximately (23%). **Table 2** indicates the participants' names.

Table 2. Name of Participants

	Name	Affiliation
1	Ali Al-Eswed	Farmer
2	Fayez Al-Shatty	Farmer
3	Hafeth Al-Shobaky	Farmer
4	Yousef Masoud	Farmer
5	Zuher Al-Balawneh	Jordan Valley Authority
6	Yahya Al-Faqer	Farmer
7	Mansour Al-Shatty	Farmer
8	Ali Mousa	Farmer
9	Ahmad Mustafa	Farmer
10	Mohammad Yousef	Jordan Valley Authority

11	Deyaa Al-Hawarat	Jordan Valley Authority
12	Jehad Al-Hyasat	Farmer
13	Suliman Ibraheem	Farmer

It is noted that there was no presence of women among the participants on the focus group, and this is due to the nature of the discussion and its objectives, as it specifically targets farmers. The vast majority of farms are owned and run by men.

Report of the focus group discussion

Proceedings of the session

The discussion started with a welcoming speech from Dr. Mo'ayad Al-Sayyed, the project coordinator in Jordan, where he explained the objectives of the discussion and the desired results to the participants. He also stressed the importance of the participation of farmers and taking lessons from their experiences, as well as motivating them to participate, provide information and give their suggestions. Dr. Mo'ayad indicated that the participants' positive and negative experiences in using treated wastewater in agriculture, especially in the cultivation of citrus fruits, will be useful and will help others learn from their experience to transfer it to stakeholders including farmers (in the Northern Valley notably) and decision-makers.

Then, the participants met with each other, at the beginning, Dr. Mo'ayad introduced the managing work team of the workshop, followed by the participants introducing themselves one at a time, giving personal and career information about themselves, including name, profession, agricultural expertise, agricultural activity, etc.

The discussion was divided into two sessions, over two hours, during which they had a break of about 15 minutes. In the first session, the participants presentation was followed by a discussion of the first domain of the agenda, and part of the second domain. In the second session, the topics of the second domain were resumed and discussed together with the third domain.

Dr. Moa'yad concluded the session by thanking all the participants for their participation in the first focus group for providing valuable information.

The session was directed by Dr. Mo'ayad, with the assistance of the work team and Eng. Emad Al-Khalil, representative of LISODE.



Introducing participants and having an idea about them is one of the basic requirements of the workshop, so each participant is assigned a specific time to introduce himself and provide others with information about his agricultural activities (if he is a farmer). This step also helped gather sufficient information on the agricultural real status of Middle Jordan Valley.

The methodology of the open-ended questions was applied to the discussion in order to motivate the participants to provide as much information as they can without restrictions, in addition to adopting the method of dialogue, sharing information, and motivating all attendees to participate and breaking

the state of deadlock as well as building-up confidence between the workshop management team and the participants.

Hoping to collect sufficient information from the participants, some tools were used such as (Flip charts) so as to take some important notes about farmers' answers and enable the participants to share their proposals with suggestions of others, and prepare special models in the form of tables that include the names of farmers and agricultural information or background related to them.

Moreover, the work team which comprised 3 participants in the workshop (excluding Dr. Mo'ayad) was responsible for collecting observations and information during the discussion besides using cellular phones for audio recording of the discussion.

For the purpose of an appropriate management of the dialogue and discussion and to give everyone a chance to participate without limiting the participation to certain people, the organizers of the workshop adopted a fair distribution of time among the participants, trying not to deviate from the main discussion topic and avoid ineffective and direct debate between the participants. Furthermore, it was apparent that the participants were keen to listen to each other and benefit as much as possible from their information.

One of the most important expected outcomes from the workshop was to identify the most important challenges and positive aspects from the utilization of treated wastewater in agriculture, how to overcome difficulties and how to adapt in order to transfer those experiences to the Northern Jordan Valley farmers.

During the workshop, the dialogue was well managed and run smoothly, as the facilitator was keen to distribute the roles among the participants and collect as much information as possible. However, not all farmers were able to provide full details of their agricultural activities and expertise due to the short time, while some farmers had too much time to talk depriving others from this opportunity. Notably, the timing was short for discussion as the number of participants and questions were quite important compared to the focus group duration.

The technique of the open-ended questions relating to the farmers' experiences in using wastewater in agriculture was a good motivating opportunity that allow farmers to talk without restrictions. However, some participants elaborated in their conversation as usual, and frequently deviated from the discussion goals, although the facilitator was trying to control the discussion and focus on the main issue of the workshop. The majority of the participation came from approximately 50% of the participants, as there were some participants who did not participate actively in the discussion.

The presence of representatives of the Jordan Valley Authority (a government agency responsible for managing irrigation operations and agricultural activities in Jordan Valley) generated a direct discussion between the farmers' representatives and the Jordan Valley Authority participants about the mechanism for managing the irrigation process and the quantities of water as well as the usage and the quality of treated water in agriculture. The farmers seems to have some wrong or incomplete information about the quality of treated wastewater from the KTD; the Jordan Valley Authority said that treated wastewater complies with the World Health Organizations standards on reuse, but farmers were not aware of it.. The head of the laboratories in Jordan Valley Authority was keen to clarify and correct these misconceptions. Communication does not seem highly functional between the JVA and the farmers, maybe coming along with a problem of trust.

