

**Integrated Water Resources Management in the  
Lower Jordan Rift Valley**

**Sustainable Management of Available Water**



**Technical reports on the  
General SMART – Workshops  
For all partners on an annual basis**

**Deliverable D 909**

**SMART Project, Phase II**

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## **1.1 Introduction**

Work package 9 of the SMART II project represents the capacity development part of this project. Many countries in the world encourage project managers to add capacity development programs in every water and environment project. The capacity development preprograms influence directly the success and the implementation of the results of all projects in water and Environment sectors. Workshops are an essential part of the capacity development tools of the SMART project.

## **1.2 SMART project Workshops**

The SMART project workshops participants include wide range of from government employee in addition to students and university staff. The workshops were planned with the aims to satisfy the needs of the Lower Jordan Valley region in terms of an integrated water resources management strategy. The main workshops are:

### **1.2.1 Workshop on Managed Aquifer Recharge and water quality**

The SMART project introduced several new technologies for a sustainable management of water resources includes "Managed Aquifer Recharge" (MAR). Specifically in arid regions, MAR improved water storage technique and supply of water demand for irrigation and other applications.

The SMART workshop on "Managed Aquifer Recharge", which was held in Jericho on February 29, 2012, focused on hydrogeological, chemical, technological, environmental, and socio-economic aspects of MAR in the Jericho sub-basin (Palestine, see Figure 1.).

The workshop addressed representatives of the local farmer association, Jericho municipality, Eni Sultan water user association, Environmental Protection Authority, Palestinian Ministry of Agriculture, and students from the Al-Quds University and other universities. 70 participants attended this workshop. This workshop was organized by Al-Quds University, the Governorate of Jericho and the Jordan Valley, and the Ministry of Agriculture in Palestine. The lecture program was developed by the spokespersons of the

work package “Managed Aquifer Recharge” Of the Al-Quds University and the Ministry of Agriculture agreed to produce and publish the outcome of the work package, including water quality information and groundwater salinity maps. The book-let had been published in Arabic and English.



Figure1. : Opening session, from left to right: Eng. Siam Nodal (Ministry of Agriculture, Director of Water Department), Eng. Qasem Ado (Deputy Minister of Agriculture, President of Department Soil and Agriculture), Eng. Majed Al Fityane (Governor of Jericho and Jordan Valley), Dr. Amer Marei (Al Quds University).

The background of the workshop was reported in newspapers and the Palestinian TV. The Ministry of Agriculture evaluated the workshop as successful and is interested in organizing additional workshops.

### 1.2.2 Workshop on Decentralized Waste Water Management in Jordan

In order to contribute to the development and implementation of decentralized wastewater management solutions for Jordan, the Helmholtz Centre for Environmental Research – UFZ, in association with the Training and Demonstration Centre for Decentralized Sewage Treatment – BDZ e.V., organized the workshop “Decentralized Wastewater Management in Jordan”. The workshop was held in Amman on April 29 and 30, 2013.

The workshop was developed for representatives of Jordanian institutions who will mainly be involved in the implementation of decentralized wastewater management. The 38 participants represented the Jordanian Ministry of Water & Irrigation, Water Authority of

Jordan, Jordan Valley Authority, Ministry of Agriculture, Ministry of Planning & International Cooperation, Ministry of Municipal Affairs, Ministry of Environment, Ministry of Health, Housing & Urban Development Corporation, Al-Balqa' Applied University, the Royal Scientific Society, and the Jordanian Institute for Standards and Metrology.

The objective of the workshop was to assist the "National Implementation Committee for Effective Decentralized Wastewater Management in Jordan" (NICE) by developing managerial and technical issues associated with the implementation of decentralized wastewater solutions.

The two days' workshop aimed at laying the basis for a common understanding of the actual state of discussion for implementing decentralized wastewater management concepts in Jordan. The three modules of the workshop provided information on the definition of decentralized wastewater management, treatment and reuse technologies, site selection, operation and maintenance schemes, planning, development, and financing of infrastructure projects. One main outcome of the workshop was that the participants identified the main bottlenecks in the existing regulatory framework and potential roles of different stakeholders in the planning process for a sustainable implementation of decentralized wastewater systems.

### **1.2.3 Groundwater protection zones and tracer techniques**

For supporting the SMART project activities relating to groundwater resources in Jordan, a specific workshop on "Groundwater Protection and Tracing Techniques" was held on February 28 and 29, 2012 at Al-Balqa' Applied University in Salt, Jordan.