The work team exerted all efforts to write down the participants' comments through direct recording, and recording on the cellular phones. Nonetheless, the quality of the recording sound was very poor

because of the loud noise in the hall caused by air conditioners. Moreover, there was no time to use (Flip charts), models and tables prepared to collect general information because of the extensive and elaborated information.

At the end of the session, the participants agreed on maintaining continuous communications, holding meetings and organizing discussions with all concerned stakeholders and authorities. They also agreed on informing the decision-makers of the Jordan Valley Authority and the Ministry of Water about the results of the focus group. The participants called for enhancing the dialogue with the decision-makers and regular review of scientific information related to the quantity and quality of treated wastewater coming from KTD.

Main points raised during the discussion

Domain 1: General Information

- The attendant farmers with 20-60 years of experience have farm units planted with citrus trees on areas around 20-50 dunum. The water source is KTD and one of these farmers has a groundwater well with desalinated treatment plant for irrigation purposes.
- Drip irrigation is used to irrigate citrus trees for most of the farmers.
- Water is pumped to irrigate the farm during 6 hours every 3 days.
- According to the farmers' experience, each citrus tree needs 5 m³ of water/month.
- There are many different kinds of agricultural fertilizers and pesticides used for crops
- According to the farmers, in order to improve plant's blossom and fruits, water should be sprayed with Zn and B.



Domain 2: Utilization of KTD in the Middle Valley (it aims to learn about the experience of growing citrus in the Middle Jordan Valley by using water from KTD)

- Farmers agreed that the quantity of water is more important than the quality
- The farmers agreed that the citrus trees were more productive when the irrigation water was abundant, as there is no problem with the salinity of water (which is up to 1500 $\mu\text{S}/\text{cm}$), but the problem was the quantity.
- The reason for their tendency to plant vegetables instead of citrus trees is the lack of taking care of trees, better economic returns and greenhouses are better for vegetables. Moreover, planting citrus trees in this region needs more studies of the impermeable layer because the citrus' roots reach there, whereas most areas contain this layer at 40 cm depth; therefore, the trees' leaves become yellow.
- According to the farmers' experience, the main problems of using KTD water for irrigation are: the quantity, high concentrations of Sodium & Carbonate and the presence of Fungus (Copper is used to remove this phenomenon).

- Current practices to preserve citrus trees in the Middle Jordan Valley, depending on water from KTD for irrigation:
 - Intensive care (Follow-up and Guidance).
 - Increasing the amount of irrigation water in July, August and September due to the high temperature and the high rates of fertilizer supplied to the soil.
 - Consecutive and regular irrigation in order to break the salt and lime layer on soil surface.
 - Plowing soil and opening holes to break the salt layer and renew water-absorbing roots.
 - Adding Citric Acid in irrigation water to control pH value in the soil.
 - Adding excellent quality of fertilizer with natural organic fertilizer (manure) during November and December, while chemical fertilizer can be used the rest of the months.
 - Pruning trees horizontally instead of vertically to create shade and increase soil moisture.
 - Decreasing the distances between trees (intensive farming) to preserve soil moisture.
- Avoid pruning trees in June, July and August to increase trees growth.
- Using different media that maintains soil moisture, such as Betmoss, Perlite and Vermolite (contain high concentrations of manganese and magnesium). These media maintain 60% of soil moisture
- Environmental practices such as keeping leaves on the ground.
- Cultivating successful varieties such as Poppy (tolerating salinity), as this variety has been used since 1994.
- Reconsider the appropriate design of irrigation networks (in contrast to the current situation) where the role of the Ministry of Agriculture is absent; willingness to have a technical support, coming from Ministry of Agriculture if relevant.
- Avoid removing weeds during July and August because it protects the soil from the heat.
- Irrigation at evening hours to reduce evaporation.
- Preserving the quantity and quality of water.
- According to farmers there is no choice except using treated wastewater.
- Regarding to the relationship between the age of the tree and its ability to tolerate treated wastewater, the farmers agreed that it depends on the origin of the successful plant such as Poppy or Mondrian, as the first tolerates salinity and the second grows faster but its life span is shorter.

Domain 3: Production and Cost

- The cost of one dunum is 8 fils/m³ (0,008 JOD/m³) of water from the KTD.
- The yield is around 1-3 tons/dunum and approximately 100Kg per tree.
- Climate change and the quantity of water supplied affect trees' production.
- Labor costs are one of the largest costs paid by a farmer.
- Farmers are reluctant to give accurate figures of the product of citrus trees per dunum and also the sale prices.
- The production of one dunum of citrus ranges between 1-3 tons per dunums and the product varies according to the crop's variety.

Conclusion and recommendations

Conclusion

- Learn about the agricultural real status in Middle Jordan Valley, as it is well-known for growing vegetables in greenhouses, and cultivating fruit trees of citrus and palm trees.
- Farmers in Middle Jordan Valley have been accustomed and adapted to the utilization of treated wastewater from KTD.
- Farmers developed their abilities to recognize the quality of the treated wastewater and deal with it.
- The farmers have a strong desire to continuously communicate with all stakeholders and authorities, and establish a constant dialogue with decision-makers to discuss all issues regarding the utilization of treated wastewater in agriculture.
- Middle Jordan Valley farmers do not recommend the usage of treated wastewater in agriculture; though they don't really have other alternatives, groundwater is saline and expensive (costs of drilling + extraction) while this water is cheap – this is rather the only reasonable option they have to get water in sufficient amount.
- Farmers have a strong desire to know the quality of the wastewater taken periodically from KTD.
- Farmers are more concerned by the amount of water used in agriculture rather than its quality.

Recommendations

The recommendations are divided into two aspects/parts, the first part focusses on the technical issues related to farmers and the other is related to the management of the workshop. They can be explained as follows:

Technical aspect/part

- Improve communication between farmers and the JVA, notably on the quality of treated wastewater, and organize events to improve the knowledge and dialogue between farmers and with other stakeholders.
- Increase focus on the main challenges and positive aspects in the use of treated wastewater by Middle Jordan Valley farmers and find out how to deal with this water.
- Provide farmers with periodic and regular information or reports about the quality of the treated wastewater from KTD.
- Enhance field visits by stakeholders and concerned authorities to know better the current status of agriculture in the area.
- Hold field trips on how to deal with treated wastewater.
- Conduct technical and special studies to assess the impact of treated wastewater on the soil and on the agricultural crops.

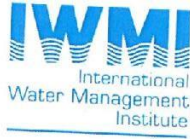
Organization and management of the workshop

- 8-10 participants are supposed to participate in the forthcoming focus groups. When the group of participants is too big, it is better to split the group in 2 in order to have smaller groups,

where people can feel more comfortable to talk and where a discussion usually becomes more interactive.

- Pay attention to the type of participants to be gathered, especially in the case of a first meeting. If they strongly disagree on some points, it may affect the overall discussion, create parallel discussions and debates, thus creating an uncomfortable and tensed atmosphere.
- It is preferable not to hold joint meetings between the Middle and Northern Jordan Valley farmers to discuss the usage of treated wastewater in agriculture, without a great preparation.
- Take into account the issue of diversity in the selection of participants from the farmers, for example a representative of vegetable farmers, a representative of fruit trees, and representatives of farmers using agricultural wells, etc.
- Provide identification cards including the name of each participant to facilitate communication, create a more comfortable environment and hinder any inconvenience.
- Use tools to take down notes and prepare their use, and register important information while managing the focus group so that the participants can recognize them, such as colored flash cards.
- Visit the venue designated for the workshop in advance to check its readiness for the event and the availability of the required facilities.
- Supply required pens, notebooks and water on the tables for the participants.

Annex: List of the participants



الجمعية العلمية الملكية
Royal Scientific Society

مشروع الاستخدام المستدام والأمن لمياه الصرف الصحي المعالجة في منطقة الشرق الأوسط وشمال إفريقيا

مجموعة التركيز (1)

الأغوار الوسطى

تاريخ ٢٠٢٠/٠٧/١٣

الرقم	الاسم	رقم الهاتف
١*	علي محمود علي العسود (أبو عيسى)	٠٧٧٥١٣٣٤٣٠
٢	فايز محمد علي الشطي	٠٧٧٦٦٠٨١٨٠
٣*	حافظ الشوكبي (أبو محمد)	٠٧٩٦١١٧٢٩٦
٤*	يوسف مسعود (أبو عواد)	٠٧٩٥٥٥٥٥٦
٥	يحيى محمد البديوي	٠٧٩٩٧٥٠٧٢
٦	محمد محمد الفقيه	٠٧٧٧٩٨٨٠٩٥
٧	مسعود محمد عبد الله	٠٧٧٦٩٥٨٢١١
٨*	علي محمد حوصار (أبو حوصار)	٠٧٩٥٥٥٨٧٢٨



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مشروع الاستخدام المستدام والأمن لمياه الصرف الصحي المعالجة في منطقة الشرق الأوسط وشمال إفريقيا

مجموعة التركيز (1)

الأغوار الوسطى

تاريخ ٢٠٢٠/٠٧/١٣

الرقم	الاسم	رقم الهاتف
١ -	أحمد مصطفى	٠٧٧٩٦١٨٤٤
٢ -	مسعود محمد علي	٠٧٧٤٤٩١٦٦٥
٣*	ضياء محمد عبد الكاظم	٠٧٩٦٧٨٧٠٠٠
٤ -	مبارك عبد طليم الحياصنة	٠٧٧٧٠٤٤٤٤٤
٥ -	سليمان بن عبد الرحمن الزواينة	٠٧٨٩٥٥٥١١٤