The workshop was organized by the Karlsruhe Institute of Technology and the Al-Balqa' Applied University and was mainly directed to participants from universities and hydrogeologists from governmental institutions. The workshop covered the areas of tracing techniques in hydrogeology, groundwater protection zones, and potential groundwater contamination by leaking sewage pipes. A total of 23 representatives participated.



*Figure 2: Participants of the Workshop on Groundwater Protection and Tracing Techniques*

The main intention of the workshop was to inform the participants from the Ministry of Water and Irrigation and the M.Sc. and PhD students of the Al-Balqa Applied University about new tracer techniques for groundwater movement tests and methods for delineating groundwater protection zones.

#### **1.2.4 Protection zones regulation workshop**

A second workshop on groundwater protection was held in Ramallah on March 06, 2012. Members of the SMART Project Coordination Team Karlsruhe participated in the workshop which was organized by the Palestinian Water Authority and the Al Quds University (s. Figure 3).

The main topic of the workshop was to support the Palestinian Water Authority in preparing a draft of a new regulation for protecting springs and wells in the West Bank.



*Figuer 3: Members of the SMART Project Coordination Team Karlsruhe (Dr. Wasim Ali & Dr. Jochen Klinger) and from the Palestinian Water Authority (Eng. Aymen Jarrar and Eng. Sobhi Samhan) participated on the workshop. In addition Dr. Jawad Ali Hassan (Al Quds University) other members from the Palestinian Water Authority and the Palestinian Ministry of Agriculture*

### **1.2.5 Workshop of the teachers training in frame of “water fun” program in Palestine.**

On December 2010 a 120 selected teachers from schools in Palestine met under the supervision of the Ministry of Education and water Authority in Palestine to discuss the Training course in cooperation with SMART Project, Water fun program.

This workshop was opened by Minister Shaddad Attili, Head of the Palestinian Water Authority and Dr. Mohamad Abu Zaid, Deputy Minister of the Ministry of Education and Higher Education and Hazem Kittaneh, General Director for technical directorate and Subhi Samhan, Director of research and development of the Palestinian water Authority.

One of the main purposes of this Workshop is the spreading awareness and the creating of a “Green Schools Program”, which will make use of the water used in schools and treat it, and reuse it.





*Fig 4: The opening of the workshop of the Teachers training under HE Dr. Shaddad Ateli (third from left) the Head of the Palestinian Water Authority*

The training course's goal was to increase laboratory knowledge regarding the treatment of wastewater by means of academic activities that will raise the level of environmental awareness in Palestinian Schools. These activities also encouraged them to contribute to preserving the environment and identify different means of achieving this by clarifying environmental concepts and their integrated elements regarding wastewater.

Two main outcomes of this workshop were achieved:

A- More coordination between the Palestinian Water Authority and the Palestinian Universities.

B- Exchange of experience gathered under the SMART project through the participant's member from Karlsruhe University with the participants from the Palestinian Authority and Palestinian Universities and research centers.

### **1.2.6 Practical wastewater Training Activities Workshops in Germany**

Most of the practical wastewater training activities were performed as bilateral Capacity Development agreement in wastewater sector between an industry partner or research institute in Germany and the user of the technologies and methods from the region. The following training events were conducted in Germany as well as in the partner countries.

- The design and the implementation of a monitoring program.
- On-site analytical methods at the SMART Research and Demonstration Site in Fuheis.
- Operation of wastewater treatment plants in Germany and Jordan.
- Installation and maintenance of wastewater treatment plants.
- Operation of analytical laboratory equipment and analysis of results.

### **1.3 Conclusion and Recommendation**

Capacity development in general is a very important tool in every Water and Environment project. Workshops and training courses are very useful tools in the capacity building activities. These activities require flexibility, time, trained staff that knows how to cooperatively engage in multilateral and intercultural work contexts. To achieve long-lasting outcomes, some recommendations are made below. These recommendations are based on targeted observations during the technical workshops in the region:

- Well preparation of the workshop to fit with the need of the participants in the region
- Exchange informations with participants from the region before starting the workshop to explore their need.
- Visit to demonstration technical site like Fuhis by Amman in Jordan to inform the participants on dezentralised wastewater treatment small systems and other water technologies
- Visit to all other treatment of brackish water in Al-Karameh, Jordan to inform the participants on using treated brackish water for agriculture purposes